Infor XA – Advanced Planner (AVP) Guide

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To the reader

This book contains the information you need to understand and run this application. The information in this book applies only to Infor ERP XA, which is refered to as XA in this document.

For a complete list of books in the XA library, see the bibliography included on the XA documentation CD.

Before you begin

If you are not familiar with the System i, please complete the System ieducation for the basic operating concepts of the System i.

What this book contains

This book contains information about the design of Advanced Planner.

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Chapter 1. Installing and configuring the AVP application

This chapter describes how to install and configure the Advanced Planner (AVP) application

System requirements for the AVP engine

Table   1-1. Plant size

# of	A	B	C	D
Items	<5,000	<20,000	<50,000	>50,000
BOM	<20,000	<20,000	<50,000	< 50,000
Routes	<10,000	<20,000	<50,000	>50,000
Sales	<1,000	<5,000	<10,000	<10,000
Fcst	<1,000	<5,000	<10,000	>10,000

Table   1-2. Plant size A system requirements

Prerequisite	Requirements
CPU	Intel Pentium II 200MHz and greater; or equivalent AMD processor-based PC
Hard disk	2 GB free
RAM	128 MB
Operating system	Windows 2000 Professional Server

Table   1-3. Plant size B system requirements

Prerequisite	Requirements
CPU	Intel Pentium III 700 MHZ and greater; or equivalent AMD processor-based PC
Hard disk	5 GB free
RAM	256 MB
Operating system	Windows 2000 Professional Serve

Table   1-4. Plant size C system requirements

Prerequisite	Requirements
CPU	Best in class Pentium IV; or PC from known brands such as Dell, Compaq, Gateway, or Micron
Hard disk	5 GB free
RAM	512 MB
Operating system	Windows 2000 Professional Server

Table   1-5. Plant size D system requirements

Prerequisite	Requirements
CPU	Best in class Pentium IV; or PC from known brands such as Dell, Compaq, Gateway, or Micron
Hard disk	5 GB free
RAM	1 to 2 GB
Operating system	Windows 2000 Professional Server

Note: These values are aggressive in nature. Actual performance may vary due to other software running on the system. XA makes no explicit recommendations as to the guarantee of this data. You should always have sufficient memory in order to allow the AVP engine to perform. A simple rule is, despite the size of your plant, to use the memory requirements for one plant-size larger than yours. For example, if your company is plant size B, have 512 MB RAM available.

System i connectivity

The desktop running the Advanced Planner engine must be connected by an Open Database Connection (ODBC) data source to the System i server running XA. Use Client Access Express, Version 5, Release 1 or later for this connection.

AVP engine database

The Advanced Planner engine uses a Microsoft Access 2000 database, shipped in the Db folder in the AVP install folder, and an ODBC data source named MAPICS Advanced Planner 6.0 pointed to it. Microsoft Access 2000 need not be installed on the PC to run the AVP engine.

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Installing AVP

Advanced Planner (AVP) includes the Advanced Planner engine and Material Requirements Planning (MRP).The prerequisites for MRP include the following XA applications:

- Cross Application Support (CAS)
- Inventory Management (IM)
- Either Product Data Management (PDM) or Enterprise Product Data Management (EPDM).

Install MRP using the normal XA installation process. To install the Advanced Planner engine, double-click on the MAPSetup.exe from an Explorer directory. The installation process begins. The following window appears:
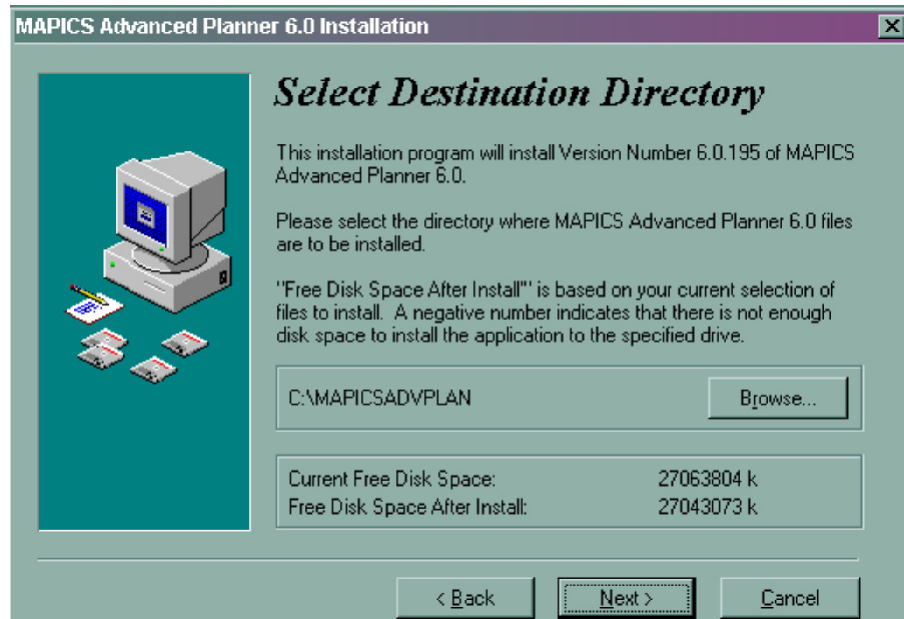
You can accept the default directory or click **Browse ...** to select another directory.

You can also click **Back** to return to the previous display or click **Cancel** to cancel the installation process. If you click **Next**, the following window appears.
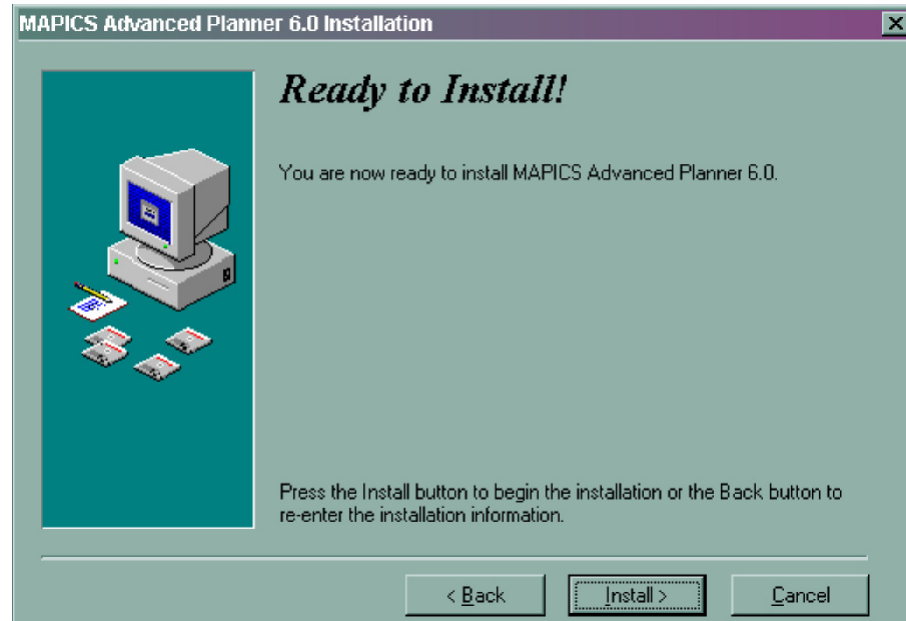
Click **Finish** to complete the installation process. Now, Advanced Planner appears on your Start/Programs menu.

You can also click **Back** to return to the previous display or click **Cancel** to cancel the installation. If you click **Finish**, a status window appears. Once the installation is complete, the following display appears:
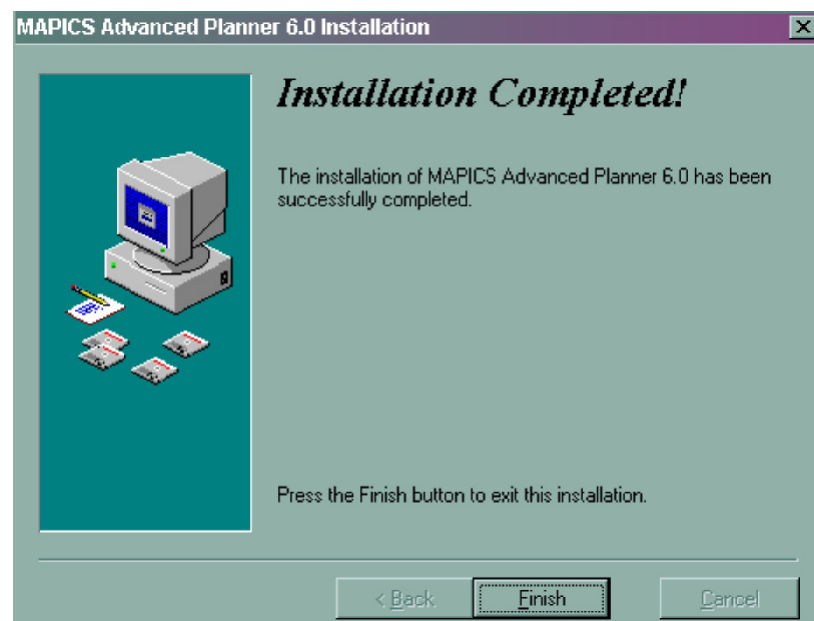
Click **Finish** to complete the installation. Two other buttons, **Back** and **Cancel**, appear but are greyed out.

Configuring AVP

Configuring AVP includes the following:

- Creating an Open Database Connection (ODBC) data source to the System i server running XA
- Linking the AVP engine to the XA environment through that data source
- Setting parameters for AVP planning

Creating an ODBC data source

This section helps you establish an ODBC connection between your Windows desktop and the System i on which XA is installed. Ensure that you have Client Access on your Windows desktop.

Start Advanced Planner. Select File > System Configuration. The following window appears:
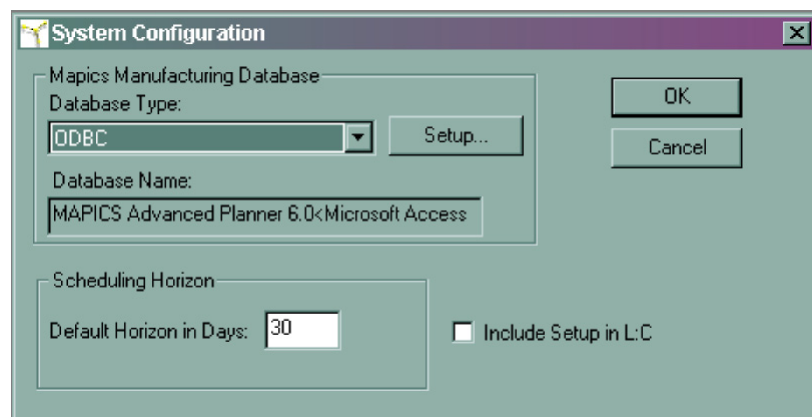
Select **Setup**. Then select **ODBC Setup**. The ODBC Data Source Administrator window appears. Then do the following:

1. Select the System DSN Tab and click the **Add** button.
2. The Create New Data Source window appears. Select Client Access ODBC Driver. Then click **Finish**.
3. The Client Access Express Data Source ODBC Setup window appears. Do the following:

   a. From the General tab, type a DSN name in the *Data Source Name* field and select the appropriate server from the *System i* list. Select Connection Options. In the Default user ID section, select **Use the user ID specified below**, and type in the user ID. Click **OK**.

   b. Select the Server tab. Select System naming Convention (*SYS) in the *Naming convention* field. Type in **AMALIBx** in the *SQL default library* field, where X is the first character of the XA environment ID. Type in QGPL in the *Library list* field.

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c. Select the Translation tab. Select Convert binary data (CCSID 65535) to text. Click on **OK**.

 Warning: Failure to set translate to this option will result in unreadable files.

d. Click **OK** two more times to create the data source and return to the System Configuration window.

Linking AVP to the XA environment on the System i

Navigate to the MAPICSADVPLAN folder on the drive on which you installed Advanced Planner. Edit the APDataLink.ini file in that folder to identify the data source, the user ID and password, the environment, and the warehouse. See the sample file that follows. Other elements in this file are explained in later sections in the document.

```
[ODBC]
DataSourceName=AP60
UserId=SCM
Password=SCM
[Download]
Env=66
Warehouse=TP6
DownLoad=0
LoadItem=0
PrintReport=1
Hours=0000008
[Upload]
COMPromiseDate=0
COMDueDate=0
[Download Files]
InputFileDir=C:\MAPICSADVPLAN\SampleDBAP\
CommaSeparated=0
ShowColumnHeader=0
Delimiter=
[Debug]
DebugDesign=0
DebugUpload=0
[System]
AVPActive=0
```

DataSourceName	The DSN you gave the ODBC data source you created in the preceding steps.
UserID	A valid user ID in the XA environment
Password	The password for the XA user ID
Env	(Environment) The two-character XA environment ID
Warehouse	The three-character warehouse ID

Setting parameters for AVP planning

You can specify the following:

- The number of days to include in the load calculations
- Whether or not to include setup in the load calculations.

Start Advanced Planner. Select File > System Configuration. The System Configuration window appears.
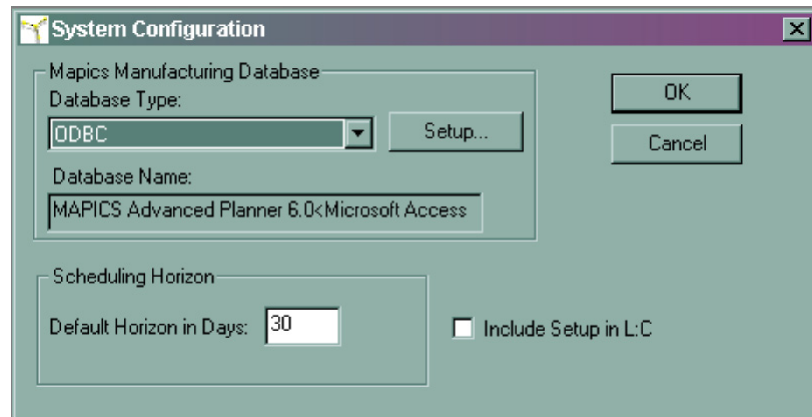
Default Horizon in Days
Type in the number of days in the horizon for load to capacity (L:C) planning. The scheduling horizon starts with the MRP current date, and loads and capacities are calculated over this horizon. The supply plan covers all demand, regardless of this horizon. Default is 30 days.

Include Setup in L:C
Check this box to adjust the load to capacity chart for setup. If you select this option, setup is included for every supply order run on the facility.

Maintaining your installation

Periodically, AVP updates will be made available to you. Do the following:

1. Download the software

2. Uninstall the existing AVP program by selecting Start > Programs > Uninstall Advanced Planner 6.0.

3. Install the new version. See "Installing AVP" for more information.

4. If you renamed one or both Advanced Planner desktop icons, installing a new version may create new icons with the original name. If so, delete these new icons.

Your original configuration information is maintained; therefore, you need perform no other steps.

Planning multiple warehouses

To plan multiple warehouses with AVP, install the AVP engine for each warehouse because each warehouse requires separate:

- PC database
- ODBC connection to that database
- ODBC connection to the XA on the System i.

You can either plan each warehouse on a separate PC or you can plan multiple warehouses on the same PC.

- To plan each warehouse on a separate PC, use the preceding sections of this chapter to install and configure the AVP engine on each PC planning a warehouse.

- To plan multiple warehouses on one PC, use the following sections to install the AVP engine multiple times on the PC.

Multiple AVP installations on one PC

Ensure you have sufficient disk space to contain each installation and sufficient RAM for the applications running on the PC. For example, to simultaneously plan multiple warehouses, you must have twice the RAM figure in the quoted system requirements section. See "System requirements for the AVP engine" for more information.

