Visual Planner Introduction

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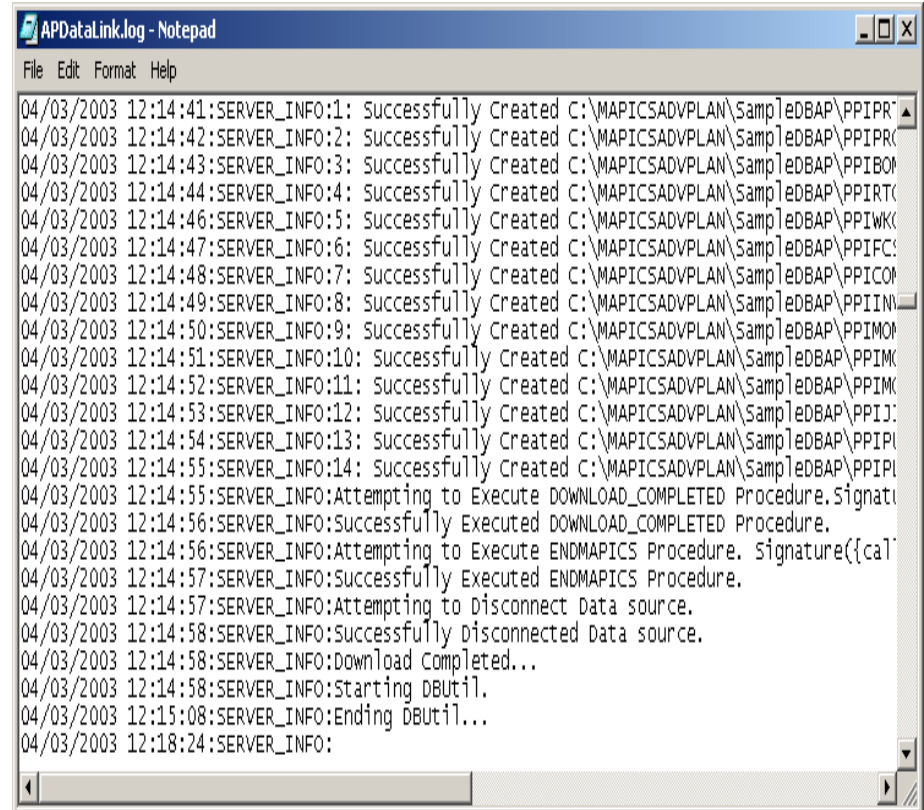jim.simunek@cistech.net

What is Visual Planner?

- Visual Planner is the next generation of MPSP, MRP and CRP

- VP is a graphical and interactive tool to develop the master schedule and material and production plans

- Provides **realtime** material and capacity testing of the plans

How does VP do this?

- Planning information is downloaded from XA to a separate database
    - Microsoft Access
    - Sequel Server
    - Oracle
- Planning is done in seconds on the PC, eliminating job conflicts on the 400 and decreasing processing time. This allows for "more" planning runs.
- Final plan is uploaded to XA for Planners & Buyers to work exception messages
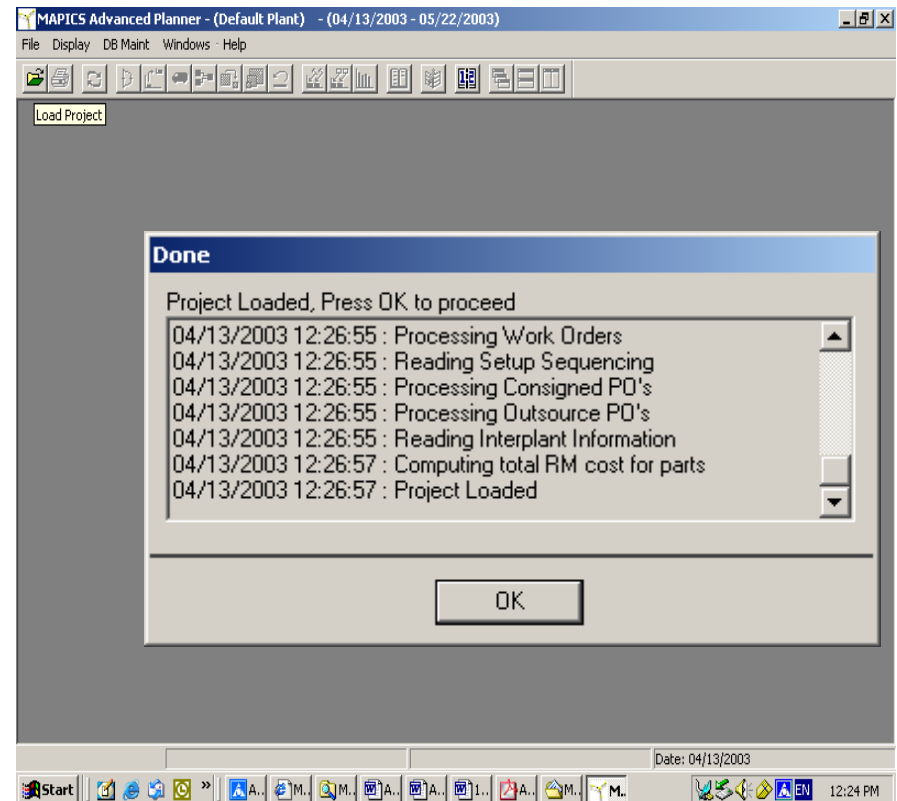
Visual Planner Process

