

Oracle® Process Manufacturing

Process Execution User's Guide

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Oracle Process Manufacturing Process Execution User's Guide, Release 12

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Send Us Your Comments

Oracle Process Manufacturing Process Execution User's Guide, Release 12

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Oracle welcomes customers' comments and suggestions on the quality and usefulness of this document. Your feedback is important, and helps us to best meet your needs as a user of our products. For example:

- Are the implementation steps correct and complete?
- Did you understand the context of the procedures?
- Did you find any errors in the information?
- Does the structure of the information help you with your tasks?
- Do you need different information or graphics? If so, where, and in what format?
- Are the examples correct? Do you need more examples?

If you find any errors or have any other suggestions for improvement, then please tell us your name, the name of the company who has licensed our products, the title and part number of the documentation and the chapter, section, and page number (if available).

Note: Before sending us your comments, you might like to check that you have the latest version of the document and if any concerns are already addressed. To do this, access the new Applications Release Online Documentation CD available on Oracle MetaLink and www.oracle.com. It contains the most current Documentation Library plus all documents revised or released recently.

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If you require training or instruction in using Oracle software, then please contact your Oracle local office and inquire about our Oracle University offerings. A list of Oracle offices is available on our Web site at www.oracle.com.

Preface

Intended Audience

Welcome to Release 12 of the *Oracle Process Manufacturing Process Execution User's Guide*.

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

See Related Information Sources on page xiv for more Oracle Applications product information.

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Oracle provides dedicated Text Telephone (TTY) access to Oracle Support Services within the United States of America 24 hours a day, seven days a week. For TTY support, call 800.446.2398.

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This documentation may contain links to Web sites of other companies or organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these Web sites.

Structure

1 Understanding Process Execution

This chapter provides the fundamentals of Oracle Process Manufacturing Process Execution. It presents the basic tasks, responsibilities, and process flow required to produce a product. You are given a basic understanding of navigation and workbenches.

2 Setting Up

The Oracle Process Manufacturing Process Execution application is seamlessly integrated to the Product Development application. Therefore, setup in Oracle Process Manufacturing Process Execution is limited to modifications that are associated to recipes and validity rules in order to produce the production batch. This topic provides the setup requirements.

3 Firm Planned Orders

This topic provides a general understanding of firm planned orders, including how to find one once it is created on the Create Batch/Firm Planned Order window. You are shown how to modify a firm planned order, how to select validity rules, and reroute it. You are also shown how to reschedule the firm planned order. This topic also discusses how to convert the firm planned order to a batch, how to display material details in the order, and how to scale the firm planned order. Creating a firm planned order is similar to creating a batch.

Refer to "Creating a Batch or Firm Planned Order" for more information on creating a firm planned order.

4 Batch Creation

This topic provides a basic understanding of batches and batch status. You are shown how to find a batch, create a batch or firm planned order, select validity rules for a batch, reroute a batch, pick a batch, and how to edit a batch. The process of finding and editing batch details is presented. You are also shown how to find individual batch steps and edit specific information in them, including batch step dependencies, and step activities. Other topics covered are the editing of batch step resources, the association of batch steps to items, and using the theoretical yield calculation. You are shown how to

scale a batch or firm planned order, and how to reschedule a batch.

5 Batch Materials

Understand and use batch reservations, material move orders, and inventory transactions. Understand differences between high-level reservations and detailed-level reservations. Create detailed-level reservations. Understand material transactions. View move orders and enter pending product lots. Understand how to manage inventory shortages and to reserve a batch as a supply source for inventory reservations. Cross-integrate the Process Execution application with Mobile Supply Chain applications for Oracle Process Manufacturing.

6 Ingredient Picking Workbench

Understand how to find and pick ingredients for a batch. View the batch list summary information and identify picking materials and the ingredient summary.

7 Batch Production

This topic provides procedures for releasing and unreleasing a batch. Procedures are presented for editing batch steps in production, editing resource transactions, and recording batch operation work in process. The procedure for checking lot status when yielding product presents the business rules that are enforced when yielding batch material into an existing lot. You are given an understanding of and procedures for incremental backflushing. Discussions of activity factors and charges are provided to enhance your understanding of how these are used in the Oracle Process Manufacturing Process Execution application.

8 Batch Completion

This topic provides a basic understanding of batch completion, including how to complete a batch and revert a completed batch to work in process. You are shown how to close and reopen a batch.

9 Inquiries

This topic shows you how to run and interpret inquiries for a production schedule, work in process, material variances, batch step variances, resource variances, and resource usage.

10 Reports and Concurrent Programs

This topic explains several preformatted reports that assist you in the picking of production batch materials, ticketing of materials to use in production, evaluating scheduled batch and firm planned order production activities, assessing variances in actual and calculated batch yield, and evaluating unusual usage cost variances. The procedures for running the Item Substitution for Batches, Ingredient Picking, and Migration Recreate Open Batches concurrent programs are presented.

11 Process Execution Workbench

The Process Execution Workbench is a navigator that lets you view summary information about batches and firm planned orders by organization, batch, firm planned order, product, and status. There are two tabs located on the navigator - Batches and Firm Planned Orders. Click either tab to access the summary information that you are interested in. The batch and firm planned order summary information windows provide access to batch and firm planned order maintenance windows so that you can review or edit the data. You can also create custom views that provide a

convenient method to locate and access a batch or firm planned order.