First, install and configure the AVP engine for an XA environment and warehouse, as described in this chapter. To prepare for the second installation, do the following:

1. Rename the Advanced Planner Download desktop icon. For example, rename it to AVP DL WH1, where WH1 is the ID of the warehouse in the first installation.

2. Rename the Advanced Planner desktop icon. For example, rename it to AVP WH1, where WH1 is the ID of the warehouse in the first installation.

3. Rename the ODBC connection to the AVP Access database:

   a. Start Advanced Planner. Select File > System Configuration. In the System Configuration window, select **Setup**. In the Dialog window, select **ODBC Setup**. The ODBC Data Source Administrator window appears. Select the System DSN tab. Double click on the Data Source named Advanced Planner 6.0. The ODBC Microsoft Access Setup window appears. Rename the data source:

      1) Type a new name over the existing name, Advanced Planner 6.0. For example, type AVP WH1 where WH1 is the ID of the warehouse in the first installation.

      2) Click **OK**, then **OK** again. In the Dialog window, ensure that your newly renamed data source is selected in the Select ODBC Source list. Click **OK**, then **OK** again. Exit Advanced Planner.

   b. Navigate to the folder in which you installed AVP (MAPICSADVPLAN, if you accepted the default). Edit the Config.ini file. Replace the name of the data source (DataSourceName) with the new name you assigned in the preceding steps. For example, type in AVP WH1.

You are now ready to install AVP for the second warehouse. See "Installing AVP" for more information.   See "Configuring AVP" for more information. Do the following:

1. Install the AVP engine in a separate folder. Select **Browse…** on the Select Destination Directory window and typing in a different folder name. For example, type in AVP WH2, where WH2 is the ID of the second warehouse. The folder can be on the same drive as the first installation or on a different drive. See "Configuring AVP" for more information.

2. Create a new ODBC data source to the System i server, to permit concurrent operation in separate System i jobs for each warehouse between the PC and the System i. See "Creating an ODBC data source" for more information.

3. Link the new AVP installation to the System i XA environment. Edit the APDataLink.ini file in the new AVP install folder (for example, AVP WH2). See "Linking AVP to the XA environment on the System i" for more information.

You can now optionally rename the newly created Advanced Planner Download and Advanced Planner desktop icons, as well as the ODBC connection to the AVP Access database, just as you did for the first installation, to clearly identify these items with the second warehouse. This also prepares you for an additional installation on the same PC.

Maintaining multiple AVP installations on one PC

To install a new version of the Advanced Planner engine, you must:

1. Download the new software.

2. For each installation on the PC:

   a. Uninstall the existing AVP program. Navigate to the install folder for the installation and double-click on the Unwise.exe program.

   b. Install the new version into the existing install folder.

Chapter 2. Information flow

AVP uses MRP user interfaces and functions on the System i, and it interfaces to the same applications as MRP, other than MPSP and Cameleon. See the *MRP User's Guide* for more information. The Advanced Planner engine replaces the MRP planning run. This chapter provides a summary of the information flow within AVP and how it compares with MRP.

- Before you plan: All supply and demand information, other than master scheduled orders from MPSP, used by MRP is used in AVP planning. The demand can come from:

  - Forecasts from the Forecasting application or directly entered into MRP

  - Safety stock

  - Customer orders from Customer Order Management (COM, CSM, and COM_Net)

  - Expected customer orders from Electronic Commerce (EC)

  - Planned intersite demand from InterSite Logistics (ISL/MISL)

  - Master-level item requirements entered into MRP.

  Most item and warehouse planning codes, horizons, and other parameters from MRP planning are also used in AVP planning.

  See Chapter 3. "Preparing for planning" for more information.

- While you plan: You manage planning from the AVP planning engine. You perform the following three steps, either interactively or in batch mode.

  - **Download**: Demand data is extracted into MRP planning files. All planning data is transferred to the AVP engine. During the download process, customer orders consume forecasts, and AVP uses only customer orders and unconsumed forecasts to plan.

    See Chapter 4. "Downloading data to the Planning Engine" for more information.

  - **Plan**: AVP matches supply against demand and develops a supply plan for materials and production resources. You can review, interact with, and modify the plan. You use multiple views, drill-downs, "what ifs," and un-do steps to resolve material and capacity issues. AVP stores your actions and you can save the plan.

    See Chapter 5. "Using the Advanced Planner engine" for more information.

  - **Upload**: When you save the plan, AVP extracts data and transfers it to the System i, loading it into MRP planning files. The MRP reports you previously selected are printed, and supply orders are rescheduled in the order files. You can update customer order promised delivery dates according to the plan.

    See Chapter 6. "Uploading data to the System i" for more information.

- After you plan: All the functions available to you on the MRP Order/Schedule Release and Review menu are available after you plan using AVP, including the following:

  - Review and release manufacturing, purchase, and intersite orders

  - Auto release purchase orders

  - Enter and maintain REP schedules

  - Define and send EDI purchase planning schedules via EC.

  - You can also use:

    – Order Based Production Management (OBPM) to review and release manufacturing, purchase, and intersite orders as you do with MRP using the Planner and MRP Recommendations objects.

    – Production Control and Costing (PC&C) to schedule and manage released manufacturing orders, per-order due dates as it does with MRP.

    – Capacity Requirements Planning (CRP) to load, print, and view planned and open orders, as it does after MRP planning.

Forecast consumption

AVP consumes forecast demand with customer sales order demand. It plans using only the unconsumed forecast and the customer sales demand. It consumes this forecast by month, or by smaller periods, if the forecasts are in smaller periods. For example, a forecast of 100 per month is divided equally into four weekly forecasts of 25. A customer places an order for 55 in the third week of the month. AVP consumes the third-week forecast of 25, then works toward the beginning of the month, consuming the second-week forecast of 25, and then finally consumes 5 of the first-week forecast of 25. If insufficient forecast exists at the beginning of the month, AVP consumes any available forecast to the end of the month.

The XA Forecasting application stores forecasts by periods, defined in the calendar for the warehouse, and inputs forecasts to MRP and MPSP in increments of weeks either by period or week.

Note: Ensure that you convert all the first-year periods you are planning in AVP to weeks. If you do not, as months and forecasts have different lengths and the forecast is always loaded on the first day of a week, some months may have two forecasts and other may have none. This will result in unsatisfactory forecast consumption.

For each item, you control how AVP uses the forecast and customer demand using the same item warehouse codes you use in MRP. AVP uses:

- Forecast only when the forecast code is type 2 or 3 (Input to MRP or MPSP)

- Customer orders only when the plan customer orders code is 1, 2, 3, or 5

- Expected customer orders from EC only when the plan expected customer orders code is A, B, C or D.

Forecast can be consumed in three ways:

- Individual item. This is the simplest way as it requires no special coding. 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. No finished product forecast is entered. You enter the forecast for the components using a family ID of FULL. See "Item and facility" on page 3-1 for more information.

As AVP consumes forecast at the highest level with a forecast as the components, the forecast is consumed there since the customer order demand is exploded through the bill of material levels. When an item has the forecast with a family ID of FULL, customer orders for that item and any parent of that item consume the item forecast.

- Planning bill family. Identify an item as a planning bill item and enter forecasts for the item. See "Item and facility" on page 3-1 for more information. In the bill of material, for the optional components, multiply the quantity required for one unit of the planning item bill by the expected percentage usage of that option. AVP explodes the forecasts for the planning bill item through the bill of material until it reaches a non-phantom item, then it forecasts that item. Do not enter customer orders for the planning bill since its bill of material is a component bill that cannot be manufactured. Enter customer orders for items with a bill for a specific configuration, and when the components in the ordered configuration match the components in the planning bill, the forecast is consumed.

AVP uses the item demand time fence to determine which forecasts to use. AVP downloads only forecast beyond the demand time fence (MRP current date plus the item demand time fence days) is for planning. If the item demand time fence is 0, the MRP current date becomes the item demand time fence.

If you use forecast consumption, you should move the MRP current date only once a week. All forecasts earlier than the current date are dropped during download, as AVP considers them past due. For example, the first week forecast from Forecasting is deleted when it becomes earlier than the current date.

If you run AVP daily and move the current date only once a week, change the release days daily in order to keep the MRP Release Date a consistent number of days from the date planning is run. Each day, additional orders will be flagged for release. For example, to flag orders for release if their start date is within three days, and you move the current date only once a week, set the release days (Maintain Horizon Values in MRP) to 3 on the first day of the week, 4 on the second day, 5 on the third day, and so forth. Start with 3 again when you move the current date to start a new week.

AVP uses forecast demand from:

- Forecasting using the Forecast Code
- User-entered information in MRP Maintain Forecast
- User-propagated from fields in the Item Warehouse object and Item Balance file
- User-supplied information from a user program that loads the forecast to the MRP Requirements (REQMTS) file with the following fields:
  - Warehouse (RQPLWH)
  - Item number (RQCOM)
  - Forecast date (RQDUD)
  - Forecast quantity (RQQTY)
  - Sequence number of 50001 or greater, ensuring that no duplicate key of warehouse/item number/date/sequence (RQSEQ) exists
  - Source of 5 forecast (RQSOR)

- Origination of 20 or greater (RQORG)

- Blank customer order ID (RQCID).

The user program must build and maintain the forecast, but need not delete it as time passes. Download does not use the forecast in planning if it is inside the demand time fence. Download deletes the forecast if it is earlier than the MRP Current Date.

AVP uses customer demand from:

- Customer orders from Customer Order Management (COM), Customer Service Management (CSM), and COM_Net, using the plan customer orders code

- Expected customer orders from Electronic Commerce (EC) using the plan expected customer orders code

- User-supplied information from a user program that loads the customer demand to the MRP Requirements (REQMTS) file with the following fields:

  - Warehouse (RQPLWH)

  - Item number (RQCOM)

  - Required date (RQDUD)

  - Order quantity (RQQTY)

  - Sequence number of 70001 or greater – ensuring that no duplicate key of warehouse/item number/date/sequence (RQSEQ) exists

  - Source of 6 or 7 (manual or held requirement) (RQSOR)

  - Origination of 20 or greater (RQORG)

  - Non-blank customer order ID (RQCID).

The user program must build and maintain the customer demand entirely, including deleting the demand when the order is shipped. Download deletes the customer demand if the source (RQSOR) is 6 and is earlier than the MRP current date, or if the source is 7 and is earlier than the MRP start date.

Two types of demand are input to AVP as both forecast demand and customer demand. No forecast from the preceding sources is consumed by this demand.

- Intersite orders, both planned and open. InterSite Logistics (ISL/MISL) records intersite shipments as inventory transfers, not sales. Intersite demand is not included in forecast (based on sales), so you must plan it in addition to forecast.

- User master level item requirements entered in MRP Maintain Master Level Item Schedules or propagated from fields in the Item Warehouse object and Item Balance file. You can enter special demand of any type and have it directly affect the plan in addition to forecast, as requirements do in MRP.

AVP also plans safety stock in addition to any other forecast or customer demand, just as it plans the preceding two types of demand.

Total and unconsumed forecast

MRP shows forecast demand two places:

- All forecasts appear in Forecast Demand and are used with customer orders to compute Greater Demand in the following:

  - Review Forecast/Orders display (AMM451)

- MLI Requirements vs. Forecast/Orders display (AMM351)
- MLI Requirements vs. Forecast/Orders report (AMM221).

• Forecast requirements, used in MRP planning, appear in Requirements or Planner Requirements, in the following:

- MLI Requirements vs. Forecast/Orders display (AMM351)
- Item Requirements Inquiry display (AMM511)
- MLI Requirements vs. Forecast/Orders report (AMM221)
- Requirements Planning and Master Items Planning reports (AMM3A1).

AVP shows the total forecast in Forecast Demand, and after planning, it shows only the unconsumed forecast in Requirements (identified as Forecast Requirements – FCR or FCST REQ). Only the unconsumed forecast is used in planning.

The download and upload processes manage the MRP requirements (REQMTS) file, so the MRP displays and reports show only unconsumed forecast as forecast requirements. Download deletes all types of forecast requirements records:

• Source (RQSOR) is 6 or 7
• Origination (RQORG) is 1, 6, or 20 or greater
• Customer order ID (RQCID) is blank.

Upload builds forecast requirements records for the unconsumed forecast:

• Source (RQSOR) is 6
• Origination (RQORG) 6
• Customer order ID (RQCID) is blank.

The interface between FCST and AVP is different from the interface between FCST and MRP. The same forecast data is loaded from FCST to MRP files in FCST Forecast Load to Master Schedule, based on the frozen, firm, and free period days you specified in FCST Forecast Control. AVP treats the FCST data differently in two ways:

• AVP uses the forecasts, not the forecast requirements. Download deletes all forecast requirements and upload rebuilds them with only the unconsumed forecast.

• Only forecasts outside the item demand fence (Current Date + demand time fence days) are downloaded.

AVP shows forecast similarly to the way MRP shows it. The total forecast from all sources appears in Forecast Demand. Only the forecast used in planning appears in Requirements. The difference is that AVP consumes forecast to determine the forecast used in planning and updates the MRP requirements file with the results.

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Chapter 3. Preparing for planning

Advanced Planner (AVP) uses the same supply and demand information as MRP. You prepare for planning with AVP in a similar manner to MRP. This chapter reviews the data used in AVP and identifies the differences between MRP and AVP.

Item and facility

The item and facility information includes the following:
Item definition and source
 Lead time code, bills of material and routings for manufactured items (either from PDM, PDM*Plus*, or EPDM), and lead times for purchased items

Demand parameters
 Forecast Code, Plan Customer Orders Code, and Plan Expected Customer Orders Code, to control the demand from outside MRP to use in planning, and Master Level Forecast Code, Number of Periods, Days per Period, and Forecast Quantity, to propagate either forecast or requirements

Ordering parameters
 Safety stock, number of days supply, and order minimums, multiples and maximums

Automatic rescheduling parameters
 Item reschedule code and rescheduling frozen zone

Production facility definitions
 Calendar, capacity, utilization, and queue time

The differences relating to item information between AVP and MRP include the following:
Combining requirements
 AVP uses the Combine Customer Orders option (specified for the warehouse in Planning Run Execution Options) but does not combine requirements according to the item warehouse Combine Requirements Code.

Master level items
 AVP treats all non-blank master level item codes as M (multiple source).

Order planning
 AVP uses four item lot-sizing parameters to plan order quantities:

- Aggregation period (days supply in MRP) when used with order policy code G (time periods of supply)

- Minimum

- Multiple

- Maximum

AVP determines planned order quantities for all items as follows:

1. Subtracts on-hand, open orders, and firm planned orders from the time-phased item demand to get time-phased net demand

2. Totals the net demand over the item aggregation period

3. Increases to the item minimum, if the item minimum is larger than the net demand

4. Rounds up to a multiple of the item multiple if an item multiple is specified

5. If an item maximum is specified:

   - If purchased, plans the order and issues an exception if the order quantity is larger than the item maximum,

   - If manufactured, plans the order for the item maximum if the order quantity is larger than the item maximum

6. Subtracts the order quantity planned from the demand, and returns to step 2. until orders are planned for all demand.

AVP downloads item lot sizing parameters based on the item order policy code, so the following order policy codes are planned almost exactly as they are in MRP:

A   Discrete
D   Fixed quantity
G   Time periods of supply
H   Discrete above a minimum

Specifically:

Aggregation period

If the order policy code is G and a number of days supply is specified, it is downloaded; otherwise, 1 is downloaded.

