Infor XA – PDM*Plus* Concepts Guide

To the reader

This book contains the information you need to understand this application. The information in this book applies only to XA.

- Chapter 1 "PDM*Plus*" introduces PDM*Plus* and explains the objects and standard features.
- Chapter 2 "Single and Mass Maintenance " introduces the powerful maintenance functions of the client/server architecture in PDM*Plus*.

For information on standard features of the XA client/server applications, such as navigation, and information on customizing application objects, see the Infor ERP XA Browser Concepts Guide.

For a complete list of the books in the XA library, see the bibliography included on the XA documentation CD.

Before you begin

Complete the following training if you do not have equivalent knowledge:

- System i education for the basic operating concepts of the System i.
- Education on how to use a Windows application.

What this book contains

This book contains information about the design of PDM*Plus*.

Summary of changes

- Chapter 3 "Standard Features" and Chapter 4 "Customizing" have been removed. The information contained in those chapters is now found in the <u>Infor ERP XA Browser Concepts Guide</u>.
- Chapter 1 contains introductory information on standard features. This information has been updated to include the Transaction Status and Maintenance Classes objects.

Contents

Introduction

PDM*Plus*, a XA client/server application, acts as a front end to Production Data Management (PDM). PDM remains the working engine, while PDM*Plus* provides navigation and customization features that make it easy to access and work with items, bills of material, facilities and routings in the PDM information base.

PDM information on the System i is organized into separate menu options that mirror the master file structure. The inquiry and maintenance functions are separate "corridors" from the main menu. You view and work with information by selecting menu options one at a time from successive menus. This is much like opening one door after another along a narrow corridor. To view or work with related information that is stored in a different file, you must back out of one corridor and enter another by pressing function keys to end jobs and exit to a higher level menu. Then you must select another menu and successive options.

PDM*Plus* operates much more like a room with information arranged on open shelves easily viewed from the same vantage point. You can work with information from all areas — items, bills of material, facilities, and routings at the same time — defining items, products, and processes at the same time. When you need to, you can choose different combinations of information to support different tasks.

The PDM Inquiry function is handled in PDM*Plus* by the **Display** menu on the menu bar. You can use PDM*Plus* to inquire into product information, including:
- Items and bills of material
- Routings and production facilities
- Item balances
- Warehouses and warehouses where-used.

The PDM Maintenance function is handled in PDM*Plus* by the **Maintain** menu on the menu bar. The **Maintain** menu and the toolbar with single click buttons for **Create**, **Change**, **Delete**, and **Copy** on every window means that no matter what information you are viewing, you can maintain it without having to close an inquiry function and open a file maintenance function.

You can use PDM*Plus* to maintain individual objects, including:
- Items and bills of material
- Routings
- Item balances.

PDM*Plus* objects

PDM*Plus* provides five application objects for working with item information.
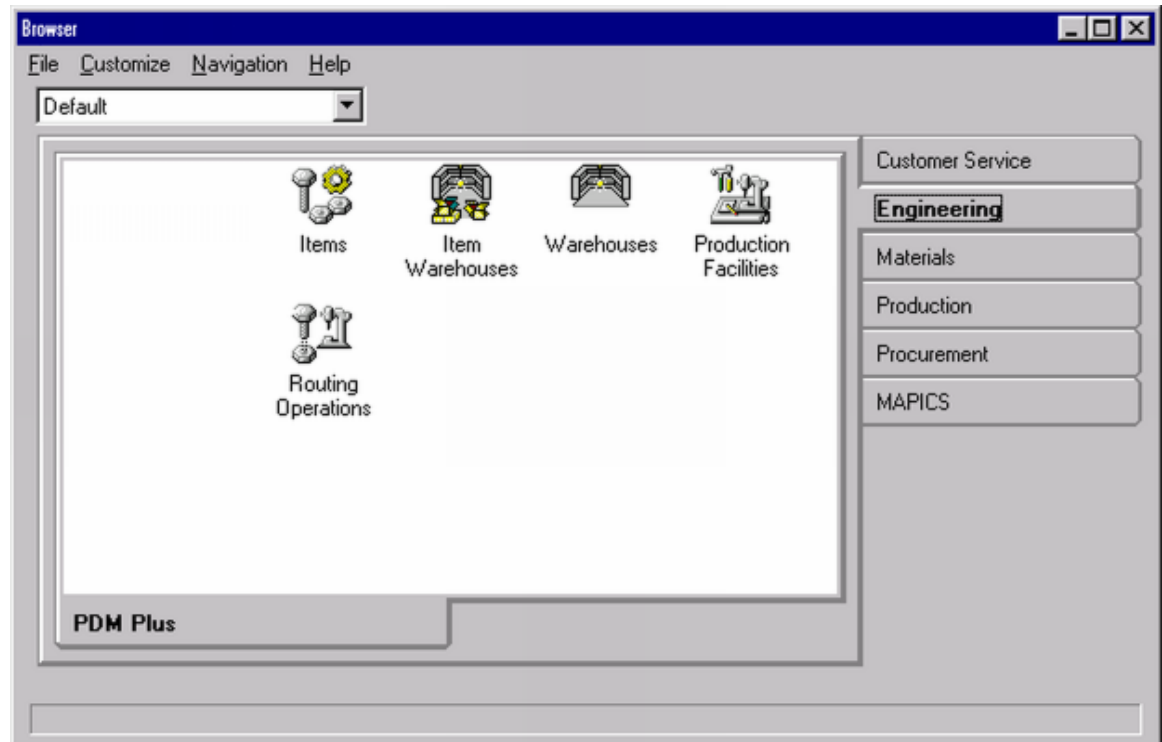
To explore the open, no-boundaries design of PDM*Plus*, select each of the objects. You can view the information available for each object and display related information in other objects. You can have many windows of information for many objects open at the same time on your workstation desktop.

You can also use the client/server architecture to save time:
- Copy an operation from one routing to another.
- Drag and drop one component in a bill of material to another bill.
- Use a split display to add or remove items.

Items

Select any item in the PDM*Plus* Items list window and double-click to see the Default card file. This illustration shows the card file interface for an item. The Current Costs and many other categories of information are available with one click of the mouse.
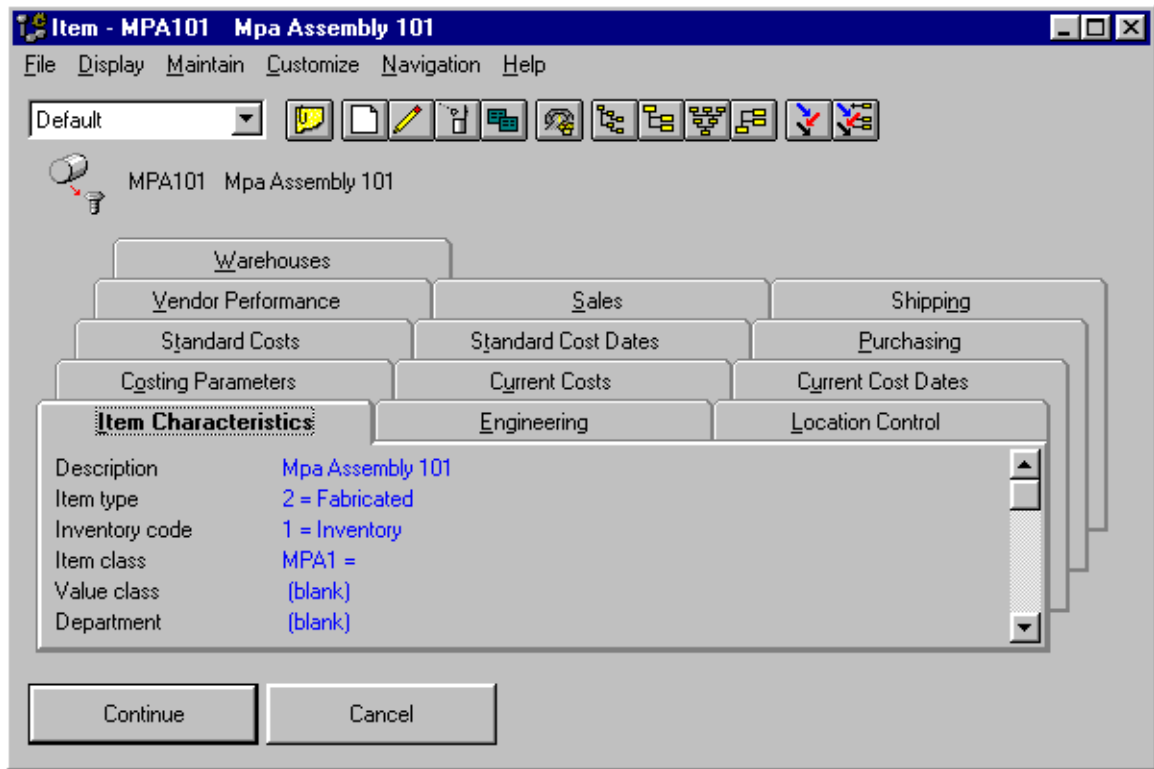
This Default card file is delivered with PDM*Plus*, but it is only one of many card files that you can create for Items. You can create specialized card files that organize item information you need to view and work with. When you define a new card file, PDM*Plus* adds the name of the card file to the drop-down list at the upper left corner of the card file window. See the Infor ERP XA Browser Concepts Guide for more information about creating cards and card files.

