

Oracle® Process Manufacturing

Process Planning User's Guide

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Oracle Process Manufacturing Process Planning User's Guide, Release 12.2

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Preface

Intended Audience

Welcome to Release 12.2 of the *Oracle Process Manufacturing Process Planning User's Guide*.

This guide assumes that you have working knowledge of your business area's processes, tools, principles, and customary practices. It also assumes that you are familiar with Oracle Process Manufacturing. If you have never used Oracle Process Manufacturing, we suggest you attend one or more of the Oracle Process Manufacturing training classes available through Oracle University.

See Related Information Sources on page xi for more Oracle E-Business Suite product information.

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Structure

1 Understanding Advanced Supply Chain Planning Integration with Oracle Process Manufacturing

Oracle Advanced Planning and Scheduling (APS) includes the following applications:

- Oracle Advanced Supply Chain Planning (ASCP)
- Oracle Global Order Promising
- Oracle Inventory Optimization
- Oracle Demand Planning
- Oracle Collaborative Planning
- Oracle Manufacturing Scheduler
- Oracle Strategic Network Optimization (SNO)
- Oracle Production Scheduling (PS)

Oracle Process Manufacturing (OPM) integrates with all of the APS applications. OPM users can use Global Order Promising, Inventory Optimization, and Demand Planning by following the same steps as discrete manufacturing users. This topic focuses on using OPM with ASCP. For more information about the Advanced Planning and Scheduling suite of applications, refer to the *Oracle Advanced Planning and Scheduling Implementation and User's Guide*.

The integration of OPM with ASCP helps in increasing the planning efficiency, which gives you a competitive edge. The integration consists of the following features:

- Constraint-based planning, which ensures that the plan is feasible and acknowledges all of your constraints.
- Performance management enabled through the integration of ASCP with Oracle Workflow. This lets you:
 - Easily and quickly evaluate a plan based on its impact to target Key Performance Indicators (KPIs)
 - Manage by exception - receive notifications when corrective actions are required
- The ability to collect data from multiple instances.

2 Understanding Material Planning

Planning is an integral and critical part of the present day business. Oracle Process Manufacturing (OPM) offers an effective solution to efficiently plan your process planning requirements.

The Master Production Scheduling (MPS) application lets you shorten the long-term views of material demands and projected supply actions to a narrow and immediate time horizon to see the immediate effects of demand and supply actions.

OPM uses Oracle Forecasting to predict future demand for items over time.

3 Setting Up

If you are using Oracle Advanced Planning Scheduler (ASCP), you must set up Oracle Process Manufacturing (OPM) data so that it can be properly processed. You must understand the differences in data structure between Oracle Applications and OPM in order to properly set up and use the OPM data with ASCP.

4 Working Relationship Between ASCP and Process Manufacturing Products

The relationship between Oracle Process Manufacturing and Advanced Supply Chain Planning (ASCP) involves data setup in OPM, the use of this data in ASCP for planning, and the flow of suggestions from ASCP to OPM. This chapter considers data setup, use, and feedback.

5 Using OPM Supply Chain Planner

6 Using OPM Material Planner

7 Process Planning Reports

The topic describes the Process Planning reports.

A Navigation Paths

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Related Information Sources

Integration Repository

The Oracle Integration Repository is a compilation of information about the service endpoints exposed by the Oracle E-Business Suite of applications. It provides a complete catalog of Oracle E-Business Suite's business service interfaces. The tool lets users easily discover and deploy the appropriate business service interface for integration with any system, application, or business partner.

The Oracle Integration Repository is shipped as part of the Oracle E-Business Suite. As your instance is patched, the repository is automatically updated with content appropriate for the precise revisions of interfaces in your environment.

Do Not Use Database Tools to Modify Oracle E-Business Suite Data

Oracle **STRONGLY RECOMMENDS** that you never use SQL*Plus, Oracle Data Browser, database triggers, or any other tool to modify Oracle E-Business Suite data unless otherwise instructed.

Oracle provides powerful tools you can use to create, store, change, retrieve, and maintain information in an Oracle database. But if you use Oracle tools such as SQL*Plus to modify Oracle E-Business Suite data, you risk destroying the integrity of your data and you lose the ability to audit changes to your data.

Because Oracle E-Business Suite tables are interrelated, any change you make using an Oracle E-Business Suite form can update many tables at once. But when you modify Oracle E-Business Suite data using anything other than Oracle E-Business Suite, you may change a row in one table without making corresponding changes in related tables.

If your tables get out of synchronization with each other, you risk retrieving erroneous information and you risk unpredictable results throughout Oracle E-Business Suite.

When you use Oracle E-Business Suite to modify your data, Oracle E-Business Suite automatically checks that your changes are valid. Oracle E-Business Suite also keeps track of who changes information. If you enter information into database tables using database tools, you may store invalid information. You also lose the ability to track who has changed your information because SQL*Plus and other database tools do not keep a record of changes.

Understanding Advanced Supply Chain Planning Integration with Oracle Process Manufacturing

Oracle Advanced Planning and Scheduling (APS) includes the following applications:

- Oracle Advanced Supply Chain Planning (ASCP)
- Oracle Global Order Promising
- Oracle Inventory Optimization
- Oracle Demand Planning
- Oracle Collaborative Planning
- Oracle Manufacturing Scheduler
- Oracle Strategic Network Optimization (SNO)
- Oracle Production Scheduling (PS)

Oracle Process Manufacturing (OPM) integrates with all of the APS applications. OPM users can use Global Order Promising, Inventory Optimization, and Demand Planning by following the same steps as discrete manufacturing users. This topic focuses on using OPM with ASCP. For more information about the Advanced Planning and Scheduling suite of applications, refer to the *Oracle Advanced Planning and Scheduling Implementation and User's Guide*.

The integration of OPM with ASCP helps in increasing the planning efficiency, which gives you a competitive edge. The integration consists of the following features:

- Constraint-based planning, which ensures that the plan is feasible and acknowledges all of your constraints.

- Performance management enabled through the integration of ASCP with Oracle Workflow. This lets you:
 - Easily and quickly evaluate a plan based on its impact to target Key Performance Indicators (KPIs)
 - Manage by exception - receive notifications when corrective actions are required
- The ability to collect data from multiple instances.

This chapter covers the following topics:

- ASCP To OPM Flow
- Advantages of Using ASCP
- Mapping OPM Data to ASCP

ASCP To OPM Flow

The flow between ASCP and OPM is as follows:

1. Static and dynamic production planning data transfers from OPM to ASCP.
2. ASCP makes selected suggestions based on the data to meet the demands.
3. Through OPM you can reschedule, add, and cancel batches and firmed planned orders.

Advantages of Using ASCP

Oracle Advanced Supply Chain Planning (ASCP) planning and scheduling engine determines material requirements and schedules supplies to satisfy dynamic demand. In this process, ASCP supports several advanced planning and scheduling functionality such as advanced multilevel pegging, flexible replenishment hierarchy, and online planning

ASCP with OPM offers you the following advantages:

Optimization

You can optimize your plans to financial and other enterprise strategic objectives. Since you can name and save your plans, you can run several plans optimized to different sets of objectives, then employ the Planner Workbench graphical user interface to quickly compare Key Performance Indicators (KPIs) and action messages associated with alternative plans.

Penalty Costs

ASCP also has some built-in optimization objectives such as weighing the penalty costs of late orders against expedited production and delivery costs. You can affect the solution by entering penalty factors, applied as a percent of cost. The optimization process attempts to drive costs out of the solution.

Mapping OPM Data to ASCP

Using ASCP, there are considerations on how you set up the data listed below:

- Organizations
- Items
- Formulas and Routings
- Resources
- Production and Sales Orders, Forecasts, and Onhand Inventory
- Production Definitions

Understanding Material Planning

Planning is an integral and critical part of the present day business. Oracle Process Manufacturing (OPM) offers an effective solution to efficiently plan your process planning requirements.

The Master Production Scheduling (MPS) application lets you shorten the long-term views of material demands and projected supply actions to a narrow and immediate time horizon to see the immediate effects of demand and supply actions.

OPM uses Oracle Forecasting to predict future demand for items over time.

This chapter covers the following topics:

- Oracle Process Manufacturing Planning Terminology
- Planning Classes
- Master Production Scheduling Parameters
- Defining a Schedule
- Forecasting

Oracle Process Manufacturing Planning Terminology

This section describes a few planning terms in the context in which Oracle Process Manufacturing (OPM) interprets them.

Planning

Planning, as a stand alone reference, refers to the total of all scheduling, for all kinds of material supply and demand activity. Material supply activity includes all production (firm-planned orders and batches), purchase (requisitions, purchase orders, planned purchase orders, and internal orders), and organization transfer activity. Demand activity includes sales orders for products, internal sales orders, organization transfers, and sales forecasts (that is, forecasts for future demand).

Organizations

Organizations refer to companies, production units, and plants to which you can assign resources or general ledger accounts. You can define organizational hierarchies in which production units are owned by accounting companies.

Planners

Planners are responsible for timely balancing of production demand and supply. Separate groups of personnel may schedule production and purchasing in a company, or a single planner may handle both purchasing and production supply scheduling. Planners may also be responsible for leveling production, scheduling efficient batch sizes, and keeping stock balances to a minimum.

Schedules

Schedules, as stand alone references, refer to the transactions, inventory organizations for which a planner has interest in viewing material activity. Each planner is responsible for managing a specified portion of inventory. A schedule also refers to the specific planning parameters assigned to a planner. These parameters determine the format in which material demand and supply quantities for specific items appear on MPS inquiries and reports.

Planners do not necessarily buy the raw materials for production (this may be left to a separate buyer). However, planners, because of the assigned schedules, generate requests for raw materials; the buyer creates purchase orders for the items.

After you define a schedule, you may use it to create a link between organizations that contain the items the planner wants to schedule.

Production Schedules

Production schedules refer to all batches that you are either in the process of completing, or definitely intend to complete at some time in the future.

Master Scheduling Using OPM

MPS gives you the tools to plan production and react to changing supply and demand. MPS lets you view both supply and demand for one or more specific items in a specified time frame. This view, specific to only those items over which you have authority, indicates when demand requires production or purchase of an item. When production or purchase of the item is planned, you may view the impact immediately. If the purchase or production is delayed, then the impact of that delay is also visible immediately.

MPS can give you and other planners a view (weekly, daily, or even hourly) of the production that is scheduled to meet immediate requirements.

MPS gives you an accurate view of material activity over a short time horizon.

Planning Classes

A single planner may be responsible for the purchase and manufacture of all items bought and produced by a company. Or, several planners may each be responsible for only one or more specific lines of product items. Regardless of the situation, if you want inventory items to be linked by planning classes on reports, you must link planners to the selected items.

A planning class groups items with similar planning characteristics and also links the items to the appropriate planners. If the planners' user codes share the same planning class codes, then multiple planners can control the same item.

Defining Planning Classes

A planning class can be associated with selected inventory items and a selected buyer or planner, thereby creating a link between those inventory items and the specific buyer or planner. This association through the planning class lets you generate reports that reflect only those items in which the buyer or planner has scheduling interests.

After you define the appropriate planning class, you must assign it to the applicable items on the Inventory Items window.

You must also link the planning class to the buyer on the Planning Classes window.

Each user can have many planning classes, but each inventory item can have only one planning class. If more than one user has interest in planning an item, then each of those users must be assigned the planning class identical to the one assigned to the item.

By linking the planning class to the buyer or planner and the appropriate inventory items, you restrict the Material Activity report to only those items over which the buyer or planner has control.

MPS offers a Material Activity report and a Bucketed Material report. Anyone with security access to these report windows can run them, regardless of whether the user running the reports has been assigned the schedule or planning class codes.

Master Production Scheduling Parameters

When you define Master Production Scheduling (MPS) parameters in Oracle Process Manufacturing (OPM), you indicate which organizations are included in a schedule and select the criteria for including different sources of inventory supply and demand. The MPS schedule parameters serve the same purpose in Oracle Advanced Supply Chain Planning (ASCP) and are used to create the ASCP master demand schedule. The ASCP master demand schedule includes all organizations linked to the MPS schedule in the MPS Schedule Parameters window detail.

Consider the following when setting up schedules in MPS:

- The Make to Stock field on the MPS Schedule Parameters window lets you decide whether or not to include forecasts as a source of demand. The Make to Order field lets you decide whether or not to include sales orders as a source of demand. The Organization Effectivity window defines the items and organizations from which to pull the demand for each organization linked to the MPS schedule.

MPS and OPM Sales Orders

Note: Drop shipment sales orders are not considered demand and the associated requisitions are not considered supply in the Oracle Advanced Planning and Scheduling (APS) planning calculations.

The MPS schedule collects unshipped sales order information based on the following criteria:

- The sales order lines are scheduled to ship from the inventory organizations listed on the MPS schedule.
- These same rules apply to the ASCP master demand schedule.
- Ensure that an organization is linked to only one MPS schedule. If more than one MPS schedule is linked to one organization, then the sales order demand is duplicated in all of the MPS schedules that contain the organization.

MPS and Forecasts

The setup steps required to use forecast consumption for Oracle Advanced Supply Chain Planning (ASCP) or Oracle Process Manufacturing (OPM) are the same. Forecast information created and linked to an MPS schedule in OPM is used by ASCP to create the master demand schedule. The forecasts used by the MPS schedule are specified in the Forecast Schedule Association window. A forecast can contain any number of items in various organizations, but the schedule only uses those items that are valid to replenish into an inventory organization according to the Organizations window.

Select the Include Sales Forecasts value in the Make to Stock field and Include Sales Orders in the Make to Order field of the MPS Schedule Parameters window to use forecast information when creating the master demand schedule. Since one forecast can be used in multiple MPS schedules, you must not duplicate the demand for an item in an organization.

Defining a Schedule

Whenever you specify the code for a set of schedule parameters, you must also specify a valid organization code to correctly identify the schedule parameters.

When you define your schedule parameters, you indicate the criteria by which

inventory supply and demand will appear on displays and reports. You also indicate which specific organizations are included. All MPS reports are specific to a given set of schedule parameters. The MPS Schedule Parameters window lets you define this schedule criteria. Later, you may assign these schedule parameters to the appropriate planner using the Session Parameters window.

To define schedule parameters:

1. Navigate to the MPS Schedule Parameters window.
2. The default Organization displays. To view schedule parameters tied to another organization, enter the appropriate organization code. Note that this organization must be linked to the user on the User Organizations window in the OPM System Administration application.
3. The Schedule code for the default schedule parameters assigned to the user or planner (in User Profiles) displays.

If you specified an organization other than the default in the Organization field, then the Schedule field is blank. You must specify the desired schedule for which you want to enter parameters. Note that there can be no spaces in the schedule code.

4. Enter a brief Schedule Description for this set of schedule parameters, which appear on the List of Values (LOV).
5. Select the Parameters tab.

Indicators:

The following information displays:

Indicator Name	Description
Make To Stock	<p>The default, Include Sales Forecasts, indicates forecasts as a source of demand when these schedule parameters are used (that is, products will be made to stock, then consumed by future sales).</p> <p>Additional Information: Make to Stock or Make to Order must be used as a source of demand (however, both may be included as demand).</p>
Make to Order	<p>This option lets you control if sales orders must be considered as a source of demand. The default, Include Sales Orders, applies if you want to include sales orders as a source of demand when these schedule parameters are used.</p>

Indicator Name	Description
Exclude Sales Orders	Select this if sales orders must not be included as a demand source when these schedule parameters are used. When you select Exclude Sales Orders, MPS looks at sales orders and uses them to forecast. This is reflected on the MPS Material Activity inquiry and report.
Active Indicator	The default, Active Schedule, marks this schedule. If you do not want to use a schedule, then select Inactive Schedule from the list.
Un-Bucketed Horizon	The number of days you specify here determines the date after which pending inventory transactions will not be considered when making calculations for resupply suggestions. The default is 9999.999. The horizon will enable you to limit the date selected in the reports and inquiries

Report Periods

The report period determines how supply and demand are bucketed on your MPS Bucketed Material Activity Reports. You can review bucketed material activity for a specific number of days, weeks, months, and quarters. The buckets are cumulative and determine the limit of your view.

The following table lists each field and the action that you need to perform

Field Name	Action
Days	Enter the number of one-day increments for which you want a Bucketed Material Activity Report. For example, if you want to see material activity for each day for the next fourteen days, enter 14. The default is zero.
Weeks	Enter the number of one-week increments for which you want a Bucketed Material Activity Report. For example, if you want to see material activity for each week for the next four weeks, enter 4. The default is zero.
Months	Enter the number of one-month increments for which you want a Bucketed Material Activity Report. For example, if you want to see material activity for each month for the next two months, enter 2. The default is zero

Field Name	Action
Quarters	Enter the number of one-quarter increments for which you want a Bucketed Material Activity Report. For example, if you want to see material activity for the next quarter, enter 1. The default is zero.

6. Select Include Non-Nettable to include non-nettable inventory during onhand calculation in the MPS Inquiry.

7. Select the Organizations tab.

The Organization and Organization Forecast regions, defined in a parent child relationship, display. The Organization region displays the inventory organizations of the schedule. The Organization Forecast region displays the forecast associated with the inventory organization. If the Make to Stock indicator is not selected, then you cannot include forecast entry in this region. You can enter the Forecast Set for the selected inventory organization.

8. Save your work.

Forecasting

Oracle Process Manufacturing (OPM) uses Oracle Forecasting to predict future demand for items over time. Integration of OPM with Oracle Advanced Planning and Scheduling (APS) lets you use collection routines to transfer process data for planning of materials and resources.

Oracle Forecasting is a robust tool with numerous features. You can generate a forecast in user-defined buckets such as day, week, or period, specify a start and end dates, consume sales orders using backward and forward days, confidence factor, and item controls. The forecast can be automatically created without manually entering the individual quantities and dates.

You can estimate future demand for items using any combination of historical, statistical, and intuitive forecasting techniques. You can create multiple forecasts and group complimenting forecasts into forecast sets. Forecasts are consumed each time you place sales order demand for a forecasted product. You can load forecasts, together with sales orders, into master demand and production schedules and use the master schedules to drive material requirements planning.

Forecast sets consist of one or more forecasts. Sets group complimenting forecasts into a meaningful whole. For example, a forecast set can contain separate forecasts by region.

The following reflects some of the changes in the forecasting functionality:

- OPM uses Oracle Forecasting in the common inventory model environment.

- Organization structure changes are verified as they apply to Oracle Forecasting.
- The Master Production Schedule (MPS) query and reports consider forecasting data and are changed to extract the data from Oracle Forecasting. MPS queries and reports display the consumed forecasts and therefore use the consumed forecast data from Oracle Forecasting.

Oracle Forecasting offers the following features:

- You can define a forecast for a particular item by entering a single date and quantity. You can also specify a start and end date, and a quantity.

Defining a forecast set is mandatory in Oracle Applications and serves the following purpose:

- Group complimenting forecasts that sum together to a meaningful whole.
- Group forecasts that represent different scenarios.

Forecasts are associated to a forecast set.