Minimum

If the order policy code is D or H and the fixed order quantity is greater than the minimum, the fixed order quantity is downloaded; otherwise, the minimum is downloaded

Manufacturing Order lead times

AVP calculates lead times for manufacturing orders using order quantity and routing and facility data, specifically facility standard queue time and operation setup time and runtime. It also assumes that, except for operations in which the entire order is processed at once (time basis codes C and H), operation times are overlapped as individual items are moved to the next operation as they complete the current operation. Therefore, you should review and update facility standard queue times, as they are used to determine planned manufacturing order lead times.

Purchase time fences

AVP does not consider the Firm Time Fence or the Authorized Time Fence. Purchase orders are flagged for release only if their start date is on or before the Release Date.

Order rescheduling

If an item reschedule code is left as 0 (the MRP default for the warehouse reschedule code), AVP defaults purchased items and master level items to 1 (no automatic rescheduling) and all other items to 4 (automatic reschedule in and out).

The minimum days to reschedule field (in both the warehouse and item) is ignored. In other words, it is treated as 1 for all items.

The automatic reschedule options for all three types of orders, specified when you initiate an MRP Planning run, are treated as Yes.

The Due date in past (automatic reschedule options) for all three types of orders, specified in Planning Run Execution Options, are handled based on the reschedule frozen zone:

- If the reschedule frozen zone is 0, AVP uses no frozen zone. For items specified as automatic rescheduling, the order is rescheduled to align with the demand.

- If the reschedule frozen zone is positive, the past due order is in the frozen zone, and is not rescheduled.

Schedule controlled (REP) items

- Alternate operations in PDM

- Additional item processes in EPDM.

AVP plans schedule controlled items using a single operation routing based on the information in the item line (ITMLIN) record for the primary production line for the item. The production line becomes the workcenter. You can view the schedule as one step during planning. If an item has multiple item lines, the following are downloaded so you can offload or alternate route a planned REP schedule to an alternate production line during AVP planning:

After planning, REP schedules are created and maintained in Enter and Maintain Schedules, as they are with MRP.

KBC items

AVP identifies KBC-configured items using a unique item number composed of the item number and a 7 digit sequence number for each configuration of the item. Download uses this unique number to send all information for the configuration:

- An item, bill, and routing

- The customer order line item

- When released, the open manufacturing order.

The sequence number appears only in the AVP engine, not the System i.

PPITEM file

Three additional item fields are supported in a user-controlled PPITEM file. Download generates a record in this file for each item planned by AVP, but you must use either DFU or DSPFILE to enter and maintain data in any of these fields.

- The *Family ID* (FMID) applies to forecasts for the item.

  Blank (default) Consume forecast only by customer orders directly for this item

  FULL Consume forecast by any customer order that uses the item, either parent or component

  FamilyName Consume the forecast by any customer order for an item in this forecast family

- *Forecast Family ID* (PRTF) applies to sales of the item.

  Blank (default) Customer orders for this item consume all forecasts for this item

  FamilyName Customer orders for this item consume only forecasts for this forecast family

- *Planning bill item* (PLNB) is used for forecast consumption.

  0 (default) No

1   Yes

Differences relating to facility information are the following:

Calendars

AVP does not download calendars. You must maintain calendar information on both the System i and the planning engine.

Capacity

AVP defines one capacity unit per facility, not one per shift.

Queue times

AVP defines two queue times per facility: Typical and Minimum. These are defined as MIN_BUFFER_TIME and TYPICAL_BUFFER_TIME in the AVP engine. The standard queue time is downloaded to the typical queue time, and you must maintain the MIN_BUFFER_TIME on the AVP engine. See Chapter 5. "Using the Advanced Planner engine" for more information.

Demand

The demand information includes the following:

- Forecast demand from ERP Forecasting (FCST), entered by the user or propagated in MRP, and user supplied to the requirements file using a user program.

- Customer order demand from COM, CSM, and COM_Net, expected customer orders from EC, and user supplied to the requirements file using a user program.

- Safety stock and other demand used as both forecast and customer order demand from intersite orders, both planned and open from ISL/MISL, and master-level item requirements entered by the user or propagated in MRP.

Demand warehouses associated with planing warehouses are supported as they are in MRP so forecast and customer order demand and safety stock from demand warehouses is included in AVP.

Differences relating to demand information are described in "Forecast consumption" on page 2-2.

Supply

The supply information includes:

- On hand inventory
- Open manufacturing orders, and released and unreleased REP schedules
- Open purchase orders, blanket orders, and requisitions, and open intersite orders
- Firm planned manufacturing, purchase and intersite orders as supported in MRP.

Demand warehouses associated with planning warehouses are supported as they are in MRP, so on-hand inventory from demand warehouses is included in Advanced Planning.

Differences regarding manufacturing allocations are described in the next section in the Time Phased Allocations paragraph.

Warehouse control

The warehouse control information includes the following:

- Warehouse ID, and Site ID

- MRP planning horizons as specified in Maintain Horizon Values:
    - Current date
    - Release date
    - Start date.

- MRP planning options as specified in Planning Run Execution Options:
    - Cancel exception code
    - Maximum demand sources to track
    - Track demand sources for on hand quantity
    - Rescheduling frozen zone
    - Safety stock lead time.

- Warehouse calendar dates: Last work day, and Last work day less one month (for Cancel exception code).

The differences relating to the warehouse control information are as follows:

- Time Phased Allocations: The AVP engine plans all allocations to manufacturing orders and REP schedules as time phased, regardless of the allocation days in Maintain Horizon Values and the time-phased allocations option in Planning Run Execution Options. In AVP, these options still control whether allocations are stored as requirements in the REQMTS file, and how they appear on MRP displays and reports, and how they are treated in component availability checking during manufacturing order release in MRP or OBPM.

- Combine code intervals: AVP does not combine requirements according to the item warehouse combine requirements code.

The following Planning Run Execution Options do not apply:

- Level to plan master level items: AVP plans all items

- Warehouse reschedule code: AVP defaults as discussed in the preceding Order rescheduling section

- Minimum days to reschedule orders: AVP does not use this field.

- Due date in past automatic rescheduling options, for manufacturing orders, purchase orders and REP schedules since AVP defaults as discussed above in Order rescheduling.

- Extract requisitions: AVP always extracts all requisitions.

AVP performs the following for the Initiate Planning Run options:

- Extract independent demand is done if COM is installed and interfacing

- Transfer new master scheduled orders is not done, as MPSP is not supported

- Perform purchasing auto release is not done; may be run after planning from MRP menu AMMM40

- Automatic reschedule options, for manufacturing orders, purchase orders and REP schedules defaults to Yes for all.

- Planning run type is not applicable since AVP plans all items.

Chapter 4.   Downloading data to the Planning Engine

You download data to the planning engine as the first step in planning. Run Advanced Planner Download, either from the icon on your desk top or by selecting Start > Programs > Advanced Planner 6.0. Forecast and customer sales order demand data is extracted into MRP work files, and planning data is transferred to the engine. The following options apply to download and should be reviewed and set before running download. See "What to do" for more information.

- You can download in either test or planning mode. You can save the plan and upload data to the System ionly in planning mode. This will give different results in MRP.

   - Test is the default.

   - You can run in planning mode only if AVP is active in the warehouse.

- If EPDM is active, you can specify how many item processes and their corresponding bills of material and routings are downloaded. You can download only the current primary process for an item (default), all current and future primary processes for an item, or all current and future processes for an item.

- You can print download audit reports that include only errors or include all details.

- You can specify the minimum hours for long operations. This allows you to download in-process hours for long operations so the engine can more accurately know how much time is required to complete the operation. In-progress records are sent for in-process long operations.

- You can activate or deactivate AVP in the warehouse.

Activating AVP in a warehouse

You must activate AVP in a warehouse before you can download in planning mode. Activating AVP sets a flag in the AVP control file on the System i for that warehouse. This flag prevents MRP planning from running either interactively or from a SBMMRPPLN command. It also saves and clears the MPSP item codes (MSIC) for items in the warehouse in order to disable the interface between MRP and MPSP. AVP and MRP process requirements differently during planning; therefore, only one or the other can plan a warehouse.

If you must restore the MPSP item codes and plan the warehouse using MRP and MPSP, you can deactivate AVP in the warehouse, which turns off the AVP active flag and restores the MPSP item codes. If you have run AVP planning, forecast requirements may have changed to reflect only unconsumed forecast. This will give different results in MRP.

Ideally, you should test AVP in a separate test environment before you activate it in your operational environment, particularly if you are running MPSP or will be consuming forecast. This lets you activate it and save the plan and upload the data to the System i and review it the way you normally do your MRP plan without disrupting your live MRP data.

What to do

Edit the APDataLink.ini file to specify the options for download to planning.

```
[ODBC]
DataSourceName=AP60
UserId=SCM
Password=SCM
[Download]
Env=66
Warehouse=TP6
DownLoad=0
LoadItem=0
PrintReport=1
Hours=0000008
[Upload]
COMPromiseDate=0
COMDueDate=0
[Download Files]
InputFileDir=C:\MAPICSADVPLAN\SampleDBAP\
CommaSeparated=0
ShowColumnHeader=0
Delimiter=
[Debug]
DebugDesign=0
DebugUpload=0
[System]
AVPActive=0
```

Env	Type in your XA environment ID.
Warehouse	Type in the warehouse number of the warehouse to be planned.
DownLoad	One of the following:

0   Default. Test. You can run this while MRP (and, optionally, MPSP) is planning the warehouse in order to test the planning engine operation. This mode saves no data on the System i, and does not allow you to upload after planning.

1   Plan. You can run in planning mode only if AVP is active in the warehouse. You can save the plan and upload it after planning. This mode conflicts with the following MRP jobs from download until upload completion:

- Maintain forecast
- Maintain MLI requirements
- Maintain horizon values
- Maintain period intervals
- Planning run execution options
- Order review and approve
- OBPM MRP recommendations.

See Chapter 6, "Uploading data to the System i" on page 6-1 for more information.

LoadItem   Applies only if EPDM is active. Specifies how many item processes, and the corresponding bills of material and routings, are downloaded for planning. With any option, only current and future processes are downloaded. One of the following:

   0   Default. Only the current primary process for an item.

   1   All current and future primary processes for an item

   2   All current and future processes for an item.

PrintReport   One of the following:

   0   Print no download audit reports

   1   Default. Print errors only.

   2   Show the detail of everything that is downloaded.

Hours   Type in the minimum hours for a long-running operation. The default is 8. The maximum is 9999999. Only operations with either setup time or runtime per piece (or order, if the time basis code is C or H) greater than this value are considered long operations. In-progress information, with the remaining setup or run time, is downloaded for long operations that are in process.

AVPActive   One of the following, to activate or deactivate AVP in the warehouse in the next download:

   0   (Default). AVP is not activated in the warehouse.
   1   AVP is activated, if not already active, in that warehouse.
   2   AVP is deactivated in the warehouse.

Downloaded data

This table lists the information sent to AVP. Each file is further described on the following pages in this chapter.

Download file (ERP workfile name)	Contents/Purpose	See page ...
Item (PPIPRT)	Planned by MRP/AVP	4-4
Item Process (PPIPRC)	Item processes (EPDM only) so the engine can select the correct item process for a planned order and a user can select an alternate process to off load overloaded facilities	4-7
Bill Of Material (PPIBOM)	From PDM, EPDM, and KBC	4-8
Routing (PPIRTG)	From PDM, EPDM, and KBC	4-9
Workcenter (PPIGWKC)	From PDM and EPDM	4-10
Forecast (PPFCS)	From FCST, MRP, and ISL/MISL	4-11
Sales (PPICOM)	Customer orders from COM/CSM, expected customer orders from EC, planned intersite demand, and MLI requirements from MRP	4-12

Download file (ERP workfile name)	Contents/Purpose	See page ...
Inventory (PPIINV)	On-hand quantity	4-13
Workorder Heading (PPIMOM)	Manufacturing orders and REP schedule masters, and firm planned manufacturing orders and REP schedules	4-14
Workorder Allocation (PPIMOD)	Component allocations for manufacturing orders and REP schedules	4-15
Workorder Routing (PPIMOR)	Operations for manufacturing orders and REP schedules	4-16
Jobs in Progress (PPIJIP)	Hours remaining for in-progress long operations	4-17
Purchase (PPIPUR)	Purchase orders and requisitions, intersite orders, and firm planned purchase or intersite orders	4-18
Warehouse Control (PPIPLN)	MRP warehouse planning control parameters	4-19

Item (PPIPRT)

AVP plans an item only if the item is planned by MRP or both MRP and APS, and is not a kit, miscellaneous or service item, or an APC/Cameleon item. If KBC is installed, download creates a unique item number for each KBC configuration on a customer order and each component in a KBC bill that also has a KBC bill of material. It does this by appending a sequence number to the item number in order to create a unique item number for the item and its associated data. These items, bills, and routings are extracted from the KBC configuration files.

AVP field	ERP source
Item ID	Item number (ITNB in ITMPLN); if KBC, ITNB and a 7-position sequence number
Item Description	Item description (ITDSC in ITMRVA)
Item Type (0=manufacturing order; 1=purchase order	If lead time code (LTCOD in ITEMBL) is M: 0. Otherwise, 1
Analyst ID	Planner (PLANIB in ITEMBL)
Manufacturing Unit of Measure	Stocking unit of measure (UNMSR in ITMRVA)
Selling price	Base price (BZANVA from MBBZREP for the system date) if not 0. Otherwise, Base price (BZANVA in ITMRVA)
Forecast family ID	Forecast family ID (IPPRTF from PPITEM)
Safety stock (A forecast is created for the safety stock quantity due {Current date + planning fence})	Sum of the safety stock (SAFTY in ITEMBL) in the warehouses (the planning warehouse and all associated demand warehouses) where Include Inventory Balance (ININ in ITEMBL) is 1 (Yes).