- Downloading Data to the PC Engine
  - Pulls BOM, Route, Item, Item process, Item plan, Forecast, CO's and/or Manual Requirements
  - Populates the Vpi tables in the database

Visual Planner Process

- Generating the Plan
  - Equivalent of MRP Generation
  - Forecast Consumption
  - Nets the Requirements against on hand & on order
  - Identifies demand & plans orders (PO, MO & Schedules)

Visual Planner Process

Manipulate the Plan

- – View Load to Capacity Chart
- – Use Item Lists to view groups of items
- – Level Load Material and Capacity
- – View items on Load
- – Offload demand, outsource
- – Use Alternate Routes (EPDM)
- – Drill down/up
- – Perform "what-if" planning

Load To Capacity Chart

Facilities – Work Centers and Production Lines

Process Hours; Setup hours; Capacity hours

Red – W/C is overloaded
Yellow – W/C has past due backlog
Blue – Overload within one time period that can be corrected by re-scheduling, offloading, etc.
Green – Plan is within capacity constraints
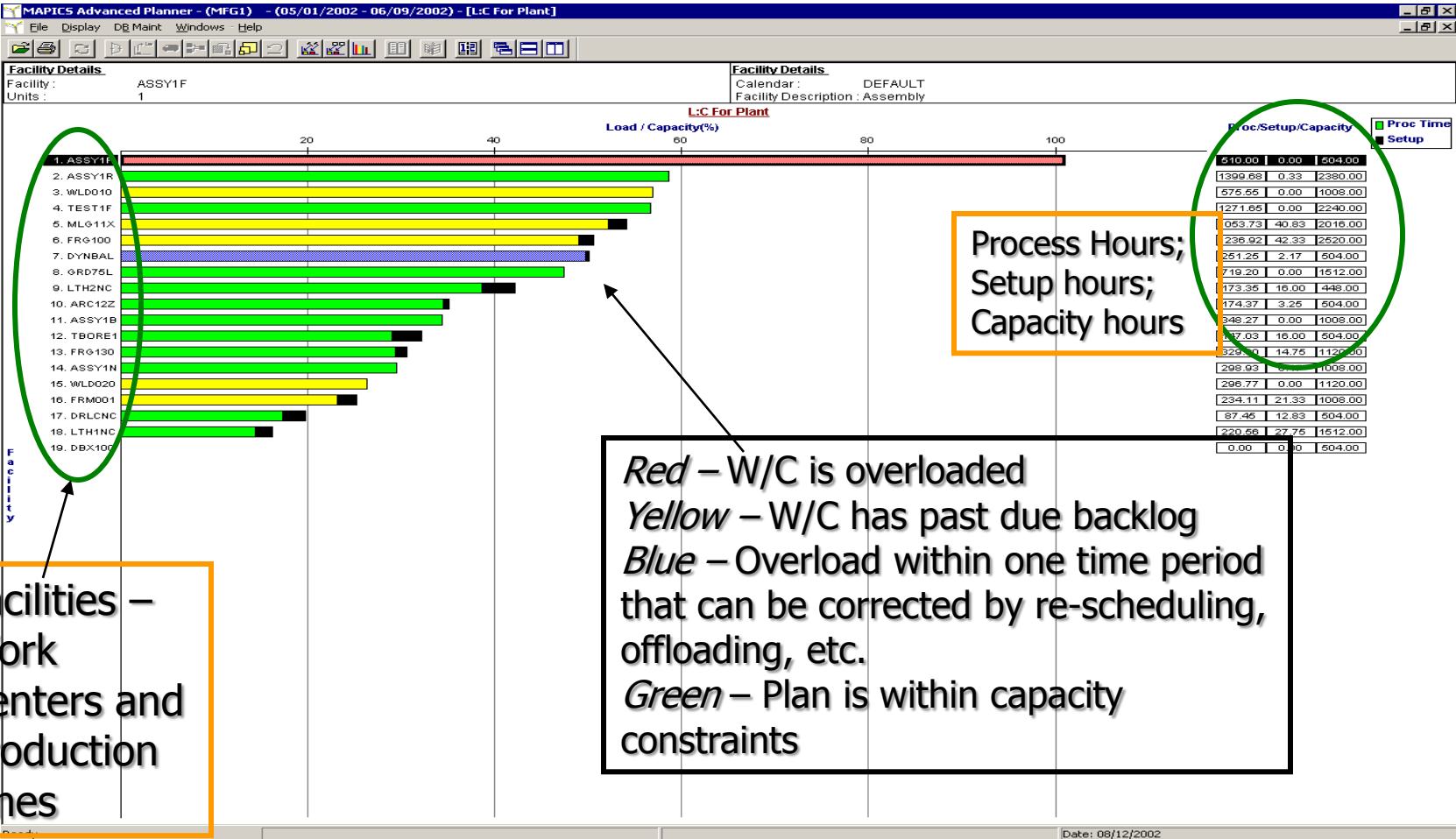
Load To Capacity Drill Down
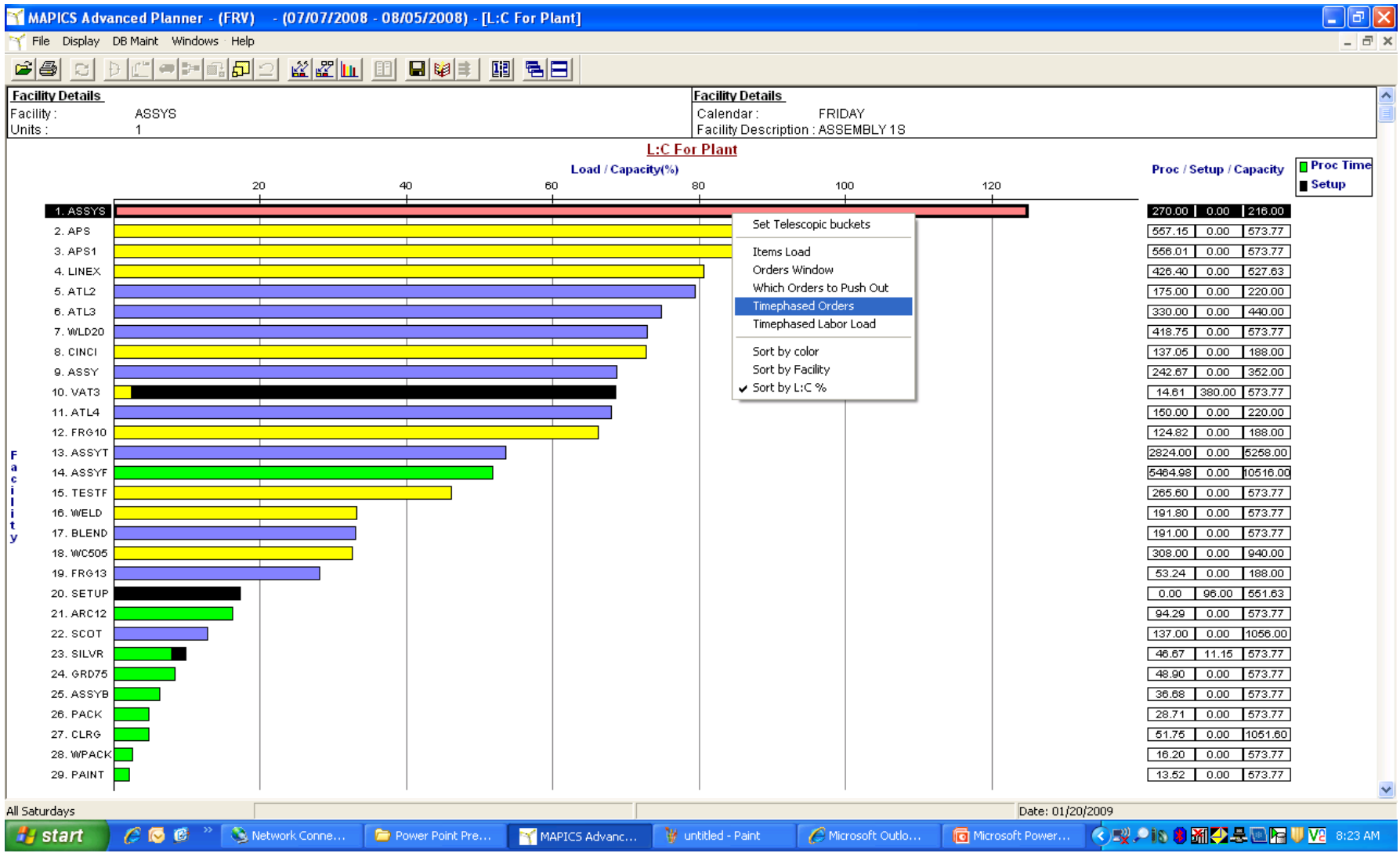
Work Center Timephased Load

