

Oracle[®] Process Manufacturing Capacity Planning

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Oracle® Process Manufacturing Capacity Planning

Part No. A69960-01

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- Did you find any errors?
- Is the information clearly presented?
- Do you need more information? If so, where?
- Are the examples correct? Do you need more examples?
- What features did you like most about this manual?

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Oracle Process Manufacturing Capacity Planning Preface

Oracle Process Manufacturing Capacity Planning Welcome

Welcome to the *Oracle Process Manufacturing Capacity Planning*.

This user's guide includes the information you need to work with Oracle Oracle Process Manufacturing Capacity Planning effectively.

This preface explains how this user's guide is organized and introduces other sources of information that can help you.

About Oracle Process Manufacturing Capacity Planning

This guide contains overviews as well as task and reference information about OPM Capacity Planning. This guide includes the following chapters:

- Capacity Requirements Planning
- OPM Capacity Planning Prerequisites
- Capacity Planner Interface
- Infinite Planning with OPM Capacity Planner

Audience for Oracle Process Manufacturing Capacity Planning

This guide assumes that you have a working knowledge of your business area's processes and tools. It also assumes that you are familiar with other OPM products. If you have never used Oracle Process Manufacturing Capacity Planning, we suggest you attend one or more of the Oracle Process Manufacturing training classes available through World Wide Education. For more information about OPM Oracle Process Manufacturing Capacity Planning and Oracle training see Other Information Sources.

This guide also assumes that you are familiar with the Oracle Applications graphical user interface. To learn more about Oracle Applications graphical user interface, read the *Oracle Applications User's Guide*.

Conventions

Bolded Text

Buttons, fields, keys, menus, and selections are bolded in procedures only. For example: To access the next form click **OK**. Otherwise, references to these features appear in regular type.

Additional Menu Options

Only nonstandard menu options are discussed. Standard menu bar options (such as Save) are not discussed. These standard options are described in the Oracle Applications User's Guide. Only menu options unique to the use of the specific form are discussed.

Field References

References to fields within procedures are in bold type. References within the body of this guide appear in regular type.

Keyboard Mapping

Some keyboards have an Enter key, while some have Return key. All references to this key appear as Enter.

Required Fields

The word "Required" appears as the last word in the field descriptions of all required fields. When the field is required contingent on the entry in another field, or only in specific situations, "Required if..." is the last sentence of the field description.

Fields Reserved for Future Use

Fields with no current processing implications are referenced by the statement, "This field is not currently used" or "Reserved for future use" is shown. Do not use these fields for your own reference data, because there are plans to link future functionality to these fields. Fields intended for informational use only are referenced by the statement, "This field is for informational purposes only".

Pending/Completed Transactions

Discussions about processing transactions that use the words 'pending' and 'completed' refer to the status of a transaction. Pending and completed do not refer to the database tables that are updated as a result of transactions (for example, some completed transactions are stored in the Pending Transactions table).

Procedures

Each chapter contains a procedure with numbered steps. Any actions which are subordinate to a step are assigned letters.

Note: You can customize your Oracle Application, therefore, all procedures are suggestive only. Navigate to forms and between responsibilities in a way that works best for your particular setup. Also note that fields may appear on your screen in a different order than they are discussed in this guide.

Oracle Process Manufacturing Glossaries

A module-specific glossary is included.

Use of Word "Character"

The word "character" means an alphanumeric character. Characters that are numeric or alphabetic only are referenced specifically.

Note: Depending on your system security profile, you may not have access to all of the forms and functions described in this guide. If you do not see a menu option described in this guide, and you want access to it, contact your System Administrator.

Do Not Use Database Tools to Modify Oracle Applications Data

Because Oracle Applications tables are interrelated, any change you make using Oracle Applications can update many tables at once. If you modify the Oracle Applications data using anything other than Oracle Applications, you could change a row in one table without making corresponding changes in related tables. If your tables are synchronized with each other, you risk retrieving erroneous information and receiving unpredictable results throughout Oracle Applications.

When you use Oracle Applications to modify your data, Oracle Applications automatically checks that your changes are valid. Oracle Applications also track who changes information. If you enter information into database tables using database tools, you could 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.

Consequently, we strongly recommend that you never use SQL*Plus or any other tool to modify Oracle Applications data unless otherwise instructed by Oracle Support Services.

Information Sources Related Oracle Process Manufacturing Capacity Planning

You can choose from many sources of information, including documentation, training, and support services, to increase your knowledge and understanding Oracle Process Manufacturing Capacity Planning.

Online Documentation

All Oracle Applications documentation is available online on CD-ROM, except for technical reference manuals.

All user's guides are available in HTML and paper. Technical reference manuals are available in paper only. Other documentation is available in paper and sometimes PDF format.

The content of the documentation remains the same from format to format. Slight formatting differences could occur due to publication standards, but such differences do not affect content. For example, page numbers are included in paper, but are not included in HTML.

The HTML documentation is available from all Oracle Applications windows. Each window is programmed to start your web browser and open a specific, context-sensitive section. Once any section of the HTML documentation is open, you can navigate freely throughout all Oracle Applications documentation. The HTML documentation also ships with Oracle Information Navigator (if your national language supports this tool) which enables you to search for words and phrases throughout the documentation set.

Other Information Sources

Oracle Process Manufacturing Capacity Planning shares business and setup information with other Oracle products. The following Oracle Applications guides might be useful when you are setting up and using Oracle Process Manufacturing Capacity Planning.

- **Oracle Applications User's Guide**

This guide explains how to enter data, query, run reports, and navigate using the graphical user interface (GUI) available with this release. This guide also includes information on setting user profiles, as well as running and reviewing reports and concurrent processes.

- **Oracle Applications Flexfields Guide**

This guide provides flexfields planning, setup and reference information for the implementation team, as well as for users responsible for the ongoing maintenance of Oracle Applications product data. This manual also provides information on creating custom reports on flexfields data.

- **Oracle Workflow**

This guide provides information about the Oracle Workflow product. It provides guidance and assistance for automating and routing information of any type according to business rules.

- **Oracle Applications System Administrators Guide**

This guide provides planning and reference information for the Oracle Applications System administrator. It contains information on how to define security, customize menus and online help text, and manage processing.

Oracle Process Manufacturing Guides

The following is a list of the documentation in each product group of OPM release 11.0.

System Administration and Technical Reference

- *Oracle Process Manufacturing Implementation Guide*
- *Oracle Process Manufacturing Technical Reference Manuals*

OPM Inventory Control

- *Oracle Process Manufacturing Inventory Management User's Guide*
- *Oracle Process Manufacturing Physical Inventory User's Guide*
- *Oracle Process Manufacturing EC Intrastat Reporting User's Guide*

OPM Process Execution

- *Oracle Process Manufacturing Production Management User's Guide*
- *Oracle Process Manufacturing Process Operations Control User's Guide*

OPM Product Development

- *Oracle Process Manufacturing Formula Management User's Guide*
- *Oracle Process Manufacturing Laboratory Management User's Guide*
- *Oracle Process Manufacturing Quality Management User's Guide*

OPM Logistics

- *Oracle Process Manufacturing Order Fulfillment User's Guide*
- *Oracle Process Manufacturing Purchase Management User's Guide*

OPM Process Planning

- *Oracle Process Manufacturing Forecasting User's Guide*
- *Oracle Process Manufacturing Capacity Planning User's Guide*
- *Oracle Process Manufacturing MPS/MRP User's Guide*

OPM Financials

- *Oracle Process Manufacturing Cost Management User's Guide*
- *Oracle Process Manufacturing Manufacturing Accounting Controller User's Guide*
- *Oracle Process Manufacturing Accounting Setup User's Guide*
- *Oracle Process Manufacturing and Oracle Financials Integration*

- *Oracle Process Manufacturing and Oracle Financials Implementation Guide*

Other Sources

Training

We offer a complete set of formal training courses to help you and your staff master Oracle Process Manufacturing Capacity Planning and reach full productivity quickly. We organize these courses into functional learning paths, so you take only those courses appropriate to your job's area of responsibility.

