

Automating ASNs

How to create Advance Ship Notices
from incoming Purchase Orders.

Earl Wertheimer earlw@spe-edi.com

About Me

- Programmer since 1974?
- 1st Job was feeding 96 col. punch-cards into the MFCU of a IBM System 3/36. Graduated to programming RPG II.



Overview

Purchase Order

Already packed?

SKU Info

Partner parameters

ERP exchange (PO in, Invoice out)

ASN

No scanning of barcodes, so no Scan & Pack

Skip simple cases: 3rd Party Logistics, 1 CA = 1 Carton

Not today: Export/Import with ERP, Data conversion

Purchase Order (850) types

- DC (Distribution Center)
 - Large qtys, split by SKU
- Cross Dock to Store (DC to Store)
 - Small qtys, split by Store, known ShipTo
- Multiple Stores (SDQ)
 - Small qtys, split by Store, unknown ShipTo RTFM -> RTRM
- Direct to Store
- Drop Shipment to Consumer
 - Tiny qtys, Carrier UPS/FedEx,
- Fashion (on Hangers)

Purchase Order detail types

- 1 line for 1 SKU.
- Many lines per Style
 - Item followed by a prepack breakdown (eg. 1-2-2-1 in SLN seg)
- Multiple lines per Style
 - Each line as a different Size/Color and has to be packed in groups
 - Eg. Qty = 100-200-200-100 into 1/2/2/1 prepacks

PO and Item information

- Our SKU
- Customer SKU
 - PO1 Element 235 has 9 pages of codes. A1..ZZ
- UPC (12, 13, 14 digits)
- Size
- Color
- U/M: CA or EA/PR/KG/LB

Element 235

GC Grade Code	IN Buyer's Item Number
GD Grain Direction	IQ IRS Qualification Code <i>SEE CODE SOURCE 493</i>
GE Generic Name Description	IR Ingredient <i>SEE CODE SOURCE 532</i>
GI Graphics Industry Bar Code (GIBC)	IS International Standard Serial Number (ISSN)
GK Glider Kit <i>In the automotive industry a "glider kit" is the term for an incomplete vehicle with a vehicle identification number assigned and is typically manufactured without an engine, transmission, driveline, or rear axle(s); often the glider kit is used as the replacement shell for a vehicle involved in an accident</i>	IT Buyer's Style Number
GM General Services Administration (GSA) Special Item Number	IV Home Infusion EDI Coalition (HIEC) Product/Service Code <i>SEE CODE SOURCE 513</i>
GN Grade Name	IW Interchangeability Code <i>Air Transport Association code specifying the interchangeability level among components</i> <i>SEE CODE SOURCE 219</i>
GQ Group Qualifier Code <i>SEE CODE SOURCE 491</i>	IZ Buyer's Size Code
GR Gear Ratio	JA Anniversary
GS General Specification Number	JB Commission Identifier
GU Volume Usage Identification Code	JC Commission Year
HC Health Care Financing Administration Common Procedural Coding System (HCPCS) Codes <i>HCFA coding scheme to group procedure(s) performed on an outpatient basis for payment to hospital under Medicare; primarily used for ambulatory surgical and other diagnostic departments</i> <i>SEE CODE SOURCE 130</i>	JD Contribution Year
HD International Harmonized Commodity Code <i>For customs authority purposes, the class and description of a subject part or material item per harmonized agreements on tariff commodity codes</i>	JN Job Number
HI HIBC (Health Care Industry Bar Code) Supplier Labeling Standard Primary Data Message <i>The primary data message consists of the LIC (Labeler Identification Code), product catalog number, and unit-of-measure identifier</i>	JP Package Type Code <i>Packaging method used for manufacturer product</i>
HN Heat Number	JS Job Sequence Number
HP Health Insurance Prospective Payment System (HIPPS) Skilled Nursing Facility Rate Code <i>SEE CODE SOURCE 716</i>	KA Engineering Data List
IA Information Media Type	KB Data Category Code <i>SEE CODE SOURCE 188</i>
IB International Standard Book Number (ISBN)	KD Replacement National Stock Number
IC Interior Color Number	KE Military Standard
ID International Classification of Diseases Clinical Modification (ICD-9-CM) - Procedure <i>The International Classification of Diseases, Clinical Modification, is designated for the classification of morbidity and mortality information for statistical purposes and for the indexing of hospital records by disease and operations, for data storage and retrieval; this is a procedure code</i> <i>SEE CODE SOURCE 131</i>	KF Item Type Number
IE Insurer's Fund Code	KG Time Compliant Technical Order
IF Investment Fund Type <i>SEE CODE SOURCE 496</i>	KI Cognizance Symbol <i>SEE CODE SOURCE 315</i>
IG Ignition Key Number	KJ Material Control Code <i>SEE CODE SOURCE 315</i>
II Commodity Item Identification	KK Special Material Identification Code <i>SEE CODE SOURCE 315</i>
IM Imprint (Trademark Code of Subsidiary)	KL Item Management Code <i>SEE CODE SOURCE 315</i>
	KM Shelf-Life Code <i>SEE CODE SOURCE 192</i>
	KN Shelf-Life Action Code <i>SEE CODE SOURCE 192</i>
	KP Kanban Plan Number
	L1 Program Level
	L2 Topic Level
	L3 Subtopic Level
	L4 Life/Annuity Service Features <i>SEE CODE SOURCE 495</i>
	L5 Line of Authority <i>SEE CODE SOURCE 536</i>
	L6 Lube, Synthetic
	LA Labor Group