Supply/Demand for an Item

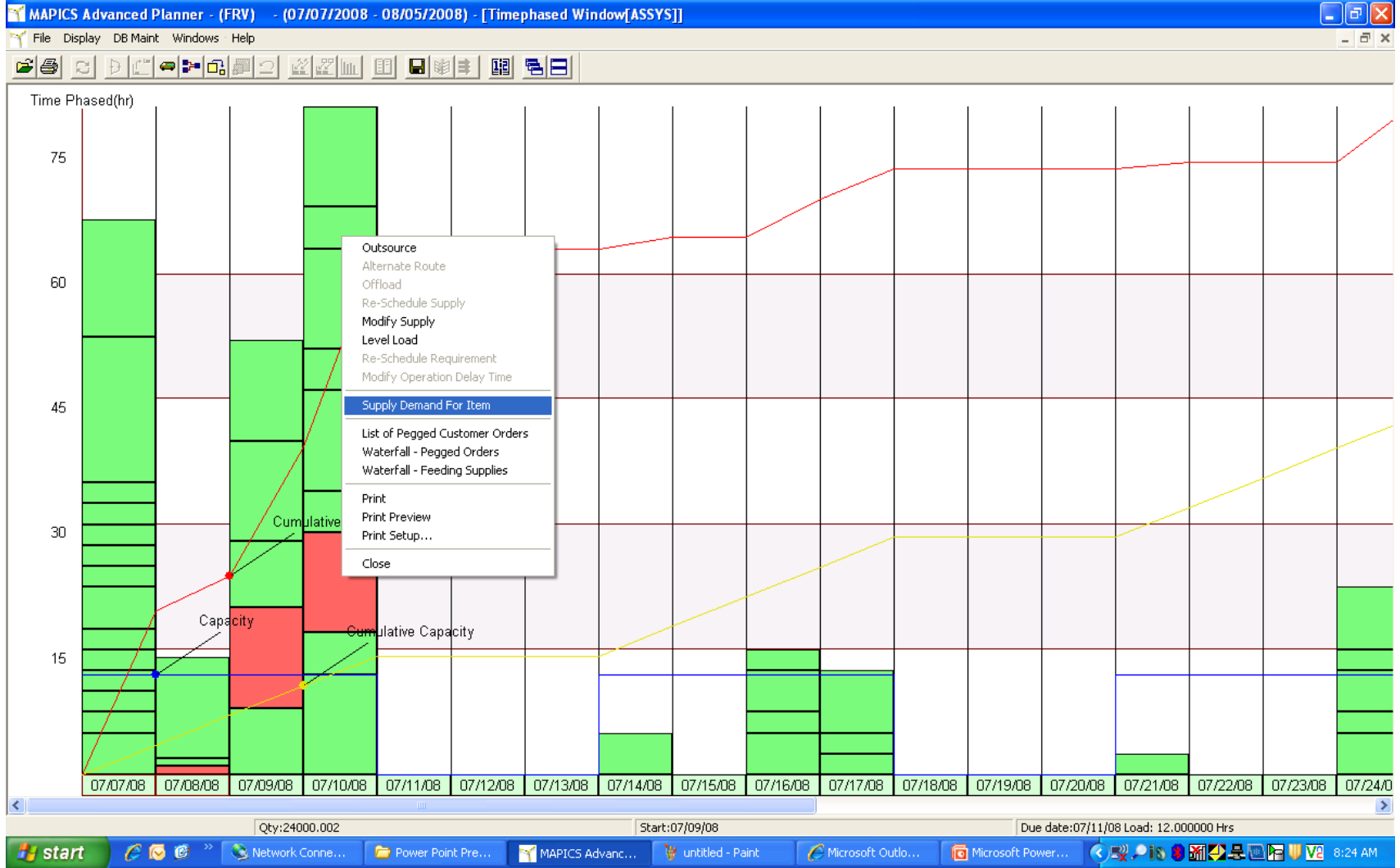|	Supply ID	Qty	Start Date	Due Date	Load	%	Sugg Due	Proj On Ha	Reqd Date	Reqd Qty	Peg To	Item	Ana/Cust	Due Date	Sugg Date
1	Plnd	35000.00	07/03/08	07/07/08	17.50	19.44	07/07/08	35000.00							
2								25000.000	07/08/08	10000.000	Plnd	SALTS ASS	00077	07/09/08	07/11/08
3								20000.000	07/08/08	5000.000	Plnd	SALTS ASS	00077	07/09/08	07/11/08
4								15000.000	07/08/08	5000.000	Plnd	SALTS ASS	00077	07/09/08	07/11/08
5								10000.000	07/08/08	5000.000	Plnd	SALTS ASS	00077	07/09/08	07/11/08
6								5000.000	07/08/08	5000.000	Plnd	SALTS ASS	00077	07/09/08	07/11/08
7								0.000	07/08/08	5000.000	Plnd	SALTS ASS	00077	07/09/08	07/11/08
8	Plnd	100000.00	07/07/08	07/12/08	50.00	55.56	07/12/08	100000.00							
9								50000.000	07/14/08	50000.000	Plnd	SALTS ASS	00077	07/15/08	07/16/08