You have a choice of educational environments. You can attend courses offered by Oracle Education Services at any one of our many Education Centers, or you can arrange for our trainers to teach at your facility. In addition, Oracle training professionals can tailor standard courses or develop custom courses to meet your needs. For example, you may want to use your organization structure, terminology, and data as examples in a customized training session delivered at your own facility.

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Capacity Requirements Planning

Capacity Requirements Planning Introduction

This section provides a brief overview of resource capacity planning from a business perspective. In addition, it also discusses how OPM Capacity Planner with RHYTHM can help you to solve your resource capacity problems.

Capacity Requirements Planning Overview

The trend in business today is toward smaller inventories, reduced leadtimes, and consistent on-time delivery. It is increasingly important to use all of your production resources, including capital equipment and manpower, to the best possible advantage.

OPM Capacity Planner was designed to help you make the most effective use of all resources. This product offers several planning tools, each of which is discussed briefly in this introduction.

Process Capacity Planning in Brief

The OPM capacity planning software indicates to the master planner or plant scheduler how current and projected product demands affect the utilization of resources. Dynamic data (such as the manufacturing schedule) and static data (such as routings and operations) are loaded from OPM onto memory on a "server" work station. Using graphic displays, this product allows you to evaluate schedules and other imported OPM data from an infinite capacity resource standpoint.

Capacity Planner calculates required work center capacity to meet demand. It does this based on the assumption of infinite available capacity to perform the work (that is, scheduled resource time required to meet demand is suggested as though the resource has no time or material boundaries).

Using a point-and-click interface, you can highlight all resources that are over or under capacity based on current production schedules. Capacity Planner with RHYTHM accounts for all constraints concurrently, and indicates resource overloads to you before they have an impact on delivery schedules. When you are satisfied with the results of your infinite capacity plan, you can then alter batch dates and quantities and schedule changes on the OPM . You do this by using the Create Batch/FPO form or using the OPM Batches form to make changes. Once changes are made, you may want to run MRP again and make any additional changes. Another export to RHYTHM Capacity Planner may be required to fine tune your schedule.

Knowing about potential capacity problems in advance allows you minimize the impact of capacity variables on the production schedule. This can result in fewer production "crunches" and less worker overtime.

The following RHYTHM Capacity Planner features are available:

- Infinite capacity requirements projections from OPM manufacturing orders (production batches, firmed planned orders and, if generated, MRP planned order (PPRD), using OPM items, routings, resources, operations and shop calendar information
- RHYTHM Problem window indicating the resource capacity shortages, including simple navigation to the problem resources, their loading and shop calendar information
- Load Graphs displaying resource load in a scaleable bar graph window
- Orders Editor enabling “what-if” alteration of individual OPM manufacturing order due dates and quantities, and the resulting effect on capacity load profiles

How Does OPM RHTYHM Capacity Planner Work?

For the software to function properly, you have to establish the following information in OPM.

- Schedule
- Calendars
- Formulas
- Routings
- Orders (Batches, Firm-Planned Orders, and MRP Planned Production Orders (PPRD))
- Resources
- Items
- Routing Operations
- Activities

RHYTHM Capacity Planner takes information from production (for example, batches and firm-planned orders) and resources (for example, production equipment). It calculates resource utilization using demand requirements and routing information to provide load profiles by resource.

OPM RHYTHM Capacity Planner - Client and Server

The OPM Capacity Planning product consists of three parts: OPM Capacity Planning product with the Capacity Planner interface, RhythmLink and RHYTHM Capacity Planner.

The Capacity Planner interface operates in a Client/Server set up. When you select Capacity Planner from the OPM Capacity Planning menu and initiate an export, OPM converts the required information into flat files then initiates the client/server situation. The RHYTHM programs are loaded onto the server via a program called RhythmLink, along with the necessary schedules, calendars, and other required information from OPM. Various planners (clients) may then use the information and the RHYTHM Capacity Planner programs that are on the server.

Note: Even though OPM and the server can operate on a single unit, Oracle recommends that the RHYTHM server be loaded on a separate unit to improve response time.

OPM - Data Export Overview

When you select Capacity Planner from the Capacity Planning menu, OPM displays the Capacity Planner interface form. At this form, you make selections from Special menu to set parameters or export data. Oracle OPM must assemble, format, and transfer (export) to Rhythm all data regarding calendars, schedules, routings, and all other information necessary to produce capacity load displays.

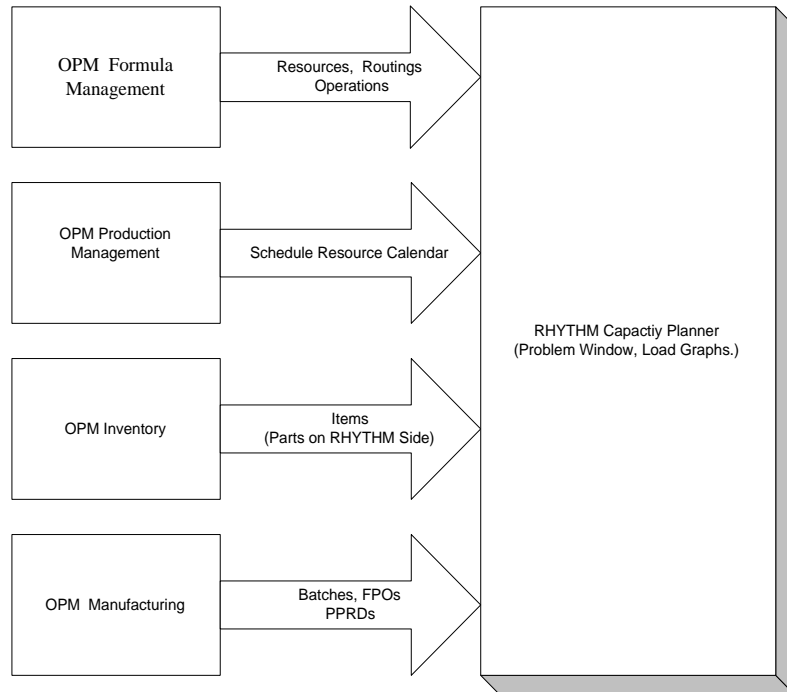
You can export data from OPM to Rhythm at any time.

Viewing Load Data and Capacity Constraints

After OPM exports data to the Capacity Planner, it calculates required work center capacity to meet demand. It makes this calculation based on the assumption of infinite available capacity to perform the work (scheduled resource time required to meet demand is suggested as though the resource has no time or material boundaries). An infinite capacity plan is created from the data transferred from OPM. You use this infinite plan to examine available resource capacities and constraints.

Capacity Planner uses the OPM data to determine if capacity constraints exist and produces infinite capacity requirement projections. At the Capacity Planners Problem window, resource capacity shortages are displayed. Load Graphs display resource load in a scaleable bar graph window and the Orders Editor enables 'what-if' alteration of individual OPM manufacturing order due dates and quantities, and the effect on capacity load profiles.

Static and Dynamic OPM data will be transferred based on the organizations listed in the OPM MPS schedule to the Capacity Planner via i2 Technologies' RhythmLink and additional pre-processing code. All data used for planning in Rhythm will be extracted OPM tables as illustrated below.



OPM Capacity Planner Data Flow

Capacity Planner Business Scenarios

The following table shows some common production events, and how the system will respond to each. This is not intended as a complete list, but is intended to clarify how the system will respond to some common problems.

Event	Response
Planner needs to determine resource capacity for batches and FPOs in an organization.	Exports OPM data to Capacity Planner, then views the Problem Window.
Planner needs to view impact of forecasts on resource capacity for multiple organizations.	Runs OPM MRP to create PPRDs for the Forecast demand. Then the planner exports the OPM data including the MRP planned action messages to the Capacity Planner. Planner can view resource capacity loads by organization.

OPM Capacity Planning Prerequisites

Capacity Planning Prerequisites Introduction

This section discusses the prerequisites you must set up in other OPM modules in order for OPM Capacity Planner to work properly. Also listed are the prerequisites for using RhythmLink.

RhythmLink Prerequisites

OPM Capacity Planning with RHYTHM Capacity Planner utilizes the RhythmLink product which is a scaleable tool platform and database flexible. The RhythmLink product reads the tables and views from the database, and then formats them correctly creating the flat files RHYTHM requires to run. The following is required in order for OPM to use RhythmLink.