12 Production Scheduler Workbench

This topic provides a basic understanding of the Production Scheduler Workbench including the bucketed load for a selected set of plant resources, continuous resource load, and a chart of activities to assist in the rescheduling of batches and firm planned orders. The Gantt Chart lets you change plant assignments, adjust bucket sizes, and filter batches and firm planned orders based on selected criteria.

A Process Execution Navigator Paths

B Setting Up Process Execution Responsibilities and Menu Access

C Oracle E-Records Events in Process Execution

D Function Security

Glossary

Related Information Sources

Related Guides

Oracle Process Manufacturing shares business and setup information with other Oracle Applications products. Therefore, you may want to refer to other guides when you set up and use Oracle Process Manufacturing. You can read the guides online 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, then you can purchase them from the Oracle Store at <http://oraclestore.oracle.com>

Guides Related to All Products

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 Concepts

This book is intended for all those planning to deploy Oracle E-Business Suite Release 12, or contemplating significant changes to a configuration. After describing the Oracle Applications architecture and technology stack, it focuses on strategic topics, giving a broad outline of the actions needed to achieve a particular goal, plus the installation and configuration choices that may be available.

Oracle Applications Flexfields Guide

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

Oracle Application Framework Personalization Guide

This guide covers the design-time and run-time aspects of personalizing applications built with Oracle Application Framework.

Oracle Applications Installation Guide: Using Rapid Install

This book is intended for use by anyone who is responsible for installing or upgrading Oracle Applications. It provides instructions for running Rapid Install either to carry out a fresh installation of Oracle Applications Release 12, or as part of an upgrade from Release 11i to Release 12. The book also describes the steps needed to install the technology stack components only, for the special situations where this is applicable.

Oracle Application Server Adapter for Oracle Applications User's Guide

This guide covers the use of OracleAS Adapter in developing integrations between Oracle applications and trading partners.

Please note that this guide is in the Oracle Application Server 10g (10.1.3.1) Documentation Library.

Oracle Applications System Administrator's Guide Documentation Set

This documentation set provides planning and reference information for the Oracle Applications System Administrator. *Oracle Applications System Administrator's Guide - Configuration* contains information on system configuration steps, including defining concurrent programs and managers, enabling Oracle Applications Manager features, and setting up printers and online help. *Oracle Applications System Administrator's Guide - Maintenance* provides information for frequent tasks such as monitoring your system with Oracle Applications Manager, managing concurrent managers and reports, using diagnostic utilities, managing profile options, and using alerts. *Oracle Applications System Administrator's Guide - Security* describes User Management, data security, function security, auditing, and security configurations.

Oracle Applications User's Guide

This guide explains how to navigate, enter data, query, and run reports using the user interface (UI) of Oracle Applications. This guide also includes information on setting user profiles, as well as running and reviewing concurrent requests.

Oracle e-Commerce Gateway User's Guide

This guide describes the functionality of Oracle e-Commerce Gateway and the necessary setup steps in order for Oracle Applications to conduct business with trading partners through Electronic Data Interchange (EDI). It also contains how to run extract programs for outbound transactions, import programs for inbound transactions, and the relevant reports.

Oracle e-Commerce Gateway Implementation Guide

This guide describes implementation details, highlights additional setups for trading partner, code conversion, and Oracle Applications as well as provides the architecture guidelines for transaction interface files. This guide also contains troubleshooting information and how to customize EDI transactions.

Oracle Report Manager User's Guide

Oracle Report Manager is an online report distribution system that provides a secure and centralized location to produce and manage point-in-time reports. Oracle Report

Manager users can be either report producers or report consumers. Use this guide for information on setting up and using Oracle Report Manager.

Oracle iSetup User Guide

This guide describes how to use Oracle iSetup to migrate data between different instances of the Oracle E-Business Suite and generate reports. It also includes configuration information, instance mapping, and seeded templates used for data migration.

Oracle Workflow Administrator's Guide

This guide explains how to complete the setup steps necessary for any product that includes workflow-enabled processes. It also describes how to manage workflow processes and business events using Oracle Applications Manager, how to monitor the progress of runtime workflow processes, and how to administer notifications sent to workflow users.

Oracle Workflow Developer's Guide

This guide explains how to define new workflow business processes and customize existing Oracle Applications-embedded workflow processes. It also describes how to define and customize business events and event subscriptions.

Oracle Workflow User's Guide

This guide describes how users can view and respond to workflow notifications and monitor the progress of their workflow processes.

Oracle Workflow API Reference

This guide describes the APIs provided for developers and administrators to access Oracle Workflow.

Oracle XML Gateway User's Guide

This guide describes Oracle XML Gateway functionality and each component of the Oracle XML Gateway architecture, including Message Designer, Oracle XML Gateway Setup, Execution Engine, Message Queues, and Oracle Transport Agent. The integrations with Oracle Workflow Business Event System and the Business-to-Business transactions are also addressed in this guide.

Oracle XML Publisher Report Designer's Guide

Oracle XML Publisher is a template-based reporting solution that merges XML data with templates in RTF or PDF format to produce a variety of outputs to meet a variety of business needs. Using Microsoft Word or Adobe Acrobat as the design tool, you can create pixel-perfect reports from the Oracle E-Business Suite. Use this guide to design your report layouts.