Forecasting shows predicted future demand for items over time. You can associate any number of items to a forecast and an item can be in multiple forecasts. For each item, you must enter days, weeks, or periods, and the quantities that are expected to be shipped.

- You can create new forecasts from existing forecasts or forecast sets to manage and consolidate forecast information. You can copy forecasts from one organization to another organization.
- You can define forecast rules in Oracle Inventory to establish the forecast method, bucket type, and sources of demand that are considered when compiling a statistical or a focus forecast.
- You can generate forecasts based on historical demand information, such as inventory transaction and load the forecasts into another forecast or a master schedule.

Refer to *Oracle Advanced Supply Chain Planning User's Guide* for detailed information on forecasting items, viewing items, entries, and sets.

Setting Up

If you are using Oracle Advanced Planning Scheduler (ASCP), you must set up Oracle Process Manufacturing (OPM) data so that it can be properly processed. You must understand the differences in data structure between Oracle Applications and OPM in order to properly set up and use the OPM data with ASCP.

This chapter covers the following topics:

- Setting Up in Other Applications
- Setting Up Profile Options
- Setting Up OPM Data
- Recipes, Formulas, Validity Rules, and Routings
- Resource Information and ASCP Capacity Planning

Setting Up in Other Applications

Set up these prerequisites prior to running the application. Refer to the details for setting up these requirements provided in the individual application user's guides indicated. Depending on your individual requirements, there may be additional setup required.

Setting Up in Oracle Inventory

Set up the following in the Oracle Inventory application. Refer to the *Oracle Inventory User's Guide* for details.

- Inventory Organizations
Required.
- Organization Parameters
Required.

- Units of Measure Classes
Required.
- Units of Measure
Required.
- Unit of Measure Conversions
- Master Items
- Organization Items

The following item attributes need to be set up for the items to be recognized and used in OPM Process Planning:

- Select the Recipe Enabled and Process Execution Enabled attributes on the Process Manufacturing tab to use organization items in formulas and recipes.

Setting Up in OPM Product Development

Set up the following in the Oracle Process Manufacturing Product Development application. Refer to the *Oracle Process Manufacturing Product Development User's Guide* for details.

- Formulas
- Routings
- Recipes
- Validity rules

Setting Up in Oracle Bills of Material

Set up the following in the Oracle Bills of Material application. Refer to the *Oracle Bills of Material User's Guide* for details.

- Workday Calendar
- Exception Template
- Assign Workday Calendar to Organization

Setting Up in Advanced Supply Chain Planning

Set up the following in the Oracle Bills of Material application. Refer to the *Oracle Advanced Supply Chain Planning User's Guide* for details.

- Create Sources
 - Create Database Link to Destination
 - Create Planning Flexfields
 - Run Refresh Snapshot Process
- Create Destinations
 - Create Database Link to Destination
 - Define Source Instances
 - Run Collections
- Define Sourcing Rules
- Define Assignment Sets
- Create Supply Chain Plan

Setting Up Profile Options

The following table lists and describes various profile options and their recommended change level.

Profile Option Name	Description	Default	Options	Recommended Change Level
GMP: Auto Implement APS Suggestions	When the suggestions are brought over to OPM and the profile is enabled, all suggestions that are grouped by the launched plan's group ID are input as parameters to the Auto Release of Planning Suggestions for the APS concurrent program. While implementing the suggestions, the concurrent program generates a log, which lists the implementation successes and failures.	N	N - Do not auto implement APS suggestions Y - Yes auto implement APS suggestions	Site, Application, Responsibility, User
GMP: Default Max Days	This profile option indicates the default maximum days.	9999	Not applicable	Site, Application, Responsibility, User
GMP: Default Schedule	Establishes the default MPS/MRP schedule.	SCHD	Any valid schedule defined in Master Production Scheduling application.	Site, Application, Responsibility, User

Profile Option Name	Description	Default	Options	Recommended Change Level
GMP: Manual Exception Code	This profile option represents the exception code value that is entered. You can use the existing Exception codes to represent unavailable hours for a resource in a Plant. If you do not want to use the existing Exception codes to show the unavailable hours of a Resource, enter the Unavailable hours manually and these rows are shown as Manual Entry rows in the window. The profile option value Manual is used to show that the rows entered by the user are manual entries and are not from the Exception codes.	Manual	Manual Null	Not applicable

Profile Option Name	Description	Default	Options	Recommended Change Level
GMP: Collect Onhand Quantities for experimental items	When the profile option is enabled, the onhand quantities of OPM items that are flagged as "Experimental" are passed in the collection process to ASCP for planning.	No	No - Do not collect onhand quantities for experimental items Yes - Collect onhand quantities for experimental items	Site
GMP: Implement Production Orders Firmed in APS as Firm	The profile option enables you to implement production order suggestions from APS as Firmed batches	Null	No - The application does not create Firmed batches irrespective of the firm planned order being Firmed. Yes - The application creates Firmed batches, if the firm planned order is Firmed.	Site
GMP: Use Manufacturing Calendar for APS Suggestions	The profile option enables you to allow the OPM Process Planning application to use the calendar associated with the organization for batch creation, during the implementation of APS suggestions.	Null	No - The application does not use the calendar associated with the organization for batch creation. Yes - The application uses the calendar associated to the organization for batch creation.	Site, Application, Responsibility, User

Profile Option Name	Description	Default	Options	Recommended Change Level
GMP: Update Activity Offsets	When the profile option is enabled, production batches are created with updated activity offsets during the implementation of APS suggestions.	Null	<p>No - The application creates batches without updated activity offsets.</p> <p>Yes - The application creates batches with updated activity offsets.</p>	Site, Application, Responsibility, User

Setting Up OPM Data

When setting up OPM data to use with ASCP, consider the differences between Oracle Applications and OPM for the following data:

- Formulas
- Recipes
- Routings
- Resources
- MPS Schedule Parameters
- Sales Order Demand
- Batches

Recipes, Formulas, Validity Rules, and Routings

Formulas in OPM are the same as bills of material (BOMs) in Oracle Applications. Oracle Applications has different rules from OPM for BOMs and routings.

Setting Up Formulas

When setting up formulas, consider the following:

- If an OPM formula is used in multiple recipes with different validity rules for a

product or for coproducts, ASCP effectively views different formulas. A different formula is reported for coproducts with validity rules.

- ASCP expects one or many product per bill of material (in OPM, a formula).
- Linear fixed scaling; and integer is implemented the same as in OPM.
- Item quantities are reported in the primary UOM.
- Contribute to yield, steps is recognized in ASCP.

Setting Up Recipes

APS uses recipes to determine formula, routing, and validity rule assignments for a product. APS looks at the data in certain recipe fields first, then, if no data was entered in the fields at the recipe level, APS retrieves the data from the same fields in other windows. You can override the following fields in other windows by changing the field values in a recipe:

- **Step Quantity** - You use the Step Quantity field when computing the resource usage. If you enter a value in the Step Quantity field in the Recipe Details window, this value overrides the step quantity defined in the Routings window.
- **Factor** - You use the activity Factor field to indicate how many times you must perform an activity per operation. If you enter a value in the Factor field on the Recipe: Organization Details window, this value overrides the activity factor defined in the Operation Details: Activities window.
- **Usage** - You use the resource Usage field to indicate the amount of the resource consumed (usually expressed in hours) during the activity step. If you enter a value in the Usage field on the Recipe: Organization Details window, this value overrides the Usage field in the Operation Details Activity-Resource window.

The Usage UOM should be in the same UOM class as the BOM: Hours UOM profile option in order for batch and batch step duration to be calculated based on the resource usage. See: *Oracle E-Business Suite Bills of Materials User's Guide*

- **Process Qty** - You use the Process Qty field to indicate the total quantity of material processed by the resource during the activity step. If you enter a value in the Process Qty field on the Recipe: Organization Details window, this value overrides the Usage field in the Operation Details Activity-Resource window.

Setting Up OPM Validity Rules

When setting up validity rules in OPM, consider the following:

- A validity rule defines the primary product.

- If the validity rule is global, then it is applied to all inventory organizations where the item can be produced.
- The following validity rule functions can be used with ASCP:
 - Minimum and maximum quantities
 - Start and end effective dates
 - Preference (to break ties)

Setting Up OPM Routings

The OPM routing maps closely to the Oracle Bill of Materials routing but there are some restrictions. When setting up routings in OPM, consider the following:

- The flexibility that OPM has for the routing quantity is restricted by Oracle Applications because the quantity must be in the unit of measure of the product being routed to scale properly. The integration takes care of any necessary conversions, but the user interface shows the converted quantity and unit of measure instead of the original quantity and unit of measure defined in OPM.
- Resources are assigned a Plan Type indicating primary (1), auxiliary (2), or secondary (0) on the Resource window.
- ASCP uses resource count and usage quantity information. You record resource count and usage quantity information in the Operations window. For example, if two identical blenders are used for mixing, enter 2 in the Count field. If the resource can mix 200 gallons per hour, enter 200 in the Process Quantity field and 1 in the Usage Quantity field.
- Routing quantity uses the base UOM of the recipe product and is converted to the UOM of product.
- OPM step equals Oracle Applications operation.
- OPM activity equals Oracle Applications operation resource sequence.
- OPM routing resource equal Oracle Applications operation resource.
- Each activity must have ONLY one primary resource per step. If there were more, the first is selected and the others are ignored. If none exists, then activity is not reported.

Associating Formula Items with Routing Steps

Oracle Applications must know the items consumed at each step in the routing in order

to calculate the capacity used at each step. Refer to the *Oracle Process Manufacturing Product Development User's Guide* for details on defining this association.

Resource Information and ASCP Capacity Planning

The Resource Information window defines a relationship between an organization and the resource. In Oracle Applications:

The resource is associated with an inventory organization. ASCP will have all the resources defined as a department in an inventory organization.

You can use ASCP to develop capacity plans for your resources. The resource inventory organization indicates to ASCP the need to perform capacity planning. The ASCP capacity planning functionality assumes that all resource capacity is measured in to the unit of measure you set up in the Profile Option MSC:Hour or is convertible to that UOM. The Assigned Quantity field on the Resource Information window indicates the number/quantity of the resource used in the specified inventory organization for which you are defining production costs and usage availability. The number you enter depends on how broad a resource categorization you are defining. For example, if you defined the resource as Blender 1 (a specific machine) you would enter 1. If you use three blenders in the production line, and you defined the resource as Blenders (rather than defining each individual machine) enter 3.

The cost of using a resource for one unit of measure (for example, the cost of running a mixer for one hour) that you define in OPM Cost Management is also used by ASCP, but this cost needs to be recorded in the Planning Cost field on the Resource Information window. ASCP assumes the unit of measure for all resources is an hour.

Working Relationship Between ASCP and Process Manufacturing Products

The relationship between Oracle Process Manufacturing and Advanced Supply Chain Planning (ASCP) involves data setup in OPM, the use of this data in ASCP for planning, and the flow of suggestions from ASCP to OPM. This chapter considers data setup, use, and feedback.

This chapter covers the following topics:

- Overview
- Substituting Items in APS
- Defining Firmed Batches
- Defining Minimum Transfer Quantity Requirements
- Considering Post Processing Leadtime for Purchased Items
- Considering the Leadtime Calculator
- Planning for Bottleneck Resources
- Consuming Forecasts in Advanced Supply Chain Planning
- Initiating Resource Simulation
- Understanding Planned Order Detail Feedback
- Rescheduling Existing Batches
- Accepting or Rejecting ASCP Planner Workbench Cancellation Suggestions
- Scheduling New Batches from ASCP Planner Workbench Suggestions

Overview

Setting up data in OPM includes the following:

- Defining firmed batches.

- Defining minimum transfer quantity requirements.
- Defining resource exception messages.
- Considering post processing leadtime for purchased items.
- Considering the Leadtime Calculator.
- Regenerating targeted resource availability.
- Planning for bottleneck resources.

Using data in ASCP includes the following:

- Consuming forecasts in Advanced Supply Chain Planning.
- Initiating resource simulation.

Sending feedback from ASCP to OPM includes the following:

- Understanding planned order detail feedback.
- Implementing ASCP recommendations in OPM
- Selecting validity rules upon batch creation.

Data Collection Process

OPM uses the APS planning capabilities by exchanging the data established in OPM. This section discusses the changes in the OPM data collection process.

The topic focuses on the recipe related data element extraction and calendar data extraction, including the process to capture:

- Step dependency data for implementing complex routes.
- Minimum Transfer Quantity for products and associated hardlinks data.
- Resource capacity data for APS to calculate operation charges.
- Sequence dependent setup data.
- Secondary resources, resource instances, resource availability, and resource instance availability data for APS to schedule these resources.

Complex Routing - Contiguous Operations

Raw material or intermediates are processed through a set of operations, also referred to as routing steps. These steps are sequenced in the order of the manufacturing

requirements. Such sequence of execution of the steps is reflected in OPM by utilizing the step dependency functionality, which allows modeling of various types of dependencies among the steps of a route. The resultant route is referred to as a complex route.

The step dependency data is transferred to the APS engine to consider complex routes. The data is transferred using bulk collections, which improves the performance. As a result of complex routes, the product can be yielded at any step. Data collection is modified to transfer the routing step number where the product is yielded.

The functionality provides the ability to dynamically calculate the step quantity based on the materials coming into the step. The data collection process supplies all the data to perform the calculation. The recipe definition indicates which recipes have this calculation executed and which use the step quantities passed in the collection.

Inter-Routing Hardlinks with MTQ

The nature of manufacturing process and the materials involved it calls for processing the material completely till all the products are yielded, without permitting any time gap between operations. This is addressed by the provision of contiguous operations and "hardlinks", which allow specified breaks (can be specified to be zero also). Such a break can be specified between operations or between yield point of a product and its consuming operation.

Minimum Transfer Quantity (MTQ) and hardlinks data is transferred to the APS engine to consider MTQ. The collection program transfers the following information to APS for it to consider MTQ and hardlinks:

- Minimum Transfer Quantity
- Minimum Delay
- Maximum Delay

Operation Charges

The manufacturing process may also be constrained by the physical capacity of the resources involved in the operations. Whenever such capacity constrained resources are required to process material more than their capacities, they are required to repeat the task multiple times. This is referred to as Operation Charges.

The operation charges data is transferred to the APS engine to calculate charges for critical resources. APS calculates charge information for resources marked as critical and having scale type as "Fixed By Charge." The collection program transfers the following information to APS:

- Resource Min Capacity
- Resource Max Capacity

- Status of the Calculate Charges option
- Schedule Scale Type

You can override the resource minimum and maximum capacity at the recipe level. If these values are overridden, then the updated values are passed to APS during the collection process.

The operation charge data is transferred to APS using bulk collections, which improves the performance.

Note: You cannot have multiple instances of a chargeable resource. The resource count must be one.

Sequence Dependent Setups

The sequence in which manufacturing orders are executed can affect the performance of the organization. Executing changeovers when switching from one product to another can consume valuable manufacturing time. Reducing these changeovers is essential to process manufacturers.

The sequence dependency data is transferred to APS. The collection process requires the transfer of the following information to APS:

- Sequence ID
- Sequence Number
- Firm Type
- Setup_id

The sequence dependency data is transferred to APS using bulk collections to improve performance.

A new concurrent program is created to generate the sequence dependent ID in batches and FPOs. This procedure is called upon during batch manipulation.

Substituting Items in APS

Substitute items are available to the Oracle Advanced Planning and Scheduling (APS) application as replacement items with the corresponding effective end dates for original as well as substitute items. APS uses the substitute item, when one exists, from the effective date until the end date specified. If there is no longer an effective substitute, then APS reverts to using the original item. In the collection and planners workbench, substitute items are displayed with their effective dates. The information is also used during Available to Promise/Capable to Promise (ATP/CTP) computations to ensure the use of appropriate items.

Considering Overlapping Dates

If substitution lists have overlapping effective date periods, then the list with the lowest number in the Preference field is used.

Example

The current system date is: 01-FEB-2005. Item A has two effective item substitution lists: List 1 and List 2 with the following information:

	Item Substitution List 1	Item Substitution List 2
Item	B	C
Effective Start Date	01-MAR-2005	15-MAR-2005
Effective End Date	31-MAR-2005	30-APR-2005 (or null)
Preference	1	2

For 20-MAR-2005, Item B from Item Substitution List 1 is used because it has a higher preference. A preference of 1 is higher than a preference of 2.

Defining Firmed Batches

Data setup can include defining firmied batches. Prior to initiating an Oracle Advanced Supply Chain Planning (ASCP) Workbench run, you can flag batches to prevent them from being considered for rescheduling or cancellation. Certain batches can be committed to a shop floor for many reasons including availability of a raw material soon to expire or the completion of an involved and lengthy setup activity.

The batch is flagged as firmied through the Batch window under the Production Supervisor responsibility. ASCP interprets the checked Firmied flag of the batch and ensures that changes are not to be made to them. Once ASCP knows that there is a firmied batch, the dates for the firmied batch remain unchanged.

Refer to the *Oracle Process Manufacturing Process Execution User's Guide* for details on creating a batch.

To define a firmied batch:

1. Navigate to the Batch window in the Production Supervisor responsibility.
2. Select the Firmied option.
3. Save the batch.

4. Perform background collection.
5. Navigate to the Supply Chain Planner Workbench window.
6. Launch a plan.
7. Navigate to the Supply/Demand window for the given plan. Note the Firm flag is checked for the appropriate items and that the remaining batches are rescheduled around the firmed batch.

Defining Minimum Transfer Quantity Requirements

Data setup can include defining minimum transfer quantity requirements. Prior to initiating an Oracle Advanced Supply Chain Planning (ASCP) Workbench run, you can define Minimum Transfer Quantity (MTQ) requirements to efficiently plan and schedule OPM production batches that have a minimum leadtime between operations.

MTQ is the minimum amount of material that must be processed at a given production operation before the material can be transferred to the next operation.

Let's assume that the MTQ is defined at the routing step level. If step quantity is defined as 100L for an hour duration but you want to start the next operation after a half hour, then you would enter 50 as the MTQ. This quantity is converted into the correct proportion of the product quantity and UOM of the recipe.

By defining MTQ requirements, a subsequent operation can begin before its previous operation is completed when a sufficient quantity of material is processed and available for transfer. MTQ enables the reduction of overall leadtimes between operations.

To define a MTQ:

1. Navigate to the Operation Details window under the Process Engineer responsibility.
2. Select the operation for which you want to enter a minimum transfer quantity.
3. Enter Minimum Transfer Qty.
4. Save your work.

Note: The Minimum Transfer Qty value defaults from the Operation Details window to the Routing Details and Routing Step Line windows.

To verify MTQ use after initiating a plan:

1. Define a formula with intermediate ingredient.

2. Define a routing with multiple steps.
3. Define a recipe and validity rules with the defined formula and routing.
4. Enter a Minimum Transfer Qty on the Operation Details window.
5. Create demands for larger quantities for the final finished good so that the quantity to be processed at each step is much larger than the MTQ.
6. Perform data collection.
7. Run plan.
8. Verify operation times. The start time of the subsequent step is offset by the time greater than or equal to the time required to manufacture the MTQ at the previous step. Stagger the steps; do not schedule them sequentially.
9. Type Minimum Transfer Qty on the Routing Details window for the last step of the routing used for the intermediate ingredient. After running the plan, scheduling is staggered between the intermediate batch and the final finished batch.