OPM Capacity Planner utilizes the RhythmLink product, a scaleable tool platform which is database flexible. The RhythmLink product reads the tables and views from the database, and then formats them correctly creating the flat files RHYTHM requires to run.

Below is a list of what is required in order for OPM to use RhythmLink.

- A UNIX user id to start/stop rl_oracle (Listener - daemon process). We suggest that you set up the required environment variables for this user in his login script i.e. .profile or .cshrc.
- A database user to start rl_oracle daemon.
- Edit start_rl_oracle script to set the variables, RL-DIR, FP-DIR log file directory and database user/password. Note: This is a dummy user for connect priveleges to the database.
- Set CR\$RHYTHM_Package to CRP

OPM Prerequisites - Overview

Before using the OPM Capacity Planner, you must set up information in the following OPM modules:

- IC - Inventory Control
- FM - Formula Management
- PM - Production Management
- MPS - Process Master Production Scheduling
- MRP -Process Material Requirements Planning
- SY - System Administration

OPM distinguishes between static and dynamic data, both of which can be exported to Capacity Planner to produce load capacity inquiry displays. The differences between the two types of data are described below.

Static Data

Static data are those data records that will not change as a result of Capacity Planner scheduling (records that are relatively stable). Static data to export are listed below.

Items	Resources	Organizations
Routings	Operations	Shop Days
Formulas and Effectivities	Calendars	Activities

Dynamic Data

Dynamic data is that type that you may want to consider changing as a result of viewing the capacity load displays. These include the data listed below.

- Production Schedule (Scheduled Batches)**
- Firm-Planned Orders**
- PPRD's (MRP Planned Orders, optionally)**

OPM Setup Checklist for Capacity Planner

The following is a checklist of all of the OPM prerequisites to run OPM Capacity Planner. The checklist is arranged in the logical sequence for setting up this data. Each of these setups is discussed in this section.

- Define Rhythm Package
- Define Batch Queue
- Define organizations -
- Define shop days
- Define shop calendar
- Define inventory items
- Create schedule
- Link schedule to operator
- Define processing resources
- Define plant/resource relationships
- Define process activities
- Define process operations
- Define processing routings
- Define formulas/effectivities
- Create production batches

Note: For MRP setup, refer to the *Oracle Process Manufacturing MPS/MRP User's Guide*.

OPM Prerequisites

Before you can use display load capacity, you must make sure that the following data are set up using the appropriate OPM data entry form(s).

This section discusses the required setups for using Capacity Planner.

Define Package Profile Option

You must set the CR\$RHYTHM_Package constant to CRP

Define Batch Queues

You must set up a batch queue for the immediate export/import process. To do this, type a code for the queue in the **Queue No** field. The code may consist of letters or numbers but no spaces. Enter the string shown below in the **Os String** field.

It is possible to set up multiple batch queues see the *Oracle Process Manufacturing Implementation Guide* for details on defining batch queues.

Organizations

Note: Capacity Planner Interface supports multiple plants associated to one schedule. The data from the multiple plants are a combined and sent over to Capacity Planner as one plant.

OPM Capacity Planner cannot function unless you have defined valid organizations (you usually define your organization structure at the time you install OPM).

Note: See the *Oracle Process Manufacturing Implementation Guide* for details on defining organizations.

Shop Days and Shop Calendars

OPM Capacity Planner references the current shop calendar to consider days on which no production occurs (weekends, holidays, and so on). Before you define a shop calendar, you must define shop days (Shop Days form).

You must define at least one shop calendar for Capacity Planner to produce capacity load graphic displays. Also, Capacity Planner *can only display capacity load information within the effective date range of your current calendar, so you must consider its effective date range*.

This calendar is the basis of the resource calendar within Capacity Planner.

Note: See the *Oracle Process Manufacturing MPS/MRP User's Guide* for more on shop days, calendars, and effectivities.

Inventory Items

All the finished goods you produce, as well as the ingredients within those finished goods, must be defined by Item records entered on the Items form. You will use these ingredients later when creating production formulas to produce finished goods and intermediates. The Item form (shown below) includes lot control and location control flags, various inventory classification codes, and unit of measure data.

Note: Refer to the *Oracle Process Manufacturing Inventory Management User's Guide* for details on the Items form.

Define Schedule/Assign Schedule to Operator

When you define a schedule, you define the parameters by which MRP will make material replenishment suggestions for designated production plants. Note the MPS Schedule Parameters form that is shown.

Implementation Note - Schedule

Once you have created the schedule for resource capacity planning, you need to run the installation script for the schedule (see *Installation and Configuration of the Oracle Process Manufacturing Rhythm Interface*). Installing the schedule requires System Administrator privileges and Database Administrator Privileges. Contact your SA and DBA to install the schedule for RHYTHM.

The planning period is determined from the Capacity Planner export data and the MRP Horizon.

Once you have created your schedule, you must have it installed for use with Capacity Planner.

You then need to link the schedule parameters to the operator (scheduler) who will be using OPM Capacity Planner. To do this, enter the name of the schedule in the **Default Sched** field on the Operator form.

Resources

Resources are the assets you use to produce batches, including production equipment and employee labor. You can define each resource very generally (for example, "OVENS") or specifically ("OVEN 1, OVEN 2," and so on). For each resource you must assign a component classification code for costing purposes; see the *Oracle Process Manufacturing Cost Management User's Guide* for details on the Cost Component Class form. You can (optionally) group resources into resource classifications (for example, "Ovens" and "Stoves" may be grouped into "Cooking Units").

OPM Capacity Planner illustrates production capacity from a timeframe point of view. For this reason, it is only interested in the resource of production labor time. Oracle Process Manufacturing Capacity Planner considers only hours when performing calculations for capacity illustrations. This is defined in the System Constant variable SY\$UOM_HOURS.

Resource Form - Procedures

1. Define resource classes (for example, "Cooking", "Washup") on the Resource Class form. Define cost component classification codes on the Component Class form, available in the Costing module. Also, you must insure that the unit of measure HR is established on the Unit of Measure form (System module).
2. Select **Resources** from the Capacity Planning menu. The Resource form displays as shown.
3. Complete the fields on the Resources form as described.
4. Save the entries by selecting **Save** from the Special menu.

Resource Form - Fields

Resource

Enter the code by which you identify this resource. Required.

Description

Enter a brief description of the resource you are adding. Required.

Std UOM

Indicate the valid unit of measure (for example, hours) by which you measure output of this resource. Capacity Planner recognizes "HR" (hours) as the only valid unit for capacity resource reporting. Required.

Resource Class

You may specify the resource class to which this resource belongs. For example, the resource "Chefs" may be included in the resource class "Labor".

Component Class

A component class links this individual resource to a unit of measure, and allows you to establish costing parameters for the resource in the Costing module. Required.

Define Resource Parameters in Specific Plants

A resource may operate at a different capacity at one production plant than it does at another. For example, at one plant it may be able to operate 24 hours a day, but only 18 hours a day at another plant. Also, the cost of using the resource may be more in one plant than in another.

Use the Resource Information form to enter plant-specific information regarding each resource. This information includes costing information, resource usage unit of measure, and available hours per day for the resource in a specific production plant. Capacity Planner references this information to determine the availability and throughput of resources in each specific plant (organization).

Note: This form is critical to the functioning of RHYTHM Capacity Planner. The functioning of Capacity Planner is based on the proper setup of this form. Through this form, Capacity Planner “knows” what resources belong to a given plant.

Resource Parameter Setup - Procedure

1. Define organizations, resources, and resource units of measure on the appropriate forms, then select **Plant Resources** from the Capacity Planning menu. The Resource Information form displays as shown.
2. Complete the fields on the Resource Information form.
3. Save the form.

Resource Information Form - Fields

Organization

Specify the production plant (organization) for which you are defining a resource capacity and cost. The cost will apply only to this plant/resource combination.

You can, however, define the cost of using the resource in more than one plant, allowing you to calculate the production costs for the resource across various organizations. Required.

Resource

Specify the resource for which you are establishing available capacity parameters and production costs when used in the designated plant (organization). Required.