Oracle XML Publisher Administration and Developer's Guide

Oracle XML Publisher is a template-based reporting solution that merges XML data with templates in RTF or PDF format to produce a variety of outputs to meet a variety of business needs. Outputs include: PDF, HTML, Excel, RTF, and eText (for EDI and

EFT transactions). Oracle XML Publisher can be used to generate reports based on existing E-Business Suite report data, or you can use Oracle XML Publisher's data extraction engine to build your own queries. Oracle XML Publisher also provides a robust set of APIs to manage delivery of your reports via e-mail, fax, secure FTP, printer, WebDav, and more. This guide describes how to set up and administer Oracle XML Publisher as well as how to use the Application Programming Interface to build custom solutions.

Guides Related to This Product

Oracle Process Manufacturing Cost Management User's Guide

The Oracle Process Manufacturing Cost Management application is used by cost accountants to capture and review the manufacturing costs incurred in their process manufacturing businesses. The guide describes how to set up and use this application.

Oracle Process Manufacturing Process Execution User's Guide

The Oracle Process Manufacturing 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 *Oracle Process Manufacturing 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 application.

Oracle Process Manufacturing Product Development User's Guide

The Oracle Process Manufacturing Product Development application provides features to manage formula, routing, recipe, and validity rule development within process manufacturing operations. Use it to manage multiple laboratory organizations and support varying product lines throughout the enterprise. Characterize and simulate the technical properties of ingredients and their effects on formula performance and cost. Simulate and optimize formulations before beginning expensive laboratory test batches. Product Development coordinates each development function to provide a rapid, enterprise-wide implementation of new products in your plants. The guide describes how to set up and use this application.

Oracle Process Manufacturing 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 recordkeeping automate plans for sampling, testing, and result processing. Compare specifications to assist in regrading items, and match customer specifications. Aggregate test results and print statistical

assessments on quality certificates. Run stability testing with unrivaled ease. Several preformatted reports and inquiries help manage quality testing and reporting. The guide describes how to set up and use this application.

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 Oracle Process Manufacturing. It offers information on performing Oracle Process Manufacturing file purge and archive, and maintaining such things as responsibilities, units of measure, and organizations.

Regulatory Management User's Guide

Oracle Process Manufacturing Regulatory Management provides solutions for document management that help meet the FDA 21 CFR Part 11 and other international regulatory compliance requirements. Regulatory information management is facilitated by use of electronic signatures. Manage hazard communications by collaborating with Oracle partners to dispatch safety documents, attached printed documentation sets such as the MSDS to shipments, and set up workflows to manage documentation revisions, approvals, and transmittals. The *Oracle Process Manufacturing Regulatory Management User's Guide* provides the information to set up and use the application.

Oracle Manufacturing Execution System for Process Manufacturing

Oracle Manufacturing Execution System (MES) for Process Manufacturing provides a seamless integration to product development and process execution applications for rapid deployment and tracking of procedures, work instruction tasks, and batch records. Set up and manage material dispensing operations and produce electronic batch records interactively with full electronic signature control, nonconformance management, and label printing routines. The *Oracle Manufacturing Execution System for Process Manufacturing User's Guide* delivers the information to set up and use the application.

API User's Guides

Public Application Programming Interfaces (APIs) are available for use with different Oracle Process Manufacturing applications. APIs pass information into and out of the application tables, thereby bypassing the user interface. Use of these APIs is documented in separately available documentation.

Oracle Engineering User's Guide

This guide enables your engineers to utilize the features of Oracle Engineering to quickly introduce and manage new designs into production. Specifically, this guide details how to quickly and accurately define the resources, materials and processes necessary to implement changes in product design.

Oracle Inventory User's Guide

This guide describes how to define items and item information, perform receiving and inventory transactions, maintain cost control, plan items, perform cycle counting and

physical inventories, and set up Oracle Inventory.

Oracle Bills of Material User's Guide

This guide describes how to create various bills of material to maximize efficiency, improve quality and lower cost for the most sophisticated manufacturing environments. By detailing integrated product structures and processes, flexible product and process definition, and configuration management, this guide enables you to manage product details within and across multiple manufacturing sites.

Oracle Work in Process User's Guide

This guide describes how Oracle Work in Process provides a complete production management system. Specifically this guide describes how discrete, repetitive, assemble-to-order, project, flow, and mixed manufacturing environments are supported.

Oracle Quality User's Guide

This guide describes how Oracle Quality can be used to meet your quality data collection and analysis needs. This guide also explains how Oracle Quality interfaces with other Oracle Manufacturing applications to provide a closed loop quality control system.

Oracle Shipping Execution User's Guide

This guide describes how to set up Oracle Shipping to process and plan your trips, stops and deliveries, ship confirmation, query shipments, determine freight cost and charges to meet your business needs.

Oracle Purchasing User's Guide

This guide describes how to create and approve purchasing documents, including requisitions, different types of purchase orders, quotations, RFQs, and receipts. This guide also describes how to manage your supply base through agreements, sourcing rules and approved supplier lists. In addition, this guide explains how you can automatically create purchasing documents based on business rules through integration with Oracle Workflow technology, which automates many of the key procurement processes.

Oracle interMedia User's Guide and Reference

This user guide and reference provides information about Oracle interMedia. This product enables Oracle9i to store, manage, and retrieve geographic location information, images, audio, video, or other heterogeneous media data in an integrated fashion with other enterprise information. Oracle Trading Community Architecture Data Quality Management uses interMedia indexes to facilitate search and matching.