AVP field	ERP source
Planning Fence (used with safety stock)	Safety stock lead time as defined in the MRP option for warehouse (established on display AMM151) (SFTY in PLNINF for warehouse): 1 (LT)　　　Item lead time (M or P used by MRP) 2 (Current)　　0 3 (Cum Mtl LT)　Cum Material LT (CMTLT in ITEMBL) 4 (Cum Mfg LT)　Cum Manufacturing LT (CMFLT in ITEMBL)
Ordering information	
Aggregation period (in days)	If order policy code (ORDP in ITEMPLN) is G and days supply (NODS in ITMPLN) is greater than 0: NODS. Otherwise, 1
Minimum Lot	If order policy code (ORDP in ITMPLN) is D or H and the fixed order quantity (FXORQ in ITEMBL) is greater than the minimum (MINQ in ITMPLN): Fixed order quantity (FXORQ); otherwise, Minimum (MINQ).
Multiple Of	Multiple (MULQ in ITMPLN)
Reschedule flag	If item reschedule code (ITRC in ITMPLN) is 1 through 4, the reschedule flag is sent. If the item reschedule code is 0, the code defaults to 1 (no automatic rescheduling) for purchased and master-level items; otherwise, 4 (automatic reschedule in and out).
Frozen period	Item reschedule frozen zone (RSFZ in ITMPLN)
Manufacturing information	
Make Max Lot	Maximum quantity (MAXQ in ITMPLN)
Primary Route ID	If more than one item process is downloaded for this item, the sequence number of the current effective item process; otherwise, blank.
Phantom type (0=No; 1=Yes)	If item type (ITTYP in ITMRVLA) is 0 (phantom): 1; otherwise, 0
Planning bill item (0=No; 1=Yes)	Planning bill item (IPPLNB from PPITEM)
Purchasing information	
Cost (Purchasing parts only; AVP computes costs for manufacturing parts)	If IM tailoring (CSTCD in the STATI0 record in SYSCTL) is one of the following: 1　Standard unit cost (STDUC in ITEMBL) 2　Average unit cost (AVCST in ITEMBL) Neither 1 or 2: last unit cost (LCOST in ITEMBL) If cost from above is 0: unit cost default (UCDEF in ITMRVA)
Yield	1 — Shrinkage factor (SHFC in ITMPLN)
Raw Material Type: 2　Priority 1　Ignore 0　Normal	If LTCOD is P and constrained part (CPAR in ITMPLN) is 1 (Yes): 2 If LTCOD is P and constrained part (CPAR in ITEMPLN) is 0 (No) and floor stock (FLSTK in ITEMBL) is U (uncontrolled): 1 If LTCOD is P and constrained part is 0 (No) and floor stock is not U: 0
Primary Vendor ID	If not blank: Vendor (VNDNR in ITEMBL); otherwise, Vendor (VNDNR in ITMRVA)

AVP field	ERP source
Buyer ID	Buyer (BUYNO in ITMRVC)
Buyer Lead Time	Purchase review time (LTREV in ITEMBL)
MRP Lead Time (typical)	Purchase vendor (LTVEN in ITEMBL) plus Purchase (LTSAF in ITEMBL)
Minimum MRP Lead Time	Purchase vendor (LTVEN in ITEMBL)
Dock to Stock Lead Time	Purchase adjustment (LTADP in ITEMBL)

Item Process (PPIPRC)

If EPDM is active, item processes and their associated bills of material and routings that are requested in the LoadItem Download option are downloaded. See "What to do" for more information. This lets AVP select the correct primary process for planned orders and the user select alternate processes for planned orders in order to resolve resource problems. An item process specified in a firm planned order is downloaded regardless of the download option specified. No item process records are sent for KBC configurations since each configuration has a unique item number with one bill and routing. For REP items, if multiple item line records exist for one item process, AVP downloads an item process for each item line so you can alternate route a planned, firm planned, or created but unreleased REP schedule to another production line.

AVP field	ERP source
Item ID	Item ID
Item revision	ERP item revision
Revision start date	Revision effective-from date
Revision end date	Revision effective-to date
Route ID	Sequence number of the item process, generated in download since the ERP item process token contains packed data that does not translate into ASCII
Description	Process description
Primary process	1: Primary 0: Alternate
Process start date	Process effective-from date
Process end date	Process effective-to date
ERP alternate BOM ID	ERP Alternate BOM ID
ERP routing ID	ERP Routing ID
ERP Routing version	ERP Routing version

Bill of Material (PPIBOM)

If PDM is active, the download sends the bill for each manufactured item from PSTRUC. If EPDM is active, the download sends the bill from PSTDTL for each item process sent. For S-numbered items feature/option records, the F/O planning factor (FOPPF) is multiplied by the quantity per to compute the Quantity Per sent. The bill for each KBC configuration is set in TCFOBM.

AVP field	ERP source
Parent item ID	If not a KBC configuration: Parent item number If a KBC configuration: Item number and a 7-position sequence number
Route ID	If EPDM is active and not a KBC configuration: the sequence number of the item process; otherwise, blank
Item ID (Component)	If not a KBC configuration: Component item number If a KBC configuration: Item number and a 7-position sequence number
Quantity Per	1 If not KBC, and the standard batch quantity is greater than 0: (QTYPR/standard batch quantity); otherwise: Quantity per unit (QTYPR) 2 If not KBC and a feature/option record: the results of step 1 (above) times FOPPF 3 If KBC, and the standard batch quantity is greater is greater than 0: (COQP/standard batch quantity); otherwise: Quantity per unit (COQP in TCFOBM)
Job Step	If REP schedule: 0001; otherwise, Operation where first used.
Effective From Date	If not KBC and Effective from date (EDATM) is not 0: EDATM; otherwise, 01011901
Effective To Date	If not KBC and effective date (EDATO) is 0 and American: 12312099 If not KBC and effective date (EDATO) is 0 and not American: 31122099 If not KBC and effective date (EDATO) is not 0: EDATO If KBC and American: 12312099; otherwise, 31122099

Routing (PPIRTG)

If PDM is active, the routing for each manufactured item is sent from ROUTNG. If EPDM is active, the routing is sent from RTGOPR for each item process sent. No routing is sent for a phantom item. For REP items, a one-step (0001) routing is sent based on data from the item line (ITMLIN) file. The routing for each KBC configuration is sent from TCFOOO.

AVP field	ERP source
Item ID	If not a KBC configuration: Item number If a KBC configuration: Item number and a 7-position sequence number.
Route ID	If EPDM is active and not a KBC configuration: the sequence number of the item process; otherwise, blank
Route Priority	If PDM is active, and a routing for a REP item alternate production line, download numbers starting with 1; otherwise, 0.
Job Step	If a REP item: 0001; otherwise, the operation sequence number
Workcenter	If a REP item and primary line: the primary production line (PRLIN from ITEMBL) If a REP item and alternate line: Production line (PLINE from ITMLIN) If position 1 of FCPS resource constraint (FCP1) is asterisk (*): positions 2-6 of FCP1; otherwise, Facility
Batch Size	If not a REP item and time basis code is C or H: all nines; otherwise, 1
Setup time in seconds	If REP: changeover time + flow time - run time for one unit multiplied by 3600; otherwise, if prime load code is 2, 3, or 5 and setup crew size is greater than 0: Setup time divided by Setup crew size and converted to seconds; otherwise, 0
Run time per batch in seconds	If REP: Item rate converted to hours per piece if rate designator is P and multiplied by 3600; otherwise, if prime load code is 1 or 3: run machine hours converted to hours per piece or lot, based on the time basis code and multiplied by 3600; otherwise, if prime load code is 4 or 5: run labor hours converted to hours per piece or lot based on the time basis code and multiplied by 3600
Yield	If REP: 1; otherwise, current operation yield
Idling time per batch in seconds	If REP: 0; otherwise, the greater of the facility output buffer hours or operation output buffer hours multiplied by 3600.
Step description	If REP: Facility (production line) description; otherwise, operation description
Tool ID	If REP: blank; otherwise, tool number and FCPS resource information if present

Workcenter (PPIWKC)

If PDM is active, the facilities are sent from the WRKCTR file. If EPDM is active, the facilities are sent from FACMST.

AVP field	ERP source
Workcenter ID	Facility ID
Workcenter description	Facility description
Units	Largest of the desired capacities (shift 1, shift 2, or shift 3)
Max planned utilization	If the sum of the maximum capacities for the three shifts is not greater than zero: .95; otherwise, if the sum of the desired capacities divided by the sum of the maximum capacities is not greater than 1: the result; otherwise, 1.
Calendar name	Production calendar name
Dummy flag 0 Normal 1 Ignore 2 Outside processing	If prime load code is 0 (no load): 1; otherwise, if the time basis code from a routing operation for this facility is C: 2; otherwise, 0
Family	Facility group
Typical queue time in seconds	If REP production line: 0; otherwise, the standard queue time in days multiplied by the daily scheduling capacity in hours multiplied by 3600.
Minimum queue time in seconds	Not sent; you maintain it in the AVP engine
Overtime rate	If the prime load code is 2: the current setup labor rate multiplied by 1.5; if the prime load code is 4 or 5: the current run labor rate multiplied by 1.5; otherwise, 0

Forecast (PPIFCS)

Forecasts are sent for the following types of records in the requirements file if the forecast date is on or after the item demand time fence (MRP Current Date plus the Item demand fence days):

Forecast type	Source	Origination	Comments
Forecasts (from FCST)	RQSOR=5	RQORG=1	
User-entered forecasts from MRP	RQSOR=5	RQORG=0	
User-propagated forecasts	RQSOR=1	RQORG=0	
User forecasts from user programs	RQSOR=5	RQORG=20/+	Order ID-RQCID is blank
Intersite orders, planned from ISL	RQSOR=5	RQORG=8	
Intersite orders, customer orders from ISL	RQSOR=6,7	RQORG=0	Order ID-RQCID is present
User-entered requirements from MRP	RQSOR=6,7	RQORG=0	Order ID-RQCID is blank
User-propagated requirements	RQSOR=2	RQORG=0	

AVP field	ERP source
Item ID	Item number
Forecast ID	FCST + YYYYMMDD (forecast date/RQDUD in REQMTS)
Item family	Family ID (FMID from PPITEM)
Forecast date	Forecast date (RQDUD in REQMTS)
Forecast quantity	Forecast quantity (RQQTY in REQMTS)

Sales (PPICOM)

Sales are sent for the following types of records in the requirements file:

Order type	Source	Origination	Comments
Customer orders from COM, COM_Net	RQSOR=6,7	RQORG=0	Order ID-RQCID is present
Expected customer orders from EC	RQSOR=6,7	RQORG=11-15	Order ID-RQCID is present
User customer orders from user programs	RQSOR=6,7	RQORG=20+	Order ID-RQCID is present
Intersite orders, planned	RQSOR=7	RQORG=8	
Intersite orders, open	RQSOR=6,7	RQORG=0	Order ID-RQCID is present, and an intersite order exists
User-entered requirements from MRP	RQSOR=6,7	RQORG=0	
User-propagated requirements	RQSOR=2	RQORG=0	

AVP field	ERP source
Item ID	If not a KBC configuration: Item number. If a KBC configuration: Item number and a 7-position sequence number.
Promise date	If a CO: Current manufacturing due date (RQDUD in REQMTS)
Order quantity	Required quantity (RQDUD in REQMTS)
Order ID	Company (RQCONO) + Order ID (RQCID) + Release (RQRLNO) + Kit release (RQKTRL)
Line number	Line item sequence (RQLNSQ)
Customer ID	If a CO: Customer number in Quote/order header
Selling Price	If a CO: Net unit selling price include order-level fixed and variable trade discounts; otherwise, base price (BZANVA from MBBZREP for the system date) if not 0. Otherwise, Base price (BZANVA in ITMRVA)
Requirement sequence number	RQSEQ in REQMTS for use in upload

Inventory (PPIINV)

On-hand inventory is sent for items other than KBC configurations. Once a KBC configuration is built, it should be received and shipped, as the configuration cannot be identified in stock. The customer order shows a demand for the item number including the 7-position sequence number and the on-hand (supply) shows the base item number without the sequence number.

AVP field	ERP source
Item ID	Item number
On-hand quantity	The sum of the on-hand quantity (MOHTQ in ITEMBL) in the warehouses (planning and all associated demand warehouses) with the Include Inventory balance (ININ in ITEMBL) of 1 (Yes)

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Workorder Heading (PPIMOM)

All manufacturing orders and REP schedules (from MOMAST) with order status (OSTAT) of 00 through 40 or 50 and an open quantity, and all firmed planned orders (from PLNORD) are sent for planned items.

AVP field	ERP source
Item ID	If not a KBC configuration: Item number. If a KBC configuration: Item number and a 7-position sequence number.
Workorder type R Released workorder P Firm planned order	If a created order in MOMAST: R; if a firm planned order in PLNORD: P
Workorder ID	If MOMAST: manufacturing order, or REP schedule ID, and if an unreleased REP schedule, S in the first position is replaced with U. If PLNORD: download generates a unique order ID
Workorder status (one character)	If MOMAST: first position of order status (OSTAT); if PLNORD: 0
Workorder route ID for firm planned orders	PLNORD and EPDM is active: the sequence number of the item process for this planned order
Original quantity	The order quantity (ORQTY) plus the deviation quantity (QTDEV) minus the split order quantity (QTSPL) divided by the cumulative yield of all operations (CUMCY)
Quantity finished	Quantity received (QTYRC) divided by the cumulative yield of all operations (CUMCY)
Quantity scrapped	Scrap quantity (QTSCP)
Release date	MOMAST: the scheduled start date (SSTDT); if PLNORD: Order start date (POSTD)
Due date	MOMAST: Due date (ODUDT); if PLNORD: Due date (PODUD)
Reschedule flag (0-5)	Order reschedule code (ORRC)

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Workorder Allocation (PPIMOD)

For workorders sent from MOMAST, component allocations not yet issued (quantity required is greater than quantity issued) are sent. For unreleased REP schedules, download builds these records from the bill of material for the item; if EPDM is active, the bill of material for the item process in MOMAST.

AVP field	ERP source
Workorder ID	If MOMAST: Manufacturing order or REP schedule ID, and if an unreleased REP schedule, S in the first position is replaced with U. If PLNORD: download generates a unique order ID.
Child item ID	If not a KBC configuration: Item number. If a KBC configuration: Item number and a 7-position sequence number.
Job Step	If REP schedule: 0001; otherwise, Operation where first used.
Sequence number	User sequence number
Quantity required	Quantity required
Quantity issued	Quantity issued to date

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Workorder Routing (PPIMOR)

For workorders sent from MOMAST, active operations (OPSTC is not 00) are sent. For REP schedules, a one-step (0001) routing based on data in MOMAST.

AVP field	ERP source
Workorder ID	If MOMAST: Manufacturing order or REP schedule ID, and if an unreleased REP schedule, S in the first position is replaced with U. If PLNORD: download generates a unique order ID.
Job step	If REP: 0001; otherwise, the operation sequence number
Job step status	For open manufacturing orders if OPSTC in MOROUT is greater than 30: C; otherwise, the first position of OPSTC in MOROUT. For unreleased REP schedules: 1; for released REP schedules: 3
Workcenter	REP: PLINE from MOMAST; otherwise, if the actual facility is not blank: the actual facility (AWRKC); if the actual facility is blank: the standard facility (WKCTR)
Batch size	If not a REP schedule and the time basis code is C or H: all nines; otherwise, 1
Quantity good	Quantity complete to date, adjusted for splits, if required
Quantity bad	Quantity scrapped to date
Item ID	If not a KBC configuration: Item number; if a KBC configuration item: Item number plus a 7-position sequence number

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Jobs in Progress (PPIJIP)

For open manufacturing orders, operations in progress with a quantity remaining and either the setup time or runtime per piece (or per order, if the time basis code is C or H) is greater than the minimum hours for long operation specified in the Download options.

For time basis codes except C, setup and runtime remaining are calculated based on hours reported to date. This assumes the job is performing according to standards, adjusted for standard efficiency.

For time basis code C, setup and runtime remaining are calculated based on the time elapsed since the previous operation completion (or the job start date, if this is the first operation). This assumes the job is progressing as scheduled. No reporting is expected until the job is received back from the vendor.