Group Resource

You can group the resource that you specified in the previous field into a broader group for reporting purposes. For example, if you specified “**Blender 1**” as the resource in the previous field, you can group that resource into the more generic group “**Blenders**”. The **Group Resource** field defaults to the value in the **Resource** field if there will be no grouping of the resource into a broader category.

Assigned Qty

This is the number/quantity of the resource used in the specified plant 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**". Required.

Available Use/Dly

Specify the maximum number of hours this resource is available in this plant each day. Required.

Usage UOM

Specify the unit of measure by which the resource is measured in the specified plant (usually hours, "**HR**").

Nominal Cost

Specify the cost of this resource when used in the specified plant. The default is "**1**". Used for reporting purposes only.

Inactive

Indicate if the resource cost you are defining for this plant is active ("0", the default). Plant/resource costs flagged as inactive will not be used for cost calculations for the resource, nor will resource availability be considered by Capacity Planner.

The fields described below are used for the full scale version, Factory Planner's, "Batching" functionality.

Capacity UOM

Specify the unit of measure by which the resource capacity is measured in this plant. For example, indicate if the the material produced in gallons or pounds? Required.

Min Capacity

Specify the resource's minimum throughput amount per capacity unit at this plant.

Max Capacity

Specify the resource's maximum throughput amount per capacity unit at this plant.

Ideal Capacity

Specify the resource's optimum throughput amount per capacity unit at this plant.

Set Up Rules for Activities, Operations and Routings

For OPM data to map correctly over to Capacity Planner, proper set up of your formula routings is essential. When setting up OPM Routing/Operation Step/Activities/Resource data that is used in Capacity Planner, you need to create routings whose resource information will map over correctly into the Capacity Planner model.

Routing Rules

OPM routing data consist of header information and detailed operation steps. OPM steps in a routing of resource/activity pairs with process time associated to them.

The following Capacity Planner rules must be observed on the OPM side when creating routings:

- Capacity Planner does *not* allow multiple *primary* resource/activity pairs in a step. It does allow one primary resource and 3 auxiliary resources. The primary resource indicator is flagged as 1. The primary resource indicator is flagged as 2 for auxiliary resources.
- Capacity Planner only recognizes three activities per step: SET-UP, RUN-TIME and POST-OP.

Primary Resource Rules:

We recommend that you set up individual operations with the 3 activities each associated to the same primary resource and then associate this setup with a step in a routing.

The primary resource is the rate determining resource in a process routing. Usually it is the bottleneck resource. Primary resource rules for mapping over to Capacity Planner are listed below:

- There must be only one primary resource per operation step. This primary resource is referred as the *machine* in Capacity Planner.
- If you have flagged more than one resource as a primary resource in an operation step, the system selects the primary resource alphabetically and then basis selection on activity as follows: RUN-TIME, SETUP, and then POST-OP.
- The primary resource can be associated to one or more of the Capacity Planner activities (SET-UP, RUN-TIME, POST-OP)
 - SET-UP is measured in FIXED TIME (i.e. HR)
 - RUN-TIME is measured in a RATE OF TIME (i.e. GAL/HR)
 - POST-OP is measured in FIXED TIME (i.e. HR)

Auxiliary Resource Rules

The term auxiliary resource is used in Capacity Planner. On the Operations form, you need to flag resources as either primary (1) or auxiliary (2) resources when setting up resource/activity pairs. Auxiliary resources work along with the primary resources to perform an activity in an operation. They do not affect the rate of the operation. For example a primary resource in a mixing activity might be a mixer which at 100 gals/hour. The auxiliary resource might be a worker who operates the mixer. No matter how fast or slow to worker is the rate of the mixer remains the same.

Below are rules for setting up resources to map to Capacity Planner auxiliary resources.

- A primary resource cannot be used as an auxiliary resource
- Capacity Planner will only see the auxiliary resources if you associate them to the same activities listed above and if those activities have a primary resource.
- If you have more than 3 auxiliary resources they get selected alphabetically.
- Resources in OPM map to the auxiliary resources in Capacity Planner as follows:

OPM Primary Resource Indicator	Capacity Planner Resource
0	Will not map over
1 (Primary)	Machine
2	Aux1, Aux2, Operators

Define Activities and Operations

Before you can define the operations used in a specific process, you must define (on the Operations form) the kinds of activities that are performed within each operation. Capacity Planner considers only the following activity codes (defined in upper case) when generating the load capacity graphics.

SET-UP - Consumes Resource

RUN-TIME - Consumes Resource

POST-OP - Does not Consume Resource

If you associate resource use with an unsupported activity, or an activity that does not consume resources, the resource usages that Capacity Planner calculates will fall short of what is actually required.

Note: POST-OP factor represents time that produced material sits after runtime; the post-op factor is not included in the load for a resource.

Define Processing Operations

Operations link resources (such as "OVENS") with the activities performed at the resources, such as "BAKING". These activities must be defined in advance on the Activities form.

For each operation, you define the number of resources required, the primary resource and the process output of the resource when used in this operation. After you define operations, you may string the appropriate operations together in sequence to create process routings.

Refer to the *Oracle Process Manufacturing User's Guide* for more information on entering activities and operations.

Note: You must specify RUN-TIME as one of the activities in each operation in order for Capacity Planner to reflect capacity loads. Also, Capacity Planner is capable of considering (at this time) only one primary resource per operation.

Operations Form Additional Discussions

Process Quantity

As far as Capacity Planner is concerned, the **Process Qty** field on the Operations form is relevant only for RUN-TIME activities. Also, this should be the **demonstrated** capacity process quantity for the resource (rather than the theoretical quantity).

Process quantities for the other activities are fixed; the process quantity has no impact on resource load calculations. (Typically, these resources would impact cost but not necessarily your production schedule.)

Primary Indicator

The primary resource is the rate determining resource. We recommend that for each operation in a routing, you flag the RUN-TIME Activity's resource as the primary resource.

To map over to Capacity Planner's primary resource (machine) this indicator must be set to 1. To map over to Capacity Planner's auxiliary resources this indicator must be set to 2. If you do not want to include this in Capacity Planner's schedule, set this indicator to 0.

Offset

Capacity Planner does not consider the **Offset** field on the Operations form. You would typically use this field to specify the offset from the start of an operation until the start of an activity's resource usage.

Capacity Planner always schedules the three supported activities as non-overlapping (the second activity begins after the first one ends, and so on). It recognizes activities as occurring in the following order:

1. SET-UP
2. RUN-TIME

3. POST-OP

Resource Usage Unit of Measure

RHYTHM Capacity Planner considers only time (HR) as the resource usage unit of measure. This is set on by the SY\$UOM_HOURS constant. Any resource usage measured in anything other than hours will not be included in resource load calculations.

"Count" Field

Note that Capacity Planner does not consider the entry in the **Count** field.

Scale Types and Process Capacity Requirements Planning

The **Scale Type** field on the Additional Information is used with operations for which the resource requirements are scalable (that is, the resource requirements increase as the quantity of the product you produce increases). The **Scale Type** field allows you to designate if scaling is done in a continuous, linear fashion, or if it is a fixed scaling function.

Capacity Planner does not consider the **Scale Type** flag when making its capacity calculations. It performs continuous linear scaling on the RUN-TIME activity only. POST-OP and SET-UP activities are always scaled as fixed, regardless of the scale type or the quantity the routing is producing.

If you are using the OPM POC module with Production Batches, you should assure that your POST-OP and SET-UP activities have a Fixed scale type.

Routings

The routing is a process sequence that ties together the operations used during the manufacturing of a formula. You assign the routing to a formula on the Formula Maintain Effectivities form (illustrated later) to indicate the production path taken in the manufacture of the formula.

Notes: The routing steps are handled in Capacity Planner in ascending order; at this time parallel operations are not supported.

See the *Oracle Process Manufacturing Formula Management User's Guide* for more information on routings.

Formulas and Formula Effectivities

Formulas are the "recipes" that you produce by mixing ingredients in a batch. Formula ingredients (as well as the product produced as output) must be defined first as items on the Items form.

Note: See the *Oracle Process Manufacturing Formula Management User's Guide* for details on the Formula form.

