Oracle® Process Manufacturing

Using Oracle Process Manufacturing with Oracle Manufacturing Scheduling User's Guide

Release 11*i*

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Oracle Process Manufacturing Using Oracle Process Manufacturing with Oracle Manufacturing Scheduling User's Guide, Release 11*i*

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Preface

Audience for This Guide

Welcome to Release 11*i* of the ***Oracle Process Manufacturing Using Oracle Process Manufacturing with Oracle Manufacturing Scheduling User's Guide.***

This guide assumes you have a working knowledge of the following:

- The principles and customary practices of your business area.
- ***Oracle Process Manufacturing***

  If you have never used ***Oracle Process Manufacturing***, Oracle suggests you attend one or more of the ***Oracle Process Manufacturing*** training classes available through Oracle University.
- The Oracle Applications graphical user interface.

  To learn more about the Oracle Applications graphical user interface, read the *Oracle Applications User's Guide*.

See Other Information Sources for more information about Oracle Applications product information.

How To Use This Guide

This guide contains the information you need to understand and use ***Oracle Process Manufacturing and Oracle Manufacturing Scheduling***.

- Using Oracle Process Manufacturing with Oracle Manufacturing Scheduling, describes the integration between Oracle Process Manufacturing and Oracle Manufacturing Scheduling. The integration between Process Manufacturing and Manufacturing Scheduling takes the OPM manufacturing, inventory, procurement, and sales order data and transfers it to the Manufacturing Scheduling application for the appropriate organization. By running Manufacturing Scheduling, the appropriate schedule is recorded in process manufacturing.

Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of

assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Standards will continue to evolve over time, and Oracle Corporation is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For additional information, visit the Oracle Accessibility Program Web site at http://www.oracle.com/accessibility/.

Other Information Sources

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

If this guide refers you to other Oracle Applications documentation, use only the Release 11*i* versions of those guides.

Online Documentation

All Oracle Applications documentation is available online (HTML or PDF).

- **Online Help** - The new features section in the HTML help describes new features in 11i. This information is updated for each new release of ***Oracle Process Manufacturing***. The new features section also includes information about any features that were not yet available when this guide was printed. For example, if your administrator has installed software from a mini-packs an upgrade, this document describes the new features. Online help patches are available on Oracle*MetaLink*.
- **11i Features Matrix** - This document lists new features available by patch and identifies any associated new documentation. The new features matrix document is available on Oracle*MetaLink*.
- **Readme File** - Refer to the readme file for patches that you have installed to learn about new documentation or documentation patches that you can download.

Related User's Guides

Oracle Process Manufacturing shares business and setup information with other Oracle Applications products. Therefore, you may want to refer to other user's guides when you set up and use ***Oracle Process Manufacturing***.

You can read the guides online by choosing Library from the expandable menu on your HTML help window, by reading from the Oracle Applications Document Library CD included in your media pack, or by using a Web browser with a URL that your system administrator provides.

If you require printed guides, you can purchase them from the Oracle Store at http://oraclestore.oracle.com.

Guides Related to All Products

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 of ***Oracle Process Manufacturing*** (and any other Oracle Applications products). This guide also includes information on setting user profiles, as well as running and reviewing reports and concurrent processes.

You can access this user's guide online by choosing "Getting Started with Oracle Applications" from any Oracle Applications help file.

Oracle Process Manufacturing Documentation

Accounting Setup User's Guide

The OPM Accounting Setup application is where users set up global accounting attributes about the way financial data will be collected by OPM. These attributes include such things as account keys, financial calendars, and account segments. Since OPM is closely integrated with Oracle General Ledger (GL), much of the attributes are defined in the Oracle GL instead of OPM, and therefore, the windows are display only within OPM. The *Oracle Process Manufacturing Accounting Setup User's Guide* describes how to setup and use this application.

Cost Management User's Guide

The OPM Cost Management application is used by cost accountants to capture and review the manufacturing costs incurred in their process manufacturing businesses. The *Oracle Process Manufacturing Cost Management User's Guide* describes how to setup and use this application.