Considering Post Processing Leadtime for Purchased Items

In a process manufacturing environment, certain known procedures are in accordance with Good Manufacturing Practices and affect the OPM Inventory, OPM Quality Management and Oracle Advanced Supply Chain Planning (ASCP) applications.

Purchased items are declared as inventory upon receipt in order to fulfill labeling and inspection requirements and ensure the traceability of goods received.

Received goods are placed under quarantine while inspection sampling determines the acceptability of this material. When a lot that is received into inventory requires inspection, it is placed onhold until released by quality management personnel. This quality hold can be modeled as a standard leadtime that defaults for all lots of an item. A secure user with the proper responsibility can change the release date for a lot depending on the actual length of the inspection process. If an inspection leadtime is not initially defined for an item, then a lot release date can still be entered manually.

ASCP recognizes that material of a lot is available for use after the hold release date. By taking a fixed leadtime into account without recommending new demand requests, the future availability of these lots is planned. For a lot that is received into inventory, ASCP recognizes that the lot is not available until after the hold release date. ASCP considers a hold release date so that the availability of onhold lots can be planned and no recommendations for immediate use of the inventory are suggested.

Post Processing Leadtime for Purchasing Suggestions

Data setup can include establishing leadtimes. ASCP data collection routines consider

onhold inventory to be material in receiving. Onhold inventory are items that have a hold release date defined in the Lot Master window of the Inventory application. Through item synchronization, the Post Processing Leadtime field of the Oracle Inventory Item Master is populated.

While computing the timing of purchasing suggestions, ASCP uses the Post Processing Leadtime value of the Oracle Inventory Item Master.

For example, if a requirement for an item exceeds the onhand inventory, then ASCP will make a replenishment suggestion to fill that requirement even when ample onhold inventory exists. Onhold inventory might exist but is not considered usable by ASCP until after its Hold Days value is exceeded.

Hold Release Date for Lot Availability

ASCP considers a lot that has a Hold Release Date greater than the data extraction date to be a lot in receiving. The Hold Release Date is calculated based on the Hold Days value of the OPM Item master or is manually entered through the Lot/Sublot window. ASCP uses this Hold Release Date as the new schedule date:

- Lot Availability Date = Hold Release Date

Prior to the Hold Release Date, ASCP does not consider the lot usable regardless of lot status. After the Hold Release Date, ASCP makes use of the lots with a nettable status.

Considering the Leadtime Calculator

Data setup can include entering parameters for the Leadtime Calculator. Leadtime Calculator is a processing engine that automatically computes fixed and variable leadtimes by considering the route that is most likely to be used in the production of the product.

Initiated as a submitted request through the application, the Leadtime Calculator can be run for the following:

- One or all items
- One or all organizations

Once generated, the calculated leadtimes are automatically saved to the variable and fixed leadtime fields in the Oracle Inventory item master. As the leadtime attributes are populated automatically, this eliminates having to calculate and manually enter these leadtime values. Keep in mind, however, that if you have manually entered leadtime values for specific item organization combinations and want to keep these values, then do not run the Leadtime Calculator for the item organization combinations as the values will be overwritten.

The Leadtime Calculator references each of the following OPM business objects: resource, activity, operation, routing, and formula.

The Leadtime Calculator processing engine makes use of OPM recipe and routing data; synchronizes logic with Advanced Supply Chain Planning (ASCP); computes and stores offset percentages; distributes the calculated leadtime values as the defined workday standard; automatically updates item attributes with the leadtime values.

Use of OPM Recipe and Routing Data

Based on the validity rule with the highest preference, the preferred route for a given product is selected by the calculator without user intervention. OPM uses the standard quantity from the recipe validity rule as its base. The operations in the route provide the parameters for calculating the fixed and variable leadtimes of an item.

Computation of Offset Percentages

An offset percentage is the percentage in time at which the material transaction, that is the ingredient consumption or the product yield, is expected to occur. Offset percentages of ingredient consumption and product yield are calculated by considering the duration of a batch of standard quantity and the material transaction times. Each ingredient is planned at the beginning of its operation as per the material step association. The yield of each product, coproduct, or byproduct is planned at the completion of each operation as per the material step association. Release type validation is enforced.

Distribution of Leadtime as Work Days

As an industry standard, processing leadtime is computed as the total integer days required to manufacture one leadtime lot size of an item. As such, all leadtimes calculated by the Leadtime Calculator are converted into days based on the plant's defined workday.

Automatic Update to Item Attributes

After the processing engine computes the leadtimes, the calculated values are automatically saved as item attributes of the items in the specified inventory organizations.

Refer to *Oracle Advanced Supply Chain Planning User's Guide* for setting up leadtime calculators.

Planning for Bottleneck Resources

Data setup can include planning for bottleneck resources. A bottleneck resource is a resource whose throughput rate is less than the throughput rate needed to meet the demand placed upon it. A bottleneck resource is the most constrained resource that is used in production. A bottleneck machine or work center exists where jobs are processed at a rate slower than the rate for which they are demanded. In general, it is

more effective to resolve the most constrained resource than to resolve the least constrained resource.

By enabling the definition of bottleneck resources, you can constrain the heavily demanded resource and still collect resource requirements for all other resources. As such, you can focus on key resources and allow them to define the scheduling of production orders.

Defining Bottleneck Resources

Resources are associated to an organization and linked to group resources through the Resource Information window. The bottleneck resource is derived from this group resource. Refer to *Oracle Advanced Supply Chain Planning User's Guide* for details.

Consuming Forecasts in Advanced Supply Chain Planning

Using data in Advanced Supply Chain Planning (ASCP) can include the consumption of forecasts. Forecast consumption occurs as part of the ASCP, not the data collection process.

Forecasts are defined and subsequently input to the ASCP planning engine as demand independent of sales order collection. Upon input to the planning engine, forecasts are available for consumption within the planning process.

Forecasts

Forecasts are associated to a forecast set, which is a logical grouping of like forecasts. A forecast set is mandatory for ASCP forecast consumption. A separate forecast set must be defined for each inventory organization.

Forecast sets allow for the definition of consumption requirements and are introduced to the ASCP planning engine directly. Once the forecast set is input to the ASCP planning engine, the following consumption information is available to ASCP:

- Whether the forecast is be consumed or not
- How far back or how far into the future in terms of days ASCP looks to locate a sales order to consume the forecast.

Note: Sales orders originate exclusively from Oracle Order Management tables allowing for Net Change data collection. The collection routine recognizes both discrete and process instances associated with Oracle Order Management. Currently, sales orders are not collected from OPM Order Fulfillment.

Initiating Resource Simulation

Using data in Advanced Supply Chain Planning (ASCP) can include initiating resource simulation. Once you receive information from an ASCP Workbench run, you can initiate test runs through the workbench for modifying resource capacity. You can set, add, or reduce resource capacity over a specified time frame. Resource simulations enable you to anticipate potential changes in resource capacity and plan in preparation of them.

From the Update Resource region of the Resource Availability window, you can initiate the following changes and subsequently launch a plan simulation:

- **Add Capacity** - Selecting this option from the Update Mode field enables you to increase the number of resources, which is the capacity count, for a particular shift over a period of time. In doing this, the following fields are enabled: From Date, To Date, Shift Number, From Time, To Time, Capacity Units. The number of resources entered in the Capacity Units field is added to the resource capacity. The resource capacity is applicable only for the resource for which the resource availability is shown.

Take Resource A, which for example purposes is assumed to be defined on the OPM Plant Resource window with a Capacity Unit value of 4. On the Resource Availability window, if 25 is entered in the Capacity Units field for Resource A, then the resource availability hours are calculated based on 29 units of Resource A being available.

- **Reduce Capacity** - Selecting this option from the Update Mode field enables you to reduce the number of resources for a particular shift over a period of time. In doing this, the following fields are enabled: From Date, To Date, Shift Number, From Time, To Time, Capacity Units. The number of resources entered in the Capacity Units field is deleted from the resource capacity. The resource capacity is applicable only for the resource for which the resource availability is shown.

Take Resource B, which for example purposes is assumed to be defined on the OPM Plant Resource window with a Capacity Unit value of 4. On the Resource Availability window, if 1 is entered in the Capacity Units field for Resource A, then the resource availability hours are calculated based on 3 units of Resource B being available.

- **Set Capacity** - Selecting this option from the Update Mode field enables you to set the number of resources for a particular shift over a period of time. In doing this, the following fields are enabled: From Date, To Date, Shift Number, From Time, To Time, Capacity Units. The number of resources entered in the Capacity Units field is taken as the resource capacity. The resource capacity is applicable only for the resource for which the resource availability is shown.

Take Resource C, which for example purposes is assumed to be defined on the OPM Plant Resource window with a Capacity Unit value of 4. On the Resource

Availability window, if 15 is entered in the Capacity Units field for Resource A, then the resource availability hours are calculated based on 15 units of Resource B being available.

- Add Day - Selecting this option from the Update Mode field enables you to add a day to the calendar. In doing this, the following fields are enabled: From Date, Shift Number, Capacity Units. You can only add a day on a non-work day.

After a non-working day is specified and the planner is launched, the appropriate date, resource capacity, and shift listed in the Resource Availability window displays.

- Delete Day - Selecting this option from the Update Mode field enables you to remove a day from the calendar. In doing this, the following field is enabled: From Date. As no validation is done on the date, you can remove a work day or a non-work day.

Once you have made changes at the resource level, you can launch a new plan. Either a completely new plan or a net change replan can be launched. Net change replan simulations enable you to update a plan by planning only for those items that have been previously modified in the workbench. The following modes exist for running a net change replan:

- Batch Replan - In batch mode, direct database interaction is executed. As such, your changes take effect at the database level. When one user is initiating the batch replan simulation, another user can access this revised plan.
- Online planner - In online mode, database interaction is minimized. With an online session all planner information is loaded into memory, where you can initiate plan modifications and analyze the results without initiating direct hits against the database. The results of the plan are available only to the user initiating the changes.

Understanding Planned Order Detail Feedback

Oracle Process Manufacturing (OPM) is a source for organization related information for Oracle Advanced Supply Chain Planning and Scheduling (ASCP/APS) to perform the advanced material and capacity planning. The ASCP planning you perform results in suggestions for the process items, organizations. The suggestions related to production batches in OPM, particularly the new batch creation and the rescheduling of existing batches, are implemented in such a way that all the details that are generated in APS are considered in OPM. ASCP is enhanced to consider the OPM charge, sequence dependency, resource instance level planning, and the alternate resource planning for reschedule suggestion.

In working with complete document detail level information, details of the planned production orders are synchronized from ASCP through the existing integration

mechanism and transferred to OPM Process Execution in keeping with Process Execution rules. As such, batch and firm planned orders converted from these planned orders are consistent with ASCP planning, and they honor capacity constraints. The transferred information includes:

- Complex Routing – continuous operations
- Inter-Routing Hardlinks with MTQ
- Charges
- Sequence Dependent Setups and Usage
- Alternate Resources
- Resource Instances

In having full access to the planned order details, OPM considers resource availability and capacity constraints while making full use of the planning computations made in ASCP.

In working with the application, the procedure to implement the ASCP planned production orders remains unchanged. Review the suggestions generated by ASCP and release them from the planner's workbench. Review these suggestions in OPM through the APS New Batch window or APS Reschedule Batch windows. Upon executing these suggestions, OPM batches are created or rescheduled.

Complex Routes

The step dependencies are enforced by ASCP. The batch steps are scheduled by ASCP and supported by the feedback. The batch step dependencies are affected by ASCP. The material association to a batch or batch step is also included as part of the feedback, but the details from ASCP are not used. If a material is associated to a step, then the feedback uses the step planned start date for ingredients or step planned completion date for products and byproducts. Material not associated to a batch step uses the batch planned start date for ingredients or batch planned completion date for products and byproducts. The scheduling of the activities is based on the sequence number developed for the operations where more than one activity exists. The activity and resource offsets are not applied by ASCP, as the engine considers activities to be sequential. The offset is used to order activities, but not in scheduling. A charge applies a slant to the step dependencies. If the dependencies are set as "apply to charge", then the dependency is placed on the charge, not the step.

MTQ with Hardlinks

The Minimum Transfer Quantity (MTQ) functionality includes a restriction on the gap between the point in time that the MTQ has been yielded for the item and the start of the next routing involving the item. The gap is defined with a minimum and maximum value based in the "TIME" unit of measure for Hour, calendar time. When calculating the gap, the minimum value causes a gap to exist and the maximum value limits the

duration of the gap between the routing and the MTQ yield point. This MTQ calculation is added for all products of a recipe and batch. These values are reported as part of the data collection and used by the APS engine for planning purposes. The feedback does not have any direct relationship with MTQ and hardlinks. It affects the batch-to-batch relationships, but has no direct effect on an individual batch with regards to feedback.

MTQ includes the coproducts when it is recorded. When a coproduct is yielded from a batch step, the material is transferred to another routing as an intermediate ingredient. The process that yields the item yields a partial amount before the next routing can start. The MTQ value is recorded for any product of a recipe or batch when required. This does not include byproducts. These values are not reported during the data collection process for both recipes and batches and used by APS engine for planning purpose. The feedback does not have any direct relationship with coproduct and MTQ.

Charges

Charges are calculated as part of a batch, but the details of these charges are not recorded. The APS engine will recalculate the charges for an activity resource, which is sent back to OPM. Only one activity per operation is considered for charges. The number of charges is based on the step quantity and the maximum capacity of a resource in that activity. ASQC, if defined, is used to define the step quantity. The capacity constrained resource will only have a count of 1. The step dependency, if defined, is applied to the charges. All resources defined as "scale by charge" are scheduled in that way even if not constrained. If a resource is not scaled by charge, but part of the simultaneous group, then it is not scaled with the other chargeable resources.

Sequence Dependent Setups and Usage

When different products are produced using the same resource, you may need special setup tasks depending on the sequence in which the products are produced. The ASCP engine takes the definitions in the routings and batches for the sequence dependencies and applies them in the appropriate situations. When these situations occur for resources, a new activity is created to include the additional usage for these resources. The sequence dependent usage occurs before the first activity in the step. OPM detailed feedback implements the sequence dependent usage occurred for sequence dependent setups in case of planned and rescheduled suggestions. The sequence dependent usage resource transactions provided by APS are also implemented.

Sequence Dependencies

When there is a sequence dependency, it affects those resources defined at the instance level and as such all of the resource usage is down to the instance level for the resource. ASCP reports sequence dependency usage as on the activity or simultaneous group sequenced before the cause of the transition. In OPM, the usage is incorporated into the existing activity that is marked as sequence dependent. The usage is applied to the resource where the transition occurred and is recorded in the sequence dependent usage column in the batch step resource. The planned start date of the activity includes the sequence dependent usage, whereas the planned start date of the resource does not.

Alternate Resources

The utilization of an alternate resource functions similar to a planned order. When a planned order is converted into a batch or FPO, it is created as a batch and then adjusted for any modifications from ASCP. The process is the same for an existing batch where an alternate resource is selected. The details from the original resource are used, except for the usage. The usage is modified based on the alternate resource definition.

Resource Instances

If a resource is defined to have instances, ASCP assigns them in specific cases. If a resource is defined to be part of an operation that is considered for sequence dependent step, then the instances are assigned to the resource. In all cases of sequence dependencies, resource instance is assigned. This lets you identify dependencies. The instances are assigned in the resource transactions and viewed from only there. The definition of charges or sequence dependencies will let only one instance to be used for a resource as a restriction to the ASCP planning process. Only in a situation where the resource is not involved in these functions is there a chance for more than one instance to be assigned. The resource in the routing must have a count greater than one to have more than one instance. OPM detailed feedback routine recognizes the resource transaction detail for planned and rescheduled batches. While implementing the details, if resource transactions and resource instance transactions for the same resource for an activity are fed back from APS, then resource level transactions are ignored.

Analysis of Suggestions

ASCP suggestions for production batches consist of the following:

- Create a new batch
- Reschedule an existing batch
- Cancel an existing batch

For the Create and Reschedule suggestions, the ASCP generated details of the batch are transferred to OPM. Both material and resource transactions are transferred to OPM.

Cancel batch requires no additional consideration because once canceled, batch details do not require synchronization between ASCP and OPM.

For a planned production batch, ASCP generates planned details considering the production constraints. These planned details include the following:

- Material transactions
- Resource transactions

These details are based on the OPM formula and routing, which is chosen based on the preferred validity rule for the planned production batch. Let us take a closer look at both material and resource transactions for a newly suggested batch and an existing batch.

New Batch Material Transaction Considerations

ASCP suggests the creation of new batches. Synchronization of material transactions between ASCP and OPM centers around three crucial fields:

- Item
- Date
- Quantity

If a batch is created in OPM from a recipe that is used by ASCP in making a planning suggestion and no change to the recipe's formula is made between batch creation in OPM and plan generation in ASCP, then the items and quantities of the batch created in OPM and the batch suggestion created in ASCP are the same.

If an attempt is made in OPM to create an ASCP suggested batch, then subject to OPM date specific validation, then the OPM Process Execution schema is updated with the ASCP generated dates. If, for example, an ASCP batch creation date suggestion falls upon a date within a closed inventory period, then the batch is not created in OPM.

If upon OPM batch creation, you choose a different recipe that has a different formula or routing from the one that ASCP suggested, then the batch details are not synchronized from ASCP. In this scenario, the OPM Process Execution batch creation algorithm is used to create the batch.

Recipe-Related Changes after Data Extraction

If a OPM recipe related change is made after the data extraction on which the ASCP plan is based, then detail scheduled feedback does not happen. Material transactions are generated based on the OPM material types and step associations in the routing. The new batch is implemented using the updated OPM formula and routing.

New Batch Resource Transaction Considerations

The detailed feedback from ASCP to Process Execution not only includes routings, operations, activities, and resources but the constraints under which they operate: shop calendars and resource availability. Upon accepting the detailed feedback from ASCP, Process Execution resource transactions are synchronized with the ASCP generated start and end dates and its calculations.

Differences in the way that ASCP and OPM handle resource transactions follow:

- Unconstrained and Constrained Planning - OPM users can use unconstrained, constrained, or optimized planning in ASCP. When a constrained or optimized plan is executed, the feedback details are synchronized to OPM. When an unconstrained plan is executed, the feedback details from ASCP are not used; the default OPM Process Execution calculations are used.