As you are viewing a list of items, you can select one and see information about other objects associated with that item, including routings, processes, contracts, and purchase orders.

You can select a subset of purchased items, choose one, and select Item Warehouses from the **Display** menu to see where the item is located.

An Item Warehouse window for the selected object is displayed.
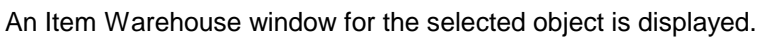
Warehouses special card

The Item object has a special card that shows all the warehouses with those where the item is currently stocked highlighted. You can add an item warehouse record from this special card.

Item warehouses

PDM*Plus* delivers the Item Warehouses Default card file with the cards pictured here. These cards are designed to let you see at a glance information about the item warehouse you selected.

Warehouses

The Warehouse object is available for inquiry only. You cannot maintain warehouse information from PDM*Plus*. The Default card file for Warehouses consists of the general card pictured here.

```
Warehouse - MPA   Mpa Master Balance Records                    _ □ ×
File  Display  Maintain  Customize  Navigation  Help
Default           ▼

      MPA   Mpa Master Balance Records

    ┌─General─────────┐  ┌─────Accounting──────┐
    Description                Mpa Master Balance Records
    Warehouse type             Uncontrolled
    Site                        (blank)       [66]
    Selling warehouse          Yes
    Planning warehouse         Yes
    Primary planning warehouse MPA
    Shipping calendar          01
    Production calendar        TEST1          [66]
    Receiving calendar          (blank)       [66]
    Pick/ship complete         Confirm detail
    Backflush code             Adjusted
    Default staging location    (blank)
    Plan expected customer orders  0 = Do not plan expected customer orders

    [  Continue  ]     [  Cancel  ]
```
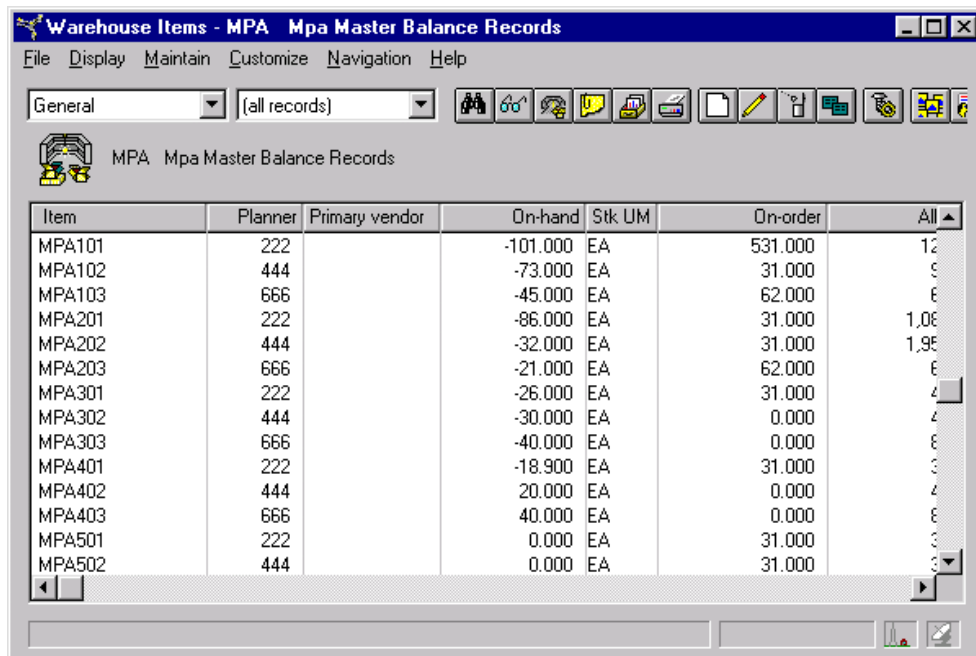
The **Display** menu allows you to see the relevant information for a warehouse: Warehouse items and Warehouse Ship-tos that are designated as shipping destinations. This illustration shows the Warehouse Items window available from the **Display** menu on the Warehouses list window.

Item	Planner	Primary vendor	On-hand	Stk UM	On-order	All
MPA101	222		-101.000	EA	531.000	12
MPA102	444		-73.000	EA	31.000	9
MPA103	666		-45.000	EA	62.000	8
MPA201	222		-86.000	EA	31.000	1,08
MPA202	444		-32.000	EA	31.000	1,95
MPA203	666		-21.000	EA	62.000	8
MPA301	222		-26.000	EA	31.000	4
MPA302	444		-30.000	EA	0.000	4
MPA303	666		-40.000	EA	0.000	8
MPA401	222		-18.900	EA	31.000	3
MPA402	444		20.000	EA	0.000	4
MPA403	666		40.000	EA	0.000	8
MPA501	222		0.000	EA	31.000	3
MPA502	444		0.000	EA	31.000	3

Production facilities

Production Facilities has a Default card file, pictured here with the General card highlighted.

```
Production Facility - IN050   Loading Dock              _ □ ×

File   Display   Maintain   Customize   Navigation   Help

Default              ▼    [🗋][🖨][🗋][✏][🗓][🖿][🔧]

     IN050   Loading Dock

┌────────────────────┬────────────────────┬────────────────────┐
│   Current Rates    │   Standard Rates   │  Cur and Std Rates │
├──────────────┬─────┴──────────┬─────────┴──────────────┐     │
│   General    │  Other Fields  │  Shifts and Capacity   │     │
├──────────────┴────────────────┴────────────────────────┤     │
│  Department        DP45                                 │     │
│  Foreman           JKH                                  │     │
│  Labor resource     (blank)                             │     │
│  Machine resource   (blank)                             │     │
│  Accounting class  LAB                                  │     │
│  Facility type      = Work center                       │     │
│  Facility location ATL                                  │     │
│  Site               (blank)                             │     │
│                                                         │     │
└─────────────────────────────────────────────────────────┘     │

   ┌──────────────┐        ┌──────────────┐
   │   Continue   │        │    Cancel    │
   └──────────────┘        └──────────────┘
```

From the **Display** menu on the Production Facilities Card File window, you can see and work with many related objects, including a Where-Used display for a selected production facility.

This illustration shows the window you see when you select the **Display** menu and **Production Facility Where-Used** option.

Item	Oper	Description	Desc's	Setup	Crew	TBC	Run	Run labor	Status
A3	0010	Cut	0	0.50	1	1	1.00	1.00	10
A3	0020	Drill	0	0.00	1	1	1.00	1.00	10

CWKC1   Work Center 1 For Line C

Production Facility Where-Used

File   Display   Maintain   Customize   Navigation   Help

General   (all records)
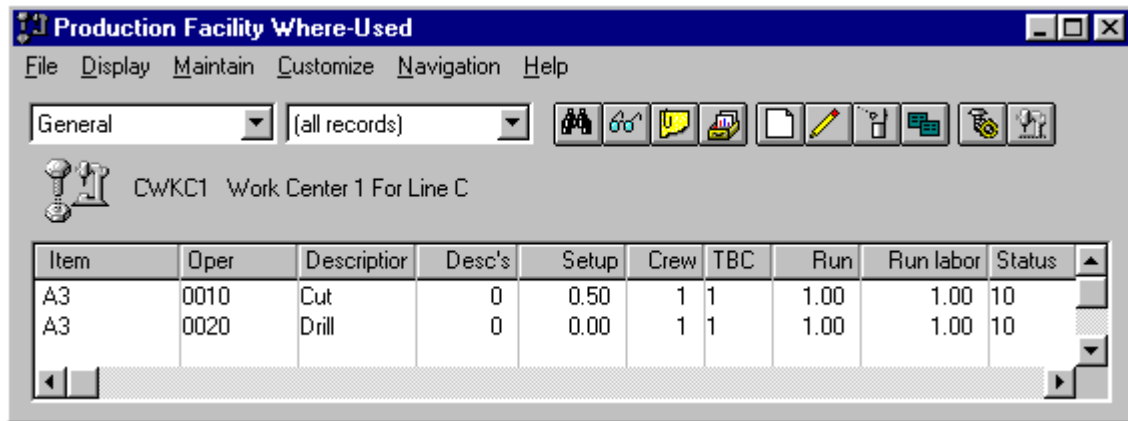
⚙️ Routing operations