Manufacturing Accounting Controller User's Guide

The Manufacturing Accounting Controller application is where users define the impact of manufacturing events on financials. For example, event RCPT (Inventory Receipts) results in a debit to inventory, a credit to accrued accounts payable, a debit or a credit to purchase price variance, etc. These impacts are predefined in the Manufacturing Accounting Controller application so users may begin using OPM to collect financial data out-of-the-box, however, they may also be adjusted per your business needs. The *Oracle Process Manufacturing Manufacturing Accounting Controller User's Guide* describes how to setup and use this application.

Oracle Financials Integration User's Guide

Since OPM is closely integrated with Oracle General Ledger, financial data that is collected about the manufacturing processes must be transferred to the Oracle Financials applications. The OPM Oracle Financials Integration application is where users define how that data is transferred. For example, users define whether data is transferred real time or batched and transferred at intervals. The *Oracle Process Manufacturing Oracle Financials Integration User's Guide* describes how to setup and use this application.

Inventory Management User's Guide

The OPM Inventory Management application is where data about the items purchased for, consumed during, and created as a result of the manufacturing process are tracked. The *Oracle Process Manufacturing Inventory Management User's Guide* includes information to help you effectively work with the Oracle Process Manufacturing Inventory application.

Physical Inventory User's Guide

Performing physical inventory count is the most accurate way to get an accounting of all material quantities purchased, manufactured, and sold, and update your onhand quantities accordingly. The OPM Physical Inventory application automates and enables the physical inventory process. The *Oracle Process Manufacturing Physical Inventory User's Guide* describes how to setup and use this application.

Order Fulfillment User's Guide

The OPM Order Fulfillment application automates sales order entry to reduce order cycle time. Order Fulfillment enables order entry personnel to inform customers of scheduled delivery dates and pricing. The *Oracle Process Manufacturing Order Fulfillment User's Guide* describes how to setup and use this application.

Purchase Management User's Guide

OPM Purchase Management and Oracle Purchasing combine to provide an integrated solution for Process Manufacturing. Purchase orders are entered in Oracle Purchasing and received in OPM. Then, the receipts entered in OPM are sent to Oracle Purchasing. The *Oracle Process Manufacturing Purchase Management User's Guide* describes how to setup and use this integrated solution.

Using Oracle Order Management with Process Inventory Guide

Oracle Process Manufacturing and Oracle Order Management combine to provide an integrated solution for process manufacturers. The manufacturing process is tracked and handled within Oracle Process Manufacturing, while sales orders are taken and tracked in Oracle Order Management. Process attributes, such as dual UOM and lot control, are enabled depending on the inventory organization for the item on the sales order. Order Management accepts orders entered through Oracle Customer Relationship Management (CRM). Within CRM, orders can originate from TeleSales, Sales Online, and iStore, and are booked in Order Management, making the CRM suite of products available to Process customers, through Order Management. The *Oracle Order Management User's Guide* and *Using Oracle Order Management with Process Inventory Guide* describes how to setup and use this integrated solution.

Process Execution User's Guide

The OPM Process Execution application lets you track firm planned orders and production batches from incoming materials through finished goods. Seamlessly integrated to the Product Development application, Process Execution lets you convert firm planned orders to single or multiple production batches, allocate ingredients, record actual ingredient usage, and then complete and close production batches. Production inquiries and preformatted reports help you optimize inventory costs while maintaining a high level of customer satisfaction with on-time delivery of high quality products. The *OPM Process Execution User's Guide* presents overviews of the tasks and responsibilities for the Production Supervisor and the Production Operator. It provides prerequisite setup in other applications, and details the windows, features, and functionality of the OPM Process Execution application.

