Costpoint DMS Interface Overview

Plan-Predict-Control

An overview description on the Costpoint DMS interface

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Dynafact is leveraged for both the planning and Production

From a planning perspective, DMS takes the demand from Costpoint including material planned availability, planned MRP, Firm Planned, Released and In Shop Orders and scheduled them over available capacity. This allows for 'what if' planning, bottleneck analysis and overtime requirements planning.

Once Orders go into production DMS is used to quickly recover from absentee personnel, machines downtime, rework and engineering changes. It becomes the shop tool to manage resources and work-flow.

Costpoint\DMS Interface Overview

The Costpoint\DMS Integration package is sold as a complete integration solution that includes 24 hours of consulting and configuration time.

This document describes the data that in pulled from Costpoint in order to populate tables in the DMS Advanced Planning and scheduling system. It should be noted that configuration of the interface for specific customer requirements is available. Five separate DMS input tables are populated:

1. Costpoint Work Centers are optionally added to the DMS Resources table by reading the routings brought in and automatically adding Work Centers that do not exist in DMS. Configuration and capacity adjustments are then made in DMS by the user.

2. Jobs – Job information describes the manufacturing orders that must be performed in the facility. The DMS system will schedule the jobs created from Costpoint. This input file will be populated from Costpoint manufacturing order information, as well as make planned order information generated by MRP and MPS.

3. Job User Fields can be optionally used for additional information. For example, the estimated lead time of each part being built could be imported and displayed in a DMS field. For each MO/make planned order imported to the Jobs table, a separate record will be placed in the Job User Fields table with lead time of the part being built on the Job.

4. Operations – The Operations table includes all the processes that must be performed to complete a specific job. For each MO/make planned order imported to the Jobs table, routing operation records will be loaded in this table. For MOs, the routing operations assigned to the MO will be loaded; for make planned orders, the operations will be pulled from the primary routing for the part being built.

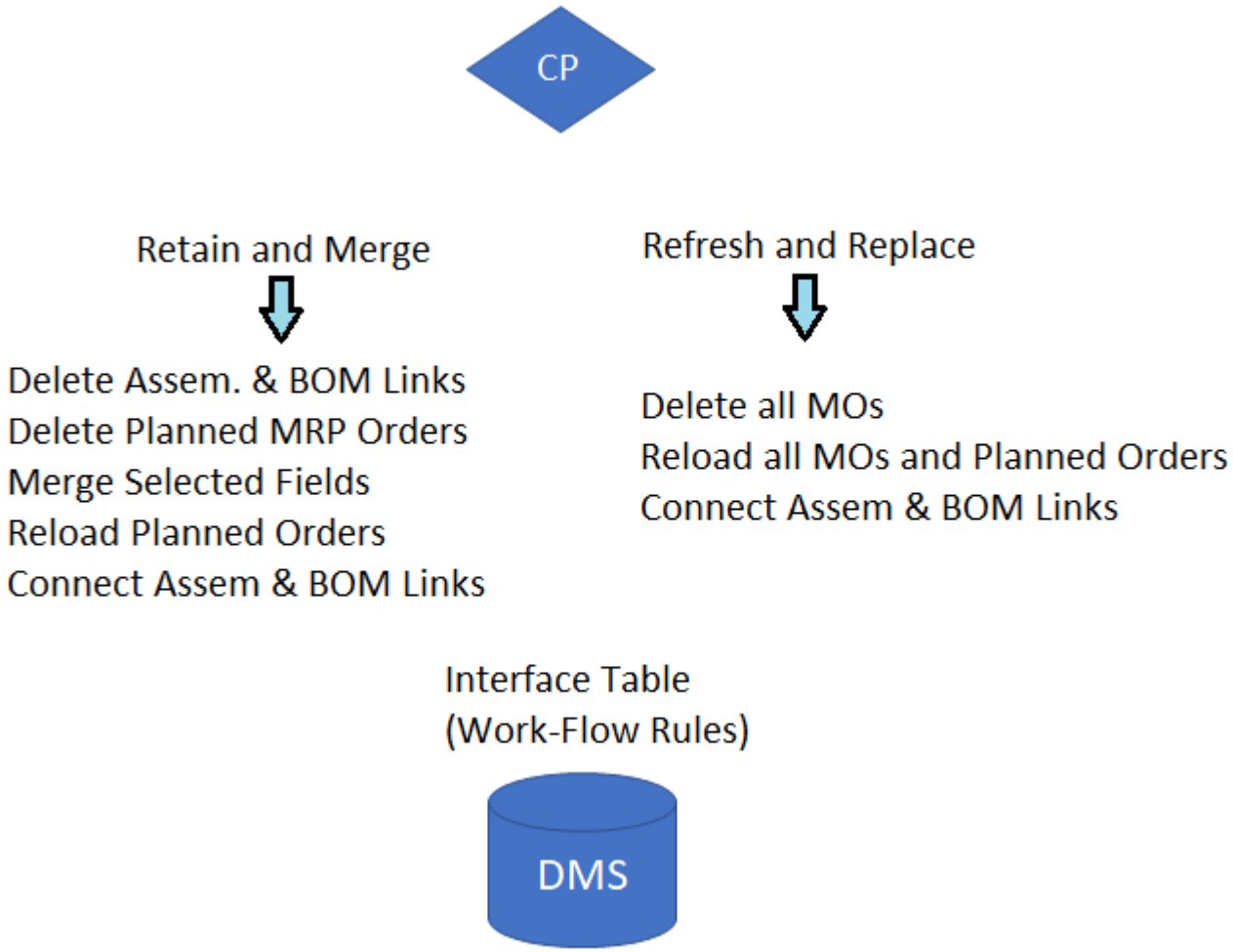
5. Material Requirements will be taken from the MO Requirements table and brought into DMS with lead times and expected delivery dates. DMS has a user configuration to either include or not include material constraints in the Schedule run. If included the MO will be prevented from starting until the material is scheduled to be available.

