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POST-Y2K CHALLENGES: EDI

By Robert A. Wayne, Jr.

As companies complete their ambitious upgrades and modifications for Year 2000 compliance, many are faced with new challenges placed on them by those in their supply chain. Companies that have dealings with European countries will soon be facing new challenges in regard to the much-publicized Euro currency in the European Union. For other companies, a not-so-new buzzword is resurfacing—Electronic Commerce. Organizations are finding that their internal resources are no longer completely focused on the Y2K issue and many are now considering transacting business electronically.

For most users of PRMS and similar application systems, electronic commerce will manifest itself as EDI, or Electronic Data Interchange. Information Technology professionals who have been in the field for any period of time have had some exposure to this technology. Yet, the task of implementing a closed-loop electronic transaction system between an organization and one of its vendors or customers (i.e., Trading Partner) may seem overwhelming. Imagine designing a system to cover all possibilities among multiple vendors and customers, managing tens to hundreds of trading partners, numerous individual partner standards, multiple EDI document versions, and unique application system-to-EDI translation server interfaces. No simple task for the small shop.

Nevertheless, when approached with the logical view that basically all EDI transactions share a similar structure, and by taking advantage of tools available, it is a project that can be implemented in a timely manner and with great success. Nexgen has been involved in numerous EDI implementation projects that have saved companies hundreds of thousands of dollars per year. In some cases, an organization may no longer be able to transact business with a customer if they do not do so via EDI. If an organization is in a relationship with nationwide retailers such as Sears, K-Mart or Wal-Mart, it will most likely be requested to perform some sort of minimal EDI transactions. Once a company makes the decision to implement, many others will most likely join the requesting trading partner. If the application interfaces are written

generically enough to cover most situations, setting up additional partners will be streamlined and, in effect, increase productivity for the organization.

Initially, EDI does not usually evolve in an organization without some sort of request from outside. Unfortunately, this usually provides insufficient notice to begin a full-fledged study into the most advantageous implementation of EDI. However, taking careful steps to keep the interfaces and policies as generic as possible for the particular market will simplify future additions to the pool of trading partners.

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With the massive amount of data available in PRMS, implementation of various EDI transactions is not as complicated as it may seem. What follows is an example of a closed-loop supply chain management system that utilizes EDI as its primary means of transacting data. We will explore the various EDI documents available for Company ABC as it conducts business with Customer XYZ and Vendor 123 electronically. It must be stated that this is only one example of the numerous ways that EDI can assist an organization.

In the "paper world," a buyer in the purchasing department at Customer XYZ would initiate a series of events. Electronically, it works much the same way. Company ABC would receive a Purchase Order document (EDI 850) and convert it into a customer order on PRMS by either populating the Order Entry and Billing files directly or utilizing the Batch Order Entry process. Before the order is shipped, the customer may send one or more Purchase Order Change Notices (EDI 860) which may entail the cancellation of the entire order or adjustment of requested ship date, addition of new product or modification of order quantities. If Customer XYZ is curious as to the status of their order, they could initiate an Order Status Inquiry (EDI 869).

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Company ABC would respond to the Order Status Inquiry with an Order Status Report (EDI 870). An Order Status Inquiry is usually used when an order is past due.

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Customer XYZ is not limited to the standard purchase order to request product from Company ABC. If this is a particularly high volume customer, the two trading partners may realize a gain by implementing Planning Schedules and Releases. The Customer XYZ would transmit its current Planning Schedule (EDI 830), usually derived from their latest MPS/MRP generation. Company ABC would build future requirements based on Customer XYZ's planned requirements. Once Customer XYZ is ready to receive the product that they have forecasted, they would issue a Scheduled Release (EDI 830). This scenario can lead to problems if Customer XYZ is not completely accurate in its forecasting methods. Company ABC could end up with overstocked inventory if Customer XYZ does not request the releases as planned. There are other ways to move inventory between two entities, but these are two of the most common types.

Now that Customer XYZ has placed an order with Company ABC, requirements will be generated for those items. In many cases, those items will need to be ordered from another vendor. In this case Company ABC will order these items from Vendor 123 by transmitting an outbound Purchase Order (EDI 850)—much the same as Customer XYZ has done with their order. The same Purchase Order Change Notices (EDI 860), Order Status Inquiry (EDI 869) and Order Status Report (EDI 870) can be used. Once those items are scheduled to be shipped back to Company ABC, Vendor 123 can transmit an Advanced Shipment Notice (EDI 856). And, subsequently Company ABC can be electronically invoiced (EDI 810).

Once product is shipped from Company ABC to Customer XYZ, the same cycle is repeated. Company ABC will transmit an Advanced Shipment Notice (EDI 856) and follow up with an electronic invoice (EDI 810). If Customer XYZ was a distributor for Company ABC, the company could request Product Activity Data (EDI 852) to be transmitted at predefined intervals for sales analysis. This is especially useful for Company ABC as it allows them to see actual usage of their product, not necessarily what was sold to Customer XYZ. Also, to keep distributors apprised of inventory status, an Inventory Advice (EDI 846) can be requested. This document provides up-to-date inventory balances for selected products.