Using Oracle Advanced Planning and Scheduling with Oracle Process Manufacturing

Oracle Process Manufacturing and Oracle Advanced Planning and Scheduling (APS) combine to provide a solution for process manufacturers that can help

increase planning efficiency. This solution provides for constraint-based planning, performance management, materials management by exception, mixed mode manufacturing that enables you to choose the best method to produce each of your products, and combine all of these methods within the same plant/company. The *Using Oracle Advanced Planning and Scheduling with Oracle Process Manufacturing User's Guide* describes how to setup and use this application.

MPS/MRP and Forecasting User's Guide

The Oracle Process Manufacturing Material Requirements Planning (MRP) application provides long-term "views" of material demands and projected supply actions to satisfy those demands. The Master Production Scheduling (MPS) application lets you shorten that view to a much narrower and immediate time horizon, and see the immediate effects of demand and supply actions. The *Oracle Process Manufacturing MPS/MRP and Forecasting User's Guide* describes how to setup and use this application.

Capacity Planning User's Guide

The OPM Capacity Planning User's Guide describes the setup required to use OPM with the Oracle Applications Advanced Supply Chain Planning solutions. In addition, Resource setup, used by the OPM Production Execution and New Product Development applications, is also described.

Using Oracle Process Manufacturing with Oracle Manufacturing Scheduling

Oracle Process Manufacturing integrates with Oracle Manufacturing Scheduling to manage and utilize resources and materials. Through the Process Manufacturing application, you set up manufacturing, inventory, procurement and sales order data. Through the Manufacturing Scheduling application, you can optimize the schedule based on resource and component constraints and user predefined priorities. Using different optimization objectives, you can tailor Manufacturing Scheduling to meet your needs.

Using Oracle Manufacturing Scheduling helps you improve productivity and efficiency on your shop floor. By optimally scheduling shop floor jobs, and being able to quickly react to unplanned constraints, you can lower manufacturing costs, increase resource utilization and efficiency, and increase customer satisfaction through improved on-time delivery. The *Using Oracle Process Manufacturing with Oracle Manufacturing Scheduling User's Guide* describes how to setup and use this integrated solution.

Product Development User's Guide

The Oracle Process Manufacturing Product Development application provides features to manage formula and laboratory work within the process manufacturing operation. It lets you manage multiple laboratory organizations and support varying product lines throughout the organization. You can characterize and simulate the technical properties of ingredients and their effects on formulas. You can optimize formulations before beginning expensive laboratory test batches. Product Development coordinates each development function and enables a rapid, enterprise-wide implementation of new products in your plants. The *Oracle Process Manufacturing Product Development User's Guide* describes how to setup and use this application.

Quality Management User's Guide

The Oracle Process Manufacturing Quality Management application provides features to test material sampled from inventory, production, or receipts from external suppliers. The application lets you enter specifications and control their use throughout the enterprise. Customized workflows and electronic record keeping automate plans for sampling, testing, and result processing. You can compare specifications to assist in regrading items, and match customer specifications. Aggregate test results and print statistical assessments on quality certificates. Several preformatted reports and inquiries help manage quality testing and reporting. The *Oracle Process Manufacturing Quality Management User's Guide* describes how to set up and use this application.

Implementation Guide

The *Oracle Process Manufacturing Implementation Guide* offers information on setup. That is, those tasks you must complete following the initial installation of the Oracle Process Manufacturing software. Any tasks that must be completed in order to use the system out-of-the-box are included in this manual.

System Administration User's Guide

Much of the System Administration duties are performed at the Oracle Applications level, and are therefore described in the *Oracle Applications System Administrator's Guide*. The *Oracle Process Manufacturing System Administration User's Guide* provides information on the few tasks that are specific to OPM. It offers information on performing OPM file purge and archive, and maintaining such things as responsibilities, units of measure, and organizations.

API User's Guides

Public Application Programming Interfaces (APIs) are available for use with different areas of the Oracle Process Manufacturing application. APIs make it possible to pass information into and out of the application, bypassing the user interface. Use of these APIs is documented in individual manuals such as the *Oracle Process Manufacturing Inventory API User's Guide, Oracle Process Manufacturing Process Execution API User's Guide, Oracle Process Manufacturing Product Development Formula API User's Guide, Oracle Process Manufacturing Product Development Recipe API User's Guide, Oracle Process Manufacturing Quality Management API User's Guide,* and the *Oracle Process Manufacturing Cost Management API User's Guide.* Additional API User's Guides are periodically added as additional public APIs are made available.