The Default card file for Routing Operations gives both general and detail information about a routing operation.

```
┌─────────────────────────────────────────────────────────────────────────┐
│ ⚙️ Routing Operation - ABC.0089                              _ □ ✕       │
├─────────────────────────────────────────────────────────────────────────┤
│ File  Display  Maintain  Customize  Navigation  Help                     │
│                                                                          │
│ ┌Default        ▼┐  [📄][📑][🗝][🏛][📄][✏️][🔧][📊]                      │
│                                                                          │
│ ⚙️  ABC   Arent Item    0089  Shear                                      │
│                                                                          │
│         ┌─Other Fields───────┐                                          │
│     ┌─Facility─────────┐ ┌──General──────┐ ┌─Additional Description─┐    │
│     │ Production facility      AS099                                │    │
│     │ Description              Final Assembly                       │    │
│     │ Facility type           = Work center                        │    │
│     │ Production facility location  R1528                           │    │
│     │ Department              ASSY                                  │    │
│     │ Foreman                 RAL                                   │    │
│     │ Labor resource          00001                                │    │
│     │ Machine resource        (blank)                              │    │
│     │ Accounting class        (blank)                              │    │
│     └──────────────────────────────────────────────────────────────┘    │
│                                                                          │
│     ┌──Continue──┐   ┌──Cancel──┐                                       │
│     └────────────┘   └──────────┘                                       │
└─────────────────────────────────────────────────────────────────────────┘
```
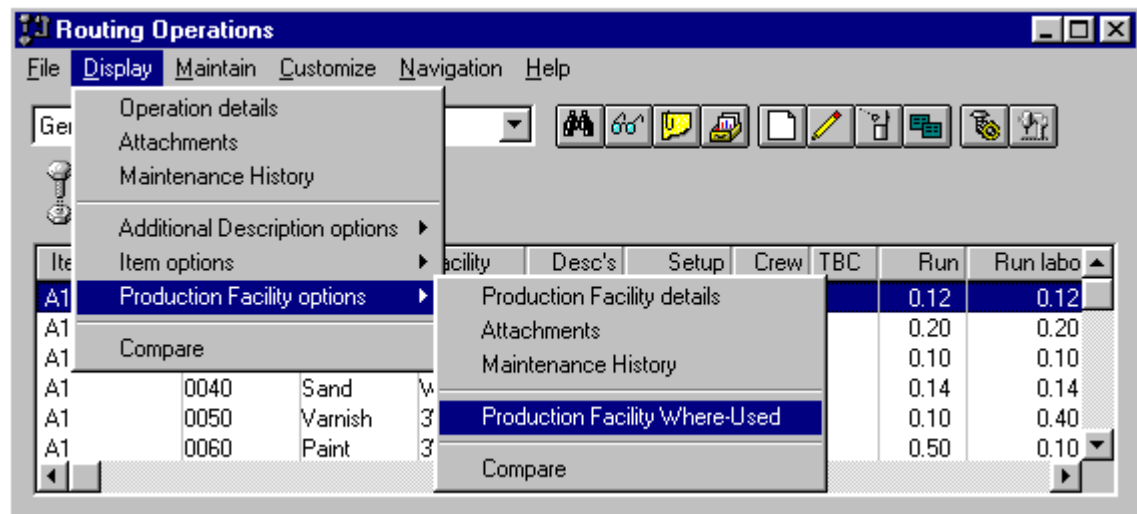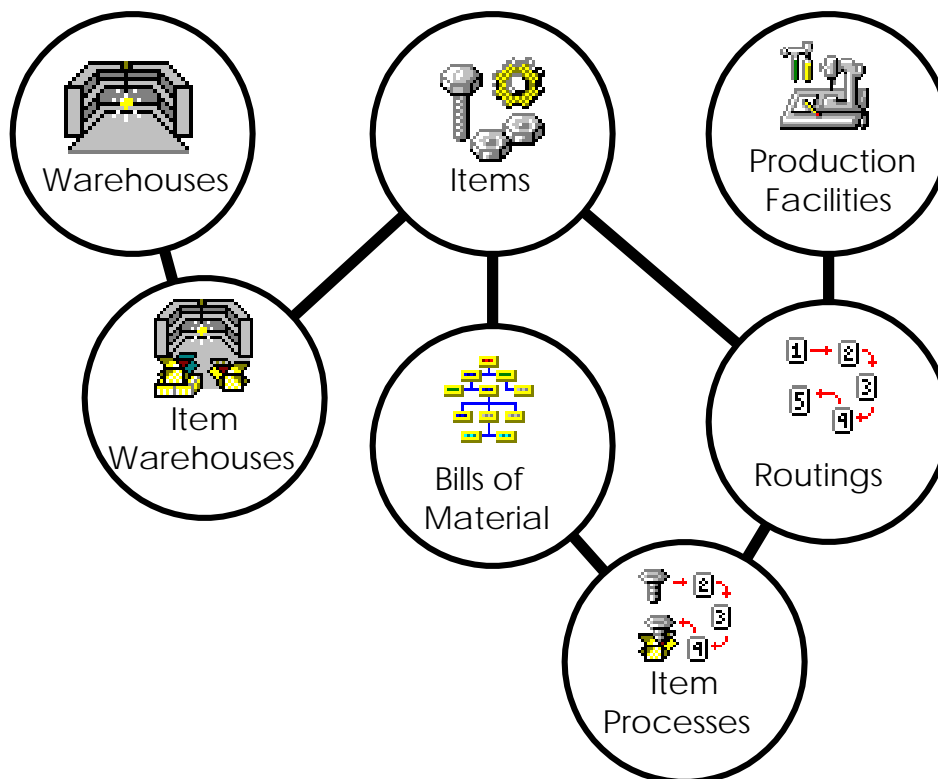
From the **Display** menu on the Routing Operations Card File window, you can access more detailed information about production facilities that are part of a selected routing operation.

Object relationships

PDM*Plus* lets you do inquiries and maintenance for objects in the XA database. This illustration shows the basic objects and how they are related.

From Warehouses, you can see a list of items in a selected warehouse.

From Items, you can see the item balance records that are in Item Warehouses, as well as the bills of material, routings, and item processes.

From Item Warehouse, you can see the item balances.

File relationships

The object relationships are mirrored in the master file relationships. This diagram illustrates the file relationships that exist in PDM*Plus*.
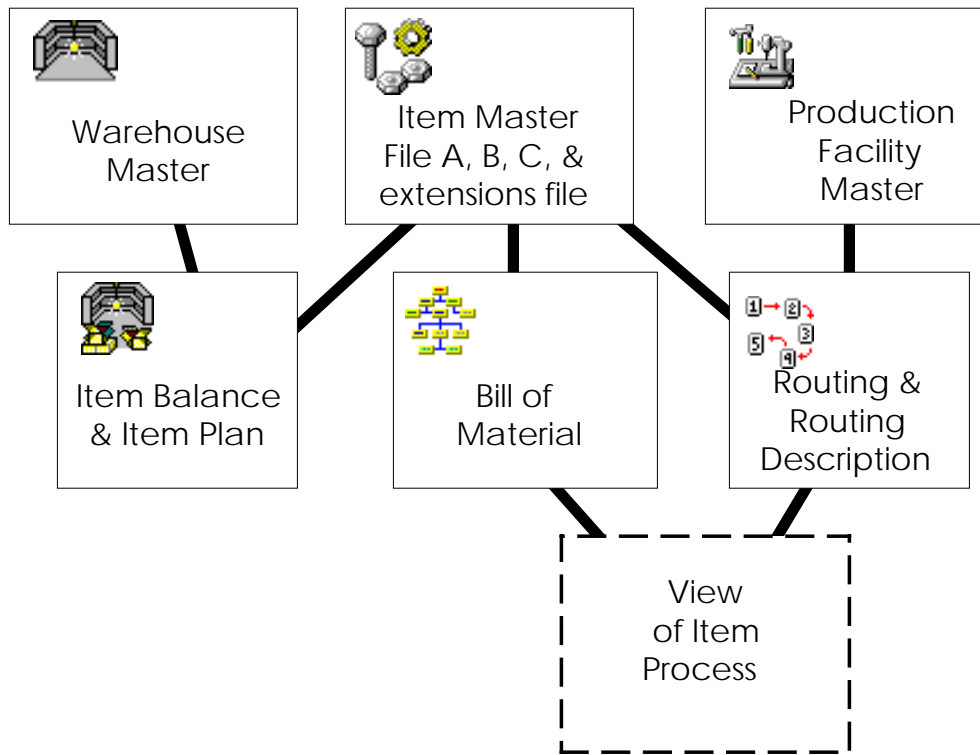
The three master files, Warehouse, Item, and Production Facility, contain the same information that they have always stored for Production Data Management. The Item Master is made up of four distinct files: A, B, C, and an extensions file (MBB2CPP).

The Item Warehouse object contains two files: Item Balance and Item Plan.

Routing descriptions have been expanded in PDM*Plus* so the Routing Operations object stores any relevant description you want to make immediately available from either the Routing Operations object or the Bills of Material object.

Standard features

XA Client Server architecture affords the PDM*Plus* user these standard functions:

- Transaction Status
    - Maintenance History
    - Maintenance Reason Tracking
    - Attachments
    - Navigation History and Navigation Bookmarks
    - Maintenance Classes
    - Error Notification.

See the Infor ERP XA Browser Concepts Guide for more information about each of these PDM*Plus* features.