- Daily Bucket Level Details - As ASCP bring back details to the daily bucket level, the detail feedback suggestions are provided in the daily scheduling and planning bucket.
- Automatic Step Quantity Calculations (ASQC) - OPM Process Execution uses step quantities, which are automatically calculated based on the ingredients in the formula and routing, to determine resource usage.
- Activity and Resource Offsets - OPM allows for the definition of offsets between activities and between resources in activities. ASCP does not consider offsets when calculating the timing of resource usage. ASCP does consider prior and next minimum transfer quantity when calculating resource and activity scheduling.
- Primary and Auxiliary Resources - OPM considers differences in resource usage. ASCP uses maximum usage time only. For example, if some resources are defined as working for eight hours and other resources defined as working for four hours, then ASCP calculates the resource usage as eight hours. As this could have costing implications, OPM ignores ASCP usage time and retains its resource usage.
- Alternate Resource - In performing the detailed capacity planning, ASCP can use an alternate resource. Upon accepting the detailed feedback, OPM is updated with the transactions for the alternate resource and reflects its timing and usage.

In summary, when batch details are synchronized from ASCP, OPM batches reflect the resource scheduling calculated by ASCP.

Resource Changes after Plan Based Data Extraction

If any OPM resource change is made after the data extraction on which the ASCP plan is based, then the ASCP constrained based plan is invalidated and the new batch is implemented using default OPM Process Execution calculations. A warning message displays, which notifies you of the ASCP plan invalidation.

The resource changes that will invalidate an ASCP plan for a new batch include the following:

- Routing changes - including addition or deletion of a step, changes to operations, changes to the sequence of steps.
- Operation changes - including addition or deletion of activities, changes to minimum transfer quantity.
- Activity changes - including addition or deletion of resources, changes to throughput speeds.
- Resource changes - including changes to the counts.

Existing Batch Material Transaction Considerations

ASCP suggests rescheduling of existing batches, which have existing material and resource transactions in OPM Process Execution.

The item, quantity, and transaction date of the existing OPM batch are updated to match the item quantity and transaction dates suggested by ASCP.

Differences in the way that ASCP and OPM handle material transactions follow:

- Consolidated Transaction for a Multiple Transaction Item - OPM Process Execution can accommodate multiple transactions for a given item lot combination in a batch. These multiple transactions are created when an item is allocated to a lot many times. ASCP does not handle multiple transactions for an item. Instead ASCP consolidates multiple ingredient transactions to one ingredient transaction and multiple product transactions to one product transaction and applies a transaction date as follows:
 - Earliest transaction date applied for an ingredient
 - Latest transaction date applied for a product, coproduct, or byproductWhen a batch is rescheduled from ASCP, multiple transactions for an ingredient or product are consolidated to the one transaction and reflect the earliest or latest transaction date, respectively.
- Product Yield and Last Step - OPM Process Execution allows for a product to be yielded at an intermediate step. As such, when an OPM batch having product yielded at an intermediate step is rescheduled by ASCP, the date and time of the material transaction associated with this intermediate step is assigned the date and time of the last step of the routing.

Existing Batch Resource Transaction Considerations

ASCP suggests rescheduling of existing batches, which have existing resource transactions in OPM Process Execution.

The resource transactions of an existing OPM batch are updated to match the resource transactions suggested by ASCP.

The difference in the way that ASCP and OPM handle resource transactions follows:

Material and Resource Changes after Plan Based Data Extraction

If an OPM material or resource change is made after the data extraction on which the ASCP plan is based, then the ASCP constrained based plan is invalidated and the reschedule process is not initiated. The reschedule suggestions are not implemented. The changes that will invalidate an ASCP plan for an existing batch include the following:

- Batch status changes
- Step status changes
- Incremental completion
- Converting a firm planned order to a batch

Rescheduling Existing Batches

Once you receive information back from an ASCP Planner Workbench run, you can view the reschedule suggestions in OPM. You can view this information on the Reschedule Update window.

To reschedule existing batches:

1. Navigate to the Reschedule Update window. The Organizations page displays.
2. Select the context organization from the Organizations window.
3. Select the Group ID whose suggestions you want to approve. The Group ID displays when you select a group of suggestions you want to release from the ASCP Planner Workbench run. The list contains the date and the remaining suggestions associated with the group ID.
4. Creation Date is the date that the group ID is generated from the ASCP Planner Workbench run. When you select the Group ID, the date displays.
Update Details
5. Click the Select check box to select the batches/FPOs you want to approve or reject.
6. The following fields display for each suggested batch:
 - Batch/FPO displays the batch or FPO number.
 - Old Plan Start Time is the original planned start date and time.
 - New Plan Start Time is the new planned start date and time.
 - Old Plan End Time is the original planned end date and time.
 - New Plan End Time is the new planned end date and time.
7. Select the Update Offset if you want to update the batch step offset interval suggested by APS to be written into OPM batches.

Master Batch

8. If a batch or FPO has a master batch, then following fields display for the master batch:
 - Recipe is the code of the formula on which the production batch is based.
 - Formula is the code of the formula on which the production batch is based.
 - Routing is the code of the routing on which the production batch is used.
 - Product is the code of the primary product produced by the batch.
 - Planned Quantity is the planned quantity of the primary product.
 - Doc Type displays as Batch or FPO.
9. Select Reject if you want to reject the suggestions for creating new batches/FPOs.
10. Select Reschedule to reschedule a batch.
11. Select Cancel to cancel and exit the window without taking any action.

Accepting or Rejecting ASCP Planner Workbench Cancellation Suggestions

Once you receive suggestions back from an Oracle Applications ASCP Planner Workbench run, you can view the cancellation suggestions in OPM and accept or reject the suggestions. Rejecting the cancellation suggestions keeps the batch/FPO, as originally scheduled. You can view this information on the Batch Cancellations window.

To accept or reject cancellation suggestions:

1. Navigate to the Batch Cancellations window.
2. Select the context organization from the Organizations window.
3. Select the Group ID whose cancellation suggestions you want to cancel and reject. The Group ID displays when you select a group of suggestions you want to release from the ASCP Planner Workbench run. The list contains the date and the remaining suggestions associated with the group ID.
4. Creation Date is the date that the group ID is generated from the ASCP Planner Workbench run. When you select the Group ID, the date displays.
Update Details
5. Click the Select check box to select the suggested batches/ FPOs cancellations you

want to reject or cancel.

6. The following fields display for each suggested batch cancellation:
 - Batch / FPO displays the batch or FPO number.
 - Old Plan Start Time is the original planned start date and time.
 - New Plan Start Time is the new planned start date and time.
 - Old Plan End Time is the original planned end date and time.
 - New Plan End Time is the new planned end date and time.
7. Select the Update Offset if you want to update the batch step offset interval suggested by APS to be written into OPM batches.

Master Batch

8. If a batch or FPO has a master batch, then following fields display for the master batch:
 - Recipe is the code of the formula on which the production batch is based.
 - Formula is the code of the formula on which the production batch is based.
 - Routing is the code of the routing on which the production batch is used.
 - Product is the code of the primary product produced by the batch.
 - Planned Quantity is the planned quantity of the primary product.
 - Doc Type displays as Batch or FPO.
9. Select Reject if you want to reject cancellation of the batches/FPOs. The FPOs or batches remain scheduled.
10. Select Cancel Batch if you want to cancel the batches/FPOs from OPM production.
11. Select Cancel to cancel and exit the window without taking any action.

Scheduling New Batches from ASCP Planner Workbench Suggestions

Once you receive suggestions back from an Oracle Applications ASCP Planner Workbench run, you can view the new batch suggestions in OPM and convert them into OPM production batches or FPOs. You view this information on the Imported Batches window.

To schedule new batches:

1. Navigate to the New Batch window
2. Select the context organization from the Organizations window.
3. Select the Group ID whose suggestions you want to approve. The Group ID displays when you select a group of suggestions you want to release from the ASCP Planner Workbench run. The list contains the date and the remaining suggestions associated with the group ID.
4. Creation Date is the date that the group ID is generated from the ASCP Planner Workbench run. When you select the Group ID, the date displays.
5. Select Approve as Batch, Firm Planned Order, or Reject.
Order Details
6. The following fields display for a suggested batch:
 - Product is the code of the primary product produced by the batch.
 - Batch/FPO is the batch or FPO number.
 - Planned Qty is the planned quantity of the primary product.
 - UOM is the unit of measure in which the primary product is produced.
 - Start Date is the start of the batch.
 - End Date is the end date of the batch.
7. Select the Update Offset if you want to update the batch step offset interval suggested by APS to be written into OPM batches.
Master Batch
8. If a batch or FPO has a master batch, then the following fields display for the master batch:
 - Recipe is the code of the formula on which the production batch is based.
 - Formula is the code of the formula on which the production batch is based.
 - Routing is the code of the routing on which the production batch is used.
 - Product Description is a brief description of the primary product produced by the batch.

9. Click Reject if you want to reject the suggestions for creating new batches/FPOs.
10. Click Convert to convert the imported batches into OPM production batches or FPOs. After clicking Convert, the OPM Process Execution APIs create new batches/FPOs and you may be prompted for more data input based on your setup.
11. Click Cancel to cancel and exit the window without taking any action.

Using OPM Supply Chain Planner

This chapter covers the following topics:

- Implementing Planning Suggestions
- Fully Automatic Release and Implementation of Production Planning Suggestions
- Running the Schedule Process Batches Concurrent Program
- Viewing the Scheduling Exceptions
- Defining Generic Resources
- Defining Plant Resource Parameters
- Defining Resource Devices
- Integrating with Enterprise Asset Management
- Linking Each Resource Instance to a Serial Numbered Asset
- Defining Alternate Resources
- Regenerating Targeted Resource Availability
- Viewing Resource Availability
- Defining Resource Exceptions
- Defining Resource Unavailability
- Setting Up Resource Classes
- Viewing Resource Instance Available Time
- Running the Generate Resource Availability Concurrent Program
- Resource Availability
- Setting Up Process Parameters
- Defining Process Parameters Set
- Setting Up Generic Resource Parameters
- Editing Plant Resource Parameters

- Setting Up Sequence Dependencies
- Viewing Sequence Dependent Items

Implementing Planning Suggestions

Sending feedback from Advanced Supply Chain Planning (ASCP) to OPM includes implementing ASCP suggestions in OPM. ASCP calculates the following types of planning suggestions based on the data collected from OPM: create production and purchase orders; reschedule production orders; and cancel production and purchase orders.

You can release individual ASCP suggestions or release them in mass.

Manual Release and Implementation of Planning Suggestions

You can manually release ASCP suggestions in Advanced Planning Scheduling (APS) and manually accept some, all, or none of the ASCP suggestions in OPM.

The manual release of the ASCP planning suggestions in APS is accomplished by releasing the planning suggestion from the workbench. Upon release, purchase orders are sent to Oracle Purchasing and production orders related to OPM organizations are sent to OPM.

The manual acceptance of ASCP planning suggestions in OPM is accomplished by accessing the following windows and entering the details required for the creation, rescheduling, or cancellation of the production or planned order suggestion:

- Create new productions orders through the APS New Batch window
- Reschedule existing productions orders through the Reschedule Update window
- Cancel existing productions orders through the Batch Cancellations window

To manually accept an ASCP planning suggestion and reschedule an existing batch or firm planned order:

1. Navigate to the Reschedule Update window.
2. Enter the Group ID. The Group ID is associated with the suggestions to approve. The Group ID displays originally on the ASCP workbench and identifies the group of suggestions that you select for release to OPM.
3. Corresponding Creation Date displays the date that the Group ID was generated from the ASCP Planner Workbench run.

Order Details

All of the suggestions applicable to the Group ID that are not accepted or rejected display in the Order Details section.

4. Click Select for the planning suggestions that you want to approve and reschedule. The following table lists and describes each field in the Order Details section

Field Name	Description
Batch/FPO Numbe	Displays the batch or firm planned order document number.
Old Plan Start Time	Displays the original planned start time.
New Plan End Time	Displays the new planned end time of the soon-top-be-rescheduled batch or firm planned order.
Old Plan End Time	Displays the planned end time of the soon-to-be-rescheduled batch or firm planned order.
New Plan End Time	Displays the new planned end time of the soon-top-be-rescheduled batch or firm planned order.

5. Click the Update Offset.

Master Batch

The following table lists and describes each field in the Master Batch section

Field Name	Description
Recipe	Displays the recipe used for the product.
Formula	Displays the formula used for the product.
Routing	Displays the routing code of the primary product produced by the formula.
Product	Displays the primary product of the batch or firm planned order.
Planned Quantity	Displays the planned quantity of the primary product of the batch or firm planned order

Field Name	Description
Doc Type	Displays the type of document, either batch or firm planned order, to cancel.
Required Completion	Displays date for the rescheduled order.

- Click Reschedule to approve and reschedule the existing OPM production batches or firm planned orders.

Click Reject to reject the reschedule suggestions thereby maintaining the existing planned start and end dates for the batches or firm planned orders.

Click Cancel to exit the window without taking any action.

To manually accept an ASCP planning suggestion and create a new batch or firm planned order:

- Navigate to the APS New Batch window.
- Select Group ID. The Group ID is associated with the suggestions to approve. The group ID displays on the ASCP workbench and identifies the group of suggestions that you selected for release to OPM.
- Creation Date displays when you select the Group ID. It represents the date that the Group ID was generated from the ASCP Planner Workbench run.
- Select Approve As. The options include: Batch, Firmed Planned Order, Reject.

Order Details

All of the suggestions applicable to the Group ID that are not accepted or rejected display in the Order Details section.

- Click Select for the planning suggestions to approve and convert to a batch or firm planned order.

The following table lists and describes each field in the Order Details section

Field Name	Description
Product	Displays the primary product of the batch or firm planned order, which is to be approved and converted from the planning suggestion.

Field Name	Description
Batch/FPO Number	Displays the automatic document ordering. For manual document ordering, enter the number that is assigned to the batch or firm planned order.
Planned Qty	Displays the planned quantity of the primary product of the soon-to-be-converted batch or firm planned order.
UOM	Displays the units of measure in which the primary product is produced.
Start Date	Displays the start date of the soon-to-be converted batch or firm planned order.
End Date	Displays the date by which the product must be produced.
Update Offset	Displays the specified offset value.

Master Batch

The following table lists and describes each field in the Master Batch section

Field Name	Description
Recipe	Displays the recipe used for the product.
Formula	Displays the formula on which the production batch or firm planned order is based.
Routing	Displays the routing code of the primary product produced by the formula.
Product Description	Displays a description of the product that will be produced by the soon-to-be-converted batch.
Required Completion	Displays date for the planned order.

6. Click Convert to approve and convert the planning suggestions into OPM production batches or firm planned orders. After clicking Convert, the OPM Process Execution APIs are called to create the new batch or firm planned order. You are prompted for more data based on your setup.

Click Reject to reject the planning suggestions for creating new production batches or firm planned orders.

Click Cancel to exit the window without taking any action.

To manually accept an ASCP planning suggestion and cancel an existing batch or firm planned order:

1. Navigate to the Batch Cancellations window.
2. Select Group ID is associated with the suggestions to approve. The Group ID was displayed originally on the ASCP workbench and identified the group of suggestions that you selected for release to OPM.
3. Creation Date displays when you select the Group ID. It represents the date that the Group ID was generated from the ASCP Workbench run.

Update Details

All of the suggestions applicable to the Group ID that are not accepted or rejected display in the Order Details section.

4. Click Select for the planning suggestions that you want to approve and cancel.

The following table lists and describes each field in the Order Details Section

Field Name	Description
Batch/FPO Number	Displays the batch or firm planned order document number.
Old Plan Start Time	Displays the original planned start time.
New Plan Start Time	Displays the suggested new start time.
Old Plan End Time	Displays the original planned end time.
New Plan End Time	Displays the suggested new end time.

Master Batch

The following table lists and describes each field in the Master Batch Section

Field Name	Description
Recipe	Displays the recipe used for the product.
Formula	Displays the formula used for the product.
Routing	Displays the routing code of the primary product produced by the formula.
Product Description	Displays the primary product of the batch or firm planned order.
Planned Quantity	Displays the planned quantity of the primary product of the batch or firm planned order.
Doc Type	Displays the type of document, either batch or firm planned order, to cancel.

5. Click Cancel Batch to approve and cancel the existing OPM production batches or firm planned orders.

Click Reject to reject the cancellation suggestions thereby maintaining the existing planned start and end dates for the batches or firm planned orders.

Click Cancel to exit the window without taking any action.

Fully Automatic Release and Implementation of Production Planning Suggestions

You can automatically release ASCP production order planning suggestions in Advanced Planning Scheduling (APS) and automatically accept all of the ASCP production order planning suggestions in OPM without intervention.

The automatic release of the ASCP planning suggestions in APS is accomplished by selecting the APS Production Flag checkbox on the Supply Chain Plan Names window before launching a plan.

The automatic acceptance of ASCP planning suggestions in OPM is accomplished by enabling the GMP: Auto Implement APS Suggestions profile option.

When the suggestions are brought over to OPM and the GMP profile is enabled, all suggestions that are grouped by the launched plan's group id are input as parameters to the Auto Release of Planning Suggestions for APS concurrent program. While implementing the suggestions, the concurrent program generates a log, which lists the implementation successes and failures.

When electing to use the fully automatic option of releasing and accepting ASCP planning suggestions, the following considerations must be kept in mind:

- Batch numbering is automatic, not manual.
- New batches are created using the validity rule selected by the ASCP planning engine. If the validity rule used by the planning engine is not available for use in OPM for batch creation, then the batch is not created and the concurrent program writes the reason for not implementing the suggestion in the log file.
- Production order planning suggestions are implemented automatically as batches. Planned order planning suggestions are not implemented automatically at this time.

To automatically release and accept all ASCP planning suggestions without intervention

1. Ensure that the GMP: Auto Implement APS Suggestions profile option is set to Yes in OPM.
2. Enable the APS Production Flag before launching an ASCP plan in ASCP.
3. Navigate to the Launch SCP Plan and initiate a supply chain planning process. The generated log file lists all implementation successes and failures.

Running the Schedule Process Batches Concurrent Program

The Schedule Process Batches concurrent program begins the process of scheduling process batches. All scheduled batches are updated, therefore you do not have control over which batches are updated. Use the OPM Production Scheduler Workbench to review all results.

To run the Schedule Process Batches concurrent program:

1. Navigate to the Run Scheduler window.
2. Select the parameters for scheduling process batches:
 - Organization is the inventory organization that you are running the Manufacturing Scheduling for. Required.
 - Batches are the jobs that you are running the Manufacturing Scheduling for. Required. You have several options:
 - Use Specific Job to run the Manufacturing Scheduling for one batch. You must provide the Batch Number.
 - Use All Jobs to run the Manufacturing Scheduling for all batches.

- Use Pending Scheduling Only to run the Manufacturing Scheduling for those batches not yet scheduled. Those batches that have already been scheduled remain the same if this option is used.
 - Batch Number is the specific number of the batch to run the Manufacturing Scheduling for. Batch Number is only available if the Specific Job option was chosen in the Batches field.
 - Manufacturing Scheduling schedules batches either forward from the start date or backward from the completion date. This is the Scheduling Direction. Required.
 - The horizon is the number of days that the constraint-based scheduling engine considered in its calculations when it reschedules. This number of days was defined on the Work in Process Parameters window. The Horizon Start date is the date and time when the scheduling begins.
 - Choose Yes if you want alternate resources taken into consideration when running the Manufacturing Scheduling application. Choose No if you do not want alternate resources taken into consideration when running the Manufacturing Scheduling application. Indicate your choice in the Use Alternate Resources field. Required.
3. Click OK.
 4. Complete the fields on the Run Scheduler window.
 5. Click Submit. The Schedule Process Batches concurrent program begins to run.
Use the Scheduling Exceptions window to view the messages.