Installation and System Administration

Oracle Applications Concepts

This guide provides an introduction to the concepts, features, technology stack, architecture, and terminology for Oracle Applications Release 11*i*. It provides a useful first book to read before an installation of Oracle Applications. This guide also introduces the concepts behind Applications-wide features such as Business Intelligence (BIS), languages and character sets, and Self-Service Web Applications.

Installing Oracle Applications

This guide provides instructions for managing the installation of Oracle Applications products. In Release 11*i*, much of the installation process is handled using Oracle Rapid Install, which minimizes the time to install Oracle Applications, the Oracle8 technology stack, and the Oracle8*i* Server technology stack by automating many of the required steps. This guide contains instructions for using Oracle Rapid Install and lists the tasks you need to perform to finish your installation. You should use this guide in conjunction with individual product user's guides and implementation guides.

Upgrading Oracle Applications

Refer to this guide if you are upgrading your Oracle Applications Release 10.7 or Release 11.0 products to Release 11*i*. This guide describes the upgrade process and lists database and product-specific upgrade tasks. You must be either at Release 10.7 (NCA, SmartClient, or character mode) or Release 11.0, to upgrade to Release 11*i*. You cannot upgrade to Release 11*i* directly from releases prior to 10.7.

Maintaining Oracle Applications

Use this guide to help you run the various AD utilities, such as AutoUpgrade, AutoPatch, AD Administration, AD Controller, AD Relink, License Manager, and others. It contains how-to steps, screenshots, and other information that you need to run the AD utilities. This guide also provides information on maintaining the Oracle applications file system and database.

Oracle Applications System Administrator's 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, and manage concurrent processing.

Oracle Alert User's Guide

This guide explains how to define periodic and event alerts to monitor the status of your Oracle Applications data.

Oracle Applications Developer's Guide

This guide contains the coding standards followed by the Oracle Applications development staff. It describes the Oracle Application Object Library components needed to implement the Oracle Applications user interface described in the *Oracle Applications User Interface Standards for Forms-Based Products*. It also provides information to help you build your custom Oracle Forms Developer 6*i* forms so that they integrate with Oracle Applications.

Oracle Applications User Interface Standards for Forms-Based Products

This guide contains the user interface (UI) standards followed by the Oracle Applications development staff. It describes the UI for the Oracle Applications products and how to apply this UI to the design of an application built by using Oracle Forms.

Other Implementation Documentation

Oracle Applications Product Update Notes

Use this guide as a reference for upgrading an installation of Oracle Applications. It provides a history of the changes to individual Oracle Applications products between Release 11.0 and Release 11*i*. It includes new features, enhancements, and changes made to database objects, profile options, and seed data for this interval.

Multiple Reporting Currencies in Oracle Applications

If you use the Multiple Reporting Currencies feature to record transactions in more than one currency, use this manual before implementing ***Oracle Process Manufacturing***. This manual details additional steps and setup considerations for implementing ***Oracle Process Manufacturing*** with this feature.

Multiple Organizations in Oracle Applications

This guide describes how to set up and use ***Oracle Process Manufacturing*** with Oracle Applications' Multiple Organization support feature, so you can define and support different organization structures when running a single installation of ***Oracle Process Manufacturing***.

Oracle Workflow Guide

This guide explains how to define new workflow business processes as well as customize existing Oracle Applications-embedded workflow processes. You also use this guide to complete the setup steps necessary for any Oracle Applications product that includes workflow-enabled processes.