AVP field	ERP source
Work order ID	If MOMAST: Manufacturing order or REP schedule ID, and if an unreleased REP schedule, S in the first position is replaced with U. If PLNORD: download generates a unique order ID.
Job step	Operation sequence number
Workcenter	If actual facility is not blank: the actual facility (AWRKC); otherwise, the standard facility (WKCTR)
Workcenter unit	A sequence number generated in download. For normal facilities, download sends no more JIP records than units in the facility, and sends the records with the latest transaction date first. See "Workcenter (PPIWKC)" for more information. For outside processing facilities (time basis code C—see Dummy Flag in the Workcenter file), all JIP records are sent.
Quantity in progress	If time basis code is C or H: Order quantity plus deviation quantity minus split quantity minus quantity scrapped in all previous operations; otherwise, 1
Setup time remaining	If time basis code C, standard run time minus elapsed time to date; otherwise, standard setup time minus actual time to date, factored for standard efficiency and standard setup crew size.
Runtime remaining	If time basis code C, standard runtime minus elapsed time to date; otherwise, standard runtime minus actual time to date, factored for standard efficiency.
Item ID	If not a KBC configured item: Item number; if a KBC configured item: Item number plus a 7-position sequence number

Purchase (PPIPUR)

For planned items, all open purchase order line items (POITEM and POBLKT), purchase requisitions, open intersite orders (XFRORD), and all firm planned orders for those order types from the Planned Order file (PLNORD)

AVP field	ERP source
Item ID	Item number
Order Type R Released order P Firm planned order	If open purchase order from POITEM or POBLKT, purchase requisition from REQHDF, or open intersite order (IO) from XFRORD: R If a firm planned order in PLNORD: P
Order ID	If open POITEM: PO number If open POBLKT: PO number and release from POBLKT If purchase requisition: Requisition number If open intersite order: IO number If in PLNORD: the download process generates a unique order ID
Line number	If open purchase order: line item sequence; otherwise, 1
Due Date	If open purchase order, intersite order, or purchase requisition: Due date to stock If in PLNORD: Due date (PODUD)
Order Quantity	If open purchase order: order quantity plus deviation quantity minus the quantity received to stock If purchase requisition: the order quantity If an open intersite order: Order quantity minus the quantity received
Reschedule flag (0-5)	For POITEM and POBLKT: Order reschedule code (ORRC in POITEM) For REQHDF: 1 (no rescheduling). Not supported for requisitions For XFRORD: 1 (no rescheduling). Not supported for intersite orders For PLNORD: Order reschedule code (ORRC in PLNORD)
Vendor ID	For purchase orders and requisitions: the vendor from the purchase order or requisition; otherwise, blank
Buyer ID	For purchase orders and requisitions: the buyer from the purchase order or requisition; otherwise, blank

Warehouse Control (PPIPLN)

AVP uses the MRP warehouse-level data. Most of this data is stored in either MRPCTL or PLNINF.

AVP field	ERP source
Location ID	Planning warehouse (PLWH)
Site ID	Site for this warehouse (STID)
Current date	MRP current date (plan as of this date {CUDT})
Release date	Flag order for release if the order start date is on or before this date (RLDT)
Start date	Horizon start date: the earliest date to use for planning (STDT)
Calendar end date	The last workday in the 5-year calendar (CLNE)
Cancel	Reschedule orders to be canceled to last month date if this code is 1 (CANC)
Last month date	Calendar end date less one month. For use with Cancel (CLNM)
Reschedule frozen zone	Warehouse rescheduling frozen zone (RSFZ)
Demands to track	The number of demand records to create in order to track a supply (PEGC)
Track on hand	Create demand records for on-hand if this code is 1 (DSQH)

Chapter 5. Using the Advanced Planner engine

This chapter discusses the following information:

Establishing calendars

Typically, users create calendars two to three years out. If the default calendar does not exist, AVP forces you to create one when you load the project. Use the calendar to define separate calendars for each facility if required. Nonetheless, at least one default calendar must be used. AVP uses the default calendar to calculate purchase lead times. If you add any calendars, or make any changes to the default calendar, you must reload the project in order for the changes to take effect.

The default calendar is the calendar under which most of your company works. All facilities are initially associated with the default calendar. To restore the your previous default working hours per day, click the **Restore** button. Then click **Save**. You cannot restore once you have changed the default working hours per day and saved it.

To look at or edit the calendar, select **DBMaint > Calendar**. The warehouse for which the calendar was created appears.

To create a calendar, do the following:

1. Create the default calendar. All facilities are initially associated with this calendar.

2. Make duplicates of the default calendar and modify as required.

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3. Associate the facilities with the new calendar.

New Calendar
Use this command to create new calendars. The software asks you set the duration for which the calendar is to be created. Note that when you create a new calendar, any holiday or maintenance schedules you previously created with default calendars have to be re-created for this calendar.

Duplicate Calendar
Use this command to create another calendar by setting your default calendar as your starting point. By doing this, you can set your default calendar as your starting point. The hours per day, holiday, and work-week information are carried over from the default calendar.

Associate
Use this command to associate workcenters with calendar you have already created. The list of facilities appears on the left. Select one or more facilities to be associated with this calendar. You can select multiple facilities by using the Shift or Control button. Select the calendar with which to associate these facilities from the right side of the window. Then click **Associate**. Exit the Associate dialog box. Save the calendar information to permanently save associations.

Exit
Exits the calendar utility and returns you to the window from which you came.

Calendar Start Date
Click this button to reset the start date.

Calendar End Date
Click this button to reset the end date.

Default Working Hours Per Day
The number of working hours per day for this calendar. Reduce the time in order to account for breaks. Click on the **Default** button to populate the default hours per day for the calendar.

Max Work OT
Not used with AVP.

Start of Week
Not used with AVP. Determines the bucket start in the time-phased chart.

Max Non-work OT
Not used with AVP.

Working Days in Week
When you click the **Default** button, the default hours per day field is populated on this many days in each week.

Max Weekly OT
Not used with AVP.

To simulate days off and maintenance on new facilities, double-click the specific date in the calendar dialog box and enter the new number of hours of availability on that day. Type in zero if it is a day off. Click **OK**.

Establishing minimum buffer (queue) times

Minimum buffer (queue) times are used in the forward scheduling routines of AVP. While typical buffer (queue) times are downloaded from the standard queue time value for a facility, you must establish minimum queue times in the AVP engine.

Minimum queue times are typically set to aggressive values of queue time at the facilities. The lower the values of minimum queue times, the less the push out of independent orders. The default value of minimum queue time is zero. Minimum queue times are entered in seconds and are based on the default calendar.

What to do

1. Select **DBMaint > Facility**. The SQL dialog box appears.
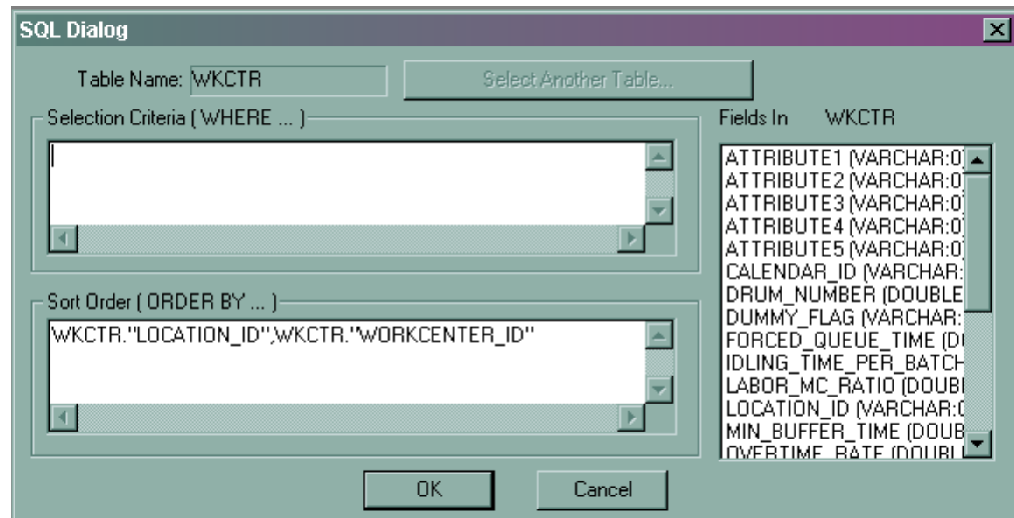
2. Click **OK**. The WKCTR Table appears. Scroll until you see the MIN_BUFFER_TIME column.

ERTIME_RATE	MIN_BUFFER_TIME	TYPICAL_
15.0	0.0	
15.0	0.0	
15.0	0.0	
15.0	0.0	
15.0	0.0	
15.0	0.0	
15.0	0.0	
15.0	0.0	
15.0	0.0	
15.0	0.0	
15.0	0.0	
15.0	0.0	
15.0	0.0	

3. Type in the minimum queue time in seconds of the default calendar at that workcenter. You can compress some of the columns to the left of the MIN_BUFFER_TIME column in order to see the facility ID.

   To save the changes, move the focus to the next or previous row.

4. Close the table.

5. Load the project again in order for the changes to take effect.

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Understanding AVP concepts

This section discusses the following Advanced Planner concepts:

- Forecast consumption
- Maintaining decisions
- Control items
- Item process code
- Forward scheduling
- Order lead time
- Lot sizing policy

Forecast consumption

This window shows you consumption of all forecast records that are downloaded. Forecasts can be consumed by sales orders for that item or of its parent item based on how you have configured the forecast. You must maintain a list of items for which you want the forecast to represent the forecast for the entire demand stream of the item.

By default, the forecast specified is consumed only by sales orders for that item. In addition to the forecast downloaded from XA, safety stock forecast records are generated for items for which safety stock is specified. Safety stock is not consumed; it serves as an additional requirement for the item. Safety stock requirements are placed at a fixed duration from the current date. See "Item (PPIPRT)" for more information.

	Forecast ID	Part ID	Forecast Qty	Qty On Order	Forecast Family	Original Target Date	Projected Com
1	FORECAST	CMP0C	32	0		06/20/2002	06/
2	FORECAST	ALUM-	1000	0		05/23/2002	05/
3	FORECAST	CMP0M	20	0		05/24/2002	05/
4	FORECAST	ALUM-	1000	0		05/24/2002	05/
5	FORECAST	BLD2M	15	0		05/26/2002	05/
6	FORECAST	CMP0C	20	0		05/26/2002	05/
7	FORECAST	CMPLC	25	0		05/27/2002	05/
8	FORECAST	ALUM-	1000	0		05/27/2002	05/

Forecast ID
A descriptive, non-unique identifier for the forecast record.

Part ID
The item being forecast.

Forecast Qty
The quantity being forecast for that item on that day.

Qty On Order
The forecast in that month that are unconsumed by open orders in that month.

Balance forecast
The unconsumed forecast (Forecast Qty - Qty on Order).

Maintaining decisions

AVP maintains the stability of time phase L: C when decisions are being made. If this is not done the time phased L: C becomes too unstable to make useful decisions.

- If load is moved forward from one bucket to another then the item has to be declared a control item. In addition all planned supplies due earlier than this supply are firmed up. If this is not done the newly rescheduled supply is expedited in and additional planned supplies take its place.

- If the item is a control item and the load is moved backward (earlier) from one bucket to another, the supply order and other planned supplies for that item between the moved-to bucket and the moved-from bucket are set to reschedule code 5. The reschedule code for firm and released supply is not modified.

- If the item is not a control item, the supplies within the two bucket ranges are firmed up and are set to a type 5 supply. This applies to all planned, firm, or released supply orders.

To avoid seeing all exception conditions on the engine, the difference between the planned dates and the moved to date is stored as an offset for the work order. The user has the option to hide exceptions within offset.

Control items

Control items are those items with an item reschedule code of 1, 2, or 3, or master-level or purchased items with an item reschedule code of 0. Manufactured and purchased items are treated the same way. AVP does not automatically re-schedule open and firm supply orders for control items. You, however, can manually intervene during the planning session to reschedule the orders.

AVP deletes and recreates planned orders for control and non-control items each time it explodes through the bill of material. All open and firm planned orders for non-control items are generally rescheduled during each explosion. The exceptions to this rule are as follows:

- Open and firm planned orders are not rescheduled within the rescheduling frozen zone.

- Open and firm planned orders are not rescheduled if the order reschedule code is 5.

You can identify additional control items during an AVP session.

Item Processes

AVP fully supports EPDM item processes, allowing multiple valid item revisions on one date, and multiple item processes for each item revision. An item revision can have only one primary item process on one date. AVP also lets you control how many item processes and corresponding bills and routings are downloaded for planning. See Chapter 4, "Downloading data to the Planning Engine" on page 4-1 for more information.

AVP determines the effective item process for planned work orders as follows:

1. Find the item revision with the latest effective-from date less than or equal to the order start date

2. If multiple revisions with the same effective-from date exist, find the one with the latest effective-to date

3. Use the primary item process for the item revision effective on the order start date.

Forward scheduling

Forward scheduling ensures that reasonable dates are set for order due dates. Suggested due dates in the Supply Demand window and Orders window are set to these dates if the orders are past due. The earliest feasible date for a supply is calculated using minimum queue times and is affected by the following:

- Horizon start
- Back wall due to firm order due dates
- Minimum lead time for purchase parts.

Order lead time

Since routing and facility information is available, lead times are calculated rather than using fixed lead-time values. Order lead times are calculated using the facility queue information and setup and runtime information for an order. The lead time for an order is the sum of the typical queue times for the resources through which the orders passes and the processing time at the facilities along its route. AVP uses a transfer lot of 1 to calculate lead time.

Lot sizing policies

AVP supports lot sizing policies for both make and purchase items. The quantity of planned supply is determined using the following parameters in the part table:

- Aggregation period (in days)
- Purchase Multiple of (quantity)
- Minimum lot (quantity)
- Make Maximum Lot (quantity)

AVP generates a planned supply order on the date of the first shortage for all the requirements over the aggregation period. It then adjusts this quantity by the minimum lot if the supply quantity is less than the minimum lot and the purchase multiple-of, by rounding the quantity up to the nearest multiple. For manufactured items, AVP plans orders no larger than Make Maximum Lot, if one is specified.

Understanding the File menu

The following sub-menus are available from the File menu:

- System Configuration.
- Load project.
- Save Plan.
- Cancel Plan.
- Export Data ...
- Print.
- Print Preview.
- Print Setup ...
- Exit Application.

System configuration

See "Configuring AVP" for more information. See "Planning multiple warehouses" for more information.

Load project

You can load the data by selecting File > Load project or by clicking on the file-folder icon. The following window appears:
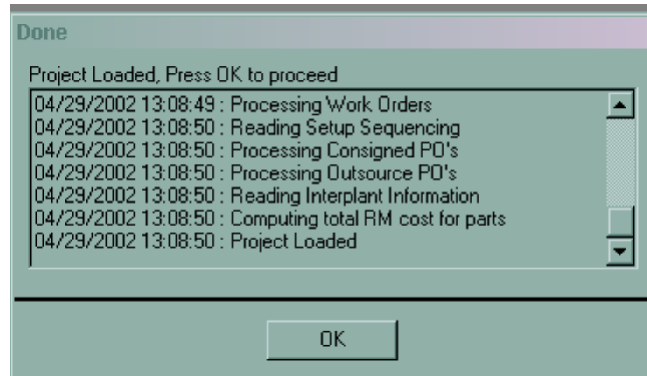
Advanced Planner reads all the data and loads it into memory. It also does the following:

- Builds the product structure network using the BOM and Routing information
- Processes the workorder files
- Does forecast consumption.

Once the data is loaded into memory, you can access available charts and tables either from the Display menu or by right-clicking your mouse in the window. Available decisions are available by right clicking in the window. Most decisions are available only for supply orders, and you need to select one or more orders by selecting any column in that order's row. Only decisions that can be made for that order are shown. Other decisions are grayed out.

Save Plan

See Chapter 6, "Uploading data to the System i" on page 6-1 for more information.

Cancel Plan

See Chapter 6, "Uploading data to the System i" on page 6-1 for more information.

Export Data ...

Select this menu item to export information that appears in table format to a text file. To switch from the chart format (default) to the table format, select Display > Table. Then load the chart again. The Windows Save As window appears. Select the directory in which you wish to save the text file, and then name the file appropriately.

Print

Select this menu item to print the active window.

Print Preview

This menu item appears only if the Time-Phased Order Chart is active. Select this menu item to see a preview of the Time-Phased Order Chart. Use this printout to see cumulative load, cumlative capacity, and capacity information.