Viewing the Scheduling Exceptions

The Scheduling Exceptions window is used to view messages generated by the Schedule Process Batches concurrent program. During scheduling, there may be situations encountered referred to as exceptions. These exceptions display in the Scheduling Exceptions window so you can review and act on them. The Schedule Process Batches program can be run for a single batch or the whole inventory organization. If there are no exceptions, then the window is empty.

Prerequisites

- Run the Schedule Process Batches concurrent program.

To query scheduling exceptions:

1. Navigate to the Scheduling Exceptions window.
2. Select an organization.
3. Click OK. The Find Scheduling Exceptions window displays.
4. Make no entries to search all records. Enter any of the following parameters to narrow the search:
 - Batches is the number of the OPM batch that has exceptions.
 - Product is the product name for finished goods of the batch that has exceptions.
 - Priority is the priority on the batch that has exceptions.
 - Batch Status is the status of the batch as WIP, Pending, Canceled, and Closed.
 - Required Completion Dates is the date that the batch is scheduled for. You can indicate a range by entering a from and to completion date.
 - Request Id is the identification number of the Schedule Process Batches concurrent program.
 - Severity:
 - Warning
 - Exception
 - Error
5. Click Find. The Scheduling Exceptions window displays.

Scheduling exception messages:

A hierarchical navigator provides a display of the objects in a treelike framework known as a workbench. The top-level node in the navigator, in this case is called Jobs, is expanded to display groups of individual database objects, in this case batch numbers. Lower level nodes are indented to indicate that they belong to the higher level node. The navigator displays all the batch numbers that have exception messages associated with them and that fit the filter criteria you indicated in the Find Scheduling Exceptions window. The batch numbers display in groups of 16. Click a + sign to expand a node.

Exceptions:

The following table lists and describes each field in the Exceptions window.

Note: All the fields are display only

Field Name	Description
Seq	Displays the sequence number of the message generated during scheduling.
Severity	Displays the severity of the message.
Message	Displays the short description of the message.
Marked	Indicates the exceptions that you selected.
Message	Displays the long description containing more details of the message.

Properties

This window displays the attributes of the batch. It contains the fields displayed in the batch header region of the batches window.

The following table lists and describes each field in the Properties window.

Field Name	Description
Batch	Displays the number of the job scheduled.
Batch Status	Displays the status of the batch as WIP, Pending, Canceled, and Closed.
Priority	Displays the priority on the batch that has exceptions.
Request Id	Displays the identification number of the Schedule Process Batches concurrent program.
Laboratory Batch	Displays if the batch is for lab use.
Product	Displays the product name and description for the finished goods.

Field Name	Description
Recipe	Displays the number, version, and description of the validation rule required to prepare the batch.
Formula	Displays the number, version, and description of the formula used to make the batch.
Routing	Displays the number, version, and description of the routing definition required for the formula.

Dates:

The following table lists and describes each field in the Dates section of the Properties window.

Field Name	Description
Planned Start	Displays the planned start date for the batch.
Planned Completion	Displays the planned completion date for the batch.
Required Completion	Displays the required completion date for the batch.
Reported Date	Displays the reported date for the batch.

Defining Generic Resources

Resources are the assets you use to produce batches, including production equipment and employee labor. You can define each resource generally (for example, OVENS) or specifically (for example, OVEN 1, OVEN 2). For each resource, you must assign a component classification code for costing purposes. You can optionally group resources into resource classifications. For example, Ovens and Stoves may be grouped into Cooking Units.

See: *Oracle Process Manufacturing Cost Management User's Guide* for details on the Cost Component Classes window.

Capacity Planning illustrates production capacity from a timeframe point of view. Through Capacity Planning, you can setup all capacity related Advanced Planning and Scheduling and Manufacturing Scheduling data. The other menu options are used as OPM setup.

Prerequisites

- Define resource classes (for example, Cooking, Washup) on the Resource Class window in the OPM Cost Management application.
- Define cost component classification codes on the Component Classes window available in the OPM Cost Management application.
- Ensure that the unit of measure of time is established on the Unit of Measure window in the Oracle Inventory application.

To define a resource:

1. Navigate to the Resources window.
2. Enter a Resource code to identify this resource. Required.
3. Enter a brief Description of the resource. Required.
4. Enter a Usage UOM (usually in hours) by which you measure the amount of time used for processing this resource. For planning and scheduling, you must define the UOM to be type Time. Required.
5. Enter the Resource Class to which this resource belongs. For example, the resource Chefs may be included in the resource class Labor.
6. Enter a Cost Component Class. A cost component class links this individual resource to a unit of measure and allows you to establish costing parameters for the resource in the Cost Management application. Required.
7. Select the Type of resource. The type of resource defines the organization types that can use the resource:
 - Manufacturing: Limits resource use to manufacturing organizations.
 - Laboratory: Limits resource use to laboratory organizations.

Note: For laboratory resources:

- The Process Parameters button is disabled.
- If you select the Outside Processing (OSP) check box, you will

receive an error message when you save the record.

8. Select the Outside Processing (OSP) check box if you are defining the resource for an outside process. You may select or deselect this check box as long as the resource is not used in any other batch. If you select the check box, then ensure that you save the corresponding plant resource along with the OSP flag set and vice versa in the Resource Information window.
9. **Capacity**

Enter the Minimum and Maximum amount per vessel capacity for this resource.
10. Enter the Capacity UOM for this resource. This is usually specified in mass or volume not time.
11. Select the Calculate Charges check box if the capacity of an operation is constrained by the resource for the purpose of calculating charges. If another capacity-constrained resource in the same operation has a smaller capacity, then the system uses the smallest capacity-constrained resource to calculate how many times an operation is repeated for the purposes of calculating charges. For example, a capacity-constrained mixer in an operation holds a maximum of 200 gallons. A batch calls for 250 gallons, so the mixer (and the operation) runs twice (incurs two charges) to produce enough quantity for the batch. However, if another capacity-constrained resource holding a maximum of 50 gallons is also part of the operation, then the operation incurs five charges instead of two. If you select the Calculate Charges check box in the Resources window for a resource, then the check box defaults as selected in the Resource Information window for all inventory organization and corresponding resource combinations. You can change the default value for the Calculate Charges check box in the Resource Information window for any inventory organization-resource combination.
12. Enter the Capacity Tolerance used by OPM. If the capacity falls within this specified percentage, then the resource is processed without calculating charges. If the material is over the capacity, then it is planned and scheduled incorporating calculated charges. For example, if a batch calls for 20 gallons and the capacity tolerance is 10%, then there is a single charge for up to 22 gallons. There is an extra charge for 23 gallons and higher.
13. Enter the Utilization. This percentage is used by Planning and Scheduling only.
14. Enter the Efficiency. This percentage is used by Planning and Scheduling only.
15. Save your work.

See Also

Defining Plant Resource Parameters

A resource may operate at a different capacity at one production inventory organization than it does at another.

For scheduling, the resource must be defined at the inventory organization. If the resource is not enabled at the inventory organization, then it is assumed that the resource does not exist there. Use the Resource Information window to enter inventory organization specific information regarding each resource. This information includes costing information, resource usage unit of measure. Capacity Planning references this information to determine the availability of resources in each specific inventory organization (organization). Creating a resource here enables them for scheduling and planning. Also, you can define process parameter values specifically for inventory organizations.

See *Editing Plant Resource Parameters*, page 5-35 for more information.

You can also define batchable resources in the Resource Information window. A batchable resource is a resource that can process many items simultaneously, if they share similar attributes such as, Temperature, Color, or Duration.

Prerequisites

- Define unit of measure types.
- Define units of measure.
- Define organizations, resources, and resource units of measure, and select the appropriate inventory organization where you want to define plant resources.

To define resource parameters in specific inventory organizations:

1. Navigate to the Resources Information window.
2. Enter Organization (either a laboratory or a production inventory organization) for which you are defining a resource attribute. You must be able to enter an organization. The cost applies only to this inventory organization and resource combination. You can, however, define the cost of using the resource in more than one inventory organization allowing you to calculate the production costs for the resource across various organizations. Required.
3. Enter the Resource for which you are establishing available capacity parameters and costs when used in the designated organization. Required.

To enter a laboratory type resource, verify that the organization is a quality

laboratory organization.

4. Indicate if the resource you are defining for this inventory organization is active or inactive through the Inactive field. Inventory organization and resource flagged as inactive are not used for cost calculations for the resource, nor will resource availability be considered.
5. Enter a Resource Category. You can group the resource that you specified in the previous field into a broader group for reporting purposes. For example, if you specify Blender 1 as the resource in the previous field, you can group that resource into the more generic group Blenders. The Category Resource field defaults to the value in the Resource field if there is no grouping of the resource into a broader category. Required.
6. Enter the Count. This is the number or quantity of the resource used in the specified inventory organization for which you are defining production costs and usage availability. If you consider the resources identical, then you can have a multiple count. The count depends on how broad a resource categorization you are defining. For example, if you defined the resource as Blender 1 (a specific machine), then enter 1. If you use three blenders in the production line and you defined the resource as Blenders (rather than defining each individual machine), then enter 3. Required.
7. Enter the Planning Cost of this resource when used in the specified inventory organization. Used for reporting purposes only. The Planning Cost is used by planning and scheduling. Required.
8. Enter the Schedule Indicator. In addition to being defined at the inventory organization, the resource can be defined at four levels of scheduling.

Note: Schedule Indicator defaults as Do Not Plan for a laboratory type resource.

- Do Not Schedule - the resource used in the specified inventory organization for which you are defining production costs and usage availability with constraints. This resource is defined as having infinite capacity enabling you to schedule resources without constraints.
- Schedule - the resource used in the specified inventory organization for which you are defining production costs and usage availability. This resource is defined with a finite schedule enabling you to schedule resource with constraints. As a result, the resource count or assigned quantity is used as a constraint.
- Scheduling to Instance - the resource used in the specified inventory organization for which you are defining production costs and usage

availability. This enables exact sequencing of the resources to be scheduled to particular instances. Ensure that the number of instances and count are the same.

- Do Not Plan - select this option for a laboratory resource.

The following buttons are disabled: Devices, Equipments, Alternatives, and Process Parameters.

9. Enter the Usage UOM by which the resource is measured in time in the specified inventory organization. This is usually specified in hours.

Required.

10. Enter the Calendar. The calendar description displays automatically.

Capacity

11. Enter the Range for the resource's minimum and maximum amount per vessel capacity unit at this inventory organization. Required.

12. Enter the Ideal for the resource's optimum amount per vessel capacity unit at this inventory organization. Required.

13. Enter the UOM by which the resource capacity is measured in this inventory organization. This is usually specified in mass or volume. For example, indicate if the material is produced in gallons or pounds. Required.

14. Select the Calculate Charges check box if the capacity of an operation is constrained by the resource for the purpose of calculating charges.

If another capacity-constrained resource in the same operation has a smaller capacity, the system uses the smallest capacity-constrained resource to calculate how many times an operation is repeated for the purposes of calculating charges. For example, a capacity-constrained mixer in an operation holds a maximum of 200 gallons. A batch calls for 250 gallons, so the mixer (and the operation) runs twice (incurs two charges) to produce enough quantity for the batch. However, if another capacity-constrained resource holding a maximum of 50 gallons is also part of the operation, then the operation incurs five charges instead of two. If you select the Calculate Charges check box in the Resources window for a resource, the box defaults as checked in the Resource Information window for all inventory organization and corresponding resource combinations. You can change the default value in the Calculate Charges check box in the Resource Information window for any inventory organization-resource combination.

15. Enter the Capacity Tolerance used by OPM.

16. Enter the Utilization percent. You can indicate if a resource is not 100% used. For

example, due to small breaks or maintenance tasks, a resource may not be available part of the time. If the utilization ratio of a resource is 90%, then the resource is not available for processing 10% of the time. This factor is taken into account during the planning stage.

17. Enter the Efficiency percent. You can indicate if an activity processed on a resource may take a longer time to process. For example, an activity that usually takes 12 hours to process on a resource, if it is 100% efficient, then it takes 24 hours if the resource is 50% efficient. This factor is taken into account during the planning stage.
18. Planning Exception Sets indicates the exception set under which Planning engines log the resource exception.
19. Select the Batchable check box if the resource is a batchable resource.
20. Enter a batching window in number of days, for which you want to batch production orders in the Pull Forward Window field. If the application does not find production orders in the batching window, which is equal to, or more than the minimum batch quantity, it starts a batch with less than minimum quantity and an error displays.
21. If you select the Outside Processing check box in the Resources window for a resource, then the Outside Processing check box defaults as checked in the Resource Information window. This check box is part of OSP document support. It indicates that you have defined this plant resource as an OSP resource in the Resource window. You can associate an OSP item with this OSP resource.
22. Select the Shipping check box to create shipping transactions for ingredients and intermediate products consumed by this outside processing resource. You can only edit this field when you select the Outside Processing check box and there are no open batches using this resource.
23. Enter an OSP item to be associated with the OSP resource. The LOV displays only those OSP items defined in that specific plant/inventory organization.
24. Enter Cost Source for the item. The values can be either Resource Cost or PO Price.
25. Save your work.

Defining Resource Devices

This lets you integrate with Oracle Manufacturing Execution System for Process Manufacturing.

To define resource devices:

1. Navigate to the Resource Information window.
2. Click Resource Devices.

Devices

3. Enter the name of the Device.
4. Description of the device displays automatically.

Device Response

5. Enter the device response Parameter.
6. Enter the unit of measure for the parameter.
7. Enter the Response Value.
8. Enter the unit of measure of the response.

Integrating with Enterprise Asset Management

Oracle Enterprise Asset Management (eAM) is a part of Oracle E-Business Suite, providing organizations with the tools to create and implement maintenance procedures for both assets and rebuildable inventory items. eAM integrates with Oracle Process Manufacturing (OPM), enabling your maintenance environment to identify eAM asset relationships with production equipment. This feature associates an asset or many assets to the production equipments located in process manufacturing organization. After establishing, you can view the resource usage (maintenance work orders, batches, or FPOs) emanating from production, associated with a maintainable asset.

You can define your resources as assets by linking your resources to assets defined in eAM. Linking to eAM enables OPM inventory organizations to view the scheduled maintenance for specific resources. You create a work order by using eAM to schedule maintenance on your resources defined as assets.

Refer to *Oracle Enterprise Asset Management User's Guide* for detailed information.

To link OPM resources with equipment items:

1. Navigate to the Resource Information window.
2. Click Equipments.
3. Enter the Equipment Item that corresponds to the resource. You can assign multiple

equipment items.

4. The Description of the equipment displays.
5. Save your work

Linking Each Resource Instance to a Serial Numbered Asset

The number of resource instances is defined by the number you entered in the Count field. If you want to link your resources to assets defined in eAM, then link each resource instance to a serial numbered asset.

To link each resource instance to a serial numbered asset:

1. Navigate to the Resource Information window.
2. Complete this window. Refer to the *Oracle Process Manufacturing Product Development User's Guide* for details.
3. Click Instances.
4. Click OK.
5. Enter values that apply to all the instances in the Instance Default Values window.
6. Click Accept.

Resource Instances

7. Indicates the Instance Number of the resource.
8. Enter the Vendor Name. You can select the name of the vendor from whom you purchased the resource instance from the list of values or enter a new name.
9. Enter the Model Number.
10. Enter the Serial Number. Use this field to record equipment information. This is the actual serial number from the machine.
11. Enter the Equipment Item number.
12. Enter the Equipment Serial Number. An equipment item needs to be created in Oracle Inventory. In Oracle Inventory, specify the item which is equal to equipment. The LOV provides the serial number associated with the equipment item. This is how the serial number links to the resource instance to an asset. Required when using eAM.

13. Enter the Tracking Number. This can be any other number you use to track the resource. For example, you could enter the asset number from eAM here or a lot number.
14. Enter the Start Date. This is the date that you plan to begin using the resource instance.
15. Enter the End Date. This is the date that you plan to stop using the resource instance.
16. Enter the Last Maintenance Date. This is the date when you last performed maintenance on the resource instance.
17. Enter the Maintenance Interval. This is the number of days recommended between scheduled maintenance activities. This field is used to provide information only.
18. Select Inactive if the resource instance is not available for use at the present time.

Calibration

19. Indicates the Instance Number of the resource.
20. Enter the Frequency. The frequency indicates how many times in one period the resource instance requires calibrating. For example, a machine requires calibration four times a year. The number four is the frequency and a year is the period. This field is for informational purposes only.
21. Enter the type of Period in which the resource instance requires calibrating. For example, weekly, monthly, or yearly. This field is for informational purposes only.
22. Enter the Item used to calibrate the resource instance. You can select the inventory item with which to calibrate the resource from the list of values.
23. Enter the Date on which you calibrated the resource instance.
24. Enter the Certification Date on which the resource instance was certified.
25. Enter the name of the person who certified the resource instance in the Certified By field.
26. Save your work.

Defining Alternate Resources

An alternate resource is one that can perform the same operation as the primary resource. Alternate resources are used when the selected resource cannot be used in cases such as overload, breakdown, or performance issues.

Note: You cannot delete a resource on the Resources window if it is specified as an alternate on the Alternate Resource window.

To define alternate resources:

1. Navigate to the Alternate Resources window.

Alternate Resources

Resource: BO-RES1
Description: Batchable resource

Alternate Resource Factors

Alternate Resources	Runtime Factor	Preference
BO-RES3	1.2	1

Products

Product	Product Description
BEER-250ML	Product - 250ml Beer

2. In the Resource field, search for an existing resource record to associate with this alternate resource. The description for the selected resource appears.
3. In the Alternate Resource Factors section of the window, select the resource value to use as an alternate.

Select additional alternate resources on succeeding lines.

4. Enter the Runtime Factor and Preference for this alternate value.

Runtime factor is the rate determining time. For alternate resources, runtime is a factor of the primary resources runtime. Specify the factor for runtime in comparison with primary resource. This is a positive number. If the value is:

- Greater than 1, this implies the alternate takes longer to complete the task than the original.
- Equal to 1, this implies that the resources process at the same rate.
- Less than 1, this implies that the alternate is faster than the original resource.

For example:

- If runtime for the primary resource is four hours, then entry of a runtime factor of .75 indicates that alternate resource runtime is three hours ($4 * .75 = 3$).
 - If runtime for the primary resource is four hours, then entry of a runtime factor of 1.5 indicates that alternate resource runtime is six hours ($4 * 1.5 = 6$).
5. In the Products section of this window, select the product associated with the alternate resource value. The Product description appears on the window:
 - For any product item entered in this section, the alternate records are used for those product items only.
 - If this field is null, the alternate resource is applicable for all the products using the primary resource.
 6. Save your work.