Oracle Self-Service Web Applications Implementation Guide

This manual contains detailed information about the overview and architecture and setup of Oracle Self-Service Web Applications. It also contains an overview of and procedures for using the Web Applications Dictionary.

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 11i. 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 11i, much of the installation process is handled using Oracle Rapid Install, which minimizes the time to install Oracle Applications and the Oracle 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 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 11i. 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 11i. You cannot upgrade to Release 11i directly from releases prior to 10.7.

"About" Document

For information about implementation and user documentation, instructions for applying patches, new and changed setup steps, and descriptions of software updates, refer to the "About" document for your product. "About" documents are available on OracleMetaLink for most products beginning with Release 11.5.8.

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 and describes the Oracle Application Object Library components that are needed to implement the Oracle Applications user interface described in the Oracle Applications User Interface Standards for Forms-Based Products. This manual also provides information to help you build your custom Oracle Forms Developer forms so that the forms 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.

Oracle Workflow Administrator's Guide

This guide explains how to complete the setup steps necessary for any Oracle Applications product that includes workflow-enabled processes, as well as how to monitor the progress of runtime workflow processes.

Oracle Workflow Developer's Guide

This guide explains how to define new workflow business processes and customize existing Oracle Applications-embedded workflow processes. It also describes how to define and customize business events and event subscriptions.

Oracle Workflow User's Guide

This guide describes how Oracle Applications users can view and respond to workflow notifications and monitor the progress of their workflow processes. Oracle Workflow API Reference This guide describes the APIs provided for developers and administrators to access Oracle Workflow.

Oracle Applications Flexfields Guide

This guide provides flexfields planning, setup and reference information for the Oracle E-Records implementation team, as well as for users responsible for the ongoing maintenance of Oracle Applications product data. This guide 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*.

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

Integration Repository

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

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

Do Not Use Database Tools to Modify Oracle 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 an Oracle Applications form 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.

Understanding Process Execution

This chapter provides the fundamentals of Oracle Process Manufacturing Process Execution. It presents the basic tasks, responsibilities, and process flow required to produce a product. You are given a basic understanding of navigation and workbenches.

This chapter covers the following topics:

- About this Guide
- About Process Execution
- Tasks and Responsibilities
- Process Flow
- Using the Process Execution Workbench Navigator
navigation components, navigation

About this Guide

The purpose of this guide is to provide reference information for end-level users of the Oracle Process Manufacturing (OPM) Process Execution application. It presents:

- Overviews of tasks and responsibilities in process execution.
- Prerequisite setup in other applications including OPM System Administration, Oracle Inventory, OPM process planning Applications, and OPM Product Development.
- Advice on setting up responsibilities, and menu selections available to the Production Supervisor and Production Operator.
- General discussions about firm planned orders (FPO), including procedures to create them and find them. Procedures are provided for editing a firm planned order, using the workday calendar, selecting validity rules for the FPO, and rescheduling the order. The topic discusses how to convert the firm planned order

to a batch, display material details in the order, and scale the firm planned order.

- General discussions about batches including procedures to create and find them. Procedures are provided for editing a batch, using the Workday Calendar, finding and editing batch details, finding and editing batch steps, editing batch step dependencies, editing batch step activities, rescheduling a batch, and terminating a batch. Procedures for editing resource details and associating batch steps with items are provided. Discussions of batch scaling and firm planned order scaling are included.
- General discussions about batch reservations. Procedures are provided for editing batch transactions, determining unreserved items, managing inventory shortages, and selecting lots from the available inventory.
- General discussions on ingredient picking and integration with the Warehouse Management Systems (WMS) application. Procedures for finding ingredient requirements for picking and using the Ingredient Picking Workbench.
- Procedures for releasing a batch and unreleasing a batch. Discussions of and procedures for incremental backflushing are provided. Procedures for recording batch production, editing resource transactions, and recording batch operation work in process are included.
- Discussions of batch completion including the procedure for completing a batch. Procedures are provided for reverting a batch to work in process, closing a batch, and reopening a closed batch.
- Procedures to run and interpret inquiries for a production schedule, work in process, material variances, batch step variances, resource variances, resource usage, and material details.
- Several preformatted reports including Batch Pick List, Batch Ticket, Production Activity, Batch Yield Variance, and Material Usage and Substitution Variance.
- Procedures to run and interpret concurrent programs including Item Substitution, Ingredient Picking, and Migration Recreate Open Batches.
- Discussions on the Process Execution Workbench including summary information about batches and planned orders by batch, firm planned order, organization, product, and status.
- Discussions on the Production Scheduler Workbench including an understanding of the bucketed load for a selected set of plant resources, continuous resource loading, and a chart of activities to assist in the rescheduling of batches and firm planned orders. You can reschedule batches and firm planned orders, or batch steps by using the resize option, or by using the drag-and-drop option.

Depending on your system's security profile, it is possible that you do not have access to all of the windows and functions described in this guide. If you do not see a menu option described, and you need to access it, then contact your system administrator.

About Process Execution

Increasing productivity while minimizing labor and operational costs is key to successful product profitability. Oracle Process Manufacturing (OPM) Process Execution responds to the need for an efficient production environment by providing a seamless coordination of human and material resources within the process manufacturing environment. The application helps businesses respond quickly to changing customer requirements while maintaining or enhancing product margins.