10								10000.000	07/14/08	40000.000	Plnd	SALTS ASS	00077	07/15/08	07/16/08
11								0.000	07/14/08	10000.000	Plnd	SALTS ASS	00077	07/15/08	07/16/08
12	Plnd	10000.00	07/14/08	07/14/08	5.00	5.56	07/14/08	10000.00							
13								0.000	07/15/08	10000.000	Plnd	SALTS ASS	00077	07/16/08	07/16/08
14	Plnd	15000.00	07/17/08	07/17/08	7.50	8.33	07/17/08	15000.00							
15								5000.000	07/18/08	10000.000	Plnd	SALTS ASS	00077	07/19/08	07/19/08
16								0.000	07/18/08	5000.000	Plnd	SALTS ASS	00077	07/19/08	07/19/08
17	Plnd	5000.00	07/21/08	07/21/08	2.50	2.78	07/21/08	5000.00							
18								0.000	07/22/08	5000.000	Plnd	SALTS ASS	00077	07/23/08	07/23/08
19	Plnd	15000.00	07/24/08	07/26/08	7.50	8.33	07/26/08	15000.00							
20								5000.000	07/28/08	10000.000	Plnd	SALTS ASS	00077	07/29/08	07/29/08
21								0.000	07/28/08	5000.000	Plnd	SALTS ASS	00077	07/29/08	07/29/08