How are Items Packed?

- How are items going to be packed or **already** packed ?
- 1 SKU per Box (for D.C.) typ. Large qtys.
- Multiple SKUs per Box (for Stores)
- Prepacks: by Style (socks), by Color,
 - by Size (1xS / 2xM / 2xL / 1x XL = 6)
 - Or (1x5 / 2x5.5 / 3x6 / 3x6.5 / 2x7 / 2x7.5 / 2x8 / 1x 8.5 / 1x9 / 1x10 = 18)

Items are already packed?

- Need to follow existing carton contents.
 - Eg. Worse case: 12 UPCs of Assorted sizes & colors, packed into 3 cartons of 4 UPCs each in a 1/2/2/1 breakdown.



Resources: ERP / Accounting system

- Doesn't care about packing, cartons, cases, pallets, etc.
- Doesn't care about the 4,672 Walmart stores
- Uses different Customer codes, Item codes, etc...
- Tracks Orders, Inventory and Generates Invoices.

Resources: Shipping staff

- Have valuable knowledge & experience.
- They are familiar with the goods being shipped and how they are handled.
- Must be onboard otherwise project is doomed.



Calculating Average and Maximum Pack

- Maximum Pack is for Soft Goods only.
- Calculating an Average Pack using hypothetical scenarios. Eg. If an order is for 240 widgets, how many boxes are needed?
 - If 10, then the Avg.Pack is 24.
- Calculating a Maximum Pack.
 - What if qty = 241, 242, 243...248?



Putting it together: Good News!

- Partner methodology is <usually> consistent.
- Eg. Sears Canada had QR, JIT, SAMS FC, FXD, RIM, SMART ...
- Each methodology is (usually) matched to a type of business (Catalog, In Store, Big Ticket, etc.)

Prepacked Inventory

- BUT What if goods are prepacked overseas?
- Either we tell them how to pack or we need to build Shipment to match.
- Usually large quantities like containers.



Advanced Ship Notice (856)

- Structure: SOPI, SOTPI, SOIP, etc
 - Shipment, Order, Tare (Pallet), Pack (Carton), Item
- Carton limits: Size, Weight
- Pallet size. Standard is 48" x 45"
 - Cartons are placed in layers
- Truck size. 8' x 48' = 24 pallets per level.

Data tables needed to build shipments

- Shipment is a hierarchy of data that follows the usual ASN structure.

Shipment / Carton / Contents

If PO U/M = "CA" is the simplest to process.

1 CA = 1 Carton = 1 Label

- Style Master: Host code, Weight, Volume
 - Avg. Pack & Max. Pack, Carton and Pallet packing
- Program loops through items, sorted by BillTo, ShipTo, Store, CustomerPO, AvgPack, Qty(reverse)
- As cartons are being filled, the program calculates the Fill% based on the Qty and Avg/Max Pack. Carton cannot exceed 100%
$$\text{Qty}/\text{Avg}: 5/10 = 50\% + 4/12 = 33\% (83\%) + 1/3 = 33\% (116\%)$$

Building Pallets

- 2nd pass through Cartons adding a dummy Carton which is actually a Pallet label.
 - Makes labelling easier
- Allow for Manual Input. Eg. Containers shipped directly to customer may need to be split into multiple Shipments.
- Different rules for Boxes and SKUs on Pallets
 - (ie. Mixing of SKUs on a pallet layer)

Database Summary (in ERP?)

- Partner: Send/Recv IDs, Packing flags like 1PO
- SKU Master: EDI SKU, Host SKU, Customer SKU, UPC, Avg.Pack, Max.Pack, Weight, Volume
- Order: OrderHeader, OrderDetails, Store Qtys, Notes (DTM)
- Shipment: ShipHeader, CartonHeader, CartonDetails, Invoice (if Invoice per Store)

Thanks

- Thanks to NEECOM for hosting this conference.
- The great people on the EDI-L mailing list.

Questions

- When will XML replace X12?