**Shipment Bundling Design**

**Overview**

During the checkout process we will be analyzing all items to determine the most efficient and effective way to ship orders to our customers.  Based on the analysis performed we will create one or more bundles associated with individual warehouses and ship dates.  We will also offer viable alternative bundling choices that the customer will be able to choose via our “View Alternatives” links.  This process will be called when the Shipment Bundling step is initially invoked in the Checkout process to establish the default bundling position.  It will then also be called each time the customer chooses an offered alternative in order to recalculate the bundles based on the choices made.

**Functional**

**New Logic: Ship Dates should be derived as follows: If it is before 11 local warehouse time orders can Ship today or next valid shipping day and the order can be flagged as Must Ship Today.   If it is between 11 and 3 local warehouse time the order will be shipped on or before tomorrow or the next valid shipping date. If it is after 3 the ship date will be tomorrow or the next valid shipping day.**

       Initial Default Bundling for users who have no Special Bundling Preferences:

o   Perform previously defined allocation logic for each line on the order and create a default ship warehouse and ship date for each line.

o   Create a stock bundle for all items to be shipped from the primary warehouse within 72 hours (this may include items that will ship today and items that will ship in 72 hours.  If any item in this group is to ship in 72 hours then the bundle date will be the 72 hour date.  Otherwise, the bundle date will be today.

o   Create stock bundles for items shipping from the default warehouse on a date later than 72 hours.   Create one bundle per warehouse/date combination (some bundles may contain more than one item).

o   Create stock bundles for items shipping from an alternate warehouse.  Create one bundle per warehouse date combination.

o   Create one MOD bundle for each MOD item with the following exception: if two MOD items are to ship from the same warehouse/date and have the same freight terms they may be bundled together.

o   Create one Marketplace bundle for each Marketplace item.

       Special Bundling Customer Preferences (for Initial Default Bundling)

* Always Ship Complete: ship all items together on the first available date (note: this will be the worst availability date of any of the items being analyzed.
  + Ship All Items Complete from Primary Warehouse
  + Ship All Items Complete from Alternate Warehouse
  + Ship All Items Complete from Primary in 72 Hours.
  + If the user decides to View Alternatives in this scenario he/she will get the options of a lower priority that the actual default choice. For example: if the user default option is to ship complete from alternate the user will get option to ship complete in 72 hours from primary. The user will always get additional options to ship on a later date or ship with a MOD item.
* Always Ship and Backorder: ship each individual item on the first date available regardless of warehouse. In this scenario the logic should look at each item in the following sequence and then bundle each item according to the result:
* Ship from primary today
* Ship from alternate today
* Split ship the available quantity from primary and the balance from alternate today.
* Ship the available quantity from primary today and backorder the rest from primary.
* Ship full quantity from primary in 72 hours.
* If the user decides to View Alternatives in this scenario he/she should get any options that apply to the bundle. For example, if the default option is to split ship then the user will be able ship and backorder or ship complete in 72 hours. The user will always get additional options to ship on a later date or ship with a MOD item.

        Bundle Alternative/Options

o   Shipping Primary Today

  Ship on a Later Date.  The Date and Date Type will be prompted and validated.  Date can only go out a certain number of days according to SYSCON as processed as below.  Date Type is either Ship On or Arrive On

  Combine with a MOD item – if one exists.  User can choose to ship the item with the first prepaid MOD item being shipped.

o   Shipping Alternate Today

  Ship Primary 72 Hours.  Item will be combined with the Ship Primary 72 Hour bundle or a new bundle will be created.

  Ship Partial and BO Primary.  If a partial shipment for any item(s) in this bundle can be made then the items in this bundle will be combined with the items in the primary bundle and two bundles will result.  The first bundle will ship everything available immediately and the second bundle will ship all balances in 72 hours.

  Split Ship Multi Today.  If all items in this bundle can be shipped complete if combined with items in a primary bundle then the Primary and Alternate bundles will be updated with the quantities to satisfy the order today.  Everything available in the primary warehouse will be shipped and the balances will be shipped from the alternate.

  Ship On a Later Date

  Combine with a MOD Item.

o   Ship Primary in 72 Hours

  Ship Alternate Today

  Ship Partial and BO Primary

  Split Ship Multi Today

  Ship On a Later Date

  Combine With MOD Item

o   Split Ship Multi Today

  Ship Primary in 72 Hours

  Ship Alternate Today

  Ship Partial and BO Primary

  Ship On a Later Date

  Combine With MOD Item (either or both bundles may be combined)

o   Ship Partial and BO Primary

  Ship Primary in 72 Hours

  Ship Alternate Today

  Split Ship Multi Today

  Ship On a Later Date

  Combine With MOD Item (either or both bundles may be combined)

* In all scenarios above, when the user has a special bundling preference the alternatives offered will be those defined above in default bundling and in the sequence defined as follows:
  + Ship and Backorder:
    - Ship Primary
    - Ship Alternate
    - Split Ship
    - Ship and Backorder
    - Ship in 72 Hours
    - Ship on a Later Date
    - Ship with my MOD Item.
  + Always Ship Complete
    - Ship Primary
    - Ship Alternate
    - Ship in 72 Hours
    - Ship on a Later Date
    - Ship with my MOD Item.