Oracle Applications Flexfields Guide

This guide provides flexfields planning, setup and reference information for the ***Oracle Process Manufacturing*** 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 eTechnical Reference Manuals

Each eTechnical Reference Manual (eTRM) contains database diagrams and a detailed description of database tables, forms, reports, and programs for a specific Oracle Applications product. This information helps you convert data from your existing applications, integrate Oracle Applications data with non-Oracle applications, and write custom reports for Oracle Applications products. Oracle eTRM is available on Oracle*MetaLink*.

Oracle Manufacturing APIs and Open Interfaces Manual

This manual contains up-to-date information about integrating with other Oracle Manufacturing applications and with your other systems. This documentation includes API's and open interfaces found in Oracle Manufacturing.

Oracle Order Management Suite APIs and Open Interfaces Manual

This manual contains up-to-date information about integrating with other Oracle Manufacturing applications and with your other systems. This documentation includes API's and open interfaces found in Oracle Order Management Suite.

Oracle Applications Message Reference Manual

This manual describes all Oracle Applications messages. This manual is available in HTML format on the documentation CD-ROM for Release 11i.

Training and Support

Training

Oracle offers a complete set of training courses to help you and your staff master ***Oracle Process Manufacturing*** and reach full productivity quickly. These courses are organized into functional learning paths, so you take only those courses appropriate to your job or area of responsibility.

You have a choice of educational environments. You can attend courses offered by Oracle University at any one of our many Education Centers, you can arrange for our trainers to teach at your facility, or you can use Oracle Learning Network (OLN), Oracle University's online education utility. 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.

Support

From on-site support to central support, our team of experienced professionals provides the help and information you need to keep ***Oracle Process Manufacturing*** working for you. This team includes your Technical Representative, Account Manager, and Oracle's large staff of consultants and support specialists with expertise in your business area, managing an Oracle8*i* server, and your hardware and software environment.

Do Not Use Database Tools to Modify Oracle Applications Data

Oracle STRONGLY RECOMMENDS that you never use SQL*Plus, Oracle Data Browser, database triggers, or any other tool to modify Oracle Applications 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 Applications data, you risk destroying the integrity of your data and you lose the ability to audit changes to your data.

Because Oracle Applications tables are interrelated, any change you make using Oracle Applications can update many tables at once. But when you modify Oracle Applications data using anything other than Oracle Applications, 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 Applications.

When you use Oracle Applications to modify your data, Oracle Applications automatically checks that your changes are valid. Oracle Applications 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.

About Oracle

Oracle Corporation develops and markets an integrated line of software products for database management, applications development, decision support, and office automation, as well as Oracle Applications, an integrated suite of more than 160 software modules for financial management, supply chain management, manufacturing, project systems, human resources and customer relationship management.

Oracle products are available for mainframes, minicomputers, personal computers, network computers and personal digital assistants, allowing organizations to integrate different computers, different operating systems, different networks, and even different database management systems, into a single, unified computing and information resource.

Oracle is the world's leading supplier of software for information management, and the world's second largest software company. Oracle offers its database, tools, and applications products, along with related consulting, education, and support services, in over 145 countries around the world.

Your Feedback

Thank you for using ***Oracle Process Manufacturing*** and this user's guide.

Oracle values your comments and feedback. At the beginning of this guide is a Reader's Comment Form you can use to explain what you like or dislike about ***Oracle Process Manufacturing*** or this user's guide. Mail your comments to the following address or call us directly at (650) 506-7000.

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Using Oracle Process Manufacturing with Oracle Manufacturing Scheduling

The chapter discusses the integration between Oracle Process Manufacturing and Oracle Manufacturing Scheduling. The following topics are included:

- Overview of the Integration
- Setting the Work In Process Parameters
- Running the Extract Items Concurrent Program
- Viewing Resource Instance Available Time
- Defining Exception Codes
- Defining Resource Exceptions
- Viewing Resource Unavailability
- Viewing Sequence Dependent Classes
- Setting Up Sequence Dependencies
- Viewing Sequence Dependent Items
- Defining Contiguous Scheduling Components
- Running the Schedule Process Batches Concurrent Program
- Viewing the Scheduling Exceptions

Overview of the Integration

Oracle Process Manufacturing integrates with Oracle Manufacturing Scheduling to manage and utilize resources and materials. Scheduling exists as a submenu beneath the OPM Process Planning responsiblity and is accessed through the Navigator.