Planned Orders

Required Date, Quantity and Source

Shipping Buffer

- Used for 'End Items' (LLC = 0) only

- Creates a time lag between MO Due Date and the CO Manufacturing Ship Date

- Settings reside in Database table
  - Global – All End Items; uses Default Calendar for calculation
  - By Item
    - Location ID = Planning Warehouse
    - Buffer Value entered in hours

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Shipping Buffer

Global setting

	PLANT_CONFIG	
LOCATION_ID	PARAMETER_NAME	PARAMETER_VALUE
1	FLEX_SHIPPING_MINIMAL_BUFFER	12
1	FLEX_SHIPPING_TYPICAL_BUFFER	12

Ship Lead Time by Item

	PART		
PART_ID	LOCATION_ID	MINIMUM_SHIPPING_BUFFER	TYPICAL_SHIPPING_BUFFER
VPIFCSTPARENT	1	72	72

Ship Buffer = 72 hours

Supply Demand Window[VPIFCSTPARENT][END ITEM FORECAST TEST 10] - Min[0.00], Mult[0.00], Agg[0]

	Supply ID	Oty	Start Date	Due Date	Sugg Due Date	Proj On Hand	Reqd Date	Reqd Oty	Peg To	Item	Item Description		Due Date	Sugg Date
1	M034580	334.00	10/06/11	10/11/11	10/07/11	334.00								
2						84.000	10/07/11	250.000	FCST20111003-1	VPIFCSTPARENT	END ITEM FORECAST TEST	10	10/10/11	10/15/11
3	M034970	333.00	10/17/11	10/18/11	10/14/11	417.00								
4						167.000	10/14/11	250.000	FCST20111003-2	VPIFCSTPARENT	END ITEM FORECAST TEST	10	10/17/11	10/22/11
5	M034980	333.00	10/24/11	10/25/11	10/21/11	500.00								
6						250.000	10/21/11	250.000	FCST20111003-3	VPIFCSTPARENT	END ITEM FORECAST TEST	10	10/24/11	10/29/11
7						0.000	10/28/11	250.000	FCST20111003-4	VPIFCSTPARENT	END ITEM FORECAST TEST	10	10/31/11	10/31/11
8	Firm	200.00	10/31/11	11/01/11	10/29/11	200.00								
9						0.000	10/29/11	200.000	FCST20111102-1	VPIFCSTPARENT	END ITEM FORECAST TEST	10	11/01/11	11/05/11

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Work Center/MO Buffers

- Can create a 'Buffer' for idle time between work centers
  - Global for the work center
    - Set in the 'Standard Queue Time' field
    - In the Config.ini file set DDBEqualsStartTime=1
  - Routing, individual by item/operation
    - Uses the 'Move Time' field in the operation
    - In the Config.ini file set UseWCCalForIdlingTime=1

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Modify Operation Delay Time

- New feature, requires APAR 81522

- Example:
  - Item has operations 10 – 50
  - Operation 30 has over capacity situation but work center has available capacity 3 days earlier
  - Moving Operation by 3 days will create overload situation for operation 50
  - Insert 3 days buffer between operation 30 and 40 to expedite operation 30 and leave downstream operations at their current date

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Visual Planner Upload

Updates MRP planning work files:

- Requirements-unconsumed forecast and generated demand

- Planned Orders-all supply orders, including open, firm planned and planned

- Demand Ref-Demand information

- Reschedule Activity-rescheduling actions

Visual Planner Upload

Upload to XA

- – Reschedules open MO's/PO's/Rep schedules according to set up
- – Updates the CO dates if specified in the upload options
- – Updates work center file in the MO/REP operations as specified during offloading
- – Creates the Order Review file
- – Prints MRP reports as specified