Regenerating Targeted Resource Availability

Data setup can include entering parameters for targeting resource availability. Through the Generate Resource Availability concurrent program, the resource calendar is calculated automatically by considering resource unavailability and resource availability. Resource unavailability is defined by the unavailability codes associated to the resource. Resource availability is defined as per the workday calendar of the inventory organization that owns the resource. You can use the exception sets to modify the working or non-working days and time in the calendar. The resource calendars calculate the net working time using these exception sets.

- Unavailability codes allow for the definition of periods of time when resources are not available and for the definition of additional periods of time when resources are available.

- The From Resource and To Resource parameters input to the Generate Resource Availability concurrent program allows for resource availability determinations based on select resources within an inventory organization. In generating the concurrent program, resource unavailability information is considered in conjunction with resource availability information. Upon program completion, the availability of resources is targeted to those resources within the inventory organization specified in the resource range.

Note: When you try to set up three contiguous shifts within a calendar and that total to 24 hours, all shifts are grouped as a single shift in the OPM Resource Availability window wherein the shift duration is 24 hours. As the same result appears in ASCP, the add or reduce capacity features in the Resource Capacity form are not available and it is not possible to simulate scenarios like opening and closing plant resources.

Prerequisites

- Define resources and inventory organization resources.
- Define and associate manufacturing calendar to the inventory organization.
- Define unavailability codes and their association with the resources.

Unavailability Codes

Through the Unavailability Code window, you can define a set of start and end dates and times and assign them to a resource. As per the field, specify whether the date and time indicates a period of time in which the resource is unavailable. The Type field specifies whether the time period is removed from resource availability or added to resource availability.

To define an unavailability code and assign it to a resource:

1. Navigate to the Exception Code window.
2. Enter Exception Code. The exception code can have a maximum of six characters. Required.
3. Enter Description of the unavailability code.
4. Select Inactive Indicator to inactivate the unavailability code.

Unavailable Hours

5. Enter Start Date and End Date. The date and time values specify the time period in which one or more resources is unavailable or available. Required.
6. Enter Reason Code. The reason code value specifies why the resource is unavailable

or available during this time period. The reason code Description displays.
Required.

- Enter the Start Date, End Date, and Reason Code for each range of time that one or more resources is unavailable or available.

Resources

7. Type Resources. This value specifies the resource within the organization to associate with this exception set. Required.
8. Type Resource Count. If you enter a Resource Count, then you cannot enter an Instance Number.
9. Type Instance Number for the specific instance that is unavailable as per the exception set. If you enter an Instance Number, then you cannot enter a Resource Count.
10. The Resource Description of the resource displays.
 - If you have multiple inventory organization and resource combinations to define, click Associate. Enter the inventory organization, Resource, and Resource Group to which this resource is assigned.

Note: Through the Resource Unavailability window, you can view the inventory organization and resources for which the unavailable or available date and times are defined on the Exception Code window. You can also manually add unavailable date and times to the Resource Unavailability window. The same information entered to the Exception Code window is entered to the Resource Unavailability window.

Viewing Resource Availability

To execute the Generate Resource Availability concurrent program:

1. Navigate to the Generate Resource Availability window. The Parameters dialog box displays.
2. Enter Organization Code.
3. Enter From Resource.
4. Enter To Resource.

5. Enter Process Calendars.
6. Click OK.
7. Complete the fields on the Generate Resource Availability window.
8. Click Submit. The concurrent program is initiated. At program completion, you can view the current resource availability through the Resource Instance Available Time window.

Defining Resource Exceptions

You can view all of the exception codes associated with a resource and the total unavailable time for a resource through the Resource Unavailability window.

To define resource exceptions:

1. Navigate to the Resource Exceptions window.
2. Enter the Organization Code where the unavailable resource is located.
3. Enter a Resource that is unavailable. The resource is instance controlled.

Exception Code Assignment

4. If you want to associate additional exception sets with the inventory organization code and resource, click a blank Exception Code field, then select an exception code from the list. Required.
5. A Description of the exception code displays.
6. Enter the resource Count. If you enter a Resource Count, then you cannot enter an Instance Number.
7. Enter the Instance Number for the specific instance that is unavailable because of the exception set. If you enter an Instance Number, then you cannot enter a Resource Count.
8. If you want to view the total unavailable time for the resource, click Details. The Resource Unavailability window displays.
9. Save your work.

See Also:

Resource Availability, page 5-23

Defining Resource Unavailability, page 5-27

Defining Resource Unavailability

You can view the total unavailable time for a single resource. The source of each unavailable time period displays. You have the option to manually add additional unavailable time for the resource. You can only delete those unavailable times that were entered manually.

To define resource unavailability:

1. Navigate to the Resource Unavailability window.
2. Select the Organization Code and Resource for which you want to view the unavailable time. The list of unavailable time periods for the resource displays.

Unavailability

3. Displays the name of the exception code that causes unavailability. Otherwise, you can enter rows manually. You can change the default from Manual using the GMP: Manual Exception Code profile option.
4. If you want to add an additional unavailable time period, then click Resource Count in the Unavailability region. If you enter a Resource Count, then you cannot enter an Instance Number.
5. Enter the Instance Number. If you enter an Instance Number, then you cannot enter a Resource Count.
6. Enter the unavailable time period into the From Date and To Date range. Required.
7. From the list, select a Reason Code associated with the exception code. To enter a manual exception code, select a reason code from the list for the manual exception. Required.
8. The description of the reason code automatically displays in the Reason Code Description field.
9. Save your work.

See Also:

Resource Availability, page 5-23

Defining Exception Codes, page 5-26

Setting Up Resource Classes

You can define resource classes using the Resource Classes window. Then assign the resource classes to your resources.

Prerequisites

- Define resources.

To set up resource classes:

1. Navigate to the Resource Classes window.
2. Enter the Resource Class name or code.
3. Enter a Description for the resource class.
4. Save your work.

Viewing Resource Instance Available Time

The Resource Instance Available Time window displays the net resource availability. This window shows the available times for a resource for an inventory organization and calendar. After creating the resource availability data by running the Resource Available Time concurrent program, use this window to query for a specific resource or a resource-instance combination to find out its availability. This window shows the availability for an instance controlled resource based on the criteria specified. If you have multiple resource instances, then use this window to view its instances. You are able to treat the instances as individual resources.

Prerequisites

- Run the Resource Available Time concurrent program.

To view the availability of your resource:

1. Navigate to the Resource Instance Available Time window.
2. Use the Find Resource Availability dialog box to search for a resource or a resource-instance combination to find out the availability of it. You can search by inventory organization code, calendar, resources, instance number, start date, and end date.
3. The following fields are display only:
 - Organization Code

- Calendar
- Resources
- Instance Number

Available Times:

The following fields are display only:

- Instance Number
- Shift Date
- Shift Number
- Start Time
- End Time
- Duration
- Units

Running the Generate Resource Availability Concurrent Program

The Resource Available Time concurrent program generates the available time data for the resources owned by an inventory organization. This program can be run as many times as you want to update the availability data. You can specify the calendar and the organization code. The manufacturing calendar is used with the inventory organization from the Organizations window as the default.

To run the Resource Available Time concurrent program:

1. Navigate to the Generate Resource Availability window.
2. Select an Organization Code.
3. Enter the range of resources to select in the From and To Resources range.
4. Select the Process Calendars.
5. Click OK.
6. Complete the fields on the Generate Resource Availability window.
7. Click Submit. The Resource Available Time concurrent program begins to run.

Use the Resource Instance Available Time window to view the results.

Resource Availability

Through the OPM Exception Code, Resource Unavailability, and Resource Exceptions windows, you can identify when resources are unavailable. This information is then passed from OPM to APS and Manufacturing Scheduling. Before OPM data is passed to APS and Manufacturing Scheduling, the resource unavailable time is subtracted from the inventory organization's manufacturing calendar. The net available resource time is then passed to the APS and Manufacturing Scheduling. This lets APS and Manufacturing Scheduling issue exception messages when planned production exceeds resource capacity in an unconstrained plan. If you create a resource constrained plan, then daily production is limited by the resource constraint. You can record when each resource is unavailable after you have defined your inventory organization, resources, and reason codes.

See Also

Resource Availability, page 5-23

Defining Resource Unavailability, page 5-27

Defining Exception Codes, page 5-26

Setting Up Process Parameters

A process parameter details information such as temperature, pressure, or time that is pertinent to the product, but does not fall into the classification of input or output. Process parameters can be used as set points, comparison values, or in conditional logic. Process Manufacturing enables the association of process parameters to a resource, at the resource level within an operation and a recipe, and at the production batch level:

- Process parameters are defined as independent resource characteristics, and are definable from the Process Planning and Product Development menus.
- Process parameters can be tied to any resources defined in OPM Process Planning.
- Multiple resources can be used in an operation (step), and process parameters are resource specific.
- Batch creation takes the process parameters and their default values found in the recipe. If they exist there; if no definitions exist in the recipe, then the operation is checked for their existence. If no definitions exist in the operation, then the resource is checked for their existence. If none exist in the resource, then you can insert process parameters directly into the batch associated with any resource in the Batch Step Resources window.
- Process parameters with a numeric range can have a minimum or a maximum

value or a range. For example, you can define a parameter with only a maximum value, such as less than or equal to 10.

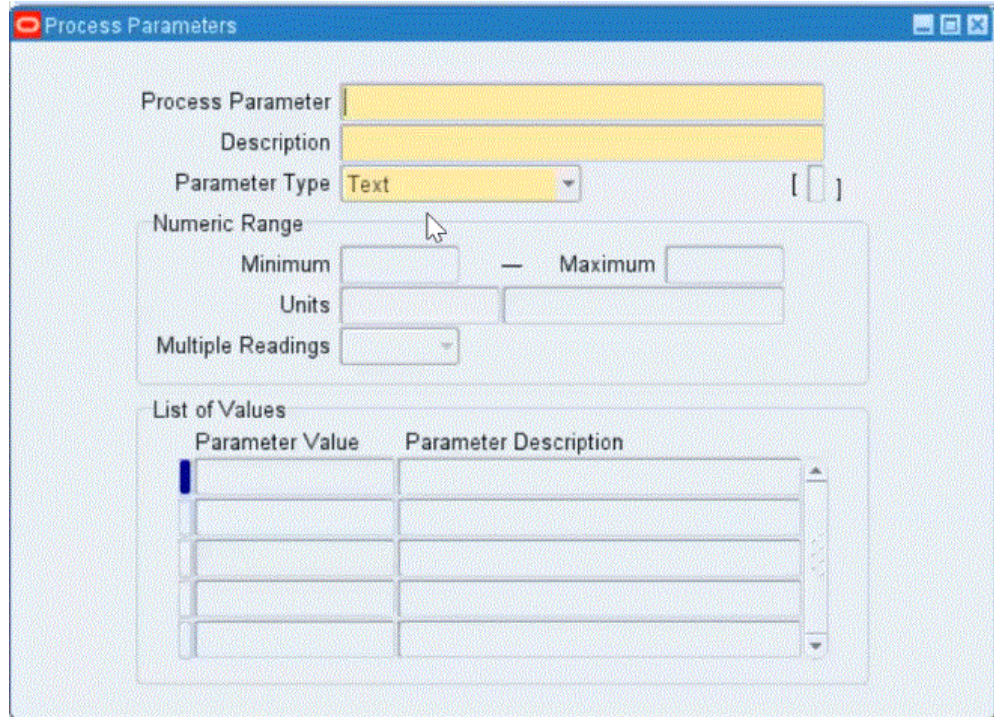
- Overrides - certain process parameter fields can be overridden once associated with resources, operations, and recipes. If the parameter is:
 - Numeric Range: The Target field can be defined at the generic resource. The Target, Minimum, and Maximum value fields can be overridden at the recipe resource level. Once a batch is created, the actual value is the only field that can be entered.
 - List of Values: No overrides can be made. The List of Values can only be defined on the Process Parameter window. Once a batch is created, the actual value is the only field that can be entered.
 - Text: The Target value can be defined at the generic resource and overridden at the recipe resource level. Once a batch is created, the actual value is the only field that can be edited.
 - When added directly to a batch, then the Target field can be entered, and the Minimum, and Maximum fields can be entered if it is a Numeric type.

To create process parameters:

1. Navigate to the Process Parameters window.
2. Enter a unique Process Parameter name.

This field stores the process parameter (speed, temperature, and so forth) and is the first field in a list of values displaying process parameters. Once the record is saved, this field is not updateable.

3. Enter a Description.



4. Enter Parameter Type, choices are:
 - Text—Enter any alphanumeric free text.
If this value is selected: Numeric Range, Minimum - Maximum, Units, Multiple Readings, and List of Values fields are disabled.
 - Numeric
Once this type is selected, the fields associated with the List of Values is disabled.
 - List Value—You can enter information in the list of values in the detail section, but not the Numeric Range and the Units. This selection indicates that all possible values for this process parameter are defined in a static table of entries. The same can be evaluated in the Target field in the Generic and Plant Resource Parameter window.
5. For Text and List Value Parameter Types—list as many values as needed in the Parameter Value and Description fields in the table.
The value in this field must be unique for the process parameter. When process parameters are used in other windows, this table appears in the list of values associated with the value field.
6. If you select the Numeric Type Parameter, enter information in the following fields:

- Numeric Range
- Minimum and Maximum range—the lowest and highest acceptable values for the process parameter. If you enter data for one value, the other value is optional.
- Units—unit of measure
- Multiple Readings

The screenshot shows a 'Process Parameters' window with the following configuration:

- Process Parameter:** DEMO_PP
- Description:** Multiple readings parameter
- Parameter Type:** Numeric Value
- Numeric Range:**
 - Minimum: 1
 - Maximum: 100
- Units:** KG (Kilogram)
- Multiple Readings:** Yes
- Aggregate Functions:**
 - Default Function: Manual
 - Function1: Sum
 - Function2: Count
 - Function3: Median
 - Function4: Std. Deviation
 - Function5: Variance

7. For Multiple Readings, choices are Yes or No.
 - Yes: The List of Values region turns into the Aggregate Functions region. The fields are Default Function and Function1 through Function6.
 - No or null value: The Aggregate functions table is not available.
8. In these drop down boxes you can select the following functions: Minimum, Maximum, Average, Mode, Variance, Standard Deviation, Median, Count, Sum, and Manual.
9. Save your work.

Defining Process Parameters Set

Process parameter sets enable you to establish a group of process parameters that reduce data entry when associating process parameters to resources.

Prerequisites

- Define process parameters.

To set up process parameter sets:

1. Navigate to the Parameter Sets window.
2. Enter the Parameter Set name. Required. The values stored here are used as a lookup in the Resource, Operations, and Recipe windows to load a process parameters list. Once the record is saved, this field is unique and cannot be updated.
3. Enter the Set Description for the parameter set. Required.

Parameters

4. Seq for the process parameter. This field is unique and is automatically populated with the next logical number.
5. Enter the Process Parameter name. Required. This field is used to associate process parameters to the process set defined in the window.
6. The Description of the process parameter displays automatically.

Setting Up Generic Resource Parameters

Once process parameters are defined, you can associate them with Generic Resources. The Generic Resource Parameters window can be invoked from the Generic Resources window or from the Process Planning menu. You can associate process parameters by either:

- Directly entering the parameter name in the Parameter region and assigning the target values.
- Associating the parameters contained in a parameter set by clicking Associate Parameters. A list of values with the names of all available parameter sets is displayed. Once a set is selected, all the parameters associated with the set are entered in the window. Assign the Target, Minimum, and Maximum values for those parameters.

Prerequisites

- Define process parameters.
- Define parameter sets.
- Define generic resources.

To set up a generic resource parameter:

1. Navigate to the Generic Resource Parameters window.
2. Query the Resources.

Parameters

3. Enter the Seq number for the resource. Required. Click Associate Parameters. This populates the process parameters and the sequences. Adjust the sequence numbering as necessary.
4. Enter the Process Parameter. This field displays the process parameter name (speed, temperature, etc.). This field can be populated through the list of values or by clicking Associated Parameters. The Units field displays the unit of measure for a numeric type process parameter. Required.
5. Enter the Target Value for the process parameter. Target value is the ideal setting for the process being run.
6. Enter the Min Value for the process parameter. The minimum value is the lowest acceptable value for a numeric type process parameter. Do not exceed the range defined for the process parameter.
7. Enter the MaxValue for the process parameter. The maximum value is the highest acceptable value for a numeric type process parameter. Do not exceed the range defined for the process parameter.
8. Enter the units of measure for the process parameter in the Units field.

Editing Plant Resource Parameters

The Plant Resource Parameters window captures the process parameters information specific to a inventory organization. You can enter this window after defining the generic resource parameters. This window inherits the resources and parameters information from the Generic Resources Parameters window and lets you override the Target values.

This window saves the record where the Target value has changed. If you want to change the generic resource parameter after the record is saved, then the Plant Resource Parameter window does not inherit the changed value from the Generic Resource

Parameter window. However, by clicking Reset Values, you can default the value from the generic resource or retain the previously overridden value. The cursor must be on the record to do this. You can close the window if you do not want to change any Target values. In addition, the window does not allow you to create or delete the displayed process parameters.

Prerequisites

- Define process parameters.
- Define parameter sets.
- Define generic resources.
- Define generic resource parameters.
- Define inventory organization resources.

To change plant resource parameters:

1. Navigate to the Plant Resource Parameters window. The following fields are displayed:
2. The Resources for the process parameters set.

Parameters

3. The Seq number for storing the process parameters in a unique sequence.
4. The Process Parameters name.
5. Edit the Target Value for the process parameter. This is the ideal setting for the process being run.
6. Enter the Min Value for the process parameter. The minimum value is the lowest acceptable value for a numeric type process parameter. Do not exceed the range defined for the process parameter.
7. Enter the Max Value for the process parameter. The maximum value is the highest acceptable value for a numeric type process parameter. Do not exceed the range defined for the process parameter.
8. The Units field displays the unit of measure for a numeric type process parameter.

Setting Up Sequence Dependencies

The Sequence Dependent Setup windows lets you indicate the amount of additional setup time required when products are processed through each operation in a specific

sequence. OPM retrieves all items that are assigned the sequence dependent classes that you specify on the Sequence Dependent Setup window.

To set up sequence dependencies:

1. Navigate to the Sequence Dependent Setup window. The From and To functionality allows transition from one operation to another.

From

2. Enter the first Operation Number for which you are defining sequence specific parameters. This number is the default for the To Operation Number.
3. Displays the Operation Version associated with the operation.
4. Enter the first Item Class code for classification of products that will be first during this operation. For example, if paints are being blended, you may want to blend light shades first, then darker shades. If this is the case, then enter sequence classification code for lighter shades of paint. The From and To Item Class fields cannot be the same. Required.