Transaction status

The Transaction Status function allows users to check on record creation and maintenance. The transaction status can be: pending; in process; complete; complete with errors; and, complete with warnings.

Maintenance history

PDM*Plus* uses maintenance history that is available through the XA client/server architecture to track changes made to facility and routing operation records. The Maintenance history is often helpful with ISO 9000 certification requirements since the reports can be used to monitor processing.

When maintenance history is active, PDM*Plus* maintains a comprehensive log of all transactions during file maintenance. You can view this transaction history file by site, object file name, and user ID of the person who made the changes. You can also define reason codes for transactions to add information to the history file.

Maintenance reason tracking

PDM*Plus* also gives you the option of reason tracking that is available when you have turned on maintenance tracking. You can set up reason codes associated with specific maintenance so that PDM*Plus* can track these changes in a history file. When you create reason codes, you can retrieve maintenance activity by reason code, user ID, date, and changed field.

Attachments

PDM*Plus* allows you to attach many kinds of media files to an individual record or globally to all objects. You can attach illustrations, documents, graphs, spreadsheets, and even links to the World Wide Web. These attachments are available immediately from the **Display** menu or the **Attachments** button in the toolbar. Attached executable files or programs can then be opened from within PDM*Plus*.

Attach any desktop file and application with an application business object. These media files can be attached in two manners:

- *Global:* You can attach a media file to all the objects (for example, attach the same CAD drawing to all the site objects).
- *Specific:* You can attach a media file to just one object (for example, attach a CAD drawing to an item revision object).

Some other types of desktop files that can be attached to objects are:

- Presentations
- Faxed images or optically stored documents
- CD-ROM objects
- Internet web pages
- Customer service notes.

Navigation history and bookmarks

PDM*Plus* maintains a Navigation History that keeps track of and displays all the windows you use in a session with the most recently used window at the top of the list. The Navigation History also lets you see, at a glance, if the window is still active and available to be selected.

You can create bookmarks that are saved from session to session and are a fast path to the windows where you placed the bookmarks. The bookmarks you create are stored so that each time you use PDM*Plus*, you can quickly view and select from a list of those windows you most frequently use.

Maintenance classes

PDM*Plus* allows you to use Maintenance Classes to activate maintenance history and reason tracking for specific types or classes of transactions. For each PDM*Plus* object, you choose whether maintenance transactions will be saved in a history file and whether a reason code must be entered to perform maintenance.

Error notification

PDM*Plus* communicates with you during maintenance by creating an error card to display errors when they occur during file maintenance transactions. For those errors that affect more than one transaction, you can double-click to display the second level of error message details.

Chapter 2 Single and Mass Maintenance

Introduction

The inquiry functions of PDM are made more accessible and more flexible with the client/server interface of PDM*Plus*. You can see information for many different objects at the same time. The maintenance functions are also more efficient and faster with PDM*Plus*.

Both individual, single record maintenance and many options for mass replace, mass delete, and mass change make PDM*Plus* maintenance easier to do. Special mass maintenance is performed for Items and associated Bills of Material, Production Facilities, and Routing Operations.

You can also work with all four objects, items, bills of material, routings, and facilities, when you perform mass maintenance on the item process object.

When you work with item processes you can view information that mirrors the manufacturing model: parent items and components paired with the routing operations and associated facilities used to manufacture the end item.

PDM*Plus* Maintenance

PDMPlus has options for both single record maintenance and mass maintenance with time-saving features to minimize data entry.

Single Record

PDMPlus offers add, change, and delete maintenance of single records for:
- Items
- Item Warehouses
- Routings
- Bills of Material
- Item Processes
- Production Facilities.

You can add a single record by these methods:
- ▢ **Create** button and template-driven options
- ▦ **Copy** button and copy dialogue
- Drag and drop from object to object.

Use the **Change** button ✎ to make changes to a selected record .

Use the **Delete** button 🗑 to delete a selected record from the database. PDM*Plus* checks the relationships between records and does not allow you to delete records that are linked to others. For example, a routing that is part of item processes cannot be deleted.

Creating a new record

You can create a new record easily with PDM*Plus*. Using a template that is a set of default values common to an object saves time. You can use the default template as it is delivered, modify it, or add your own template by selecting from available attributes. You need not have already created a template to begin adding a record. On the dialogue, you can select the **Templates…** button to define or modify a template. When the template is complete, you can apply it to the new record you are creating.

Copying a record

Copying a record is a quick way to create a new record with data from an existing record. You must, of course, give a new ID to the record and can make any additional changes you want to, but PDM*Plus* copies the existing record to the new record and displays the new record in the list window for the object. You get instant feedback that the record is added to the database.

Adding a record with drag and drop

PDM*Plus* maximizes the convenience of the graphical window interface by allowing you to display two records, side by side, in two windows, and then click on a record in one window, drag it and drop it to the other window.

As when you use the copy function, PDM*Plus*
- Prompts for additional information
- Allows you to preview and change information if necessary
- Updates the master file by adding the record.

The following table shows drag-and-drop actions you can perform in PDM*Plus*.

Source	Target	Action	Default	Precondition
Item	Item	Create Component setting Source as Component and Target as Parent Component Item from Source Parent Item from Target	Yes	Item must be an inventory item and must not be an end item with features.
		Copy Source Bill of Material to Target BOM from Source Item from Target	No	Source has a Bill of Material
		Copy Source Routing to Target Routing from Source Item from Target	No	Source has a Routing
Component	Item	Copy Component to Item Component from Component Parent Item from Item	Yes	None
		Copy Bill of Material to Item BOM from Source Item from Target	Yes	Component Item has a Bill of Material
Facility	Item	Create Operation for Item Item from Item Facility from Facility	Yes	None
Operation	Item	Copy Operation to Item Operation from Operation	Yes	None

Source	Target	Action	Default	Precondition
		Item from Item		
Item	Warehouse	Create Item Warehouse Item from Item Warehouse from Warehouse	Yes	None
Item Process	Warehouse	Create Item Warehouse Item from Item Process Item Revision Warehouse from Warehouse	Yes	Item Process has a Bill of Material

If Procurement Management (PM) is installed, you can perform the following action.

Source	Target	Action	Default	Precondition
Operation (PDM*Plus*)	Purchase Order Item (PM)	Create Purchase Order Item Receiving Operation Operation from Operation	Yes	Purchase Order Item Purchase Order is not Closed, Cancelled, Complete, or Received Complete.

Mass maintenance

In addition to single record maintenance, PDM*Plus* offers mass maintenance so that you can update many records at one time. Mass maintenance makes changes to records at the field value level, and replaces or changes the same field values for each record. PDM*Plus* works with the subset of the records that is displayed at the time you choose a mass change function. If no subset is selected, PDM*Plus* displays a message requesting that you confirm that you want to make the change to all records.

PDM*Plus* offers mass maintenance for these objects:
- Items
- Item Warehouses
- Routings
- Bills of Material
- Item Processes
- Production Facilities.

This illustration shows the functional flow during mass maintenance and the status of the mass maintenance update during the process from update to refresh.

Mass Maintenance Flow

1 Mass Maintenance transaction sends changes to server.

IBM PS/2

3 Refresh at workstation to see changes to data files.

2 Data Files are updated.

Status of update
Pending
In Process
Complete with errors
Complete without errors

Data
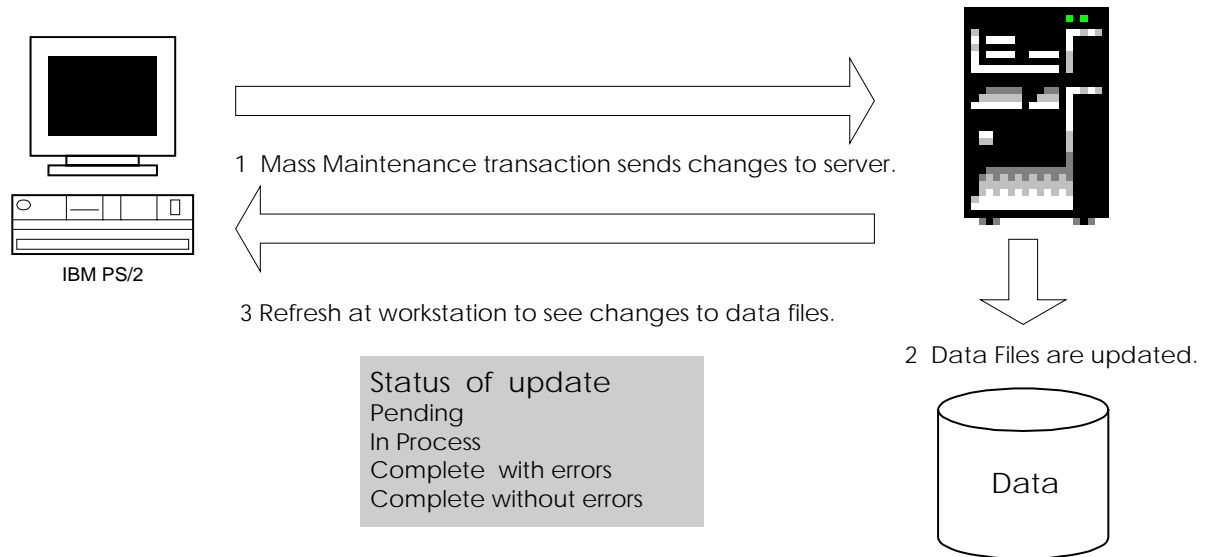
When you update information through a mass maintenance option on the client, it is sent to the server. The old information is displayed on the client temporarily and you are free to do other work with the client. In the background, the client sends a transaction summary to the server and the server responds by creating the necessary change transactions. These transactions are then processed by Product Data Management and Inventory Management on the server. The status of the original mass maintenance request is updated in real-time on the client and progresses through pending and in process to complete. When the status is complete, it can be complete with or without errors.