Competitive urgencies are on the rise as plants ready themselves to meet the challenge of e-Business. The e-Business accelerates the need for real time visibility of shop floor activities. Managers must understand how labor is being utilized in their facilities so they can identify the impact of unplanned overtime on overall profitability. All cost variances must be accessible to Production Supervisors and upper managers so they can take immediate corrective action.

Drive Product Costs Below the Competition

There are three requirements for businesses to offer products at a lower cost than their competitors:

- Inflation adjusted product costs must decrease.
- Logistics costs must decrease.
- Manufacturers need to know true cost and profit for each product.

Each requirement must be analyzed thoroughly before change is implemented, as cutting costs can damage product quality.

Use Cost Control Oriented Data

To identify the cost of an activity, a continuing analysis of planned and actual time to manufacture finished goods must be traced throughout the production process. The OPM Process Execution application generates this cost control oriented data needed for critical decision making in the plant. Manufacturers use this information to track the financial impact of improvements to production processes. As part of total quality initiatives, production facilities can document improvements based on planned and actual times required for a manufacturing process. As a management decision-making tool, cost analysis provides the financial support data to help managers offer products at a lower cost than their competitors.

Optimize Inventory Costs While Maintaining Customer Satisfaction

The dynamics between on-time delivery and the cost of inventory requires careful planning to maintain high customer satisfaction. The Process Execution application keeps inventory current with thorough reservation procedures and incremental backflushing. Material and resource usage inquiries help managers evaluate production and inventory variances. Oracle process planning Applications assist in the management of on-hand inventory quantities to reduce physical inventory and cycle counting. To optimize inventory carrying costs, managers identify the cost of putting away stock receipts and moving material within an organization, including the time spent in these non-value added activities. OPM Process Execution helps operations managers increase productivity while minimizing labor and material costs to continuously improve product profits while maintaining a high level of customer satisfaction.

Tasks and Responsibilities

Efficient production is the result of coordinating and optimizing the availability of human and material resources within production facility. Effective information transfer is the key to success. Each job role must collaborate at various points throughout the production cycle.

The following represents the work breakdown structure required to produce a production batch. It lists most of the key tasks and the job titles responsible for those tasks:

- Set up organization parameters.
 - Production Supervisor

- Create a lab batch.
 - Production Supervisor

- Create a batch.
 - Planner

 - Production Supervisor

- Scale a batch.
 - Planner

 - Production Supervisor

- Reserve lots from which ingredients are consumed.

- Production Supervisor
- Start a batch.
 - Production Operator
 - Production Supervisor
- Start a batch step.
 - Production Operator
 - Production Supervisor
- Scale a work in process batch.
 - Production Supervisor
- Complete a batch step.
 - Production Operator
- Complete a batch.
 - Production Supervisor
 - Production Operator
- Close a batch.
 - Production Supervisor
- Print product labels.
 - Production Operator
 - Production Supervisor
- View batch e-records.
 - Production Operator
 - Production Supervisor

Accessing Windows

The Production Supervisor has access to all windows and functions in this application. The Production Operator has access to fewer windows depending on the

implementation. Contact the System Administrator to add window access to this responsibility.

Process Flow

The Oracle Process Manufacturing (OPM) Process Execution application records production batch information. This process can begin with a firm planned order or a production schedule requirement. The process can also begin in response to the requirement to reprocess materials that do not meet expected quality specifications. The application enables you to:

- Plan the production schedule with information from the process planning applications.
- Create firm planned orders.
- Convert firm planned orders into single or multiple production batches.
- Schedule production batches.
- Reserve ingredients for batch production.
- Record actual ingredient usage.
- Record actual resource usage.
- Record actual product production quantities.
- Complete and close production batches.
- Analyze variances in actual production quantities used as compared to planned quantities.

The OPM Process Execution application provides a seamless integration of the work breakdown structure outlined in the "Tasks and Responsibilities" topic. The Process Execution process flow consists of the following steps in each of the applications listed. Prerequisite setup is required before the remaining steps are completed.

The OPM Product Development application provides all tasks required for creation of formulas, operations, routings, and recipes. The OPM Process Execution application begins with the requirement to produce material from a recipe created by the OPM Product Development application using a specific validity rule.

Prerequisite Setup

Prerequisite setup must be completed for each of the following applications:

- Oracle Inventory

- Set up organizations, subinventories, locators, items, unit of measure types, units of measure, and picking rules. Refer to the "Setting Up" chapter for more information.
- Set up required profile options as described in the *Oracle Inventory User's Guide*.
- OPM Product Development
 - Set up Product Development parameters, formulas, recipes, operations, routings, activities, resources, and validity rules. Refer to the "Setting Up" chapter for more information.
 - Set up the required profile options as described in the *Oracle Process Manufacturing Product Development User's Guide*.
- OPM Process Execution
 - Set up Process Execution parameters and profile options. Refer to the "Setting Up" chapter for detailed information.

Creating Planned Production Orders

Create planned production orders through the Oracle Process Manufacturing (OPM) process planning applications. Production orders are recommendations to manufacture products. Planned orders are controlled by individual material requirement planning applications available to OPM, such as the Advanced Planning and Scheduling application. If demand causes the planning application to recommend that an order is changed or canceled, then the planning application can recommend, resize, reschedule, or delete the requirement. Detailed discussions of the planning applications are outside the scope of this documentation.