To

5. Enter the last Operation Number for which you are defining sequence specific parameters. This number is the default from the From Operation Number.
6. Displays the Operation Version associated with the operation.
7. Enter the last Item Class code for classification of products that will be processed second during this operation. For example, if paints are being blended, you may want to mix light shades first, then darker shades. If this is the case, then enter sequence classification code for darker shades of paint. The From and To Item Class fields cannot be the same. Required.
8. Enter the Setup Time. This is the amount of time in hours that will be added to this operation when items are processed in this sequence. For example, when light paints are mixed first, then dark paints. Required.
9. Enter the Penalty Factor. This factor is used by Oracle Manufacturing Scheduling to determine which setup is more expensive. Required. The Penalty Factor value must be consistent with the setup time. For example, the higher the setup time, then the higher the penalty factor.

Viewing Sequence Dependent Items

The Sequence Dependent Items window enables you to view all of the item combinations for the classes.

Prerequisites

- Set up sequence dependencies.

To view sequence dependent items also referred to as associated items:

1. Navigate to the Sequence Dependent Items window. You can navigate to this window using any of the following ways:
 - Click Associated Items from the Sequence Dependent Setup window.
 - Click the drill down indicator associated with the sequence dependent to view from the Sequence Dependent Setup window.
2. The following fields are display only:
 - Operation Number From and To
 - Operation Version From and To
 - Seq Dependent Class
 - To Item Class
 - Setup Time
 - Penalty Factor

From Item

- Number
- Description

To Item

- Number
- Description

Using OPM Material Planner

This chapter covers the following topics:

- Viewing MPS Bucketed Material Information
- Viewing MRP Material Activity Information
- Defining a Schedule

Viewing MPS Bucketed Material Information

Like the MPS Material Activity Inquiry, the MPS Bucketed Material Inquiry lists pending transaction information for a single item in one or more warehouses. However, the Material Activity Inquiry lists individual pending transactions for the item in chronological order.

The Bucketed Material inquiry shows aggregate supply and demand information for the item, grouped into categories (such as forecast and planned production data). The aggregate supply and demand for the item in each category is listed, rather than the individual transactions. For example, if you plan for an item used in 50 formulas and in 30 batches per day, the Bucketed Material Inquiry can show you the total demand for the item by day, by week, and so forth.

Also, while the Material Activity Inquiry lists transactions in chronological order, the Bucketed Material Inquiry is generated on a time bucket-based format. OPM lists all pending supply and demand for an item, aggregated by day and week.

The time buckets are the ones you established for the schedule on the MPS Schedule window. OPM compiles all sources of supply and demand for the time buckets that you established.

To view Bucketed Material information:

1. Navigate to the Bucketed Material Inquiry window.
2. Inventory Organization displays the default organization assigned to the user.

If you have planning interests in more than one organization, you may override this default with another organization code (that is, one that has been linked to the planner on the User Organization window from the OPM System Administration application).

3. Schedule is the default code for the schedule parameters assigned the current user displays along with the corresponding schedule parameters description.

You may enter a different schedule parameters code, as necessary. Note that if you entered an organization other than the default in the previous field, the default schedule parameters code in the this field will be blanked out. You must then enter the valid code for the schedule parameters. Required.

4. Enter the Item on which you are inquiring. Required.
5. Enter the item's primary unit of measure.
6. Qty On-hand displays the on-hand quantity in the primary unit of measure on the starting date of the bucket when you enter the warehouse code. The unlabeled field is the unit of measure in which the quantity is expressed.

Period Details - Demand Details:

The following table lists and describes each field in the Demand Details section

Field Name	Description
Period	Displays the periods (time buckets) for which material activity is being reported. You define these buckets on the Schedule Parameters window.
Date	Displays the ending date for each of the time periods/buckets (day/week).
Sales Order	Displays the total sales order demand for the item during this period.
Forecast	Displays the total demand from sales forecasts for the period.
Schedule Ingredients	Displays the total output from the batches during each time bucket.
Firm Ingredients	Displays the total output from FPOs for this period.

Supply Details:

The following table lists and describes each field in the Supply Details section

Field Name	Description
Period	displays the periods (time buckets) for which material activity is being reported. You define these buckets on the Schedule Parameters window.
Date	displays the ending date for each of the time periods/buckets (day/week).
Schedule Production	Displays the total output from the batches during each time bucket.
Firm Production	Displays the total output from FPOs for this period.
PO Receipts	Displays the total supply from PO receipts. PO receipts include approved purchase order requisitions, open purchase orders, internal orders, and planned purchase order scheduled deliveries.
Required Receipts	Displays reserved for future use.
Receiving	Displays the details of the receiving location.
Vendor Shipment	Displays the details of the shipment provided by the vendor.

Cumulative Details:

The following table lists and describes each field in the Cumulative Details section

Field Name	Description
Total Demand	Displays the total item demand for the period window all sources.

Field Name	Description
Total Supply	Displays the total item supply for the period of all sources.
Ending Balance	Displays the on-hand item quantity, after all demands and receipts have been applied to the starting on-hand quantity for each period.
Net Safety Stock	Displays the net item requirement for the period (including safety stock).

MPS Bucketed Material Inquiry - Actions Menu

- Select the Unbucketed option to view the Material Activity Inquiry.
- Select the UOM option to view the item in the second unit of measure if the item is dual UOM.

Viewing MRP Material Activity Information

This inquiry works and looks similar to the MPS Material Activity Inquiry. However, the MPS version of the window includes only real pending and past-due activity.

The MRP version of the query differs in that it includes MRP-suggested transactions and sales forecast transactions. The resulting projected balances also reflect suggested transactions and sales forecast transactions. This window displays (in chronological order) transaction activity for a specific warehouse, or for all warehouses. It enables production and purchasing planners to organize and view the effects of pending and MRP-suggested transactions on inventory balances. The inquiry is also available as a printed report.

To view MRP Material Activity information:

1. Navigate to the MRP Material Activity Inquiry window.
2. Organization displays the default organization assigned to the user.
If the user has planning interests in more than one organization, you may override this default with another organization code (that is, one that has been linked to the planner on the User Organization window, also from the System application).
3. Schedule is the default code for the schedule parameters assigned the current user displays along with the corresponding schedule parameters description.

You may enter a different schedule parameters code, as necessary. Note that if you entered an organization other than the default in the previous field, the default schedule parameters code in the this field will be blanked out. You must then enter the valid code for the schedule parameters.

4. Enter the Item on which you are inquiring. Required.
5. Enter the Start Date as the earliest date for which you want to see pending, sales forecast, or MRP-suggested transactions for the item. The default is the current date.
6. Inventory Organization runs the inquiry for a pending transaction in a specific organization, enter the appropriate organization code.

If you want to see item transactions for the item in all organizations, leave this field blank At this point the bottom of the screen displays pending transactions for the item. You can review each line to determine the projected impact of the transaction on your stock balance. Refer to the Document Types window for definitions of the document that initiates the pending transactions.

The following table lists and describes each field in the MRP Material Activity Inquiry window

Field Name	Description
Past Due	Indicates if this order is past due, this column is selected.
Date	Indicates the date of the order.
Document Type	Indicates the code for document type. For example, PPRD for planned production orders.
Organization	Indicates the code for the organization you entered in the header.
Document Number	Indicates the document number. Document numbering is set up in the OPM System Administration application.
Quantity	Indicates the he quantity of the item requested on the order is displayed. Forecasts and sales orders display with a negative sign.

Field Name	Description
Balance	Displays the balance in the warehouse after the order quantity is added or deleted. This field is a running balance as you proceed down the column.
Critical	<p>Lists items that are critical. Items are defined as critical if:</p> <ul style="list-style-type: none"> • The pending transaction is dated prior to the start date you entered earlier. • The resulting item balance after the pending transaction still falls below the safety stock level (specified on the Warehouse Rules window). • The resulting item balance after the pending transaction results in a negative quantity. <p>If multiple warehouses are selected it is the cumulative value.</p>
Customer/Vendor	Indicates the code for the customer or vendor (depending on document type), if specified on the document.

7. When you make the final entry in the Organization field, the inquiry displays the material activity for the item you specified.

MRP Material Activity Inquiry - Actions Menu

- Bucketed: Displays the MRP Bucketed Material Activity Inquiry.

Defining a Schedule

The schedule parameters are the primary driver of process material requirements planning. They determine the horizon for which MRP will consider material activity. The schedule parameters also determine which plants (organizations) MRP is to consider when suggesting replenishment.

Whenever you specify the code for a set of schedule parameters, you must also specify a valid organization code to correctly identify the schedule parameters.

This section discusses the following:

- Defining MPS schedule parameters.
- Inner Time Fences.
- Setting warehouse rules for MRP.
- Days Supply.
- Replenishment priorities.
- Warehouse transfer rules.

When you define your schedule parameters, you indicate the criteria by which inventory supply and demand will appear on displays and reports. You also indicate which specific plants will be included. All MRP and MPS reports are specific to a given set of schedule parameters (that is, the schedule parameters you use for the MRP run determines the plants for which MRP suggestions will be made, and the criteria by which supply/demand data will display).

You must define at least one set of schedule parameters, to which MRP will refer when making suggestions for material replenishment. The MPS Schedule Parameters window allows you to define this schedule criteria. Later, you may assign these schedule parameters to the appropriate planner(s) using the Systems application's Session Parameters window. The schedule parameters then become the defaults for these planners when they generate MRP runs.

To define schedule parameters:

1. Navigate to the MPS Schedule Parameters window.
2. Organization displays the default Organization. To view schedule parameters tied to another organization, enter the appropriate organization code. Note that this organization must be linked to the user on the User Organizations window in the OPM System Administration application. You may alter your default organization and schedule for the current session through the Session Parameter option.
3. Schedule indicates if you accepted the default organization from the previous field, the code for the default schedule parameters assigned to the user/planner (in User Profiles) displays here. You may then enter the parameters for the default organization and schedule combination. Override the default schedule parameters code to enter parameters for a different organization/schedule parameters combination.

If in the previous field you specified an organization other than the default, then the Schedule field is blank. You must specify the desired schedule for which you want to enter parameters. Note that there can be no spaces in the schedule code.

4. Enter a brief description of the set of schedule parameters in the Schedule Description field.

Indicators

The default, Include Sales Forecasts, displays to indicate forecasts as a source of demand when these schedule parameters are used (that is, products will be made to stock, then consumed by future sales). Select Exclude Sales Forecasts if sales forecasts should not be included by MRP as a demand source when the schedule parameters are used (that is, products will not be made to stock).

Either this field, or the Make to Order field, must be used as a source of demand (however, both may be included as demand).

See the Appendix, page A-1 for information on using the Forecast application windows to enter sales order forecast information. You can also import forecast figures from outside sources to the Forecast Detail table (fc_fcst_dtl) and the Schedule Forecast Association table (ps_sched_for).

5. Make to Order controls if MRP should consider sales orders as a source of demand. The default, Include Sales Orders, applies if you want to include sales orders as a source of demand when these schedule parameters are used. Select Exclude Sales Orders if sales orders should not be included by MRP as a demand source when these schedule parameters are used.

Both reserved sales orders and unreserved sales orders created in Oracle Order Management are visible to MRP as demand.

Either this field, or the Make to Stock field, must be used as a source of demand; however, both may be included as demand. If you select to Exclude Sales Orders, then MRP does not consider when planning. However, MPS looks at sales orders and consume them into the forecast. This is reflected on the MPS Material Activity inquiry and report.

6. Active Indicator is the default, Active Schedule, marks this schedule for use by MRP. If you do not want a schedule used by MRP or have some other reason you do not want it used, select Inactive Schedule from the list.

In the next three fields which are in the Time region you will specify parameters to which MRP refers. MRP refers to the time fences and the horizon when considering replenishment suggestions; it makes recommendations only for the period within the time fences you specify.

MRP will not suggest replenishment actions before the inner time fence date, or after the outer time fence date. It will also ignore any activity scheduled after the MRP horizon date. Based on demand due dates and planned supply actions, MRP calculates available inventory and back schedules the resulting net requirements. The shop calendar influences when transfer, production, or purchase of items should be initiated.

Time

7. Inner indicates the setting of the inner time fence indicates that nothing should be suggested for planning by MRP behind a particular date. Enter the number of days from the MRP run date during which MRP will suggest no supply orders (zero is the default). For example, if you run MRP on the first day of the month, and you do not want resupply orders suggested before the 5th, enter 4.

If action is required before the inner time fence date, MRP normally suggests starting the resupply action at the inner time fence date. If it adds the item's leadtime to the date of the inner time fence, then forward schedules to calculate the date the item will be available. Exception messages are generated if an action needs to take place behind the inner time fence to meet demand. MRP also generates an error message indicating that there will be a shortage for the period between the due date, and the actual available date.

Time fences do not have to be the same for all organizations that use this schedule. In the bottom area of the window you can associate this (default) number of days to individual organizations, or change the inner fence for each individual organization.

8. Outer indicates the setting of the outer time fence indicates that nothing should be suggested for planning by MRP outside a particular date. Enter the number of days from the inner time fence date after which MRP will suggest no supply orders (9999.999 is the default). For example, if you run MRP on the first day of the month, you entered 4 for the inner time fence, and you do not want resupply orders suggested for after the 20th of the month. If you enter 20 in this field, MRP will confine suggestions for resupply orders to the period between the 5th and the 20th (15 days).

Typically you would set this value to be greater than your longest leadtime.

Outer time fences do not have to be the same for all organizations that use this schedule. In the bottom area of the window you can associate this (default) number of days to individual organizations, or change the outer fence for each individual organization.

9. MRP Horizon is the number of days you specify here determines the date after which pending inventory transactions will not be considered by MRP when making calculations for resupply suggestions. The default is 9999.999.

For example, if you run MRP on the first day of January, and you want MRP to consider all pending inventory transactions for the upcoming six months when calculating resupply suggestions, enter 180 days (6 months multiplied by 30 days).

When calculating inventory resupply, MRP will not consider any pending inventory transactions with a transaction date after the 180th day from January 1st.

Buckets

Ensure that your calendar is defined to cover the period of the MRP horizon. You will

get an error message if it does not.

The entries you make in next four fields determine how supply and demand will be bucketed on your MPS and MRP Bucketed Material Activity Reports. You can review bucketed material activity for a specific number of days, weeks, months, and quarters. The buckets are cumulative and determine the limit of your view

Four time buckets will fit on a single page.

10. Enter Days as the number of one-day increments for which you want a Bucketed Material Activity Report. For example, if you want to see material activity for each day for the next fourteen days, enter 14. The default is zero.
11. Enter Weeks as the number of one-week increments for which you want a Bucketed Material Activity Report. For example, if you want to see material activity for each week for the next four weeks, enter 4. The default is zero.
12. Enter Months as the number of one-month increments for which you want a Bucketed Material Activity Report. For example, if you want to see material activity for each month for the next two months, enter 2. The default is zero.
13. Enter Quarters as the number of one-quarter increments for which you want a Bucketed Material Activity Report. For example, if you want to see material activity for the next quarter, enter 1. The default is zero.

Schedule Details

14. Organization enables you to link one or more organizations (which have been defined as manufacturing plants) to this schedule. Enter the code for the plant to which you are linking this schedule.
15. Enter the Calendar code for the shop calendar that will be used for this plant/organization combination. The corresponding calendar description displays from the Shop Calendar window. If you entered a calendar in the Organizations window when you created the organization, the calendar defaults into this field. You can override the defaulted calendar with any other shop calendar.
16. Calendar Description for the corresponding calendar displays.
17. Organization is the description of the organization specified in the previous Organization field displays automatically.
18. Inner Time Fence indicates the number of days from the MRP run date during which MRP will suggest no supply orders (zero is the default). For example, if you run MRP on the first day of the month, and you do not want resupply orders suggested before the 5th, enter 4.
19. Outer Time Fence indicates the number of days from the inner time fence date after which MRP will suggest no supply orders (9999.999 is the default). For example, if

you run MRP on the first day of the month, you entered 4 for the inner time fence, and you do not want resupply orders suggested for after the 20th of the month.

20. Save your work.

Inner Time Fence - Additional Discussion

The principles of how the inner time fence works are discussed.

Inner Time Fence and Demand Dates

The demand that occurs before the inner time fence includes past due demand. The demand and the planned supply, which includes planned batches and purchase orders, is considered in the calculation of the net requirement. Utilizing any onhand quantities available, the demands, and the planned supplies, the net requirement is calculated and a suggestion, if needed for resupply is recorded. The message produced will be an exception and start and completion date will be that of the inner time fence.

Insufficient Leadtime/Exceptions

The demand which occurs on or after the inner time fence will have messages as follows. When there is an insufficient amount of time to satisfy the leadtime in relation to the inner time fence, an exception message will be produced. The resupply suggestion will have the leadtime set to the elapsed time between the demand date and the inner time fence. The start date is the inner time fence and completion dates will be demand date. If there is a enough time to satisfy the demand MRP plans as expected and generates regular action messages and suggestions will be produced, such as Release Production Batch, etc.

Inner Time Fence and Reorder Rules

Each item/warehouse combination has three replenishment/reorder process options: transfer, production and purchase. If the indicator is on for each respective replenishment type, the time fences for those reorder rules will be used to locate the maximum for inner time fence and the minimum for the outer time fence.

If the production indicator is on, the schedule, schedule organization and production rules are used to calculate the inner and outer fences. If the purchase indicator is selected, the schedule, schedule organization and warehouse rules will be used to calculate the inner and outer fences. If the production indicator and transfer indicator are selected, the schedule, schedule organization and production rules and transfer rules will be used to calculate the inner and outer fences.

Inner Time Fence and Safety Stock

Safety stock is calculated dynamically at the inner fence for an item and warehouse. The past due demand and replenishment is considered along with onhand inventory before the safety stock is looked at. If there is any demand behind the inner time fence, that demand will be met then the safety stock will be considered.

Additional Information: Safety stock is only calculated at the inner time fence if there is activity for the item on or after the inner time fence.

Process Planning Reports

The topic describes the Process Planning reports.

This chapter covers the following topics:

- Running the Planning Detail Report
- Running the Resource Dispatch Report
- Running the MPS Bucketed Material Report
- Running the MPS Unbucketed Material Report
- Running the Reorder Point Report

Running the Planning Detail Report

The Planning Detail Report provide the option to generate a combination of reports or individual reports, with an option to change the format of the final output report.

To print the Planning Detail Report:

1. Navigate to the GMP Planning Detail Report window.

Parameters

2. Select an Organization. You can either select a single organization or "All". If you select "All", then all the organizations in the plan are considered in the report.
3. Enter the Report Start Date. Default is the Plan Start Date. It is the day from which the data must be displayed in the report.
4. Enter the Days, Weeks, and Periods. Default values are copied from the Plan. The report displays the data for the number of days as mentioned in the "Days" parameter. Then the data displays in weeks according to the parameter passed. After the weeks, the data is grouped in periods and the data for the number of periods mentioned in the parameters displays.