You can use the Transaction Status object in the XA browser to view the transactions and see the detail level. When a transaction is complete with errors, you can see the detail level of the transaction and the errors that resulted.

Defining a mass maintenance request

When you want to do mass maintenance for item warehouses, bills of material, or routings, you should first create a subset that contains just those records that you want to change. The subset groups only those records that you want to maintain. Once you have a subset displayed, select the **Maintain** menu and the **Mass Change** command.

To create the mass maintenance request, select the fields that you want to change and define how they are to be changed with the Replace options, including adjustments to alpha and numeric fields. Finally, double-check your replace values, and when you are sure they are correct, select **Update**.

To title the job, you enter a name for the mass change request that you can easily view in the list window of the Transaction Status object. This illustration shows a title of Sanding time change for the Transaction description.
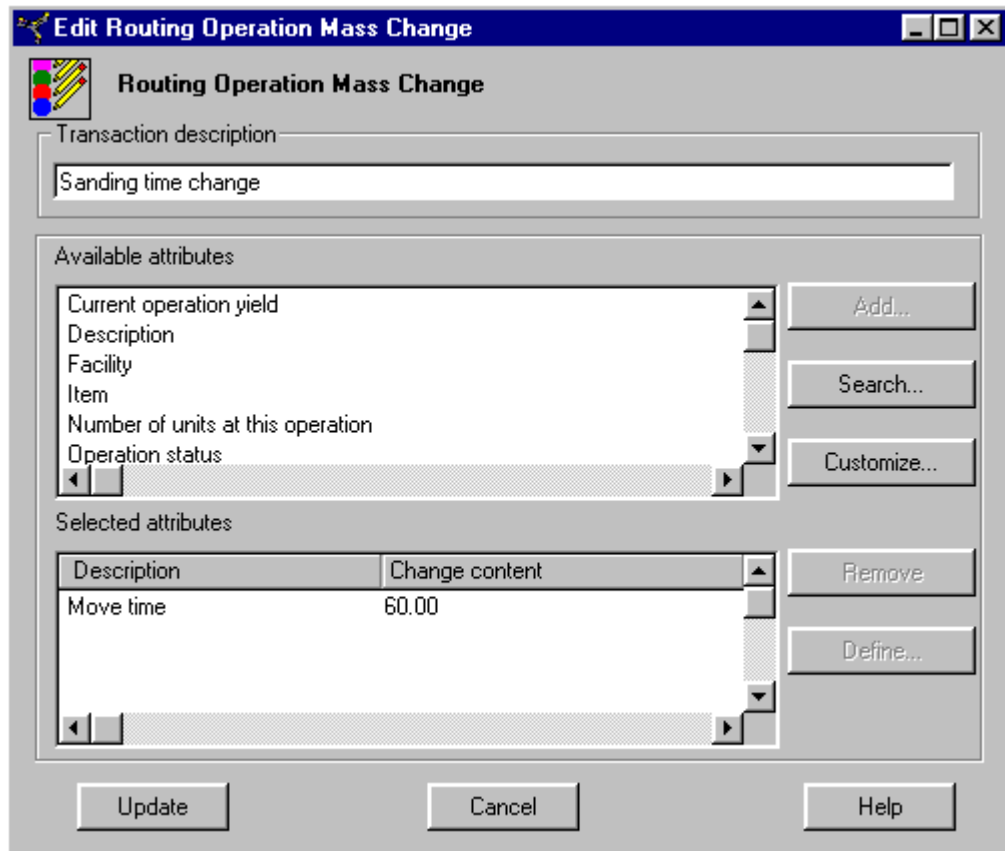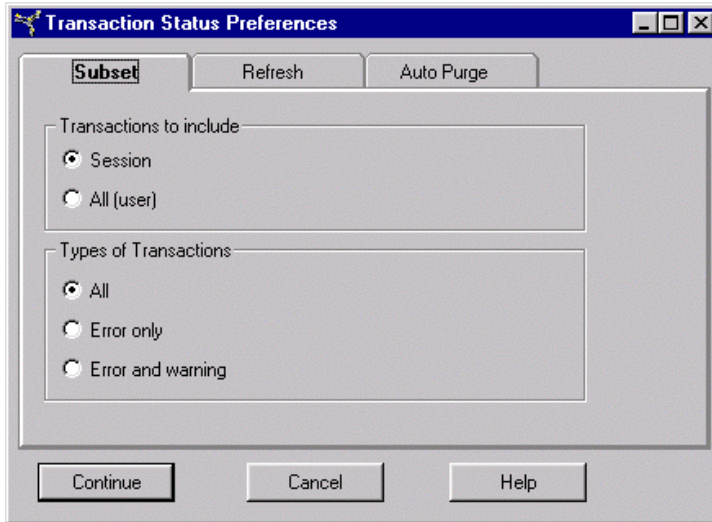
Choosing transaction status notification

You can use the Transaction Status object in the XA browser to check on maintenance transactions that have been sent in a batch to the server. You can view lower level transaction detail for troubleshooting information.

You can choose the types of transactions you want to view by selecting options on the **Customize** menu of the Transaction Status window.

Select Preferences and choose all transactions the transactions you want to review.

Transaction Status Preferences

Subset | Refresh | Auto Purge

Transactions to include
- ● Session
- ○ All (user)

Types of Transactions
- ● All
- ○ Error only
- ○ Error and warning

[Continue]　　[Cancel]　　[Help]

Maintenance architecture

PDM*Plus* tailors the timing of maintenance to suit the type of maintenance that you request. Real-time maintenance can be done quickly because the client can wait for the transaction to be completed on the server. It is performed for:
- Item Master
- Item Balance.

PDM*Plus* has two Item objects to display distinct information about an item: Items that display master file information about an item and Item Warehouses that show the item balance and item planning information. The Item Object card file has a warehouse card that links the item master and item balance information. When you update the item balance information, PDM*Plus* immediately displays the changes.

Background maintenance frees the client to do other work while the server is processing the maintenance transactions. Background maintenance is done for:
- Bills of material
- Routing.

When you update the bill of material or routing information, PDM*Plus* frees the client to do other work. When the transactions are complete on the server, you can refresh the client information and see the changes.

Levels of edit

Local edits occur on the client, while remote edits occur on the server. Real-time refers to the timing of an edit: when it is done immediately it is called real-time. An edit that is deferred while processing continues is not done immediately, but because of the required time to complete the edit, is done later.

Both real-time and background maintenance perform edits of the information before the maintenance transaction is cleared for processing. These edits are:
- Local Real-time edits
- Remote Real-time edits
- Remote Deferred edits.

Local real-time edits that occur on the client are:
- Specific field values such as item type and order policy code
- Data type and field length
- Existence so that you cannot create an item that already exists.

Remote real-time edits that occur on the server but can be done immediately and do not have to be deferred are:
- Cross-field validations such as item type and inventory flag
- Cross-file edits such as item class against the item class table.

Remote/Deferred edits that are time-consuming because of the complexity of the structures that must be checked are:
- Bill of material edits
- Transactions rejected by server.

Any rejected transactions are logged in a status file and the user who originated the transaction request is notified.

Mass delete

PDM*Plus* also offers a Mass Delete function that removes all product and process definitions including:
- Item
- Bill
- Routing
- Descriptions
- Balance record with balance.

Mass delete has controls to make sure that there are no links to the information you have selected to be deleted. The mass delete is completed only if there are no dependencies that prevent the item from being deleted from all parent structures. An item would not be deleted in a mass delete if any one or all of the following are true:
- Line item records exist.
- Release records exist.
- Purchase order item detail records exist.
- Location quantity records exist.

Items

Items are components, materials, purchased parts, finished goods, and any other type of object your company manufactures or sells to customers. Items are those things that you use, produce, cost, and stock. Changes to the item information can occur frequently and can be performed by other applications throughout the manufacturing process.

The basic item record is related to many other records. For manufactured items, items are the basis for engineering records such as bills of material and routings. Purchase orders and customer orders reference item records in the details of the orders.

A primary task for the Item object is Copy. You can copy:
- Item warehouse
- Bill of Material
- Routing.

The copied item has the item product information for the source item along with the item master information. For example, in a made-to-order manufacturing environment, the components and process are most often the same, but there are changes in sizes which can be easily implemented by copying the item.