There is no requirement to run a planning application to create planned orders to manufacture products in the OPM Process Execution application. This is an optional step. However, planning applications assist in the optimization of production operations and must be considered as a tool to streamline production efficiencies.

Creating Firm Planned Orders

A Firm Planned Order represents an intent to manufacture a product. Firm planned orders are not controlled by planning applications. The planning application does not change or delete firm planned orders, and are treated as firm orders. You can change the start date, completion date, and required date on a firm planned order. Create a firm planned order by:

- Approving the requirement in the planning application that interfaces to Process Execution.

- Entering the firm planned order directly on the Create Batch/Firm Planned Order window.
- Selecting New on the Find Firm Planned Order window.

Enter firm planned orders for master production schedule items that are finished goods or saleable items. There is no need to enter a firm planned order to manufacture products. This is an optional step.

Creating Batches

Creating a batch is the same as scheduling a batch. Create a batch by:

- Converting from a requirement in the planning application that interfaces to OPM Process Execution.
- Converting from a firm planned order.
- Entering the batch directly on the Create Batch/Firm Planned Order window.
- Selecting New on the Find Batches window.
- Selecting New on the Batch Details window accessed from the Process Execution Workbench.
- Generating a batch directly from the Generate/Optimize Formulation window accessed from the Least Cost Formulation Workbench. Refer to the *Oracle Process Manufacturing Product Development User's Guide* for more information.

When you create a batch, the status is Pending.

Reserving Ingredients

Reserve ingredients for a batch manually or automatically. If any of the ingredients in the batch are lot-controlled or location-controlled, then reserve lots and locations for ingredients required to make the batch. Set up ingredients to be reserved automatically in the Oracle Inventory application by using picking rules. If you have not made any reservations, then you can specify the lots at the time of consumption. Reservations can be made against on-hand inventory, batches, or purchase orders.

Timing Ingredient Reservation

Determine when to reserve ingredients. Reserve material before releasing a batch while the batch has a status of Pending. Reserve material after a batch is released while it has a status of WIP.

Reserving a Batch Before Releasing

Specify the material to use in a batch. The advantage to reserving material before the

batch is released is that you can print a Pick List to provide lot and location information to production resources responsible for staging material for the production run. You can reserve ingredients automatically if appropriate parameters are set up.

Releasing Batches

Releasing a batch indicates the batch is started. Batches that contain automatic consumption ingredients consume these ingredients upon release as long as these ingredients are reserved. For reserved ingredient lines set to automatic consumption, releasing a batch creates completed transactions and consumes them from inventory. This action also changes the status of a batch from Pending to WIP. Release a batch by choosing Release from the Actions menu of the Batch Details window.

Entering Pending Products Lots

If products or byproducts yielded by the batch are lot-controlled or location-controlled, then you enter the code for the lot produced and the location where the product is yielded on the Pending Product Lots window. Refer to "Entering Pending Product Lots" in the "Batch Materials" chapter for more information.

Completing Batches

Complete a batch to indicate that it is done. Batch products and byproducts set to automatic yield are yielded. This action also changes the status of the batch from WIP to Completed. Complete a batch by choosing Complete from the Actions menu of the Batch Details window.

If you have not specified for items, the lots or locators from which to consume or yield, then when you try to complete a batch, then the application indicates these items as exceptions on the Material Exceptions window. Transact the items listed on this window to finish the batch completion. Make adjustments to ingredient, product, and byproduct quantities at this point or after batch completion.

Incrementally Backflushing a Batch

Process manufacturing ingredients are sometimes consumed in portions throughout the production cycle to yield incremental product quantities. To keep inventory levels current, record material consumption and production yield as they occur. Incremental backflushing lets you record production output incrementally prior to the batch completion, and enables the application to calculate and backflush ingredient usage.

Incremental backflushing can only be done on batches with a status of WIP or Completed batches that contain manual or incremental release items. If you do not specify any lots and locators for ingredients, products, or byproducts, then the Incremental Backflushing batch routine displays these material lines on the Material Exceptions window.

Directly Completing a Batch

You can directly complete a batch with a status of Pending. This action completes all steps.

Closing Batches

The final step in the production cycle is closing the batch. Closing a batch prevents any further editing of the batch. Do this after you are confident all the batch information is recorded correctly. Closing a batch also closes all steps.

Canceling Batches

If a batch has a status of Pending, then it can be canceled. First unrelease the batch, and only then cancel it.

Unreleasing Batches

Unreleasing a batch reverses any completed transactions associated with the ingredients or products in the batch and recreates reservations or pending product lot records. The actual starting date is removed from the batch header. Unrelease a WIP batch by choosing Unrelease from the Actions menu of the Batch Details window. You can recreate reservations/pending lots from the transactions being reversed.

When you unrelease a batch, the application displays the question: Do you want to recreate reservations for ingredients and pending product lot records? Respond Yes to unrelease the batch and recreate reservations and pending product lots based on the information, such as lots and locators to release, in the completed transactions and No to unrelease the batch without recreating reservations and pending product lots.

Unreleasing Batch Steps

Unreleasing a WIP batch step reverses any completed resource transactions. Completed material transactions for ingredients associated to the step with a consumption type of automatic by step are also reversed.