By utilizing this minimal set of EDI documents, a company will realize substantial benefits by shortening lead times, reducing requirements for safety stock and providing a more accurate supply chain management cycle. With team effort and cooperation among business entities, organizations will truly prosper through Electronic Commerce. *

UNITS OF MEASURE, POWERFUL & UNDERUTILIZED

By Bernard Werner

We do it all the time in our heads. Four cups in a quart. Four quarts in a gallon. Fifty-five gallons in a drum. Now, how many kilograms is that? We may be good, but there are limits, after all. More and more, many of our product structures call for metric units, but we're still buying in English -- pounds, gallons, feet, and so on. On the other hand, we may be buying and manufacturing in pounds, but with the global economy, we need to be taking orders and shipping in metric.

These are the demands of the outside world; what about internally? Even there we're doing it. A seemingly simple matter of putting plastic parts into a box gets complicated in a hurry. Depending on the part number, there may be 450 in a box, 20 boxes on a skid, and, by the way, the inventory unit of measure is in thousands because we make so many of them. Wouldn't it be grand if we could move inventory and report production any way that made sense -- in thousands, boxes, or skids? PRMS to the rescue!

Prior to version 8.3, PRMS had the ability to deal with multiple units of measure only in Purchasing. With the addition of the Units of Measure File and the modification of allied files, the flavor of PRMS decidedly changed. There is now a tremendous flexibility in Order Entry and Shipping as well as with internal inventory moves and inquiries.

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The simplest use is with the Unit of Measure File itself (MSUTP100) using MS0827 to maintain it. Before a particular unit of measure can be used, it needs to be added to the Code ID file (MSCIP100) using MS0843 accessing the record UNITOFM with option 12:

```
MS0843.01 25 Work With Code ID

Type options, press Enter.
6=Print 12=Work With

Opt Code Type Description
--- COMMODITY Commodity Code
12 UNITOFM Unit of Measure Table

Position to ---

ENTER=Continue F3=Exit F6=Reposition
```

If you cannot do this, it is possible there is a security issue and the Code Security Master (MSCSP100) needs to be updated using MS0840. If you do not have access to this program, see your system administrator.

In the next example, the code for cases (CS) is being added:

```

MS0845.01 25 Work With Code ID
          UNITOFM      Unit of Measure Table
Type options, press Enter.
2=Change          5=Display

Opt  Code ID      Description      Active
---  ---
  GL                      Y
  LB                      Y
  M      Thousands  Y
  OZ                      Y
  PC      Pieces(rounded eaches) Y
  PR                      Y
  PT      10 Bike Pallet  Y
  SF                      Y

Add/Position to CS      Copy From ___
ENTER=Continue F3=Exit F6=Reposition F12=Cancel
    
```

The Enter key brings up the next screen with the bolded text illustrating what the user keys:

```

MS0845.02 25 Code ID Maintenance
          UNITOFM      Unit of Measure Table
Active..... Y      (Y = Yes N = No)
          MODE      ADD

Code ID..... CS
Description..... Number of Bikes per case
Short Description..... Cases

ENTER=Edit F3=Exit F5=Add F12=Cancel
    
```

Three types of conversions are possible. First is the generic which would apply to all items regardless of type. An example is shown below, in converting from thousands to eaches (M to EA). This conversion is true for any part and is therefore the most general. Second is the conversion effective for an entire class of items which the next set of screens shows being added. And third is the conversion which is part-specific.

In the screen below, there are 11 BMX200s per pallet. Other bicycles may have a different count and will have their individual entries. Below, the user is keying in a conversion to go from eaches to cases and having it apply to all BMX bicycles:

```

MS0827.0125 Unit of Measure Table Maintenance
          Inv Alt      Conversion
Sel Product Cls Description U/M U/M Factor Active
          rounded eaches EA PC 1.000000 Y
          Each to Case Conversion EA PL 7.000000 Y
          M EA .001000 Y
          rounded eaches PC EA 1.000000 Y
          ea to pallet EA PT 11.000000 Y

Sel/Pos _____ BMX EA/CS Copy From _____ /___/
          F3=Exit F6=Reposition F7=Fold
    
```

In the above screen, the product is omitted because this conversion is for the entire product class of BMX. Always specify the inventory unit of measure first, then the alternate unit.