Through the Process Manufacturing application, you set up manufacturing, inventory, procurement and sales order data. Through the Manufacturing Scheduling application, you can optimize the schedule based on resource and component constraints and user predefined priorities. Using different optimization objectives, you can tailor Manufacturing Scheduling to meet your needs.

Using Oracle Manufacturing Scheduling helps improve productivity and efficiency on your shop floor. By optimally scheduling shop floor jobs, and being able to quickly react to unplanned constraints, you can lower manufacturing costs, increase resource utilization and efficiency, and increase customer satisfaction through improved on-time delivery.

The integration between Process Manufacturing and Manufacturing Scheduling takes the OPM manufacturing, inventory, procurement, and sales order data and transfers it to the Manufacturing Scheduling application for the appropriate organization. By running Manufacturing Scheduling, the appropriate schedule is recorded in process manufacturing.

Features

Integrating Oracle Process Manufacturing and Oracle Manufacturing Scheduling provides the following benefits:

- Finite shop floor scheduling
- Sequence dependent setups
- Constraint based scheduling by resource and component
- Automatic rescheduling
- Graphical view of batches on the shop floor
- Load versus capacity by resource

Manufacturing Scheduling considers the OPM resource calendar and finitely schedule batches around scheduled resource outages.

Setting the Work In Process Parameters

If you have Oracle Manufacturing Scheduling installed, then use the Work in Process Parameter window to enable the constraint-based scheduling engine. This scheduling engine considers resource or resource and material constraints and the number of days in the schedule when it schedules jobs. If you do not set this parameter, then the system assumes infinite capacity.

◗ To enable the constraint-based scheduling engine:

1. Navigate to the **Work in Process Parameters** window in Oracle Manufacturing Scheduling.
2. Click **Scheduling**.
3. Select the **Use Constraint Based Scheduling** check box.
4. Select the constraints, primary objective, and the scheduling horizon that you want the engine to consider when rescheduling jobs.

Refer to the *Oracle Manufacturing Scheduling User's Guide* for detailed information on defining the Work in Process Parameters window.

Running the Extract Items Concurrent Program

The Extract Items concurrent program extracts Oracle Process Manufacturing items into an interface table for Oracle Manufacturing Scheduling. Essentially, it recreates the item master so the Oracle Manufacturing Scheduling can process item information. These tables contain the items to be included for scheduling. The items defined in the plant warehouse effectivities for the respective plant are included in the table. Running this program is a prerequisite to using Oracle Manufacturing Scheduling with Oracle Process Manufacturing. After initially running Extract Items, this routine must be run when updates need to be recorded. For example, run Extract Items if you have created new items or modified existing ones.

◗ To run the Extract Items concurrent program:

1. Navigate to the **Run Extract Items** window. The Parameters dialog box displays.
2. Select a **Plant Code**.
3. Click **OK**.
4. Complete the fields on the **Run Extract Items** window. Enter a plant in the Parameters field.
5. Click **Submit**. The Item Extraction for Manufacturing Scheduling concurrent program begins to run.

Running the Generate Resource Availability Concurrent Program

The Resource Available Time concurrent program generates the available time data for the resources owned by a plant. 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 plant 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** and **Process Calendars**.
3. Click **OK**.
4. Complete the fields on the **Generate Resource Availability window.**
5. Click **Submit**. The Resource Available Time concurrent program begins to run.

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

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 a plant 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 from the OPM Capacity Planning menu.
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 plant code, calendar, resources, instance number, start date, and end date.
3. The following fields are display only:
   - Plant Code
   - Calendar
   - Resources
   - Instance Number

Available Times

The following fields are display only:

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

Defining Exception Codes

You can define a set of unavailable time and attach it to one or more resources. This set is called an exception set and is identified by an exception code. Refer to the *Oracle Process Manufacturing Capacity Planning User's Guide* for detailed information on exception codes.