Item types

As you work with the PDM*Plus* graphical presentation of items and bills, you can recognize the different types of items by different PDM*Plus* icons. The icon represents the type of item shown on the indented bill of material, indented where used, and item process.

	0 - Phantom		4 - Purchased item
	1 - Assembly or subassembly		9 - User option
	2 - Fabricated item		F - Feature
	3 - Raw material		K - Kit

![Item warehouses icon] **Item warehouses**

Items and Item Warehouses are two different "windows" on the enterprise item information base. The Items object displays the basic information that is part of the Item Master file record for an item. Item Warehouses contains specific item balance data — how many are on hand — and information about the warehouse where an item is stored.

The Item Warehouses object contains one record for each unique item number assigned to a warehouse. Each record includes data for managing inventory, such as quantity on hand, quantity on order, historical usage, and lead time.

The Item Warehouses object contains the same records as the Item Balance file. For example, maintenance activities you perform in the Item Warehouses object have the same result as performing those activities using the IM Item Balance file maintenance option.

Item and Item warehouse maintenance considerations

Individual item warehouse information differs from location to location. For example, if Item A is located at Warehouse 1 in Atlanta and at Warehouse 2 in Boston, it may be purchased from two different vendors, Vendor ABC in Atlanta and Vendor XYZ in Boston. You can perform mass maintenance for item warehouses by creating a subset before you perform the maintenance. The subset takes into account the differences in item records from warehouse to warehouse.

You should choose Items or Item Warehouses to show you the level of information you want to view and change. If you want to work with all item warehouse records, regardless of item or warehouse, choose Item Warehouses. However, if you want to work with only warehouses that stock a particular item, start with the Items list window. To work with only items stocked in a particular warehouse, select the warehouse in the Warehouses object, then select the Warehouse Items option on the **Display** menu.

Item mass maintenance

From the Items object, you can do three different kinds of mass maintenance: one for a subset of items, using the Mass Change option, and two for an item as a component of a bill of material, using the Mass Replace Component and Mass Delete Component options.

Item Mass Change

PDM*Plus* expects to do mass maintenance on a subset of items. From the Items list window, you can create a subset of items and then select Mass Change from the **Maintain** menu. When the list window is not a subset and displays all records, PDM*Plus* displays a information message:

Information

The browser which this mass change request is based on does not contain a subset. If the mass change request is submitted, all records in the file will be updated.

[OK]
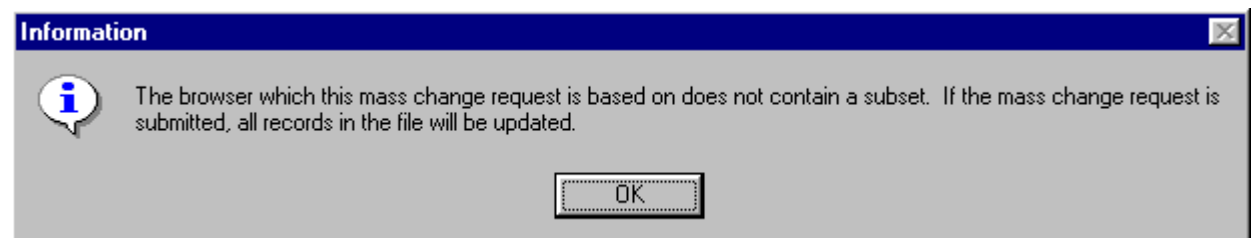
This illustration shows a mass change to the stock location for purchased parts.
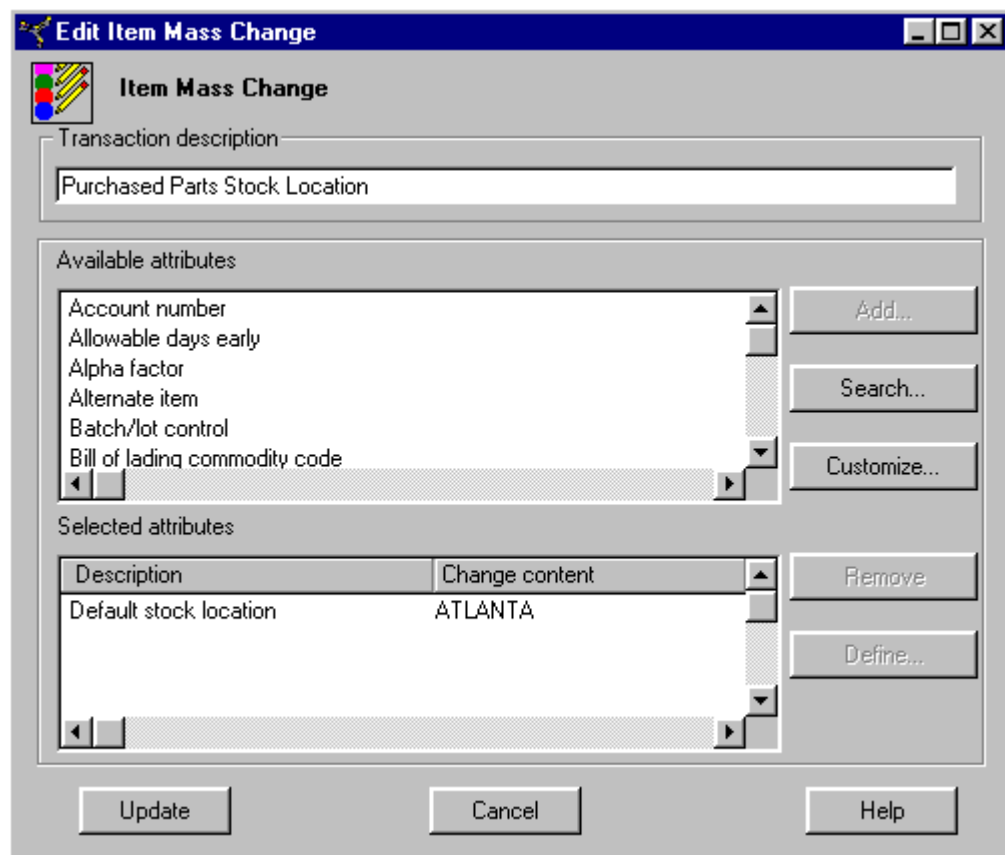

Item component mass maintenance

For those items that are components in bills of material, you can select an item and perform a Mass Replace Component or Mass Delete Component. These options are useful when a component part must be replaced with another item in many bills of material.

When the Replacement Item is selected, you can choose among the options:
- Replace only in selected assemblies
- Effective date
- Quantity per.

This illustration shows a Mass Replace Component dialog for the phantom assembly MPH102.
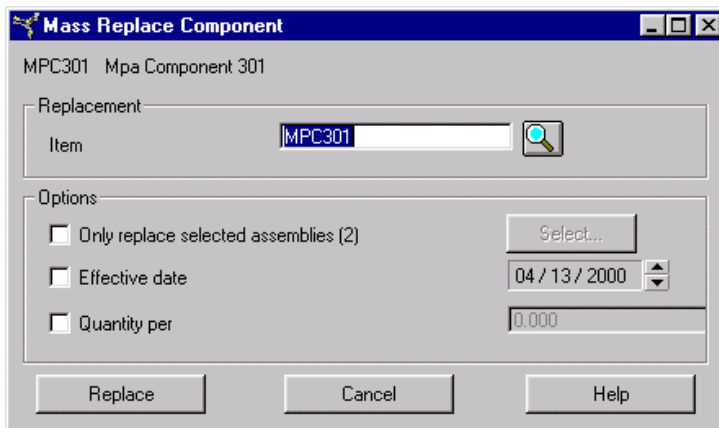
As you work with items in bills of material, you can also perform a mass delete of a component item from more than one BOM. After you select the item from the Item list window, you can choose the Mass Delete Component option from the **Maintain** menu.

This illustration shows the component mass delete window. You can choose from the options:
- Delete only in selected assemblies and select the assemblies.
- Effective date and supply the date.
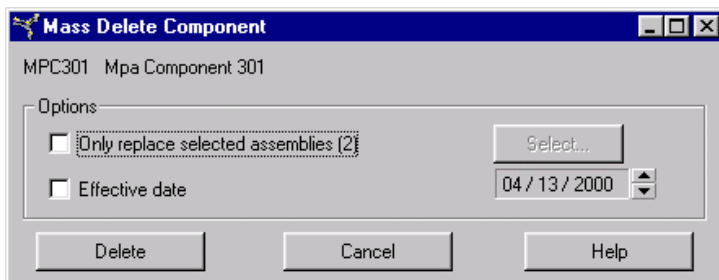
Clicking **Replace** and **Delete** sends the item replace and delete transactions for all affected bills to the server on the System i, where off-line file maintenance transactions are created, edited, and processed for each bill of material affected by the mass change.

Item warehouse mass maintenance

You can use the item warehouse mass change option to make a change to information across a population or subset of item warehouses. In this illustration, an item was selected from the Item list window and then a request for all item warehouses was made through the **Display** menu.