Create a Batch

When you create a production batch, you specify the formula for the product(s) you intend to make. The default routing for the formula (defined on the Formula Effectivities form) displays automatically; you may change the batch, as needed.

Implementation Note - Batches/FPOs

All batches/FPOs will be locked by quantity in Capacity Planner. PlannerBatches/FPOs are locked because if they were not locked, and no demand were found for pegging, the batch/FPO would be automatically canceled.

Running MRP (Optional)

You may decide to run MRP to create PPRD's for existing demand orders - Sales Orders, Safety Stock and Consumed Forecast.

Note: For more information on the set up and use of MRP refer to the *Oracle Process Manufacturing MPS/MRP User's Guide*.

OPM Capacity Planner Interface

Capacity Planner Interface Introduction

This chapter discusses the OPM Capacity Planning forms used to interface with the RHYTHM software. Discussions about the various forms you use to run Capacity Planner, configure data, and export data are provided.

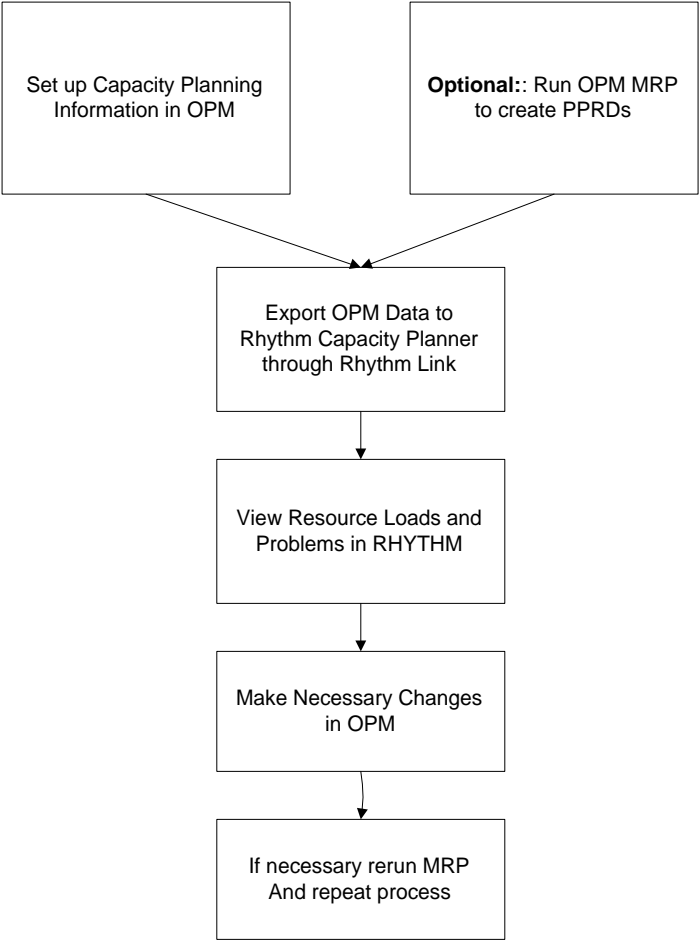
Capacity Planner Interface Overview

Note: Make sure your UNIX DISPLAY environment variable is set properly from where you are running OPM. See your System Administrator for information on how to set your DISPLAY variable.

The Capacity Planner interface form is accessed from the OPM Capacity Planning menu. This form is the entry point to interface with and access the Capacity Planner windows and graphic displays.

The initial interface form is not editable but is used to summarize the status of the exports. Use the Special options to start the Capacity Planner server, enter parameters, export the data and display the RHYTHM Capacity Planner windows. Once parameters are set and exported, the initial Capacity Planner window is displayed.

The following is a flow of how RHYTHM Capacity Planner uses the OPM RHYTHM interface.



RHYTHM Capacity Planner Flow

RHYTHM Capacity Planner - Procedure

1. After you have set up the data in OPM and created batches and/or FPOs, you may optionally run MRP to see demand from Sales Orders and Forecasts as MRP Plannerd Order (PPRD's)
2. Export OPM Data to RHYTHM Capacity Planner via the interface. The planner initiates the export of OPM data through RhythmLink.
3. View Resources Loads and Problems in RHYTHM. Once the RHYTHM Main window is retrieved, the planner can determine issues by retrieving the Problem Window or view resource loads via the Load Graph display. You may also manually change dates and quantities in RHYTHM to balance a resource load.
4. Changes need to be manually updated to the OPM batch, FPO or demand orders.

Note: For more information on the RHYTHM screens, refer to the i2 Technologies user guides that were shipped with this product.

Also note that all of the options in the manual may **not** be available to you, since the interface your company has installed is a scaled back version of the *RHYTHM Factory Planner* product.

Exporting Data into Capacity Planner

Note: You must run the Capacity Planner product as an X terminal session; because of this the interface cannot be run at this time from a GUI environment.

Make sure your UNIX DISPLAY environment variable set properly from where you are running OPM. See your System Administrator for information on how to set your DISPLAY variable.

This section describes how to use the RHYTHM Capacity Planner interface form to export data to Capacity Planner. Use the RHYTHM Capacity Planner form to access and interface with the RHYTHM Capacity Planner product. The Capacity Planner form displays the current status of the *export* routines.

Using the Capacity Planner Form - Procedure

1. Select **RHYTHM Interface** from the **Capacity Planning** menu. This displays the Capacity Planner form.
2. Enter the organization and schedule code in the **Schedule** fields. The Organization code is brought over automatically. Except for the schedule code, this form is not editable. You make selections from the Special menu to initiate actions or to display other forms.
3. If you need to start the Capacity Planner client and/or server, select Start RHYTHM from the Action menu. Otherwise proceed to step 4.
4. To choose the parameters or data types you want to export to the RHYTHM Capacity Planner server, select **Export Parm**s from the Special menu.

This displays the Export Parameters form (more details provided later on in this chapter). At this form, you *select* the static and/or dynamic data you want to send to the RHYTHM Capacity Planner server.
6. When you are ready to *export* the data over to RHYTHM, select Export from the Special menu. This displays the Export Data form. Define the time you want to initiate the export in the Batch Date field. You can define the current time, or anytime in the future. Enter this date into the **Batch Date** field.

7. Initiate the export by saving the form.

If you set the FP_PLAN_RESTART export parameter to 1, the RHYTHM Windows will automatically be populated with the exported data. If this parameter is set to 0, then you must manually refresh the screen.

The RHYTHM software is described in the next chapter.

Capacity Planner Form

The Capacity Planner form drives the interface. At this form, you make data selections and initiate actions from the pulldown menus. Through the Special menu, you can start or stop the RHYTHM server, stop the RhythmLink server, edit, select, and export parameters (data types), import schedules and production changes back from RHYTHM to OPM, and perform various utility functions. Note that the details in the body of the Capacity Planner form are for display purposes only.

After the initial export of data, the Capacity Planner form displays each type of data transfer, the status of each data type, and the last date the respective data was transferred.

Capacity Planner Form - Procedure

At the Interface form, enter the organization and schedule codes. This activates the screen so you can use options on Special menu. Details on these options are provided later on in this chapter.

Implementation Note - Capacity Planner Form

At this time the interface **MUST** be run from character-based OPM. GUI and NT are not supported.

Capacity Planner Form - Fields

Schedule

Enter the organization and schedule code. The schedule's description is also displayed. These fields default from the session parameters. Required.

Note: All remaining fields are for display purposes only.

Data Transfer

This column displays a list of the data types that can be exported over into RHYTHM Capacity Planner

Direction

Indicates that a parameter (data type) has been exported. When you use this form for the first time, these fields are blank.

Status

OPM updates and displays the status of run (that is, what eventually happened to the run.). The following are valid status codes:

- **Wait** - The batch job for the run is stuck in a wait status; call your system administrator, if this status remains unchanged after an inordinate length of time.
- **Run** - The job is currently running.
- **Stop** - A data problem interrupted the run, check the error messages.
- **CMPD** - The batch job for the import was completed successfully

Last Transfer

Displays the date of the last transfer for the data type.

Srvr Port No.