Reverting Batches to Work in Process

When you revert a batch to work in process, the batch status changes from completed to WIP, the actual completion date is removed, and transactions for automatic yield products and byproducts are reversed.

Reverting Batch Steps to Work in Process

Reverting a batch step to work in process reverses transactions for all product and byproduct lines associated with the step with a yield type of Automatic by Step.

Reopening Batches

Reopening a batch changes its status from Closed to Completed. When you attempt to reopen a closed batch:

- Batch transactions cannot be purged.
- Batch close cannot be posted to the subledger.
- Actual costing cannot be run on the batch if the financial period is closed. You receive a warning that actual costing was run if an actual costing period is still open when you attempt to reopen a batch. You can proceed.

The application displays the question: Do you want to reopen all the steps?

- If you respond Yes, then all steps are opened.
- If you respond No, then only the batch is opened. Batch steps must be opened individually.

Reopening Batch Steps

Reopening a batch step changes the status of the step from Closed to Completed. The batch must have a status of WIP or Complete.

Understanding Phantom Batches

Phantoms are intermediate item components produced in the process of making finished goods. They are tracked in inventory only by the ingredients they consume. Phantoms provide a convenient method to embed manufactured items rather than individual raw materials into a formula. These items are specified as ingredients in a formula although they themselves are products. Explode phantoms manually or automatically.

When a production batch is created from a recipe based on a formula containing phantoms, each of the ingredients set up as an automatic phantom is exploded to generate a batch that produces the ingredient. This is a phantom batch. The formula used in the phantom batch could itself contain ingredients set up as phantoms. These individual components could also result in generating additional phantom batches. A phantom batch allows reservation and transaction actions only. All the other batch actions can only be performed on the parent batch.

Items set up as manual phantoms are not exploded automatically and are exploded manually. If the phantom is not exploded, then the only way that the parent batch can be released is to change the item properties of the phantom ingredient so that it is no longer a phantom. Once this is done, the ingredient is treated identically to an ingredient consumed from inventory.

When all required phantom explosions are completed, the structure of batches resembles a tree with branches, so that the lowest level batches yield products for the higher levels to consume as ingredients.

If you perform incremental backflushing on a batch that has a phantom ingredient set up as an incremental release item, then the phantom batch is also backflushed in the same ratio used for the parent batch.

Terminating Batches

Choose Terminate from the Actions menu of the Batch Details window to terminate a batch. This is used when you want to terminate batch processing. The batch status is changed to Completed and the Terminated indicator is set. Terminating a batch does not affect material or reserved quantities. Adjust these quantities after termination.

Using the Process Execution Workbench Navigator

The following information is a summary of more detailed discussions found in the *Oracle Applications User's Guide*. In addition to the standard menu and tool palette, a hierarchical navigator displays the objects in a treelike framework known as a workbench.

Node and Leaf

The top-level nodes in the navigator are expanded to display groups of individual objects. Lower-level nodes, and the objects they contain, are indented to indicate that they belong to these higher-level nodes. The terminal node in a branch is called a leaf node.

Data Organizer

The Data Organizer groups objects on separate tabs. Each has a unique icon and its own hierarchy. Data Organizer tabs group batches and firm planned orders. Refer to the "Identifying Nodes and Tabs on the Navigator" topic for specific nodes and tabs used in Process Execution.

Summary Views

Summary views provide the highest level of business information and only display information. When you select any container on the Data Organizer, the summary view can also list the contents of the container in a multirecord block.

Detail Views

Detail views let you display and edit information. Refer to the *Oracle Applications User's Guide* for more information on navigation.

To navigate the application from the workbench:

The following is a typical flow through the Process Execution application:

1. Logon to your assigned Responsibility.
2. Choose **Workbench** from the **Navigator** menu.

3. Click the region that contains the object type of interest. For example, the Process Execution Workbench includes these tabs:
 - Batches
 - Firm Planned Orders
4. Select the appropriate **View By** field. This field presents records sorted and grouped by the selection you make. The Process Execution View By fields are:
 - Organization
 - Firm Planned Order or Batch, depending on the tab selected
 - Status
 - Product
5. Use one of the following methods to find the appropriate folder:
 - Expand or collapse entries in the hierarchical Data Organizer.
 - Find the appropriate object from the results. Optionally, save the data or query in a Personal or Public folder.
6. Select the object in the Summary View and click **Details**.
7. Perform actions on the selected object.
8. Navigate from the detailed view to other related windows.