When you select this option, a preview the chart you select appears as it will on a standard sheet of paper. From this preview window, you can zoom in or out, and select to print the chart. When you select **Print ...**, the Windows Print window appears. If you are using extended horizons, you can preview and print the Time-Phased Orders chart in a two-page format.

Print Setup ...

This menu item appears only if the Time-Phased Order Chart is active. Select this menu item to select the bucket range of the Time-Phased Order Chart you wish to print. The following dialog box appears:
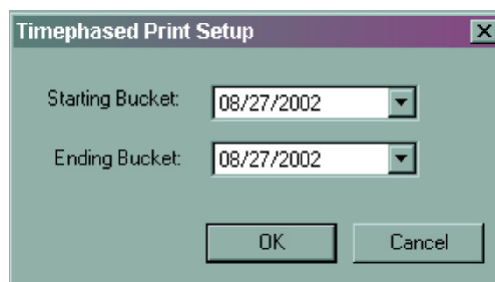
Type in the starting and ending buckets.

Exit Application

See Chapter 6, "Uploading data to the System i" on page 6-1 for more information.

Understanding the Display menu

The following functions are available from the Display menu:

- Toolbar. You can select the Standard toolbar with this function.
- Bar. You can see the succeeding windows as bar charts.
- Table. You can see the succeeding windows as tables.
- Item List Filter. See "Item List Filter" for more information.
- Create Firm Planned Order,
- Item List. See "Item List Filter" for more information.
- L:C for Plant. See "L:C chart" for more information.
- Items Load. See "Items Load" for more information.
- Time Phased. See "Time Phased L:C" for more information.
- Orders Window. See "Orders Window" for more information.
- Supply Demand for Part. See "Supply Demand for Item" for more information.
- Waterfall—Pegged Order. See "Waterfall charts" for more information.
- Waterfall—Feeding Supplies. See "Waterfall charts" for more information.
- View Log. See "View Log" for more information.

- Undo. See "Undo" for more information.

L:C chart

Use this chart to see the load to capacity percentages for the facilities in the plant. The chart is sorted in the descending order of the load to capacity. It shows you facilities that are potentially overloaded and imbalances you must resolve.
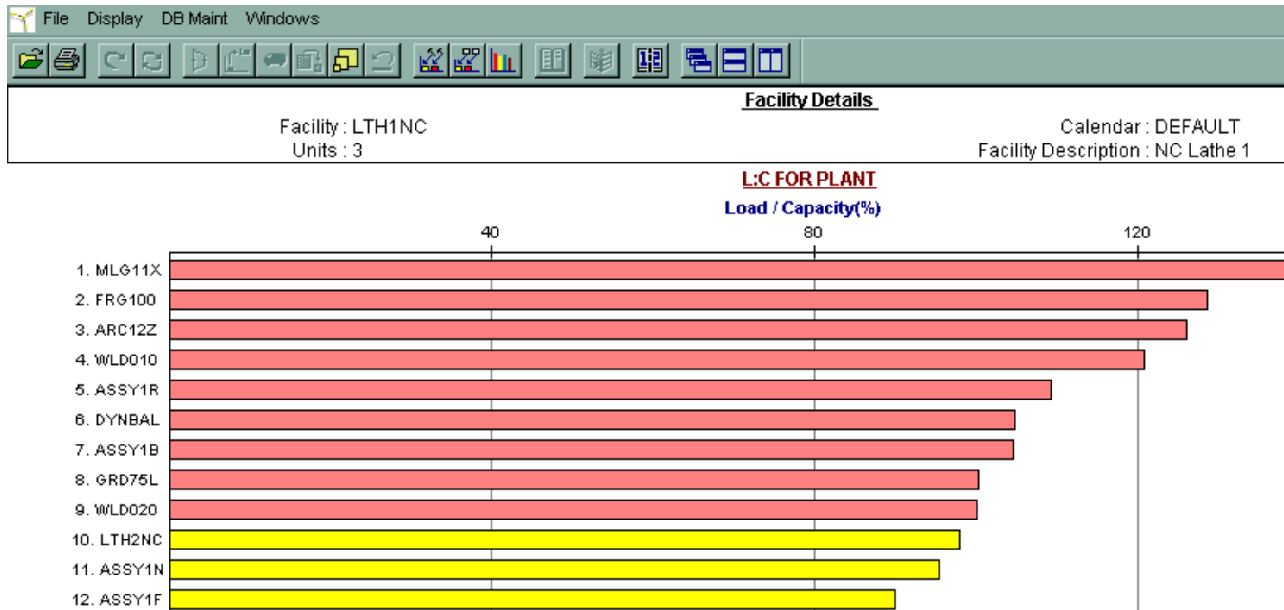
The bar chart is color coded as follows:

- If the load is greater than the capacity over the planning horizon, the bar is red

- If not red and if the cumulative capacity is less than the cumulative load up to any bucket, the bar is yellow. For example:

    - If the bar is not red or yellow and load is greater than the capacity in at least one bucket, the bar is blue.

    - If the bar is not red, yellow or blue, the bars is green.

You can specify setup percentage as a percentage of the total load in the Workcenter table.

Decisions

Set Telescopic buckets. You can the bucket size and the number of buckets using a dialog box. See "Using the toolbar" for more information.

Drill Downs

- Items Load
- Orders Window
- Time Phased L:C.

Items Load

Use this chart to see the load in hours contributed by each item to the overall load of the facility in a bucket. You can also see the quantity each item is short. The Percent column shows the percentage of the total load contributed by each item
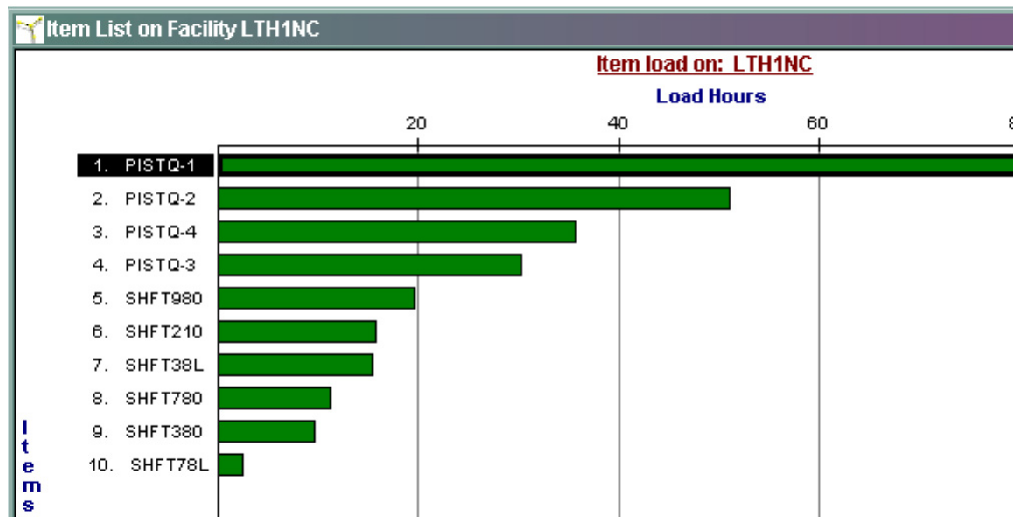
When you reach this window from a specific bucket rather than an entire horizon, you see the information for that specific bucket.

Decisions

Identify as Control Item.

Drill downs

• Orders Window: Filter is workcenter and part
• Supply Demand for Item: Filter is Part ID

Orders Window

Use the Orders window to see information dependent upon from where you reached this window. You can get to this window from the following:

- L: C for plant
- Time phased L: C
- Items Load
- Specific Item List Filter.

Order Type

One of the following:

Customer
Forecast
Safety Stock
Mfg-Released
Mfg - Firm
Mfg - Planned
Purchase - Released
Purchase - Firm
Purchase - Planned

Order ID

The workorder ID for released manufacturing orders; the purchase order ID for released purchase orders; the order ID for independent orders.

Item ID

Item Type

One of the following:

Control - Mfg
Non-Control mfg
Control - Purchase
Non-control purchase

Due Date

The current due date of the order.

Suggested Date

The requirement date for supply orders and suggested due date, assuming firm supply for independent demand. If the suggested date is the maximum date, blue appears for supply order. The default (white) appears for demand orders. If the suggested date is less than the order due date, red apperas for supply orders and

yellow appears for demand ordres. If the suggested date is greater than the order due date, yellow appears for supply orders and red appears for demand orders. Note that the red and yellow conditions are reversed for supply and demand orders.

Source

The parent workorder ID that causes the greatest exception for this supply, or, if this supply feeds independent demand, the Demand order ID.

Source Item

The item ID associated with supply in the Source column. If you are seeing supply at a lower level, this field contains the Part ID of the parent item that drives this supply. For independent orders, the same value as the item ID field.

Analyst/Buyer ID

The analyst or planner for the part if it is a make part. If it is a purchase part, the buyer for this part.

Customer/Vendor

If this is an independent customer order, the customer from the order was received. If this is a purchase order, the vendor who has the purchase order.

Load

Information in this field appears only if you reached this display from the load to capacity chart.

Load %

Information in this field appears only if you reached this display from the load to capacity chart.

Legend

Indicates that the row is expedited, deferred, or cancelled, based on the color coding.

Decisions

• Alternate Route Order: Available only for firm or planned orders that have alternate routes defined in EPDM

• Offload: Change the workcenter for one operation. Available only for released orders since there are no specific routes for firm or planned orders

• Outsource: Change the work order from a make route to a purchase route

• Re-Schedule Supply: Available only for control items. The due date of the supply is rescheduled to the earliest required date of the supply.

• Modify Supply: Modify the due date and process for an existing firm supply. Planned supplies are firmed up in the process. If you modify a planned or firm supplies date, you can also modify the quantity and the re-schedule code. If you modify a released supply, you can only modify the due date and re-schedule code.

• Level Load: Change the due date of the supply within same work center.

• Re-Schedule Requirement: Available from all released and firm planned supplies for control items. You can reschedule the due date of the parent item supplies and their parents. Forward scheduling is baed on minimum queue times on facilities and not on typical queue times.

• Re-Schedule All Requirements: Reset all requirement dates based on due date of all the supplies in this window.

- Identify Control items: You can identify additional control items during the planning session. Your decisions are saved back to XA and are downloaded the next time.

Drill Downs

- Waterfall: For a specific supply order or a specific demand order

- Supply Demand for Item: For the item associated with the supply or demand order.

Time Phased L:C

Use the time phased L:C chart to see the bucket L: C in user-defined buckets.
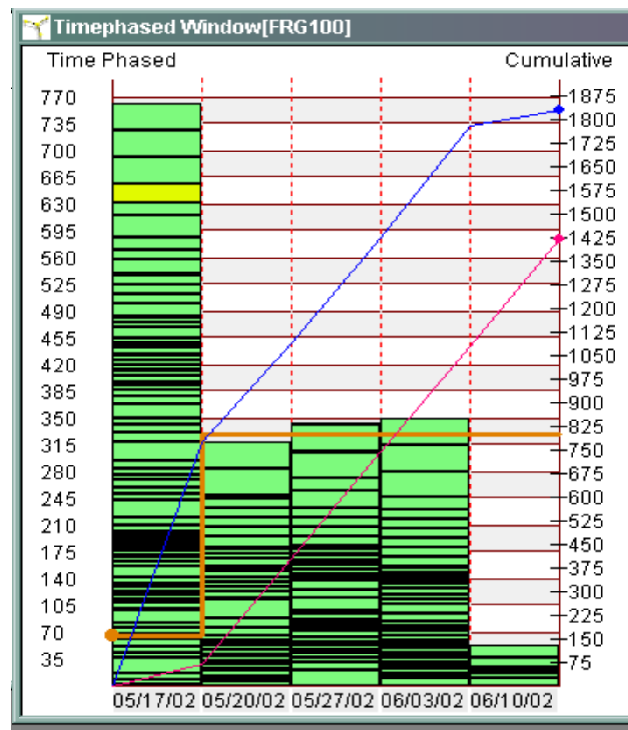
You can determine the L: C and imbalances that need to be addressed from this screen. You can preview a printout of the timephased orders chart for extended horizons, and then print this preview. When you select to print the window, a dialog box lets you specify the bucket print range. Buckets with excessive load will cause the hours information on the left side of the printout to merge together.

The due date of the supplies determine the bucket in which they generate the load.

The maximum lot size has an impact on time-phased load calculations. For example, you have a demand of 190 pieces. The maximum lot size is 25. SCM splits the demand into 8 small demands with same due date which generate 8 almost identical tasks on the workcenter. These demands have the same schedule start and end dates (except the final one) which causes an overload.

Decisions

- Alternate Route Order: Available only for firm or planned orders that have alternate routes defined in EPDM

- Offload: Change the workcenter for one operation. Available only for released orders since there are no specific routes for firm or planned orders

- Outsource: Change the work order from a make route to a purchase route

- Re-Schedule Supply: Available only for control items. The due date of the supply is rescheduled to the earliest required date of the supply.

- Modify Supply: Modify the due date and process for an existing firm supply. Planned supplies are firmed up in the process. If you modify a planned or firm supplies date, you can also modify the quantity and the re-schedule code. If you modify a released supply, you can only modify the due date and re-schedule code.

- Level Load: Change the due date of the supply within same work center.

- Re-Schedule Requirement: Available from all released and firm planned supplies for control items. You can reschedule the due date of the parent item supplies and their parents. Forward scheduling is baed on minimum queue times on facilities and not on typical queue times.

- Identify Control items: You can identify additional control items during the planning session. Your decisions are saved back to XA and are downloaded the next time.

Drill Downs

- Waterfall: For a specific supply order or a specific demand order

- Supply Demand for Item: For the item associated with the supply or demand order.

- Orders Window: If the time-phased L:C appears as a table, you can see the orders for a specific bucket.

Supply Demand for Item

Use this window to see the pegging information between supply orders and demand orders for an item. It shows one level pegging between and item and its immediate parents.

	Supply I	Qty	Start Dat	Due Dat	Load	%	Sugg Du	Proj On	Reqd Da	Reqd Qty	Peg
1	ON_HAN	5.00	05/17/02		0.00	0.00		5.00			
2	WO61	4.00	04/30/02	04/30/02	0.30	0.25	04/30/02	9.00			
3	Plnd	94.00	04/30/02	04/30/02	7.05	5.99	04/30/02	103.00			
4								0.00	04/30/02	103.00	Plnd
5	Plnd	160.00	05/02/02	05/02/02	12.00	10.20	05/02/02	160.00			
6	Plnd	80.00	05/02/02	05/02/02	6.00	5.10	05/02/02	240.00			
7								160.00	05/02/02	80.00	Plnd
8								0.00	05/02/02	160.00	Plnd
9	Plnd	65.00	05/07/02	05/07/02	4.88	4.14	05/07/02	65.00			
10								0.00	05/07/02	65.00	Plnd
11	Plnd	13.00	05/10/02	05/10/02	0.97	0.83	05/10/02	13.00			
12								0.00	05/10/02	13.00	Plnd
13	Plnd	76.00	05/13/02	05/13/02	5.70	4.84	05/13/02	76.00			
14								0.00	05/13/02	76.00	Plnd
15	Plnd	43.00	05/14/02	05/14/02	3.23	2.74	05/14/02	43.00			

Supply ID
One of the following:

The workorder ID for released orders
The purchase order ID if the route is a purchase route
Firm if it is firm planned order
Plnd if it is a planned order.

Qty
The quantity of the supply order remaining or pending.

Start Date
The current start date associated with the workorder. For PO orders this field is set equal to end date.