Execute Plan using OBPM

Green Screen Execution

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MRP Requirements inquiry

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

   AMM511                          Item Requirements Inquiry

   Item . : 2107200608.54    7-9 UA ALLSPORT TEAM   Item types . : EXPLICIT
   Planning WHS . : 1         Start date : 12/13/04  Current date :  4/25/05
   Planner number : 16000     Vendor . . :           Available  . :       12.167
   Position to date  . . . . _____
                                                                    More: - +
   -------Requirements------ -----------Orders------------   Projected
   Due Date    Quantity  TYP Start DT   Quantity   REFER    Balance   Exception
    5/23/05      2.000  FCR                                   20.900
    5/30/05      2.000  FCR                                   18.900
    6/01/05      7.500  CMH                                   11.400
    6/15/05       .500  CMH                                   10.900
    6/27/05      1.000  FCR                                    9.900
    7/01/05      3.500  CMH                                    6.400
    7/10/05      1.000  CMH                                    5.400
    7/15/05      1.000  CMH                                    4.400
    7/29/05      1.500  SHR  7/28/05     30.000  M-PLAN       32.900
    8/01/05      3.500  CMH                                   29.400
    8/15/05      1.000  CMH                                   28.400
    9/01/05      1.000  CMH                                   27.400


   F1=Select by planner   F2=Select by item   F4=Peg to        F6=Next item
   F7=Previous item       F18=Refresh         F21=Item detail  F24=Exit

MA   a              MW                                              06/028
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VP/MRP Similarities

• Both use all the planning modifiers in the Item Balance/Plan record

• Both use the MRP Execution Options for re-scheduling, auto-release, etc.

• Both use the MRP Horizon Dates

• Both have direct or indirect interface to Mapics Forecast module

• Both use the Manufactured due date from the customer orders for planning

VP vs. MRP

- An MRP generation is performed by a BOM explosion and netting routine usually overnight

- *With Visual Planner you no longer run the 'MRP Generation'. The VP engine performs the multi-level planning function*

- MRP has multi-planning warehouse capabilities

- *With VP you create a separate database for each warehouse that has a Planning run. Multiple warehouses can still be consolidated.*

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VP vs. MRP cont'd

- MRP/CRP uses Mapics calendars

- *VP has its own calendar within the database. This calendar holds hours of operation per day. VP allows for an unlimited number of calendars and you associate multiple work centers to a calendar*

- MRP has no easy "what if" capability short of a new MRP generation

- *VP has powerful "what if" capability directly with the VP access database on the PC*

VP vs. MRP cont'd

- ➢ MRP interfaces with MPSP

- ➢ *VP has its own Master Schedule Routine*

- ➢ MRP uses Lead Time to calculate start date

- ➢ *VP uses backward scheduling and the times in the routing to calculate start date. If 'Operation Where Used' is entered in the BOM, material is planned based on the Operation Start Date.*

VP vs. MRP cont'd

- ➢ MPSP uses the greater of Customer Order or Forecast
- ➢ *VP nets the CO's against the Forecast and plans with the CO's and Net Forecast*

- ➢ MRP assumes infinite capacity
- ➢ *VP plans the work load in each work center for capacity review prior to accepting the plan. Even though it will 'overload' a work center, the Master Scheduler can move load and VP adjusts other work centers and material to accommodate the move.*

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VP vs. MRP cont'd

- ➢ MRP plans an order to be due the same day as the requirement

- ➢ *VP plans an order to be due the day before the requirement (Config.ini setting)*

VP vs. MRP cont'd

- MRP plans orders to the day/date
- *VP can plan to the hour and minute*

- MRP has no view for load on a workcenter
- *VP shows the load each MO or Schedule will place on a work center or production line. If you move the load to a different day, VP will re-schedule the upstream & downstream operations and re-plan the material (assumes "Operation Where Used" in the BOM is completed)*

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Forecast Management

- Consumes Forecast within a Calendar Month
  - ✓ This period, Backwards in the same month & then Forward

- Forecast is managed in four ways
  - ✓ Individual Item
  - ✓ Component Item
  - ✓ Planning Bill
  - ✓ Product Family