Below, we see that there are 12 eaches per case:

```

MS0827.02 25 Unit of Measure Table Maintenance
          MODE      ADD
Active... Y Product.....
          Product Class ..... BMX
          Inventory U/M ..... EA
          Alternate U/M..... CS
          Conversion Factor... 12.000000 EA / CS
          Multiply/Divide...1 (1-Multiply,2-Divide)
          Allow Use in
          Order Entry..... Y (Y,N)
          Conversion Description..... Cases

F3=Exit F5=Update F10=Rounding
F12=Previous F13=Validate
    
```

If multiplication is used to do the conversion as is the situation here, a 1 is left as the default in the Multiply/Divide field. Given 1 case (CS), it must be multiplied by 12 to get the number of eaches (EA). If this is a valid unit of measure for order entry, then leave the default, Y. The conversion can be tested with F13 and entering a value (2) for "Enter quantity for validation." Pressing Enter returns the expected result of 24 for the Converted Quantity. We will not address the Rounded Quantity here:

```

MS0827.02 25 Unit of Measure Table Maintenance
          MODE      ADD
Active... Y Product.....
          Product Class ..... BMX
          Inventory U/M ..... EA
          Alternate U/M..... CS
          Conversion Factor... 12.000000 EA / CS
          Multiply/Divide...1 (1-Multiply,2-Divide)
          Allow Use in
          Order Entry..... Y (Y,N)
          Conversion Description..... Cases
          Enter quantity
          for validation.... 2.000 CS Alternate
          Converted quantity. 24.000 EA Inventory
          Rounded quantity... 24.000 EA Inventory

F3=Exit F5=Update F10=Rounding
F12=Previous F13=Validate
    
```

On keying F5, the unit CS can now be used anywhere a unit of measure is called for. If it were a bought item, it could be used on a purchase order line item. It also can be used in an inventory transaction (IN0021) or warehouse transfer (IN0022), or, for that matter, in shipment confirmation (OB0100). It also becomes available for use in production reporting, whether SF0020 or SF0320. An interesting twist is its use in Product Inquiry, IN0008. When viewing inventory, a valid unit of measure may be keyed at the top of the screen, the Enter key is hit, and the inventory is immediately converted to it.

However, more control and establishing entry defaults may be desired. The inventory unit of EA may not be the same unit which is ordered by the customer or shipped. It may also carry a different price. If it is a bought item, the units can be different still. If the item is issued to the floor, yet another unit of measure may be called for. When dealing with potency, one may also be concerned about the physical unit of measure, which will not be covered here.

Only with purchased items does one not need to add the codes to the Unit of Measure File. However, the code does need to be added to the Code ID Master, maintained by MS0843. This is because the capability existed in this part of PRMS prior to the addition of the Unit of Measure File. As with all cases, the inventory or stock keeping unit of measure is a required field in the General Product Information of MS0825, Product Master Maintenance.

On this same screen, the Purchasing Alternate Unit of Measure may be keyed. Below that, enter the Conversion Factor Purchasing Alternate U/M which is assumed to be a multiplier. Note that if volume and weight have been entered for this item, then the purchasing unit volume and weight are also converted. Having defined an alternate does not make it a default. It just enables its use in a P.O. It is important to note that the conversion holds fast until the purchase order line is completed, *even if the conversion factor in the Product Master is changed.*

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UNITS OF MEASURE, POWERFUL & UNDERUTILIZED

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If the Unit of Measure is determined to be specific to a vendor, it and the conversion factor may be keyed into the Product / Vendor File, maintained by PO0802. One vendor's case may be 12 while another's could be 24. Here, too, the factor is assumed to be a multiplier. Because the Product / Vendor File is more specific than the Product Master, it would take precedence and also be the default. If it is necessary to have multiple definitions as in the example of CS, do not define it in the Product Master because then the factor must be consistent.

For customer orders, the Unit of Measure conversion is also stored in the detail records and so the definition holds fast for the life of the order line. This could be a significant period of time for blankets. Here is a good reason to have an Engineering Change System pertain to packaging as well. Unlike purchasing, the order conversion factor is retrieved from the Unit of Measure File. It only serves as the default if it is entered into the Customer Product File (OBCRP100) via OB0817 and the customer's part number is used as entry in OB0020.

If it is necessary to have multiple definitions, do not define it in the Product Master because then the factor must be consistent.

There are 4 fields in the Order Processing section of Product Master (MS0825) that deal with units of measure. The first, Allow Order in Inventory U/M (Y, N) controls whether the user may use the inventory unit at all in OB0020. Second, Pick/Ship U/M specifies which code will be the default in Picking and Shipping. This can be overridden by the Warehouse Inventory File (INWIP100) maintained by IN0801. Third, Apply Rounding Rules in Order Entry, is beyond the scope of this article. Fourth, if the field, "Price by Ordered Unit of Measure Only," is set to yes, then there needs to be a corresponding entry either in the Contract Price Master (OBCPP100) via OB0006, or the Unit of Measure List Price Maintenance (MSLPP100) via MS0847.

Also in the Product Master, under Manufacturing Planning (MS0825.13), are the Consolidated Pick Factors used on the repetitive side. The Standard Issue Unit of Measure is the unit in which the material handler is to be picking the component. For example, the inventory unit of measure for color concentrate used in injection molding plastic parts may be pounds (LB). Nonetheless, when it is picked and staged, it is done so in drums of 200 pounds. The unit of measure, DR, would first need to be added to the Unit of Measure File via MS0827 and then to the Product Master in the consolidated pick section. Having the Consolidated Pick show whole drums rather than .500 DR when 100 pounds were called for is a function of the Rounding File and a topic for future article. *

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