Due Date
The current due date of the supply. If you re-scheduled the order, this date is set equal to the suggested due date. For PO routes, the dock date

Load
Appears only when you reach this window from the load to capacity chart. The load placed by this supply in the bucket being drilled down.

Load %
The percentage of load in the bucket generated by this supply.

Suggested Due Date
The recommended due date of the supply to meet shortages in supply. Also, excess supply

Projected On Hand
The supply on hand + quantity on release or firm supply up to bucket date. The required quantity up to bucket date. Supply availability is calculated based on the due date, not the suggested due date.

Required Date
 The due date of the requirement.

Required Quantity
 The quantity pegged to a specific requirement.

Peg To
 The order ID of the independent demand if this item has an independent demand. If this is a customer order, a combination of the **Order ID** field and the **Line number** field in the Sales table. If the item is lower in the BOM and this supply feeds into a firm order or released order of a higher-level item, that information appears here. If the supply feeds into a planned order, the word Planned appears here.

Item
 The item driving the requirement

Analyst/Customer ID
 The customer ID for the sales order or forecast order, if available. Or, the Planner ID of the item this supply feeds into.

Due Date
 The current due date of the independent order if the supply feeds into an independent order. Or, the start date of the planned, firm, or released workorder this supply feeds into.

Suggested Due Date
 The recommended due date of the independent order or supply this order feeds into based on shortages for this item. An earlier due date is not suggested if the supply is available earlier than the required date; the suggested due date is set equal to the due date.

Decisions

- Alternate Route Order: Available only for firm or planned orders that have alternate routes defined in EPDM

- Offload: Change the workcenter for one operation. Available only for released orders since there are no specific routes for firm or planned orders

- Outsource: Change the work order from a make route to a purchase route

- Re-Schedule Supply: Change the due date to a suggested to due date for this supply.

- Modify Supply: Modify the due date and process for an existing firm supply. Planned supplies are firmed up in the process.

- Level Load: Change the due date of the supply within same work center.

- Re-Schedule Requirement: Reset requirement dates based on the due date of supply

- Re-Schedule All Requirements: Reset all requirement dates based on due date of all the supplies in this window.

Drill Downs

- Waterfall - Pegged Orders
- Waterfall – Feeding Supplies

Waterfall charts

Two types of waterfall charts are available:

- Pegged Orders shows the level-by-level pegging between a supply order and its parent orders all the way to the independent demand.

- Feeding Supplies shows the component shortages for a specific supply and the supplies available to satisfy them.

For each item, you can see the gross quantity, the quantity on hand, and the quantity short. You can also see the planned and firm supply available to satisfy the requirements.

Figure 5-1. Waterfall—Pegged orders
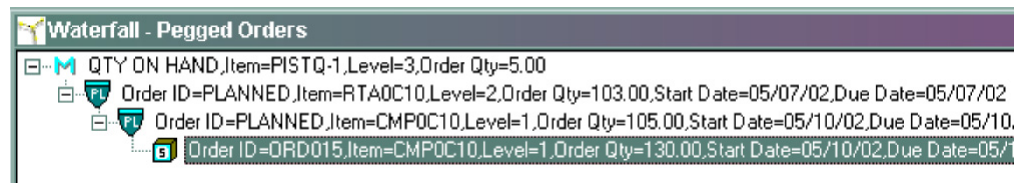
Figure 5-2. Waterfall—Feeding Supplies
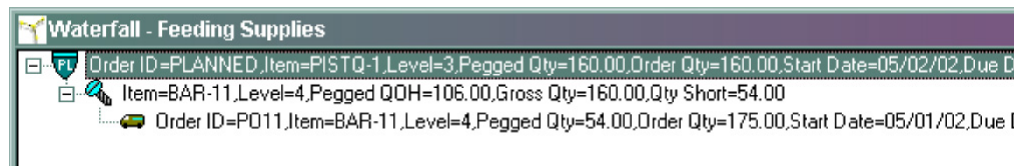
Interstate symbol with W
    Released workorder

Interstate symbol with PL
    Planned workorder

Interstate symbol with F
    Firm planned order

Screw
    Item level information. Red indicates control items.

Truck
    Released purchase order.

B
    Planned purchase order.

Item List Filter

Use this tool to see the status of your critical parts right away. You can filter critical items based on either supply or independent orders. You can save multiple templates to the database. These templates are loaded and appear when you select Display > Item List.

A quick way to view supply demand for an item is select a specific item from the item drop down list in this window

The item list filter window consists of four distinct sections:

- Template name
- Item properties.
- Supply Orders
- Demand orders.

Template name

Once you have determined your search information, you can it by typing in a name (for example, Purchase Exceptions) and click **Save**. To use a saved template, select Display > Item List. To use a particular template as a starting point for another template for a new type of search, select the template, make your changes, and then click **Save As**.

Item properties
Item ID

A combo box from which you can select a specific item.

Make Items
Select Y (default) or N. If you select yes, make items appear; otherwise, they do not appear.

Purchase Items
Select N (default) or Y. If you select yes, purchase items appear; otherwise, they do not appear.

Planner ID/Buyer ID
A combo box from which you select an Analyst ID. The default is ALL. If you select purchase items, this is a list of buyer IDs. If you select make items, this is a list of Analyst IDs. If you select both, this is a list of both with duplicates eliminated.

Control Items
Select Y, N, or Ignore (default). If you select yes, only control items (items with a reschedule flag of 1, 2, or 3 in the Item table) appear. If you select no, only non-control items appear. If you select Ignore, items are selected regardless of control code.

Supply Orders
Show past due > (0 and any positive whole number)
If you select supply orders, only those items with a start date greater than the number of days before the horizon start that you select here appears. If you select demand orders, those items with a due date in the past of more than the number of days that you select here appears.

Show Expedites > (0 and any positive whole number)
Available only for supply orders. Only those items with a supply due date more than the number of days you select here later than the required date appear.

Show Items with Defers > (0 and any positive whole number)
Available only for supply orders. Those items with a supply due date earlier than the number of days you select here than the required date are added to the list of items if not already there.

Show Items with Cancel Orders
Select Y (default) or N. Available only for supply orders. If you select Y, items with orders recommended for cancellation are added to the list of items if they are not already on the list. If you select N, items are added to the list regardless of the presence or absence of cancel orders.

Show Items with exceptions within Offset
Select Y (default) or N. Available only for supply orders. Offset is the number of days a supply is moved in or out in order to balance load to capacity. This often creates an exception condition, if the order due date no longer matches its required date. To avoid seeing these messages on the engine during planning, select N. Items then are added to the item list only if defer or expedite exceptions are greater than the offset value. If you select Y, item deferrals and expedite exceptions are added to the list, even if their exceptions are less than the offset value.

Show Items with planned orders within Frozen Zone
Select Y (default) or N. Available only for supply orders. If you select Y, items with planned orders within the period are added to the list of items if they are not already there. If you select N, items are added to the list without checking for planned orders within the frozen period.

Demand orders

Customer Orders > X (any positive whole number)
> Available only for demand orders. Only those items with customer orders with projected completion more than the number of days you select here than the due date appear.

Forecast Orders > (any positive whole number)
> Available only for demand orders. Only those items with forecast orders with projected completion more than the number of days you select here than the due date appear.

Safety Stock Orders > (any positive whole number)
> Available only for demand orders. Only those items with safety stock orders with projected completion more than the number of days you select here than the due date appear.

Show past due > (0 and any positive whole number)
> If you select supply orders, only those items with a start date greater than the number of days you select here before the horizon start appear. If you select demand orders, items with a due date in the past more than the number of days you select here appear.

Buttons

The following buttons are available from this window:

OK
> Save template changes to memory, but not to the database.

Cancel
> Do not save anything and exit the Item List Filter.

Save
> Save changes to the template to the memory and to the database.

Save As
> Save this new template to the memory and the database with a user-defined template name.

Delete
> Delete the current template from the database, effective the next session. The template is not deleted from memory as some windows are still using the template.

Examples

To see purchase parts for control items with orders more than 3 days past due or cancel orders, complete the window as follows:
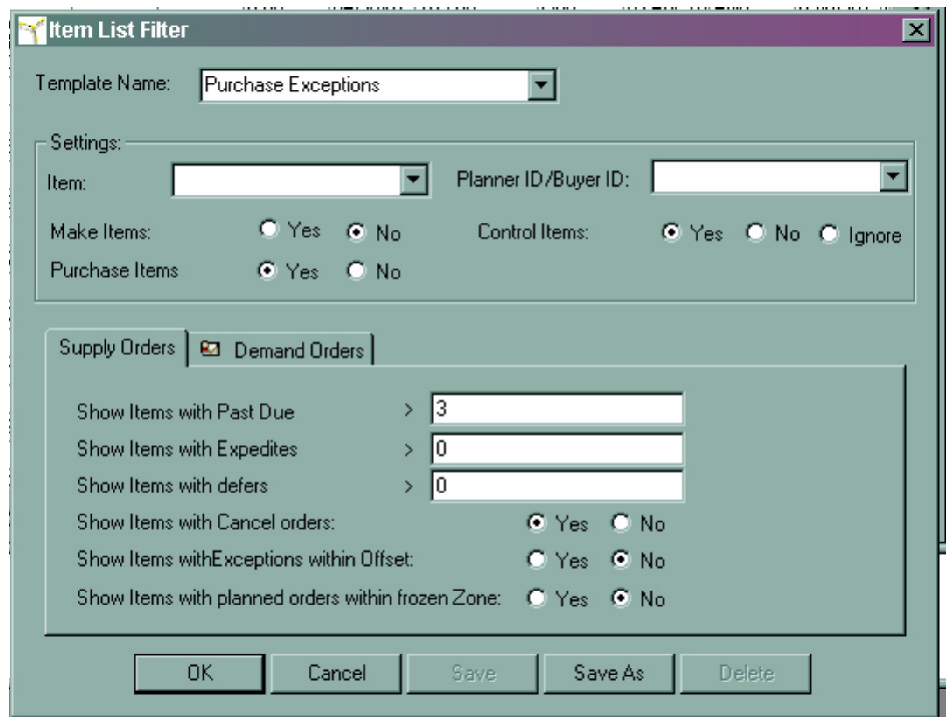
To see items with customer orders that are late by more than 3 days, but not those items with safety stock or customer orders, complete the window as follows:
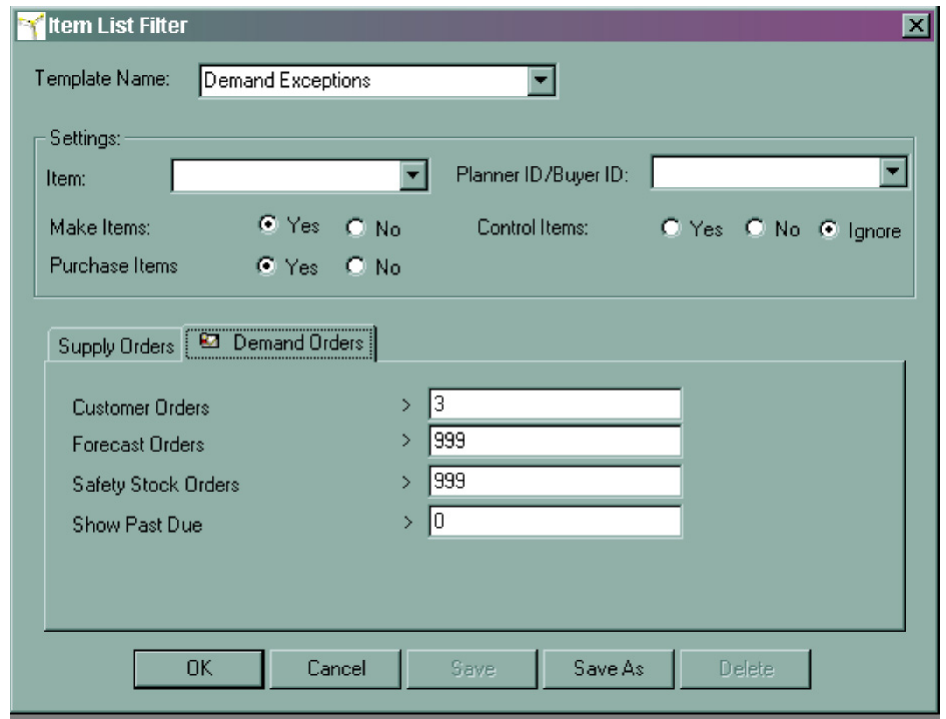
View Log

Use this function to save the decisions made in the planning session. You can view and print the log of your decisions.

Undo

You can undo most of your decisions; however, you cannot undo change requirements and change all requirements decisions. To undo those decisions, load the project again. See "Load project" for more information.

Using the toolbar

The following functions are available from the AVP toolbar:

• Load project. Use this icon to load the project into memory.

• Print screen in focus. Use this icon to print the active window.

• Refresh current view (only). Use this icon to refresh the active window.

• Refresh all AVP views. Use this icon to refresh all AVP views. Use this after using the Undo function.

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• Alternate Route. Use this icon only for planned and firm planned supplies with multiple processes defined in EPDM.

The following window appears when you select this icon:

You can type in the due date of the supply. The available alternate processes appear. You then set the reschedule code for the supply. If a planned supply is alternate routed, the supply is firmed up. this information is uploaded to the System i and downloaded for the next planning session.

- Offload. Use this icon to perform offload decisions on released work orders only. Alternate facilities defined in the route appear at the top of the alternate facilities list. If the reschedule code is set to 5, you cannot modify the due date.

The following window appears when you select this icon:

- Outsource. Use this icon to create a purchase supply for a make item. The item ID is the part that will be outsourced.

The following window appears when you select this icon:

Quantity
Type in the quantity to be outsourced.

Date
Type in the day on which the material will be available in the dock.

Reschedule Code
Either 5 or other. If you set this code to 5, earlier requirements for this item are satisfied by generating planned manufacturing orders. Any other value reschedule behavior is based on the control item code for the item.

• Level load. Use this icon to move loads from one bucket to another on the same facility.

The following window appears when you select this icon:
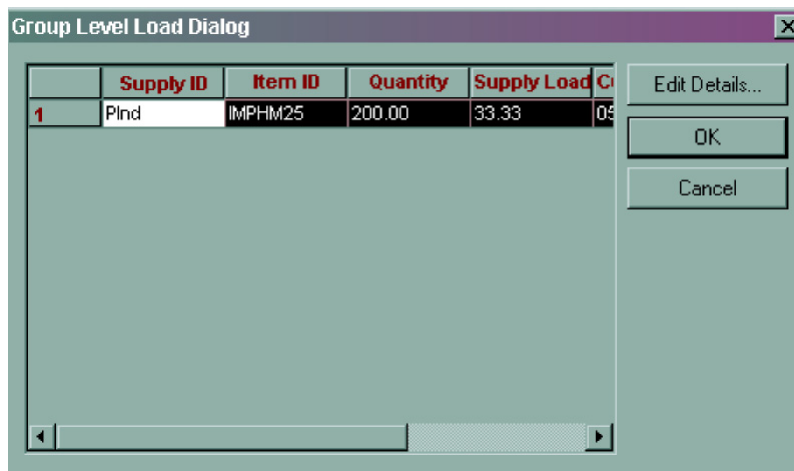
You can move the load from one bucket to another in the same facility. See "Maintaining decisions" for more information.

• Telescopic buckets. Use this icon to define a smaller planning window up front and longer planning window in the future. The default is weekly buckets. You type in the number of buckets for each bucket duration.

The following window appears when you select this icon.

You can type in the number of buckets for each bucket duration.