**Notes**

        Shipping Paid By and Via for all stock bundles will be set according to the logic associated with all stock items in the Cart.  In other words, each stock bundle will have the same terms and those terms will be reflective of the total price of all items in the cart.

      When a user invokes the Ship On A Later Date alternative option the Shadow Box will open and the Date and Date Type input boxes will be displayed beneath the option.  The Date prompt will be validated as follows: logic will add the number of days found in the SYSCON setting to the current date to derive the latest valid ship date.  When the ship date entered is not valid the system will disallow the entry for customer users but warn and allow CE users the choice of accepting the new date or not. 

      When an alternative option is chosen that will have the effect of re-bundling one or more bundles, the Shadow Box will open and the "proposed bundles" will be displayed beneath the chosen option.  When the Shadow Box itself is "Ok'd" the box will be close and the updated bundles will be re-displayed on the main screen.

      When a stock bundle is combined with a Mod bundle an informational message will inform the user that the Shipping Instructions from the Mod bundle will prevail.

      Freight Alternative choices described above will only be offered if available.  For example, if there are no MOD items in the cart this choice will never be offered.

        When a bundling alternative is chosen the original option or options will become bundling alternatives.

        When options are chosen, the affected bundles will be passed to the routine and the items in those bundles will be re-evaluated according to the AVAIL TYPE.  Other bundles will remain unaffected.

**Technical**

* CUSTMST.USR
  + <63> Comment Codes MV
  + Logic: look for the specific Comment Code in SYSCON CLPSHIP.LAD<12 and 13> in this field for the Shipto Customer. If you find one then apply the sequence defined above. Otherwise, use the default bundling sequence defined above.
* SYSCON SHIP.CUTOFF.LAD
  + Already had a field for “Can Ship Today” cutoff time – this field 2.
  + Set up field 3 to be “Must Ship Today” cutoff time. This will be stated in internal; time format for each warehouse stated in EST.
* SYSCON CLPSHIP.LAD
  + Set up field 12 to be the “Ship All Items on Earliest Available Date” comment code.
  + Set up field 13 to be “Never Split Ship” comment code.
* Logic for Delayed Shipment

o   Add field 2 to existing SYSCON to hold the number of days an actual customer can delay one of his/her shipments.    The number will be set to 30 days at start-up.

* <0> REQ.DATE.LAD (exists)
* <1> Delayed Shipment Days CE - 45 (exists)
* <2> Delayed Shipment Days Customer - 30 (exists)

       Logic for Date Type

o   SODHR.USR<20)> = Date Type (0=Ship On, 1=Arrive On)

o   SOHDR<183> Total Delivery Dates

  (Defaults from SOP.CONSTANTS<41> for stock items)

o   SODEL<3> Requested/Arrival Date

o   SODEL<4> Scheduled/Ship Date

     Logic for Must Ship Today

o   If the ship date for the bundle is the very first shipping date in the shipping warehouse automatically set the Must Ship Today Flag

SODHR.USR<10)> = Must Ship Today (0-no; 1-yes)

* Logic to determine how to determine alternate warehouses and how many alternate warehouses will be allowed for a single cart:

o   The first warehouse found in the WZIP list (SYSCON<2>) is the Primary warehouse, the 2nd and 3rd warehouses in the list are valid Alternate warehouses.

* Logic to find determine ship on dates for MOD and Marketplace items:

o   The subroutine BP WEB.MOD.LEADTIME can be called to generate the ship on dates for both of these items.

   Structure to be passed which will house all Bundling information including item specific details – consult with JA/JP

o   Need to pass multiple bundles in a record.  Should I reserve 10 or so attributes per bundle and pass 50 attributes for 5 bundles?  Also need to pass which bundle and option was chosen  and which bundles are affected so I can take the items and quantities from those bundles and allocate then according to the chosen option type

 <> type

 <> items MV

 <> quantities MV

 <> warehouses MV

 <> qualified types for this item SMV (may not need this)

 IN ADDITION

 <> ship via

<> freight terms

<> Must Ship Today flag

<> ship instructions SVM

<> ship instruction fields like prompts and charges SMV