6. Assembly Record – The assembly record table is used to identify relationships between different MOs/make planned orders to allow the DMS user to identify which jobs must be completed before others can start. These relations will be identified by looking at the independent demand in the Costpoint system (sales order and inventory reservations) and then identifying what jobs must be performed to complete the final assemblies.

User Configuration Options

Interface Options: There are two basic options for integration. Both options allow for routings to either be maintained in DMS or outside of DMS:

1. Retain and Merge
2. Refresh and Replace



Retain and Merge will retain all MOs in DMS and allow user selected fields to be overwritten with fresh data. All planned orders are deleted out of DMS because these orders may change or may be replaced by firmed orders. Note: If an assembly structure contains a planned order the assembly structure is deleted and relinked in the new interface run. If the assembly structure has all firmed orders then the linkages remain and are not deleted.

Refresh and Replace will delete all MO and Planned Orders out of DMS and then run a refresh from Costpoint where the latest demand is brought in. If the assembly process is in use the final stage of this process will put the MO and Planned MRP orders into an assembly relationship.

An **"Integration Table"** allows" if then" statements to identify work flow rules like dependent resource relationships, alternate resources and minimum and maximum labor requirements.

Costpoint Readiness and Assumptions

1) MRP/MPS data is used to generate Planned Orders in DMS. Therefore MRP/MPS should be successfully run before importing to DMS (preferably immediately before the import).

   Note: If MRP and MPS are both used, data is taken from both processes to create planned orders in DMS. If just MRP is run then only the MRP data is used. If MRP is not in use then DMS pulls only the Firm Planned, Released and In Shop MOs.

2) Assembly record Final Orders are only generated for Independent Demand (Inventory Reservations and Inventory SO Lines) that are planned by MRP and MPS.

   a. For lower level manufacturing orders and planned orders, the process matches demand (gross requirements) with supply (scheduled receipts) by matching part, rev, inventory abbreviation, warehouse and date (gross requirement need date vs. scheduled receipt). You can configure the allowed number of days difference you want to match in the Assembly Process script.

   b. The "Assembly Process" may be run any number of times. It will replace the data with each successive run and does not overwrite or update ANY custom tables used by the process.

   c. The "Assembly Process" may have multiple invocations running concurrently as long as separate warehouses are specified for each, concurrent invocation

   d. Maximum depth of orders is 20 levels deep.

   e. As long as the MO's Build-to part is an MRP or MPS planned part and the build-to inventory project is MRP planned, the MO will be included in the results even if the MO was not generated through the MRP process.

3) Open Manufacturing Orders are pulled from the MO_HDR table (Firmed, Released, or In-Shop status). Make Planned orders are pulled from the SCHED_RECPT table.

4) Operations are pulled from the MO_ROUTING table for manufacturing tables and from Released, Primary Routings for Make Planned Orders (using the build-to part/rev).

   a. Only Routing lines flagged as SFC operations (Shop Floor Control Flag='Y') or Vendor operations will be imported into the DMS Operations table(s)

   b. Only released routing lines (Routing Released Flag='Y') will be imported for planned orders.

   c. Closed and Completed MO operations will be imported into DMS (with an Operation Status of Completed) as long as the MO is still open.

   d. Set Up, Runtime, Move and Wait times will come over to DMS (important for scheduling).

e. If timesheets are charged to specific MO and Operation lines in Costpoint, this data will be imported to DMS as part of the actual run time.

Note: Completing operations is required in order for DMS to schedule only remaining work based on what has been completed.

5) MO build quantity is not limited

6) If updates are required back to Costpoint there is a process that can be used through Deltek's Web Interface (WIC). In most cases this involves updating the MO Due Dates, Planned routing start and completion dates and MO priority. Other information can optionally be written back depending on specific customer requirements.

7) Work Centers in Costpoint can be imported as Pools in DMS or as Resources. Work Centers should represent the level of detail required for each operation. For example, like groups of people or equipment.

Process Overview

1) MRP (with or without MPS) is run prior to the integration running

MRP is a process that develops the dates parts are needed to the required ship date.

Requirements of MRP:

- A sales order (Optional)
- Item Master (parts list) with accurate lead times
- Indented Manufacturing Bill of Materials
- MRP/MPS ***does not*** look at resource availability or capacity

2) A Stored Procedure is run against the Costpoint Database to identify assembly (BOM) relationships into an interface table

3) Manufacturing Orders, Operations, User Defined Fields, Assemblies and Planned MRP orders are brought into DMS through SQL calls. This process can be auto-executed and be set up to run over night.
4) A Schedule is run in DMS. This process can also be set up to run automatically.

DMS (Dynafact) takes a variety of inputs and develops a best fit schedule for each manufacturing sequence. Inputs are:

- MRP Output (Optional but required for Planned Order Creation and BOM structure build relationships)
- MPS Output (If used for forecasting and planning)
- Indented MO relationship based on MRP Need Date
- Part Routings
- Run times, move and wait times (Move and Wait time optional).
- Job Priority (default can be used)

- Defined scheduling method (Backward, Forward, Sequential, Parallel etc.)