The port number of the RHYTHM Capacity Planner server. The port number must be between 10,000 and 99,999.

RL Port No.

Port number for RHYTHM Link. The port number must be between 10,000 and 99,999.

Capacity Planner Interface Form - Special Menu

Parameters

Displays the Parameters form. At this screen you may edit the default descriptions and the values of the parameters (data types). Export Parameters are discussed in the Appendix.

Export Parameters

Displays the Export Parameters form. At this form, you *select* which parameters you want to export over to Capacity Planner.

Export

Displays the Export Data form. At this form you *initiate the export* of data to the RHYTHM Capacity Planner flat files.

Start RHYTHM

On selection of this object the system commands are executed to start the RHYTHM client and the server if the server is not currently active.

Stop RHYTHM

On selection of this object the system commands are executed to stop the RHYTHM Server and clear the RHYTHM Capacity Planner port number.

Stop RL

On selection of this object the system commands are executed to stop the RhythmLink Server if active and clears the RhythmLink Server port number.

Unlock Schedule

Unlocks the in use lock on the schedule for RHYTHM use. Schedules are locked for RHYTHM Capacity Planner uses only. You need to unlock schedules when the export has not been executed properly or if the server shuts down unexpectedly.

Clear Svr Port

Clears the RHYTHM server port number. If you have an error on start up or if the server shuts down expectedly, you will need to clear the port.

Clear RL Port

Clears RhythmLink Server port number. If you have an error on start up or if the server shuts down unexpectedly, you will need to clear the port.

Parameters Form

At the RHYTHM Capacity Planner Parameters form, you may edit the description and the values of the OPM parameters that are sent to RHYTHM Capacity Planner during the Export routine.

Note: Parameters are discussed in more detail in the Appendix.

RHYTHM Capacity Planner Parameters - Fields

Schedule

The schedule that you are using with Capacity Planner. This defaults from the **RHYTHM Capacity Planner** Interface form.

Parameter

This column lists the “parameters” that can be sent over to Capacity Planner. Display only. The parameters are discussed in more detail in the Appendix.

Description

Displays a longer description of the parameter. If required, enter a new description in this field.

Value

The value assigned to the parameter. If required, enter a new value into this field.

Note: The export parameters are discussed in greater detail in the Appendix.

Export Parameters Dialog Box

The 'export parameters' are the data types that OPM sends over to Capacity Planner. This dialog box enables you to *select* the data types you want to export from OPM into RHYTHM Capacity Planner files. You can access this dialog box from the Edit menu on the Capacity Planner form or the Export Data form. The organization and schedule code are populated from these forms.

You can either select or deselect the data types and then accept the choices or cancel and exit the screen. When you first export the data, you may want to select all the data types. Then, when you do subsequent exports you may decide to select only some of the dynamic data types.

Note: The Edit menu has Select All and Clear All options.

Export Parameters - Procedure

At the Export Criteria Dialog box, place an X next to each type of data you want to transfer into the RHYTHM Capacity Planner flat files. When you have made your choices, select **Accept**.

Export Selection Criteria Dialog Box - Fields

Items data

Select to export Item numbers and unit of measure conversions.

Formulas/Routing

Select to export Formula and Routing information for the selected schedule.

Resources

Select to export Resource information to Capacity Planner

Rsrc Calendar

Select to export the Resource/Shop Calendar of the selected schedule. This will be used to establish the Resource Calendars in RHYTHM.

Batch/FPO/MRP

Select to export Batches, FPOs and MRP Planned Orders.

Export Data Form

Note: The Export Data form enables you to submit a background process to load the data into RHYTHM Capacity Planner files.

Use this form to export the OPM data into flat files on the Capacity Planner server via RhythmLink. This form displays the last time that data was exported for RHYTHM Capacity Planner and the status of the last transfer.

Export Data - Procedure

1. If necessary, go to the Export Parameters form to select or deselect the data types you want to transfer to Capacity Planner.
2. Define the time you want to initiate the export in the Batch Date field. You can define the current time, or anytime in the future. Enter this date into the **Batch Date** field.
3. Initiate the export by selecting **Save** from the Edit menu.
OPM then sends the files to the Capacity Planner files via RhythmLink. OPM updates the form with the Actual Start and Actual End dates, the status of the export and the id of operator who initiated the run.
4. Exit this form and return to the Capacity Planner Interface form.
5. To bring up the i2 RHYTHM Capacity Planner software, select Start RHYTHM from the Capacity Planner Action menu. This will display the Main Window.

If you set the FP_PLAN_RESTART Export Parameter to 1, the RHYTHM Windows will automatically be populated with the exported data. If this parameter is set to 0, then you must manually refresh the screen.

Export Data Form - Fields

Schedule

The organization and schedule are brought over from the Capacity Planner form. Display only.

Queue

If you intend to schedule the batch job for the import to begin at a later time, press the **<TAB>** key to bypass this field and proceed to the Batch Date field. For example, enter “CRP_NOW” to initiate the batch job immediately.

Note: The Batch Queue Control is set up by your System Administrator.

Batch Date

If you bypassed the **Queue** field (by pressing the **<TAB>** key) enter the date and time the batch job will begin. That date and time must both be entered.

Actual Start

This is the date the export was actually started. OPM automatically updates this field.

Actual End

The date the run was completed displays. OPM automatically updates this field.

STATUS

OPM updates and displays the status of run (that is, what eventually happened to the run.).

- **Wait** - The batch job for the run is stuck in a wait status; call your system administrator if this status remains unchanged after an inordinate length of time.
- **Run** - The job is currently running.
- **Stop** - A data problem interrupted the run, check the error messages.
- **CMPD** - The batch job for the import was completed successfully

Run

The code for the operator who initiated the run.

Export Data Form - Special Menu

Export Parm

Displays the Export Parameters form.

Messages

Displays a list of the error messages that may display during an export batch run (see the further on in this chapter for information on the Message Form).

Select All

Select all the data for export.

Clear All

Deselect all the data.

Purge

When you select purge the following data from the following tables get purged:

rh_expt_mst - the export master

rh_expt_dtl - export details

rh_mesg_tbl - message table

The purge only deletes for the specific export being purged in each table. Highlight the row you want to purge and select Purge from the Action menu.

Messages Form

After an export is completed, you can view messages on the Messages Form. If an export does not complete successfully and the status is either Failed or Stop, select this screen to why this occurred. These messages discussed in the Appendix.

Infinite Planning with Capacity Planner

Infinite Planning with Capacity Planner Overview

Once RHYTHM Capacity Planner has been initiated you will see the Main Window. From this Main Window you can access the following windows and graphic displays.

Problem window indicating the resource capacity shortages which includes simple navigation to the problem resources, operations and shop calendar information.

Load Graphs displaying resource capacity shortages in a scaleable bar graph window.

Orders Editor enabling “what-if” alteration of individual OPM manufacturing order due dates and quantities and the effect on capacity load profiles.

Note: For more detailed information on RHYTHM Capacity Planner, refer to the i2 Technologies RHYTHM manuals.

Starting RHYTHM Capacity Planner

To start RHYTHM Capacity Planner, select Start Rhythm from the Capacity Planner form’s Special menu. This brings up the Main Window.

Main Window

Note: If you set the FP_PLAN_RESTART Export Parameter to 1, the RHYTHM Windows will automatically be populated with the exported data. If this parameter is set to 0, then you must manually refresh the screen.

The Main Window is the first RHYTHM Capacity Planner window that you see. It contains four major sections. The first section is the menu bar. Just below the menu bar is an information area. Below this and to the left is a select location pane; note that locations refer to organizations established in OPM on the Organizations form (System module). To the right of the location list is the select resource pane.

Main Window Features

Information Area

At the top of the Main Window, just below the menu bar is the information area. This area keeps you updated with the current condition of the server and your data. Right click **Update** if information is not current.

For example, if there are multiple users on the system as one user makes changes to the plan, the other users will be informed that their information may not be up to date, requiring them to click the update button. displays on the condition of the server and you data. In this example, you can see the message "Displayed information IS current."