Defining Resource Exceptions

You can view all of the exception sets associated with a resource and the total unavailable time for a resource through the Resource Unavailability window. Refer to the *Oracle Process Manufacturing Capacity Planning User's Guide* for detailed information on resource exceptions.

Viewing 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. Refer to the *Oracle Process Manufacturing Capacity Planning User's Guide* for detailed information on resource unavailability.

Viewing Sequence Dependent Classes

Through the Sequence Dependent Classes window you can view sequence dependent classes that have been setup. Sequence dependent classes are more general classifications rather than establishing an individual sequence for each item being produced. For example, each paint color of a lighter shade could be included in a classification called Light. Darker colored paint products could be in a class called Dark.

To view sequence dependent classes:

1. Navigate to the **Sequence Dependent Classes** window.
2. View the **Sequence Dependent Class** code identifying the sequence classification and its **Description**.

Assigning Sequence Dependent Class to Item Master

After you have defined sequence classification codes, you can assign them to the appropriate product items on the Items window. Enter the sequence dependent class category code on the Items window in OPM Inventory. An item must be defined as a product in a formula before it can have a sequence dependent class associated with it.

After sequence classifications have been assigned to product items, you can define the actual sequence class combinations on the Sequence Dependent Setup window.

See Also

Setting Up Sequence Dependencies

Oracle Process Manufacturing Inventory Management User's Guide

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 setup 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** in the range 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 in the range 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 in the range 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. The Penalty Factor

value must be consistent with the setup time. For example, the higher the setup time, then the higher the penalty factor. Required.

See Also

Defining Sequence Dependent Classes

Viewing Sequence Dependent Items

The Sequence Dependent Items window lets you view all of the combinations of items for the classes.

Prerequisites

❑ Setup Sequence Dependencies.

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

1. Navigate to the **Sequence Dependent Items** window. There are several ways to navigate to this window:
   - 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
   - Operation Version
   - Setup Time
   - From Item Class
   - To Item Class
   - Penalty Factor

From Item

- Number
- Description

To Item

- Number
- Description

Defining Contiguous Scheduling Components

A contiguous operation is one that requires all of its resources to complete their activities before stopping. Contiguous operations are essential for processes involving a perishable material or chemical reaction. The contiguous operation definition indicates that the operation must contain a time frame that continues without interruption till processing end. No downtime can exist for its resources.

Scheduling constraints are generated from the step dependencies, operations, and activities that have been developed for a recipe and implemented in a batch. With contiguous scheduling, data collection and transfer specifications from OPM manufacturing to WPS enable the scheduler to enforce these constraints and schedule resources in an uninterrupted sequence.

Step Dependencies

Step dependencies for a recipe or batch define the relationship between processing steps that occur while manufacturing products in a batch. The dependencies detail which steps can start and when and how one step works in conjunction with another. Through dependencies, you are able to ensure a continuous flow of materials through a route in the production of a batch. Using the delays that can be defined for step dependencies, you can overlay steps, make steps end to end, or create gaps between steps.

Dependency Type

Dependency types define the reference point to which delays between steps are applied. The following dependency type exists:

Finish to Start - The dependent step must finish before the next step can start. Delays are applied to the end of the dependent step.

Note: The Start to Start dependency type will be introduced in a subsequent release. With Start to Start, the dependent step must start before the next step can start.

Standard and Max Delay

Delays specify the timing between steps. The following delays must be defined for dependent steps:

- Standard Delay - The standard delay is the minimum timing gap applied to the start time of the step as it relates to the completion of the preceding dependent

step. Delays are tied to the dependency type reference point, which for the Finish to Start dependency type is the finish of the dependent step. Standard delay values can be a negative value, zero, or a positive value .