Chapter 6. Uploading data to the System i

As discussed in Chapter 4. "Downloading data to the Planning Engine", you can plan in two modes: test or planning. The planning mode is set when you start the engine, from the DownLoad option used in the last download.

When you finish planning in test mode, select File > Exit Application to exit the planning engine, the only available option.

When you finish planning in planning mode, you have three options:

1. Select File > Save Plan to save the plan, upload the data to theSystem i, and release the System i jobs locked when you ran download. This is the normal choice. The remainder of this chapter describes what happens when you take this option.

2. Select File > Cancel Plan to release the locked System i jobs without saving the plan. Use this option if you don't want to save the plan until you make changes of some sort to data on the System i. After you make the changes, run download and then plan again.

3. Select File > Exit Application to exit the planning engine without either saving the plan or releasing the locked System i jobs. You must confirm your action if you select this option, as this is not a normal choice. Use this option only if you need to exit the planning engine for some reason but do not want to save or cancel the plan.

When you save the plan, the appropriate data is transferred to the System i and processed as described. You can optionally update either or both of the following dates in customer orders from the plan by selecting options before you run download.

• The current promised (delivery) date
• The current manufacturing due (ship) date.

AVP uses the manufacturing due date in customer orders as the required date in planning, just as MRP does. If you decide during planning that you cannot meet all the customer order dates and move one or more of them, you can update the current manufacturing due (ship) dates you believe you can meet and the current promise (delivery) dates. The promise dates are updated to the manufacturing due (ship) date plus the shipment lead time. Only if you update the current manufacturing due date will the changed date be used as the required date in the next planning run.

What to do

Edit the APDataLink.ini file to specify whether you want to update either of the dates in the Customer Order file.

```
[ODBC]
DataSourceName=AP60
UserId=SCM
Password=SCM
[Download]
Env=66
Warehouse=TP6
DownLoad=0
LoadItem=0
PrintReport=1
Hours=0000008
[Upload]
COMPromiseDate=0
COMDueDate=0
[Download Files]
InputFileDir=C:\MAPICSADVPLAN\SampleDBAP\
CommaSeparated=0
ShowColumnHeader=0
Delimiter=
[Debug]
DebugDesign=0
DebugUpload=0
[System]
AVPActive=0
```

COMPromiseDate   One of the following:

0	Do not update the promise date
1	Update the promise date only the first time it changes
2	Upload the promise date every time it changes

COMDueDate   One of the following:

0	Do not update the manufacturing due date
1	Update the manufacturing due date only the first time it changes
2	Update the manufacturing due date every time it changes.

What AVP does

Uploading to the System i performs the following on the System i:

1. Loads the following plan information into these MRP planning work files:

   - Requirements. Both:

     - Unconsumed forecasts (Source-RQSOR=6 and Origination-RQORG=6)

     - Generated component demand (Source-RQSOR=8).

   - Planned Order. All supply orders, including open, firm planned, and planned.

   - Demand Reference. Demand information as specified in the MRP Planning Run Execution options.

   - Reschedule Activity. Rescheduling actions automatically taken by the engine or by a user interacting with the engine during planning.

2. Reschedules open manufacturing orders, REP (Repetitive Production Scheduling) schedules, and purchase orders rescheduled in planning from the information in the Reschedule Activity file.

3. Updates the current promise dates and current manufacturing due dates in customer order line-item releases, as specified in the upload options.

4. Updates the actual workcenter field in the manufacturing order operation when a user offloads an unstarted operation in a manufacturing order to an alternate facility. This captures the action in the execution database.

5. Creates an unreleased REP schedule to capture the alternate production line and changes the planned order record when a user offloads a planned or firm planned REP schedule to an alternate production line. This captures the offloading action.

6. Updates the production line in the unreleased REP schedule when a user offloads an unreleased REP schedule to an alternate production line. This captures the offloading action.

7. Updates the item reschedule code to 1 (no automatic rescheduling) when a user flags an item as a control item.

8. Runs the closing steps in the MRP planning run in order to:

   - Load the MRP planning work files to the MRP planning files

   - Create the Order Review file for use in MRP/OBPM review and release of manufacturing, purchase, and intersite orders

   - Print the MRP reports as specified in the MRP Planning Run Report options.

Uploaded data

The following files are uploaded from the AVP engine to the System i. The files are written to the SampleDBAP folder in the AVP install folder, then transferred to the System i for processing. In the SampleDBAP folder, the files have a file name (the first word in in parentheses in the following list) plus a file extension of .out. On the System i, upload loads the first four files into the MRP planning work files, and then to the MRP planning files. Upload processes each file as described.

Requirements (REQMTS)

Upload writes to kinds of records to this MRP file:

- Component demand for planned and firm planned orders generated by the engine during planning

- Unconsumed forecasts generated during forecast consumption. See "Forecast consumption" for more information.

Planned orders (PLNORD)

Upload writes all the records in this MRP file. If EPDM is active, and an unreleased REP schedule was offloaded to another production line during planning, upload updates the item process and production line information in MOMAST from the PLNORD record. If EPDM is active and a firm planned order for a REP schedule was offloaded to another production line during planning, upload creates an unreleased REP schedule using the item process from the PLNORD record and changes the PLNORD record to reflect the unreleased schedule.

Demand reference (DMDREF)

If specified in MRP Planning Run Execution Options, the planning engine provides information for tracking supply to five kinds of demand:

Sales
Unconsumed forecast
Safety stock
Supply order
Negative on hand

Upload incorporates this information into the MRP file.

Reschedule activity work (RACWRK)

Upload writes a record for each open and firm planned order for:

- A controlled item that the user interactively rescheduled during planning

- An uncontrolled item that the engine either rescheduled or tried to reschedule because the order is needed earlier or later than its due date or is not needed at all. Upload on the System i reschedules the open orders rescheduled during planning.

Customer order update (CUSORD and PPCOWK)

Upload writes a record to this file only if the user interactively rescheduled a customer order during planning. Upload on the System i reschedules the dates in the customer order line item release if COM is installed as specified in the upload options. The records remain in the PPCOWK file on the iSeries until the next upload for processing by the user if COM is not installed.

Manufacturing routing (MFGRTG)

Upload writes a record to this file only if the user interactively offloaded a workorder step (manufacturing order or REP schedule operation) to another work center. If the step is a manufacturing order operation, upload on the System i updates the actual facility (AWRKC) in the operation record (MOROUT). If PDM is active and the step is for an unreleased REP schedule, upload updates the

production line (PLINE) in MOMAST. If PDM is active and the step is for a firm planned order for a REP schedule, upload creates an unreleased REP schedule for the production line (PLINE) and changes the PLNORD record to reflect the unreleased schedule.

Control items (CTRLITM)

Upload writes a record to this file when an item is identified as a control item during planning. Upload on the System i updates the item reschedule code (ITRC in ITMPLN) to a 1 (no automatic rescheduling).

Appendix A. Download error messages

- **Items**

Error number	Error text
AMM0104	(W) Safety stock quantity was sent with a loss of data

- **Bills of materials**

Error number	Error text	Comments
AMM0111	(E) Calculated quantity per must be greater than zero.	This component record is not downloaded.
AMM0112	(W) Calculated quantity per was sent with a loss of data.	
AMM0113	(E) Operation sequence contains non-numeric characters.	The Planning Engine only works with numeric operation sequence numbers as noted below in Routings.
AMM0114	(W) Operation where used is not found in the routing file.	
AMM0115	(E) Component bill of material is not referenced in a parent bill of material.	Refers to KBC items.

- **Routings**

Error number	Error text	Comments
AMM0116	(E) Production facility is not found.	
AMM0113	(E) Operation sequence contains non-numeric characters.	The Planning Engine only works with numeric operation sequence numbers. This operation was not downloaded.
AMM0117	(E) Routing parent number is not found in the bill of material.	Refers to KBC items.
AMM0121	(E) No routing was sent for item ******************* because no item line exists for primary production line *****.	With PDM active, an item line is required to send a routing.
AMM0122	(E) A primary item process for item ******************* was not sent because no item line record exists for it.	With EPDM active, an item line is required to send an item process.

- **Production Facilities**

Error number	Error text	Comments
AMM0100	(I) Maximum capacity is zero.	Maximum utilization was set to 95%.
AMM0101	(W) Overtime rate was sent with a loss of data	
AMM0102	(I) Maximum capacity exceeds 100%.	Maximum utilization was set to 100%.

- **Inventories**

Error number	Error text
AMM0103	(W) On-hand quantity was sent with a loss of data.

- **Manufacturing orders**

Error number	Error text	Comments
AMM0109	(W) Sequence number was sent with a loss of data.	
AMM0113	(E) Operation sequence contains non-numeric characters.	The Planning Engine only works with numeric operation sequence numbers. This operation was not downloaded.
AMM0110	(E) Item line record does not exist or needs review.	The REP record for the Item/ Line relationship needs review.

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Appendix B.   Frequently asked questions

1. How do I determine the version of the Advanced Planner engine?

    a. Open Windows Explorer and select the AVP install folder.

    b. Right click on the advplanner.exe file. If you are unable to see this file, select View > Option and ensure that you can see all file types.

    c. Select the version tab. You will see the version number.

2. What is the command to run AVP engine in the batch mode?

    Resonance -rap -s

Glossary

alternate routing.   A set of bill of materials and routing data that captures another method for producing a product.

ASCII (American Standard Code for Information Interchange). A binary character code used to represent a character in a computer. It consists of 128 seven-bit codes for upper- and lowercase letters, numbers, punctuation, and special communication-control characters.

batch. A quantity scheduled to be produced together.

batch production.   A manufacturing method used when the lot size of identical parts is produced in a factory. Batch production is the method adopted when the required product volumes are not adequate to permit continuous product of one product on dedicated machines.

bill of materials (BOM).   A listing of all the subassemblies, parts, and raw materials that go into a parent assembly.

BOM. Bill of materials.

bucket. A time period, usually daily, weekly, or monthly.

bucketized load.   The load within a given period of time.

buffer. Additional planned lead time used to protect the system from the disruptions inherent in any process, or additional inventory used to enable filling customer orders in less than the normal lead time (stock buffer). A duration of time used to protect firm schedules generated during the planning process. Strategically placed before drums, shipping operations, or some assembly operations.

burden rate.   A cost, usually in dollars per hour, normally added to the cost of every standard production hour to cover overhead expenses.

capacity. Time available at a resource over a period of time. Usually determined by how the resource is staffed. For example, capacity at machine A is 40 hours per week.

CGS. Cost of goods sold.

child part. A manufactured component or purchase part used in assembly. A part made up of parts that have been made previously (parent parts).

classifying materials.   A way of distinguishing orders of importance of materials in a plant. See "ignore materials," "normal materials," and "priority materials."

configuration. The arrangement of components specified to produce an assembly.

cycle time.   The time between completion of two discrete units of production. See "manufacturing cycle time" and "order lead time."

data file. A collection of related data records organized in a specific manner.

DBUtil. An AVP product that converts data files from any external source into a database that has the correct information and structure for AVP.

delivery lead time. The time difference between when a customer places an order and when the order is shipped.

demand. A requirement for a particular product or component over time. Expressed by date, quantity, and product.

dependency. Certain operations or activities cannot take place until certain other operations or activities have been completed.

dock-to-stock lead time. The time difference between the time a purchase part product arrives at the dock to when the part can be released.

expedited POs (purchase orders). Purchase orders with a due date (arrival date) after the date of requirement on the shop floor.

first day load (FDL). A task must performed on the horizon start date and insufficient capacity is available.

forecast. A planning methodology that predicts orders for a product.

idle time. Time not used to perform a setup or process (run) material import.

ignore materials. Materials completely ignored by a AVP for material analysis. For example, screws and bolts.

ignore workcenters. Workcenters sufficiently flexible to handle the load or with inaccurate data. You can specify to ignore these.

inventory. Amount of money tied up in materials that the company intends to sell. Inventory is equal to the purchased material value of raw material, purchased parts, work in process and finished goods.

jobs in progress (JIP). Operations or setups currently in progress on a workcenter, usually a drum. Used by AVP to account for significant progress on operations that might otherwise be scheduled for a full run. For example, a furnace operation that is 14 days long might be in day 12 by the time a scheduling session occurs.

L:C chart. A software function that shows load versus capacity information on all workcenters sufficiently flexible. To facilitate decision making, several display options appropriate for finite scheduling are available.

manual overtime allocation. Allocation of exact amount of overtime on specific days. AVP reschedules the work center to optimize the schedule of the work center after OT allocation. AVP allocates overtime for every calendar day (not just every work day) in the range subject to a maximum of 24 work hours per day.

manufacturing cycle time. The difference between material release for an order and shipment of the release.

minimum lead time. Any of the following:

- Firm purchase orders due before today's date plus a minimum lead time beyond which an order cannot be expedited

- Any firm purchase orders due outside of today's date plus a minimum lead time that can be expedited to today plus a minimum lead time

- New purchase orders that can be made due today plus a minimum lead time.

normal materials. All materials other than priority. Unless you ask AVP to analyze Priority Materials only, these materials will show up in your analysis.

ODBC. Open Database Connectivity.

offload. A decision you make during planning to change the workcenter for unstarted operations in a released order.

offloaded jobs. Tasks that have been offloaded from their original work center to an alternate work center.

outside processing. A specific routing step always sent outside the plant for processing.

outsourcing. Buying parts which could be made in-house. Indicated in AVP by adding a purchase order to the Purchase file. If out sourced parts arrive on different dates, add multiple entries to the purchase file. AVP computes the date on which a requirement exists for an out sourced parts. It uses the arriving out sourced part for all orders that require the part after the date on which the part arrives. If insufficient parts arrive by the required dates, AVP plans to make the parts in-house. AVP assumes that all sub-components required for the out sourced parts have either been shipped or provided by the vendor. No requirements are generated for the quantity that has been out sourced.

overhead $ (dollars). Operating expenses minus direct labor dollars.

overtime (OT). Hours worked exceeding normal labor hours.

parent part. A part produced from one or more components.

planned overtime. Shows by work center the overtime allocated in the current session

planned work orders. Work orders for parts to be released no sooner than the start date but as soon as possible after start date.

PO_Qty_Open. A field in the Purchase file that specifies the sum of all purchase order quantities for the same item due on the same date.

priority materials. Materials that may be hard to procure or have long lead times.

product mix. The proportion of individual products that make up the total production or sales volume.

R&D (Research and Development) order. An experimental order.

real time. The immediate availability of data to an information system as a transaction or event occurs.

scheduling horizon.   The time period for which scheduling is relevant.

setup.   A procedure performed on a workcenter or workcenters to prepare for processing a given job.

setup time.   The amount of time required to perform a setup.

SQL.   Structured Query Language.

supply chain management.   The use of information technology to give automated intelligence to a network of vendors, suppliers, manufacturers, distributors, retailers, and a host of other trading partners. The goal is for each player in the supply chain to conduct business with the latest and best information from everyone else in the chain, guiding supply and demand into a more perfect balance. Effective management of the supply chain enables a company to move product from the point of origin to that of consumption in the least amount of time at the smallest cost.

time-phased load profile.   A chart that shows the orders at a workcenter.

UDAs.   User-defined attributes.

undo.   Reversal of decisions you made previously in planning.

workcenter.   A specific production area consisting of one or more people and/or machines with identical capabilities that can be considered as one unit for purposes of capacity planning and scheduling.

workcenter family.   A group of similar work centers. AVP can show loads and capacities for work centers with specified families.

workcenter load profile.   A chart that presents load to capacity ratios for the scheduling horizon established when AVP was started. The top portion of the chart provides details about the workcenter (for example, number of units, ID of the calendar associated with the work center, and the work center family).

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