If you wanted to change the vendor for this item across all warehouses where the item is stocked, you would select Mass Change from the **Maintain** menu. This illustration shows the mass change dialog.
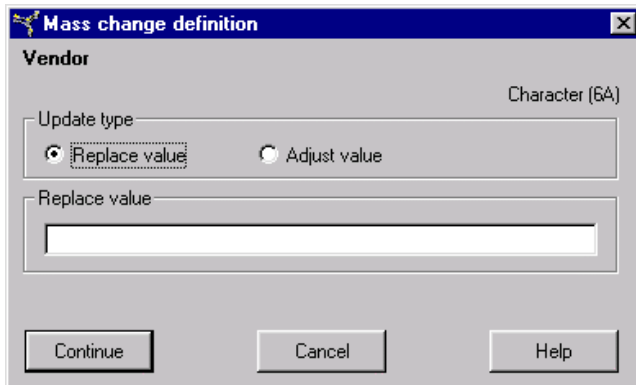
This illustration shows the mass change definition where you would enter the Replace value for the vendor.

When you press Continue and then Update, the transactions to replace the vendor the item with a new vendor are sent to the server. To check on the progress of the transactions, you can display the transactions for your user ID, and see the status of each transaction titled Mass Vendor Change.

Bills of Material

The Item object also links to bill of material information when items are part of larger bills. Through the Items object, you can display a bill of material and perform mass maintenance for all the components in a bill. This is a flexible way to view all components at the same time and make required changes to the bill without having to access each component item record one at a time.

Some of the most useful tasks that you can do for bills of material are:
- View all levels of the bill of material
- Mass replace and mass delete components of a bill of material.
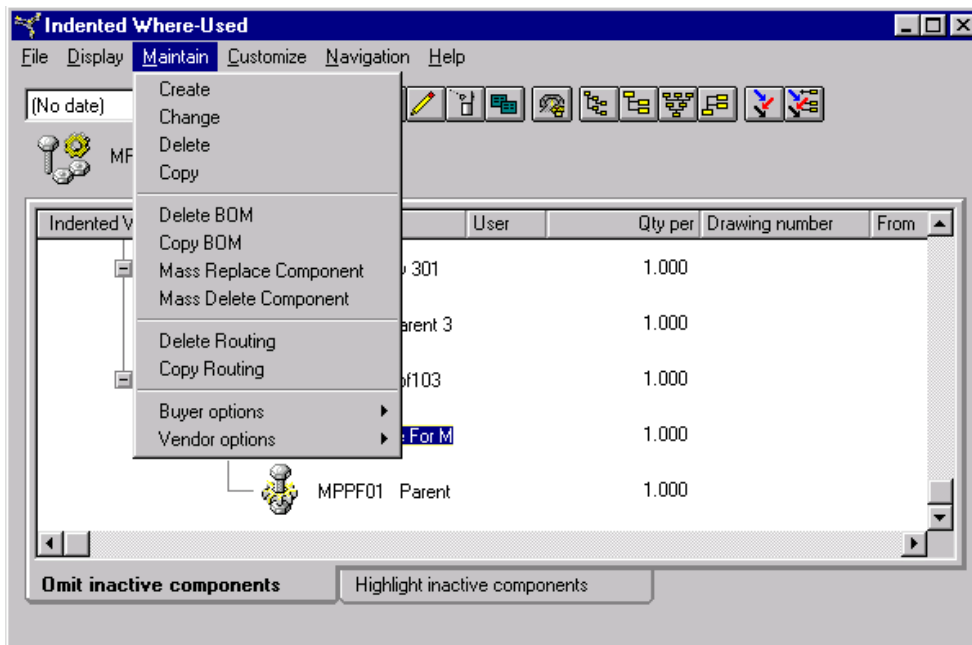
Component mass replace and mass delete

Mass replace and mass delete are time-savers. For example, you can replace the quantity of a component quickly in multiple bills of material. If a new, higher-quality glue requires less glue to bond, you can change the quantity of the laminate. Any time you are upgrading and replacing parts, you can create a subset of those bills that are affected, then use the **Mass replace** or **Mass delete** option from the **Maintain** menu.

You have the flexibility when you perform a mass replace to used effective dates that make a replacement effective as of a specific date. Thus you can keep a record of the replaced components and when they were replaced. This technique provides in a running history of changes to an assembly.

Production facilities

PDM*Plus* Production Facilities and Routing Operations are related to each other. Together they contain all the components that model the processes in a manufacturing environment. A facility can be an entire plant or one point among thirty others on an assembly line. A *facility* is a group of machines with similar characteristics that are used to perform a manufacturing process, such as an assembly area or milling machine center. A production facility can be defined as either a work center, production line, or work station.

Production Facility Where-Used

From Production Facility object list window, you can select a facility and the Where-Used option from the **Display** menu. The resulting list shows all routing operations that use this facility. It includes what parts go through that facility. This information is helpful if you need to change from one facility to another and you want to know what operations need to be changed.

Mass Maintenance for facilities

The **Maintain** menu for Production Facilities has a Mass Change command that can be used to make a change that affects many facilities. You might have a machine that is defined as a facility. Your environment uses four of these machines that are part of routings for the manufacture of various items. When you upgrade two of these machines, you might want to record a new efficiency rating for the new machines.

To replace the efficiency rating, you would start by displaying the two facilities you wanted to work with in the Production Facilities list window. Then you would select Mass Change from the **Maintain** menu.
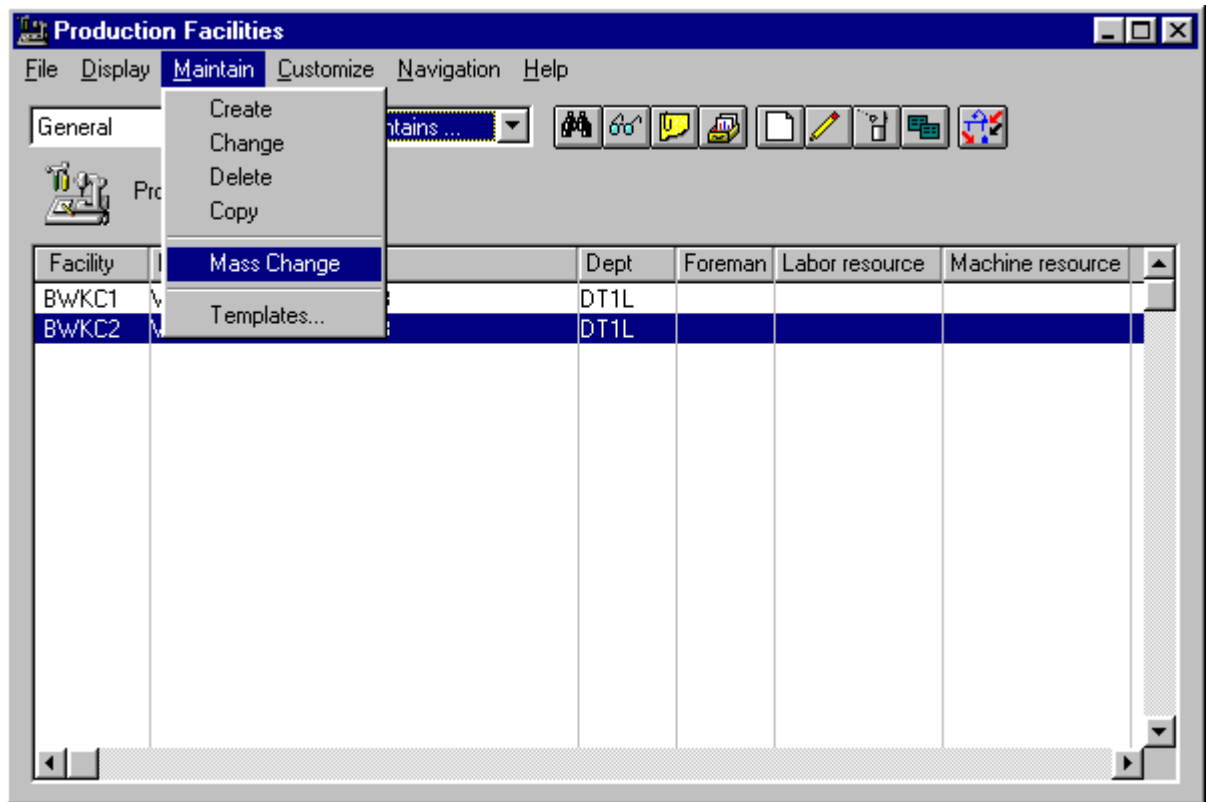
PDMPlus displays the Mass Change dialog window.

You can give a title to the mass change transaction and select the average efficiency and change it.

Routing operations

A *routing* describes the steps that you go through to manufacture a part or receive a purchased part. The routing must identify production facilities. It can have run machine, run labor, setup labor, and overhead standard hours associated with it. PDM*Plus* offers descriptive fields in the Routing Operations object where you can record and save important details and instructions for the operations performed during the routing of an item.

Mass Maintenance for routings

You can perform mass changes for the routing operations. From the Routing Operations list window, which contains all operations for all routings, you can change a facility across many routings. You can create a subset of all operations that go to a particular facility and route them to a different facility or create a new production line.