- Negative Value Standard Delay - When a negative standard delay is applied to a dependent step with a Finish to Start dependency type, there is an overlap with the start of the next step and the completion of the dependent step. The start of the next step begins prior to the end of the current dependent step.
- Zero Value Standard Delay - When a zero standard delay is applied to a dependent step with a Finish to Start dependency type, there is no offset between the start of the next step and the completion of the dependent step. The start of the next step begins at the completion of the current step.
- Positive Value Standard Delay - When a positive standard delay is applied to a dependent step with a Finish to Start dependency type, there is an offset between the start of the next step and the completion of the dependent step. The start of the next step begins after the completion of the current step plus the time delay.

- Max Delay - The max delay is the maximum timing gap applied to the start time of the step as it relates to the standard delay. The max delay serves as the outer limit to when the next step begins after the standard delay is enforced. A max delay value cannot be less than the standard delay.
  - Negative Value Max Delay - When a negative max delay is applied to a dependent step with a Finish to Start dependency type, there is a restriction to the amount of time after the standard delay that the next step can start. The steps overlap within the range of the standard and max delay. The start of the next step begins after the standard delay value and no later than the elapsed time specified by the max delay.
  - Zero Value Max Delay - When a zero max delay is applied to a dependent step with a Finish to Start dependency type, there is no offset from the standard delay. The start of the next step begins after the standard delay. When the max delay is zero, the steps are contiguous.
  - Positive Value Max Delay - When a positive max delay is applied to a dependent step with a Finish to Start dependency type, there is a restriction to the amount of time after the standard delay that the next step can start. The start of the next step begins after the standard delay value and no later than the elapsed time specified by the max delay.

- NULL Value Max Delay - When a null max delay is applied to a dependent step with a Finish to Start dependency type, there is no restriction to the amount of time after the standard delay that the next step can start. The start of the next step can begin any time after the standard delay. A gap in processing can exist.

To establish batch step dependencies:

1. Navigate to the **Batch Steps** window in the Production Supervisor responsibility.
2. Choose **Batch Step Dependencies** upon accessing the batch step.
3. Type **Previous Step**, **Operation**, and **Version**.
4. Select **Finish-to-Start** from the **Dependency** LOV.
5. Type **Standard Delay** to establish the minimum delay between the dependent step and the next step.
6. Type **Max Delay** to establish a limit to the delay prior to the start of the next step.
7. Save the dependency.

Activities

An operation is comprised of one or more activities, which can range from set up, to runtime, to cleanup. In process manufacturing, the assumption is that activities are contiguous. A break condition, however, can be set to specify temporary stops in the activities.

Breaks

Through the Operation Details Activities window, the Breakable indicator can be set to indicate the possibility of a break in the execution of an activity. The duration of the break can be limited by the value specified in the Max Break field. If the Breakable indicator is activated and no value is entered in the Max Break field, then the scheduler assumes the break duration to be infinite. A break of any duration will be permitted. By setting the Breakable indicator on, the scheduler can interrupt the processing of an activity if this coincides with the schedule of resource availability.

To define a breakable activity:

1. Navigate to the **Operations Details Activities** window in the Process Engineer responsibility.
2. Select **Breakable**.
3. Type **Max Break** when a limit to the duration of the break is necessary.

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 plant 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 **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 plant. 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.

To view 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 fields are display only:

- **Seq** is the sequence number of the message generated during scheduling.
- **Severity** is an indication of the severity of the message.
- **Message** is the short description of the message.
- **Marked**
- **Message** is 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.

- **Plant** is the plant where the batch was scheduled
- **Batch** is the number of the job scheduled.
- **Priority**
- **Batch Status**
- **Request Id** is the identification number of the Schedule Process Batches concurrent program.
- **Product** is the product name and description for the finished goods.
- **Recipe** is number, version, and description of the validation rule required to prepare the batch.
- **Formula** is the number, version, and description of the formula used to make the batch.

- **Routing** is number, version, and description of the routing definition required for the formula.

Dates

- **Planned Start** is the planned start date for the batch.
- **Planned Completion** is the planned completion date for the batch.
- **Required Completion** is the required completion date for the batch.
- **Reported Date** is the reported date for the batch.