Select Location Pane

The Location List pane is used to select a collection of resources from a location (organization) for which you are creating plans. The currently selected location has its resources displayed in the resource pane. Use this area to select locations and display resources as follows:

- To select a location and display its resources: Click the Select Location button. This displays a list of locations (OPM organizations) tied to the schedule you exported.
- To display location resources: Click location name and click List Resources button, or double click location name

Select Resource Pane

Use the Resource List pane to view or modify information about resources. From this pane you can directly access the resource editor or load graph. To create a resource load graph: click the resource to highlight it and then click the Load Graph button or double-click the resource from the Resource List.

Buttons

This section discusses the buttons you can use to load information at the Main Window. On the Main Window, beneath the Select Location and the Select Resource panes, respectively, you can find two buttons:

List Resources

Puts list of resources contained at a particular location (OPM organization) in resource pane to the right (shortcut: double click a location name in the Select Location pane). To display the Resource Editor:

- In the Select Resource pane, click right the mouse with the pointer on top of a resource to be edited.
- When the popup menu displays, click Edit. The resource editor window will display with desired resource already selected.

Load Graph

Displays load graph for currently-selected resource. There are three ways to display a load graph:

1. Click resource, then click **Load Graph** button
2. Double click resource name
3. Click right button on top of a resource; select **Load Graph** from popup window that appears

Note: 'Parts' in RHYTHM are 'items' in OPM.

Main Window Menu Selections

File	Edit	Utilities
Exit	Orders	Problems
Shutdown Server	Resources	
	Mfg Orders	
	Data Files	

Problem Window

Note: For detailed instructions on how to use this window, refer to the RHYTHM manuals shipped with this product.

The Problem Window is one of the more important windows in the OPM capacity planning solution. This window displays problems with the plan in the following ways : Capacity Shortages, Late Orders, Short Orders, Parts with Late Reservations, Parts that Constrain Orders. Each of these problem categories can be selectively displayed or not displayed. To display the problem window:

1. Click the Utilities menu on the Main Window menu bar
2. Click Problem Window in the Utilities menu

Problem Window Buttons

- Close - Removes problem window from screen
- Update All - Updates each of the problem categories
 - This becomes necessary after changing an order quantity or due date in Order Editor (especially when multiple schedulers are working on a schedule at same time)

Balancing the Load

You can access this window by selecting a resource in the Main window and then clicking the Load Graph button.

Balance the Load - Procedure

1. Select Resources from the Main Window Editor menu. This displays the Resources Editor window.
2. At the Resources Editor window menu bar, click Planning and select Balance from the Planning menu. This balances the resource load.
3. Close the Resource Editor window by selecting Close from the File menu.
4. To view the balanced resource, double click a resource on the Main Window or highlight the Resource and click the Load Graph button.

Next Steps

Once you have created your infinite capacity plan, you need to make changes in OPM (editing or creating production batches, creating sales orders, etc.). Once you make the necessary changes, and if you exported MRP data, you should run MRP again. If the MRP run indicates it, you may need to go back into Capacity Planner and rebalance the load to refine your resource capacity plan and make further changes in OPM.

Appendix

Capacity Planner Navigator Paths

Although your system administrator may have customized your navigator, typical navigation paths are described in the following tables. In some cases, there is more than one way to navigate to a form. These tables provide the most typical default path.

Form	Path
Export Data	OPM Process Planning > Capacity Planning > Rhythm Interface > Special > Export
Export Parameters	OPM Process Planning > Capacity Planning > Rhythm Interface > Special > Export Parameters
Capacity Planner	OPM Process Planning > Capacity Planning > Rhythm Interface
Messages	OPM Process Planning > Capacity Planning > Rhythm Interface > Special > Export > Special > Messages
Parameters	OPM Process Planning > Capacity Planning > Rhythm Interface > Special > Parameters
Resource Classes	OPM Process Planning > Capacity Planning > Setup > Resource Classes
Resource Information	OPM Process Planning > Capacity Planning > Setup > Plant-Resources
Resources	OPM Process Planning > Capacity Planning > Setup > Resources

Capacity Planning Profile Values

During your implementation, you or your system administrator set values for selected profile options to specify how your Capacity Planner application controls access to and processes data. The profile options related to Capacity Planning are listed below.

- CR\$EXPORT_HOME
- CR\$RHYTHM_PACKAGE
- SY\$UOM_HOURS

Your system administrator sets user profile options at one or more of the following levels: Site Application, Responsibility, and User. Use the Personal Profile Options window or view or set your profile options at the user level. You can consult *the Oracle Process Manufacturing Implementation Guide* for a complete description of the profile options listed below. Consult your *Oracle Applications System Administrator's Guide* for a list of profile options common to all Oracle Applications.

Export Parameters

This section lists the parameters (and their default values) that are sent over from OPM into RHYTHM. The following parameters are written to during the installation of the schedule and should not be modified.

FP_DATA_DIR
FP_EXEC_DIR
FP_HOST
RHYTHM_PACKAGE
RL_DATA_DIR
RL_EXEC_DIR
RL_HOST
SCHEDULE_ID
SCHEMA_NAME
SCHEMA_PASSWORD

User Parameters

These are the parameters that you see on the Parameters form. The following parameters are written to during the install of the schedule and should NOT have their default values changed:

CRP_MRP
FP_HOST
RHYTHM_BIN

Note: Because OPM Capacity Planner is the scaled back version of the integration, not all the parameters you can view on the Parameters form are described below. This table only describes the parameters used by the scaled back version.

USER PARAMETERS		
Parameter	Description	Default Values
DELIMITER	delimiter for separation	/ <p>(this is the one character used to delimit the concatenated columns from OPM which form values sent to Capacity Planner (CP), examples order numbers, batch numbers, routing numbers)</p>
BATCH_PREFIX	Batch prefix for batches	PROD <p>(The value used to uniquely define the manufacturing order number as a Production batch from OPM. It is positioned as the first set of characters before the first delimiter in the CP manufacturing order number)</p>
FPO_PREFIX	FPO prefix for order no	FPO <p>(The value used to uniquely define the manufacturing order number as an FPO from OPM. It is positioned as the first set of characters before the first delimiter in the CP manufacturing order number)</p>
ITEM_EXPORT	Items export run flag row	0 <p>(This indicates if the item data from OPM should be exported to CP, these include items, UOM conversions, vendor items and safety stock. 1 = export, 0 = do not export)</p>
BOM_EXPORT	Bill of Material export run flag row	0 <p>(This indicates if the Formula Effectivity data from OPM should be exported to CP, these include formulas, and routings. 1 = export, 0 = do not export)</p>
RSRC_EXPORT	Resource export run flag row	0 <p>(This indicates if the resource data from OPM should be exported to CP. 1 = export, 0 = do not export)</p>
RSRCCAL_EXPORT	Resource Calendar export run flag row	0 <p>(This indicates if the schedule plant calendar data from OPM should be exported to CP. 1 = export, 0 = do not export)</p>
PROD_EXPORT	Production export run flag row	0 <p>(This indicates if the Production data from OPM should be exported to CP. This includes all pending and WIP batches, FPOs, and MRP actions. 1 = export, 0 = do not export)</p>
PPRD_PRIORITY	MRP Planned Production Demand priority level	0 <p>(The priority assigned to MRP planned orders for preference by Capacity Planner to break ties when re-supplying demand)</p>

INV_EXPORT	Onhand Inventory export run flag row	0 (This indicates if the onhand inventory data from OPM should be exported to CP. 1 = export, 0 = do not export)
FP_PLAN_RESTART	Run CP Restart request after Exporting data if CP Server is up	1 (Indicates whether a planner restart for all of the CP clients using this schedule should be executed, 1 = yes, 0 = no)
FP_SAVE_PLAN	Run CP Save Plan request before Importing data if CP Server is up	1 (Indicates whether a save plan for all of the CP clients using this schedule should be executed, 1 = yes, 0 = no)
DEBUG_MODE	Write debugging messages	0 (allows for debugging messages to be written, 1 = yes, 0 = no)
LOAD_TIMEOUT	RhythmLink timeout in Seconds	1200 (the number of seconds the export or import routines should wait for commands to return form RhythmLink software)
FP_HOST	Host Machine where Rhythm software is running	“
RL_HOST	Host Machine where RhythmLink software is running	“
RHYTHM_BIN	Rhythm binary and executable files area	“ (directory where the executables reside)
CRP_ADD_MRP	Include MRP actions in export	0 (Indicates whether MRP actions should be included in an export of production data, for use by Capacity Planner users only.
MRP prefix for actions	prefix for MRP actions	PPRD (The value used to uniquely define the manufacturing order number as an MRP action from OPM. It is positioned as the first set of character before the first delimiter in the Capacity Planner manufacturing order number.
PPRD_PRIORITY		

System Parameters

These parameters do not appear on the Parameters form. They can be set by your System Administrator.