You might have more specific changes to a routing process and can save time by making the change once and letting PDM*Plus* apply it to a subset of routings for all assemblies where the routing is used. You might have a routing operation called "Brackets" that describes the application of brackets to many assemblies. You might decide to strengthen the assembly by applying lock washers to all the bolts in the brackets. After you create a new process sheet that describes this change, you can make a mass change to all the assemblies that use the bracketing operation.
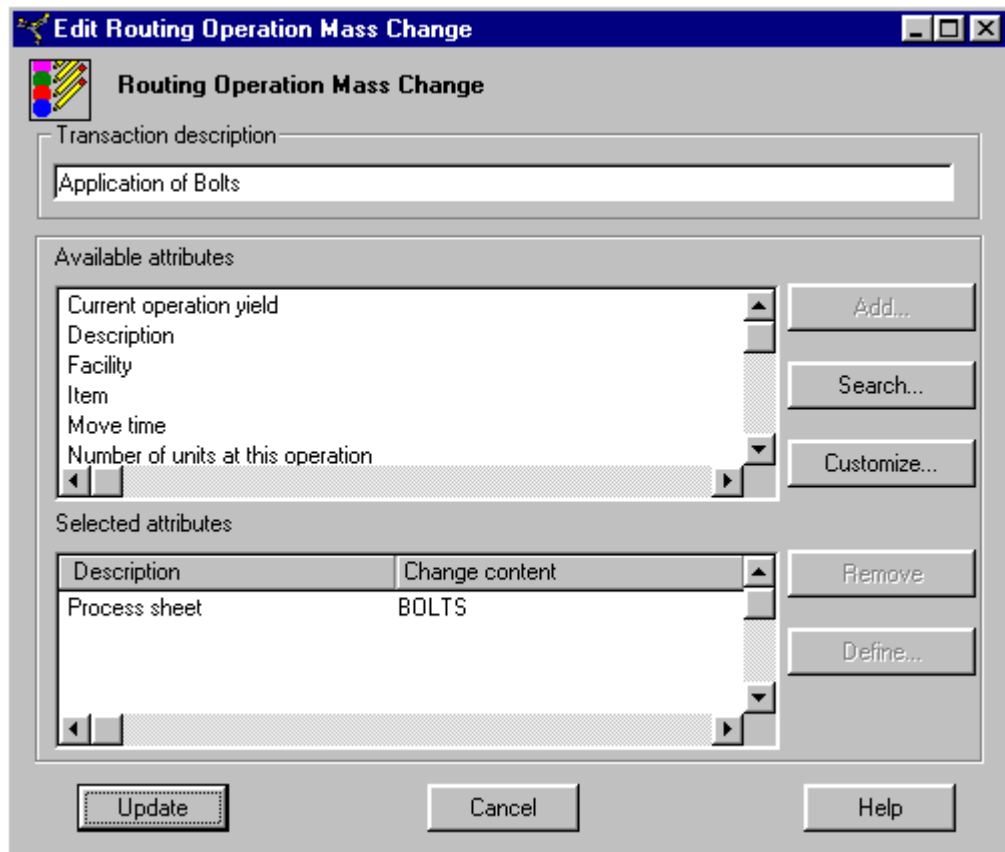
Item Processes

Item Processes combine all the PDM*Plus* objects for which you can perform mass maintenance. From the Item Process window, there are options to maintain:

- Item
- Item Warehouse
- Routing
- Bill of Material.

When you select an item and view the item process associated with it, you can select an operation and the Create option. PDM*Plus* assumes you want to add an operation. The Change option works in the same way: when you select a component in the item process and the Change option, PDM*Plus* assumes you want to change that component. You can also create a new item from this window.

Working with the item process

When you are viewing the Item Process window, you can drag a component to another open item.

You get immediate visual feedback of the maintenance that you are performing by dragging and dropping the objects.
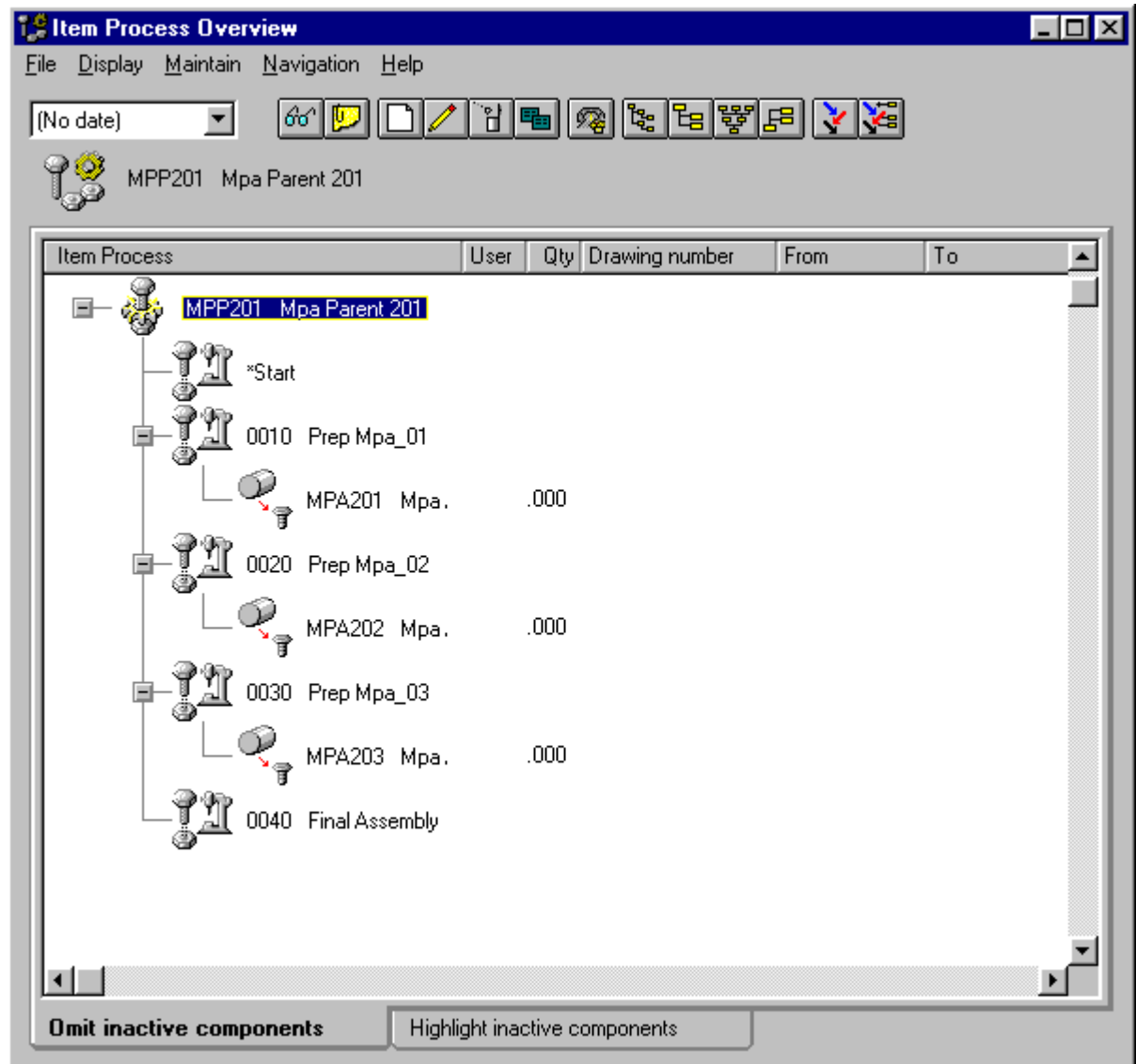
Glossary

bill of material A list of raw materials or components and the quantities needed to make an item, assembly, or end product.

card A grouping in a set of related information about an object.

card file A set of related information about an object. Each set contains groupings of related information, shown as a stack of tabbed index cards. Each group is a card.

control file A file with options chosen at installation that controls the way XA applications relate to each other.

fit Characteristic that allows an item to connect to or become an integral part of another item.

form The configuration of an item such as shape, size, density, weight, or other physical properties that identify the item.

function The use or performance of an item.

item Any raw material, manufactured or purchased part, subassembly, assembly, or end item.

list windows A window that contains a list of objects, such as a list of items or a list of warehouses, with multiple columns of information per object.

preferences Identifies the choices you can make for which view, subset, sort, card file, or template you want to use with the current object: the last one you used, the default, or one you select from a drop-down list.

routing A sequence of operations required to make a manufactured item.

sort A method of identifying the order the information about objects will appear in the list window. Sorts can be ascending or descending. A sort has its own unique name and can be public or private.

subset   A method of narrowing a list of objects to a smaller list in the list window. A subset has its own unique name and can be public or private

templates   A template is used to create a new object with a set of defaults. A template has its own unique name and can be public or private. When you preview a template, it looks like card file.

view   A particular set of columns in a list window . A view has its own unique name and can be public or private.

Index