5. Enter the first, second, and third sort. This defines the way to sort the output.
6. Enter an Exception Type that corresponds to the display of exceptions in the report.
7. Enter the range of planner (Planner From/To).
8. Enter the range of the buyer (Buyer From/To).
9. Enter the item range (Item From/To).
10. Enter the Category Set.
11. Enter the range of categories (Categories From/To) in the mentioned category set.
12. Enter the ABC Assignment Group.
13. Enter the ABC Class based on the ABC assignment group.
14. Enter the Horizontal Display Factor by which all the data must be scaled down in case of horizontal display.
15. Enter Yes or No to Include Items With No Activity in the calculation.
16. Enter Yes or No to Include Phantom Items in the calculation.
17. Enter Yes or No to Include Completed Jobs in the calculation.
18. Enter the Cutoff Date till which the transactions must be considered to calculate the reporting data. This is different from the end reporting date, which is calculated based on the report start date and total reporting period as mentioned in the days, weeks, period parameters.
19. Select Combined PDR:
 - Yes: The LOV for Combined PDR gets enabled. You can select the XML template for combined PDR. You must individually select "Yes" for the various components such as Horizontal, Vertical, Action, and Exception. A single report displays the selected components.
 - No: The LOV for Combined PDR gets disabled. You must individually select "Yes" for the various components such as Horizontal, Vertical, Action, and Exception and also the corresponding XML templates. Single/multiple reports display for each selected component.
20. Click Submit Request.

To submit another request, select Yes. If you are submitting a request set, then a Request ID is assigned to the set and to each request in the set.

To register a new template:

You must select a corresponding RTF template for getting a PDF output in the desired format. You have the option to register new templates in RTF format if you want the report in new format.

1. Create a new template with .RTF extension and save it in the local machine. For example, c:\PDR_NEW.rtf.
2. Navigate to the XML Publisher Administrator responsibility from the E-Business Suite Homepage.
3. Select Templates.
4. Click Create Template.
5. Enter a Name for the template.
6. Enter a Code for the template. This code is utilized if the template is used within some other template as a sub template.
7. Select the Application as Process Manufacturing Process Planning.
8. Select the Data Definition name as PDR_PDF.
9. Select Type as RTF.
10. Select Start Date and End Date for the period in which the template must be active for publishing the report.

Leave the End Date blank in case the template must not be obsoleted in future. You can add an End Date later if the template is to be obsoleted.
11. Select Sub template for generating vertical report, horizontal report, action messages, and the exception messages report. For Overall PDR report template, do not select Sub template.
12. Write a suitable Description for the template.
13. Browse for the new template file in the Template File region. In the present example, it is c:\ PDR_NEW.rtf.
14. Select a Language and Territory for the template.

The templates to choose from are filtered on the basis of language and territory at the time of final request submission.
15. Click Apply.

Running the Resource Dispatch Report

The Resource Dispatch Report is used on the shop floor to provide the latest information on the resource usages for existing batches. This report is also used to schedule the resource usage based on the suggestions from the APS planning engine. You can print the report to include both the planned and actual resource usage or the planned resource usage only. The report displays the material consumed and yielded from the resource.

The Resource Dispatch Report is generated from the concurrent request submission window. The parameters include From Organization, To Organization, From Resource, To Resource, From Date, and To Date.

If you are generating the Resource Dispatch Report for planned data, you must also include the Plan Name and Instance Code parameters.

Running the MPS Bucketed Material Report

Like the MPS Material Activity report, this report lists pending transaction information for a single item in one or more warehouses. However, the previous report listed individual pending transactions for the item in chronological order.

The MPS Bucketed Material report shows aggregate supply and demand information for the item, grouped into categories (such as purchase order receipts and planned production). The aggregate supply and demand for the item in each category is listed, rather than the individual transactions. For example, if you plan for an item used in 50 formulas and in 30 batches per day, the Bucketed Material Report can show you the total demand for the item by day, by week, and so forth.

Also, while the MPS Material Activity report lists transactions in chronological order, the MPS Bucketed Material report is generated on a time bucket-based format. OPM lists all pending supply and demand for an item, aggregated by day, week, or whatever buckets you defined on your schedule. OPM can thereby list net safety stock requirements for any point in time.

The time buckets are the ones you established for the schedule on the MPS Schedule window. In the time buckets you established, OPM compiles all sources of supply and demand.

You must associate a Planning Class to your user and to each item you wish to have print on a report. If no associations are made the reports will not print any data.

To print the MPS Bucketed Material Activity Report:

1. Navigate to the Bucketed Material window.
2. Organization displays the default organization assigned to the user (planner). If you have planning interests in more than one organization, you may override this

default with another organization code (that is, one that has been linked to the Planner on the User Organization window, also in the System application).

3. Schedule is the default schedule parameters code assigned to the current user displays, along with the corresponding schedule parameters description. You may enter a different schedule parameters code, as necessary. The organization code and the schedule parameters code are both required to identify the schedule parameters that were used to generate the MRP run for which you are inquiring on material activity.
4. Enter the Planning Class code associated to the schedule for which you ran MRP.
5. Enter the Buyer/Planner: code associated to the schedule.
6. Enter Item code for which you want to review material activity. Required.
7. Enter the For Organization organization. A schedule can have multiple organizations linked to it. Enter the specific organization for which you want to see MPS Bucketed Material Activity.
8. Select the Critical Item box if you want to flag critical items.

Demand Components

9. Select Independent to indicate that sales orders and sales forecasts (imported from systems outside of OPM) are the independent demand components.
10. Select Dependent to indicate that the scheduled ingredient (Sched Ingred) demand comes from batch tickets, and firm ingredient (Firm Ingred) demand comes from firm-planned orders.
11. Total indicates the combination of all independent and dependent demand.

Supply Components

12. Open Purchase Orders represents purchase order receipt quantities (PO Receipts) are created by open purchase orders.
13. Req Receipts indicate that the required receipts.
14. Firm Scheduled indicates that the scheduled supply (Sched Firm) of the item from batch tickets.
15. Planned Production represents the pending supply of the item from both firm-planned orders and MRP-planned orders (Plnd Prod).
16. Submit the report.

The information entered here will also print on the cover page.

MPS Bucketed Material Report - Balances and Safety Stock Requirements

At the end of each time bucket, OPM refers to the opening balance of the item, then uses the supply and demand information to produce an ending balance (Ending Bal) for the time bucket. OPM then compares the ending balance to the safety stock level for the item to determine the net safety stock requirements (Net SS Reqmt).

Running the MPS Unbucketed Material Report

This report lists (in chronological order) pending inventory transaction activity for an item in a subinventory, or all subinventories over which you (as the planner) have authority. Pending inventory transactions include sales orders, purchase orders, firm-planned orders, or anything else that has an anticipated effect on stock balances (as opposed to an actual, completed stock transaction, such as a move of inventory between warehouses). By listing anticipated consumption against receipts (purchase receipts, planned order receipts), production and purchasing planners can view the effects of pending transactions on inventory balances. For buyer/planners, the report can help them decide which requisitions and MRP-suggested purchases should be approved. The report may also indicate situations where smaller purchases can be grouped into a single, large purchase, possibly allowing the buyer to receive a volume discount. The report may help production planners to decide when to convert firm-planned orders to batches. It may also indicate when batches should be rescheduled, resized, consolidated, or canceled. You must associate a Planning Class to your user and to each item you wish to have print on a report. If no associations are made the reports will not print any data. The MPS Material Activity Report lists the details from the aggregate supply/demand information listed on the Bucketed Activity report.

To submit the MPS Unbucketed Material Activity Report:

1. Navigate to the Submit Request window.
2. Select MPS Unbucketed Material Report in the Name field. The Parameters window displays.
3. Enter the following parameters:
 - Schedule: The default schedule parameters code assigned to the current user displays, along with the corresponding schedule parameters description. You may enter a different schedule parameters code, as necessary. The organization code and the schedule parameters code are both required to identify the schedule parameters that were used to generate the MRP run for which you are inquiring on material activity.
 - Category Set
 - Category Structure

- Category From and To
 - Buyer From and To: Enter the codes associated with the buyers to limit your items to report by a single buyer or range of buyers associated to the schedule for which you run MRP.
 - Planner From and To: Enter the codes associated with the planners to limit your items to report by a single planner or range of planner associated to the schedule for which you run MRP.
 - Inventory Organization From and To: Enter the specific organization or a range or organizations for which you want to see MRP Material Activity.
 - Item From and To: Enter the item code (product) or a range of item codes to limit your items to report by a single or range of items for which you want to review material activity.
 - Start Date: Provide a start date to initiate the report.
 - Critical Indicator: Select this check box if you want to flag critical items.
 - Template
 - Template Locale
4. Click Submit and note the Request ID.
 5. Navigate to the Find Requests window and search for the report run using the Request ID.
 6. Click Find.
 7. Select View Output. The following details display on the report:
 - Organization is the organization code associated to the buyer/planner which you entered in the dialog box.
 - Schedule is the schedule associated to the MRP run which you entered in the dialog box.
 - Buyer/Planner is the code for the buyer or planner for whom you are listing item transactions and suggestions.
 - Planning Class is the planning class for which you are listing item transactions.
 - Item is the item code for which transactions are listed.

- Start Date is the start date for which the report was initiated.
- MRP Last Run is the date of the most recent MRP run, upon which suggested MRP transactions have been based.
- Warehouse is the warehouse in which the item transactions occur.
- Qty On-hand is the total item quantity actually in the warehouse, with the unit of measure in which the quantity is expressed (as it is stocked). An asterisk (*) indicates that this item is critical, that is, there are negative balances below safety stock requirements.
- Date is the date the transaction occurred, or will occur. For MRP suggestions, this is the suggested date of the transaction.
- Doc Type is the type of document that triggered the transaction (for example, PPUR for purchase order, FPO for firm-planned order). For suggestions, this is the type of transaction that MRP recommends you make.
- Orgn Code is the ID code for the organization for which the transaction occurred, or will occur.
- Document No is the number of the document (sales order, purchase order, and so on) that triggered the transaction or suggestion for a transaction.
- Trans Qty is the transaction quantity, or the transaction quantity suggested by MRP. Balance The total item balance for this item after the transaction occurs. For MRP-suggested transactions, this is the projected balance.
- Customer/Vendor: For sales order transactions, the customer number from the sales order is printed. The vendor number appears from the purchase order if this is a real or suggested purchasing transaction.

Running the Reorder Point Report

Use this report to see which items have reached the reorder point. You can also view the onhand inventory and the item's EOQ (Economic Order Quantity). These parameters are set in the Warehouse Rules window. The report can be generated for all or a range of warehouses and items.

To submit the Reorder Point Report:

1. Navigate to the Reorder Point Planning Parameters page.

The Reorder Point Planning value appears in the Report Name field, and the Parameters page appears.

Reorder Point Planning Parameters

Parameters

Item Selection: All reorder point planned items

Demand Cutoff Date: 02-FEB-2012

Supply Cutoff Date: 02-FEB-2012

Restock: No

Default Delivery To: PR1

Forecast:

First Sort: Inventory item

Second Sort: No sort

Third Sort: No sort

Items From:

To:

Planners From:

To:

Buyers From:

To:

Category Set: Inv Items Inventory Category Set

OK Cancel Clear Help

2. Enter or select values in any of the following fields:

- **Item Selection:** Indicate whether to report all items that are identified as reorder point planned or only items with on-hand balances and on-order balances that fall below their reorder point.

Displaying all reorder point planned items (regardless of their balances) enables you to see where item balances are in relation to the specified order point.

- **Demand Cutoff Date:** The report includes demand on or before this date.
- **Supply Cutoff Date:** The calculation includes open supply orders with expected receipt dates on or before this date.
- **Restock:** Select *Yes* or *No* to indicate whether to restock.

If you have set the Planning Level to Organization, the report generates requisitions or jobs according to the item's Make/Buy flag.

If you have set the Planning Level to Subinventory, the report generates requisitions only.

Note: For Oracle Shop Floor Management work orders: When restock is selected and the Reorder Point Report is run, you can

create work orders for Oracle Shop Floor Management.

- Default Delivery To: Accept the default delivery location or enter the delivery location in this field that you want to appear on the requisition.
 - Sort: Enter the sorting criterion for the report. You can choose to sort by *Inventory Item*, *Category*, *Planner*, or *Buyer*. If you choose *Category*, enter the category set.
 - Report: Indicate whether to prepare a full or partial report. If you choose *Partial*, specify the range of items, categories, planners, or buyers you want to include.
3. Click OK.
 4. Click Submit Request to generate the report.

Reorder Point Report Output:

1. From the Requests window, select the report and click View Output.
2. The following information displays on the Reorder Point report output:
 - Schedule: Displays the schedule used to generate the report.
 - Item: Displays the item code range used to generate the report.
 - Warehouse: Displays the warehouse code range used to generate the report.

Detail

- Item: Displays the item code for the detail row.
- Description: Displays the description for the item.
- Whse: Displays the warehouse for the detail row.
- Onhand: Displays the inventory balance for the item in the warehouse.
- Reorder Point: Displays the reorder point for the item which was defined in Inventory Warehouse Rules.
- EOQ: Displays the Economic Order Quantity for the item which was defined in the Warehouse Rules window.
- UOM: Indicates the item's primary unit of measure for the row.

Navigation Paths

This appendix covers the following topics:

- Navigation Paths

Navigation Paths

Although your System Administrator may have customized your Navigator, typical navigation paths are described in the following table. In some cases, there is more than one way to navigate to a window. This table provides the most typical default path.

Window Name	Navigation Path
Alternate Resources	OPM Supply Chain Planner > Setup: Alternate Resources
Batch Cancellation	OPM Supply Chain Planner:Production Updates:APS Cancel Batch
Batch details	OPM Supply Chain Planner:Scheduling: Scheduler:Batch Details
Bucketed Material Inquiry	OPM Material Planner:Bucketed Material
Exception Sets	OPM Supply Chain Planner:Setup:Resource Calendars:Unavailability Codes
Forecast Items	OPM Material Planner:Forecast:Items
Generate Resource Availability	OPM Supply Chain Planner:Setup:Resource Calendars:Generate Resource Availability

Window Name	Navigation Path
MPS Material Activity Inquiry	OPM Material Planner:Material Activity
MPS Schedule Parameters	OPM Material Planner:Setup:Schedule
New Batch	OPM Supply Chain Planner:Production Updates:APS New Batch
Planning Parameters	OPM Material Planner:Setup:Parameters
Process Operation Details	OPM Supply Chain Planner:Setup:Operations
Process Parameters	OPM Supply Chain Planner:Setup:Process Parameters:Define Parameters
Process Routing Details	OPM Supply Chain Planner:Setup:Routings
Parameter Set	OPM Supply Chain Planner:Setup:Process Parameters:Parameter Set
Reorder Point Planning	OPM Material Planner:MPS:MPS:Reorder Point Planning:Parameters
Reschedule Update	OPM Supply Chain Planner:Production Updates:APS Reschedule
Resources	OPM Supply Chain Planner:Setup:Generic Resources
Resource Exceptions	OPM Supply Chain Planner:Setup:Resource Calendars:Resource Exceptions
Resource Information	OPM Supply Chain Planner:Setup:Plant Resources
Resource Instance Available Time	OPM Supply Chain Planner:Setup:Resource Calendars:Resource Availability
Resource Parameters	OPM Supply Chain Planner:Setup:Process Parameters:Plant Resource Parameters

Window Name	Navigation Path
Resource Unavailability	OPM Supply Chain Planner:Setup:Resource Calendars:Resource Unavailability
Run Scheduler	OPM Supply Chain Planner:Scheduling: Scheduler:Run Scheduler
Scheduler Workbench Startup Parameters	OPM Supply Chain Planner:Scheduling: Scheduler:Workbench
Scheduling Exceptions	OPM Supply Chain Planner:Scheduling: Scheduler:Scheduler Exceptions
Sequence Dependent Setup	OPM Supply Chain Planner:Setup:Sequence Dependent Setup
User Planning Classes	OPM Supply Chain Planner:Setup>User Planning Classes
Workday Calendar	OPM Supply Chain Planner:Setup:Workday Calendar

The following windows are also accessible from the OPM Material Planner responsibility:

- Reschedule Update
- New Batch
- Batch Cancellation
- Run Scheduler
- Scheduling Exceptions
- Scheduler Workbench Startup Parameters
- Batch Details
- Resources
- Resource Information
- Alternate Resources

- Workday Calendar
- Exceptions Sets
- Process Parameters
- Parameter Sets
- Plant Resource Parameters
- Generic Resource Parameters
- Process Routing Details
- Process Operations Details

Glossary

APS

Advanced Planning and Scheduling, this is the suite of planning products.

ASCP

Advanced Supply Chain Planning, this is the materials and resource planning engine.

Buyer/Planner

The person responsible for managing a specific portion of inventory. The buyers/planners do not necessarily purchase the raw materials themselves. However, their schedules generate requests for items that may require raw materials.

Dependent Demand

The need for formula items, the need generated by the manufacture of higher-level items. For example, if production of a pound of bread requires 9 ounces of flour, then a demand for 100 pounds of bread produces a dependent demand of 900 ounces of flour.

DP

Demand Planning. Oracle Demand Planning is a web-based application that enables organizations to produce unconstrained forecasts for future demand and generate tactical, operational, and strategic business plans. It captures and processes information from multiple sources and consolidates demand so that it can be summarized by item, product line, region, time, and organization.

Experimental Item

Experimental Item in OPM means that this item cannot be used in production formulas, recipes, or production batches. This type of item can only be used in laboratory formulas, recipes, and laboratory batches.

Firm Planned Order (FPO)

An order for a production batch that you definitely intend to make, but not necessarily in the immediate future. Represents a supply source for manufactured goods and a demand source for batch ingredients.

Fixed Leadtime

The leadtime that does not change as the ordered quantity changes (for example, production setup time, vendor leadtime).

Forecast

Forecast shows predicted future demand for items over time. A forecast contains information on the original and current forecast quantities (before and after consumption), the confidence factor, and any specific customer information.

Forecast Sets

Forecast Sets consist of one or more forecasts. Sets group complimenting forecasts into a meaningful whole. For example, a forecast can contain separate forecasts by region.

Independent Demand

Demand for an item based directly on open sales orders (and sales forecasts).

OPM

Oracle Process Manufacturing.

Resource Batching

Resource Batching is defined as a resource that can be processing multiple production batches or work orders simultaneously. An example of this is an annealing furnace. In many instances a furnace may have a large capacity greater than the amount of material being processed or it may take a longer amount of time to process material from one batch, than to cycle through the furnace. It is not efficient to run the furnace under loaded or wait until all of one batch is completed to fully load a furnace. To ensure full utilization and efficient use of the furnace, different production batches being produced can be loaded together into the furnace and processed.

Shop Calendar or Manufacturing Calendar

It is the statement of the valid working and nonworking days and times for a manufacturing organization.

Simulation Set

It is the entity that groups the deviations to default availability as defined by a calendar. The deviations can be of either types – addition of working time or reductions of working time. This entity does not exist in OPM.

Variable Leadtime

The leadtime that is proportional to the quantity of an order. For example, a longer leadtime may be required to produce 5000 of an item than 500.

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