SYSTEM PARAMETERS		
Parameter	Description	Values
ORGN_CODE	organization for the users schedule	“
IN_USE	In use locking for the schedule	
DATA_IMPORT	Data import run flag row	
START_DATE	Date for the start in Capacity Planner	01-JAN-1970 00:00:00
END_DATE	Date for the horizon in Capacity Planner	01-JAN-1970 00:00:00
FP_PORT_NUM	Port number of the Capacity Planner server	0
RL_PORT_NUM	Port number of the RhythmLink server	0
RL_USER	RhythmLink User. Must exist in the user.dat file.	rl
FP_PORT_NUM	Port number of the Capacity Planner server	0
FP_EXEC_DIR	Capacity Planner Execution Directory	“
FP_DATA_DIR	Capacity Planner Data Directory	“
RL_EXEC_DIR	RhythmLink Execution Directory	“
RL_DATA_DIR	RhythmLink Data Directory	“
SCHEMA_NAME	Database Schema Name	“
SCHEMA_PASSWORD	Database Schema Password	“
FP_VERSION	Capacity Planner Version Number	2.9J
STDATE_EXPORT	Plan Start Date export run flag row	1
RHYTHM_PACKAGE	RHYTHM Package being used	‘CRP’
BC_DELIMITER	Delimiter character used for CP batch client concatenation commands	%
BC_TIMEOUT	CP Time out in Seconds.	Time out in Seconds.

RhythmLink

OPM Capacity Planner utilizes the RhythmLink product, a scaleable tool platform and database flexible. The advantages of this tool are that it can read directly from an OPM database. The RHYTHMLink product reads the tables and views from the database, and then formats them correctly creating the flat files RHYTHM requires to run. When the data is returned to the OPM database, RHYTHMLink will also take the flat file output and import it into the OPM database.

OPM/RHYTHM Synonyms

Some of the terms in OPM have synonyms in RHYTHM. Below is a table that lists OPM terms and their synonyms along with a definition of the term.

RHYTHM	OPM	Definition
Bill of Materials (BOM)	Formula with effectivity and routing	Single BOM consists of a produced part and quantity, a set of consumed parts, quantities and a routing.
Part Number	Item Number	A number that uniquely identifies and item.
Manufacturing Order	Batch with POC information	A quantity scheduled to be produced. For discrete products the batch is planned to be the standard batch quantity, but during production the standard batch quantity may be broken into smaller lots. In non-discrete products the batch is a quantity that is planned to be produced based on a formula or recipe, often yielding a given number of end items. In OPM, a document that is used to plan and record a manufacturing event.
Location	Organization	An entity for grouping resources together, in OPM this could represent a work-center or plant.

Messages

Below is a table of the messages that OPM may generate when you are exporting data. You can view these messages from the Messages form.

CODE	DISPLAY	COMMENT
CR_NOMSGS	No messages to be displayed for this schedule	No action necessary
SY_UNLOCKINUSEFAIL	Unlock of in use failed	Check unlock in use again. Try again after some time.
CR_NOCLEARFPPORT	Unable to clear the server port number	Try again after some time
CR_NOCLEARRLPORT	Unable to clear the RL port number	Try again after some time
CR_CMNDSUB	Command has been submitted	No action required
CR_NOEXPORT	No export available to process for this schedule	Please complete at least one successful export for this schedule.
CR_EXPTPRTWHS	Failure occurred when attempting to create Item item-warehouse relationship	This is an unplanned error, call OPM Level 1 Support.
CR_INVALID_TRANS_ID	Invalid request type for data transfer	Call OPM Level 1 Support. epi2.load_data was passed something other than X or I.
CR_NOSCHEDULE	Invalid Schedule for selected data transfer	Invalid schedule_id was passed to export or import. Call OPM Level 1 Support.
CR_SCHEDULEINUSE	The schedule was locked by another process could not proceed	Wait until the export of the schedule being used is finished and try again. If this does not resolve the problem, clear the port.
CR_NOSCHEDULEINFO	Details for the schedule do not exist	Call OPM Level 1 Support.
CR_NOORGNCODE	No plants are associated with the schedule	Recheck the schedule set up to ensure that the organization that you have associated with the schedule is a plant.
CR_RHYTHMLINKERR	The RHYTHMLink server could not be started	Check that the rl_oracle listner is running. Check that Rhythmlink is installed. If you still have a problem, call i2 Technologies support.
CR_FP_SAVEPLANERR	Failure occurred during attempt to execute a save plan	Stop Capacity Planner. Clear the server port (Object>Clear Srvr Port). Check that the rl_oracle listener is running. Try again.
CR_FP_PLANRESTARTERR	Failure occurred when attempting a planner restart	Clear the server port. Check that the rl_oracle listener is running. Try again.

CR_LOADDATA_SUCCESS	The data transfer completed successfully	No action is necessary
CR_LOAD_ABORT	The data transfer completed with errors!	Check Messages screen for more information.
CR_WRITESTATERR	An error occurred updating the status error updating status in the table ;parameter1	Contact your DBA
CR_RL_INVALIDPORTNUM	Invalid port number for RHYTHMLink	Check the port number to be sure it is correct (it should be between 10,000 and 99,999) and try to run export /import again. If it fails, call level 1 suport.
CR_RL_SERVERERR	The RHYTHMLink server is unable to execute commandrl	Stop RhythmLink. Clear the RL Port Number. Try again.
CR_RL_PROGRAMERR	Undefined RHYTHMLink error	Check that the rl_oracle listener is working.
CR_PARMNOTFOUND	The interface parameter, parameters not found for the schedule	Updating of a wrong parameter was tried. Call OPM Level 1 Support.
CR_DELETEDATA	This run could be active, continue with the purge (Y or N)? Trying to delete an run in wait or run state.	Enter Y or N. If you enter Y OPM will continue the purge of data from an active or waiting run.
CR_DELINVALIDROW	This run can not be purged	Do not try to delete that row
CR_DATAPURGED	The data associated with this run has been removed	No action required
CR_STARTCLIENT	Starting Client ...	This is a staus message. No action required
CR_STARTSERVER	Starting Server ...	This is a status message. No action required

Glossary

Auxiliary Resources

A resource that works with the primary resource to complete a step/operation. It does not affect the rate of an operation. For example, a mixer may be the primary resource and a worker may be the auxiliary resource that runs the machine. If the mixer has a rate of 100 gals per hour, the workers rate is the same no matter how fast or slow they work.

Machine

The GEMMS primary resource maps over the RHYTHM Capacity Planner "machine" .

Operation

Details the planning and scheduling information for a single processing step for filling an order. Operations consist of a series of sequenced activities. (For Factory Planner integration the activities are SET-UP, RUNTIME, SET-UP). Many orders may share a given operation.

Resource

The capital equipment and labor used to produce your product(s)

RHYTHM Listener

This is a background daemon (unix) which receives commands from stored procedures in the Oracle database via a named pipe and passes those commands onto the shell, RhythmLink or Factory Planner.

RhythmLink

Oracle GEMMS RHYTHM Capacity Planner utilizes the RhythmLink product, a scaleable tool platform and database flexible. The advantages of this tool are that it can read directly from an Oracle GEMMS database. The RHYTHMLink product reads the tables and views from the database, and then formats them correctly creating the flat files RHYTHM Capacity Planner requires to run. When the data is returned to the Oracle GEMMS database, RHYTHMLink will also take the flat file output and import it into the Oracle GEMMS database.

Routing

A set of information that details the method of manufacture of a particular item/product. Routings include operations, operation sequence and the standard parameters for setup and run activities.

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