- Forecast split
  - ✓ split monthly number into weekly numbers

- Forecast demand time fence
  - ✓ Global setting
  - ✓ Individual Item

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VP Extras

Forecast consumption

Forecast can be consumed in three ways:

- Individual Item: The sales of each item consume the item forecast

- An item and its parents: If many possible finished product configurations exist, made from a small number of components, *you can forecast at the component level rather than the finished product* level. The sales of the item and any parent consume the item forecast

- Planning bill: Identify an item as a planning bill item and enter forecasts for the item. Forecast is consumed by end item and matching configurations in the Bill of Material

Visual Planner Demonstration

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VP ELEMENTS OF SUCCESS

Valid Master Schedule/Forecast

- The Master Schedule drives all material and capacity requirements

- A number of companies will use the sales forecast as their master schedule

  - VP will net sales against the forecast to use Customer Orders and the balance of the forecast to drive planning

- The Master Schedule should be an accurate statement of what you intended to produce

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Accurate Bill of Material

- Planned orders at one level access the bill of material to create requirements at the next level of the bill

- The bill of material should match the way the product is made on the shop floor

- Lead Time Adjustment field in the bill of material can affect the required date of the component

- Operation Where used in the bill of material will cause the material for an operation to be required on the operation start date

Correct Calendars

- VP holds an unlimited number of Calendars
- Calendars are linked to Work Centers/Facilities
- Calendars are used to calculate available capacity and then compare that to load
- Calendars need to show the correct number of hours per day
- Calendars need to show holidays & plant shutdowns

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Accurate Routing/Facilities

- VP uses backward scheduling to calculate individual operation (from the routing) load in a work center

  - MO Due Date is the due date of the last operation
  - VP will use the times in the routing and the facility's calendar to determine operation start
  - Start date of the first operation becomes the start date for the MO

- Prime Load Code in the Facility determines, per operation, whether VP uses Machine or Labor time to calculate load

Timely Labor Reporting

- Reporting against MO operations will reduce the load in the work center

- Since VP is comparing load to capacity it is important to report labor against operations or, at a minimum, operation complete

- A completed operation will no longer display a load in the capacity analysis for the work center

Accurate Quantities on Hand

- VP will net the requirements against the on hand inventory

- Inaccurate on hand balances will cause VP to over/under plan orders for an item

Valid Planning Codes

- VP uses the codes in the Item Balance/Plan records to calculate the planned order quantity
  - Order Policy Code (OPC)
  - Days Supply (OPC = G)
  - Minimum/Multiple/Maximum Order Quantity
  - Fixed Order Quantity (OPC = D or H)
- Codes need to reflect the correct quantity for VP to plan for each item

Valid Dates on Orders

- All requirements are prioritized by date in VP

- VP expects orders to start on their start date and finish on their due date

- The sub-assembly order will be planned to be completed the day before the sub-assembly is required for the next level of production

- Vendors and Shop Floor Production need to manage their parts to the due dates on the orders

Correct Lead Times for Purchased Parts

- Although VP uses Routing times for make items, it still uses the purchase lead times to calculate the start date of a P-Plan order

- Purchase Lead Times need to be an accurate representation of the time to place a PO and receive the goods:
    - Review LT: internal review of the planned order
    - Vendor LT: vendor's quoted delivery time
    - Safety LT: Additional lead time
    - Adjustment LT: Dock to Stock processing time

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VP Implementation Considerations

- If you are a good MRP user, you are 75% implemented already
    - Requires good routings + labor reporting
- Implementations range based on 'MRP readiness' and resource availability, generally 2-4 months
- CISTECH can provide full project planning, education, and implementation services.

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Implementation Process

1. Readiness & Education

2. Process Improvement & Modeling

3. Process Refinement & Testing

4. Go Live

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VP Implementation Considerations

- ## CISTECH Shop Floor reporting solution
  – Intranet based labor and production reporting

VP Benefits

- Improved flexibility and agility to react to changes in customer demand
- Increased efficiency of all users involved in planning process
- Improves capacity utilization
- Reduced inventory levels by buying and making to customer demand
- Reduced expediting costs through improved planning

Questions

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