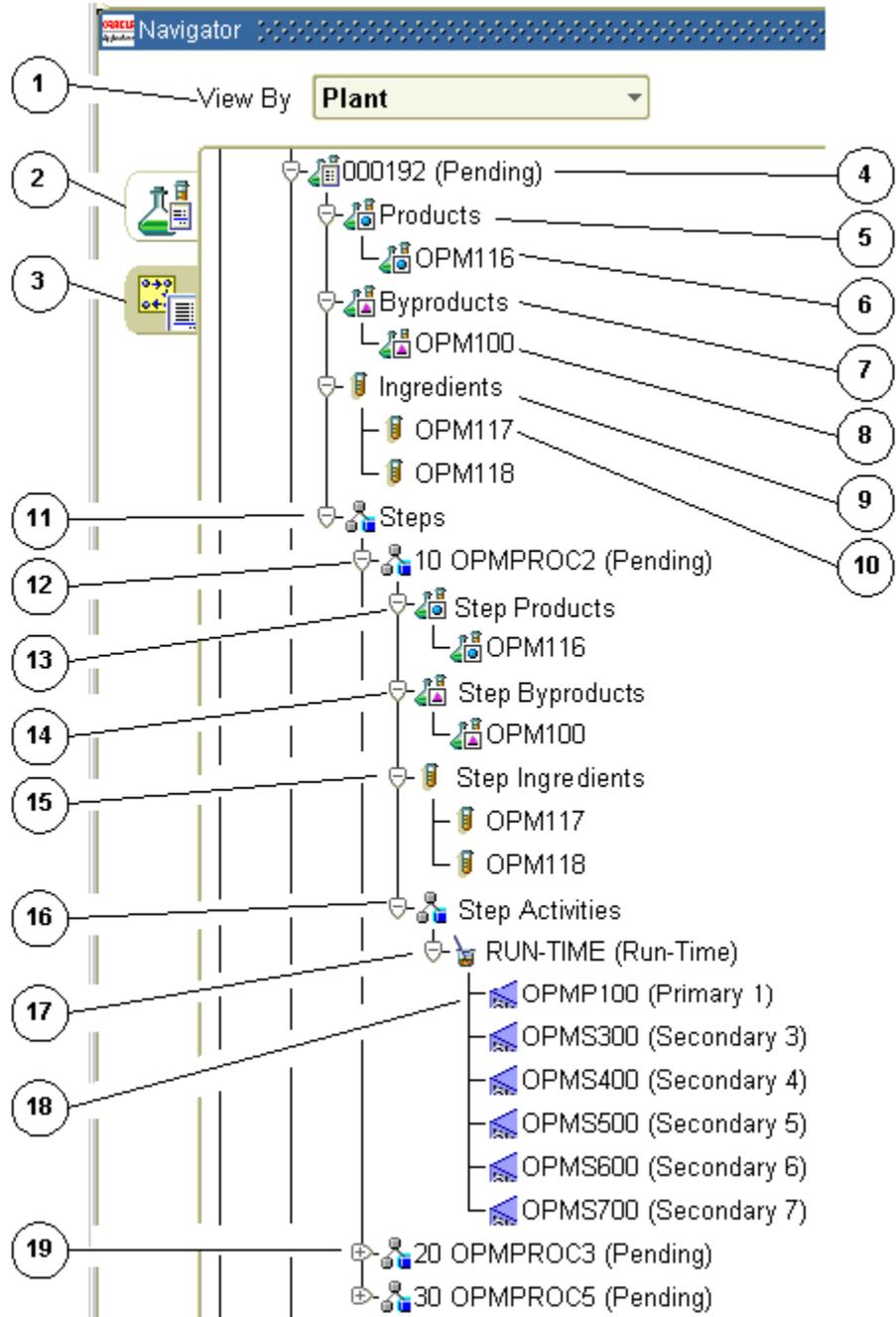
Identifying Nodes and Tabs on the Navigator:

The following lists some of the typical elements that display on the navigator when you view a batch by the organization scheduled to manufacture it:

- 1 is the View By box to view the list by Organization, Status, Batch, or Product.
- 2 is the Batches tab. Click it to display all batches available.
- 3 is the Firm Planned Orders tab. Click it to display all firm planned orders available.
- 4 is batch 000192 with the status Pending.
- 5 is the Products node for the batch.
- 6 is the product produced by the batch.

- 7 is the Byproducts node for the batch.
- 8 is the byproduct produced by the batch.
- 9 is the Ingredients node for the batch.
- 10 is the first of two ingredients used in the batch.
- 11 is the Steps node for the batch.
- 12 is step 10 in the batch. This batch step has a status of Pending.
- 13 is the Step Products node for step 10.
- 14 is the Step Byproducts node for step 10.
- 15 is the Step Ingredients node for step 10.
- 16 is the Step Activities Node for step 10.
- 17 is an activity in step 10.
- 18 is a batch resource used to perform the activity.
- 19 is step 20 in the batch. It has not been expanded.

The following graphic illustrates the previously described nodes and tabs in the navigator window:



Setting Up

The Oracle Process Manufacturing Process Execution application is seamlessly integrated to the Product Development application. Therefore, setup in Oracle Process Manufacturing Process Execution is limited to modifications that are associated to recipes and validity rules in order to produce the production batch. This topic provides the setup requirements.

This chapter covers the following topics:

- Setting Up in Other Applications
- Setting Up Parameters
- Setting Up Profile Options

Setting Up in Other Applications

Following find the setup that is required in other applications. Set up these prerequisites prior to running the Oracle Process Manufacturing (OPM) Process Execution application. Refer to the details for setting up these requirements provided in the application user's guides indicated. Depending on your individual requirements, there may be OPM related or additional setup required. If this is the case, then the details are provided below.

Setting Up in Oracle Inventory

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

- Inventory Organization
Required
- Organization Parameters
Required

- Subinventories
Required
- Locators
- Unit of Measure Classes
Required
- Units of Measure
Required
- Master Item
Required
- Organization Items
Required

Set the Process Execution Enabled flag on the Process Manufacturing tab. Enter Supply Subinventory, Supply Locator, Yield Subinventory, and Yield Locator on the Process Manufacturing tab to specify a default subinventory and locator from which to consume and yield the item.

Enter Fixed and Variable leadtimes on the Lead Times tab to calculate the duration of a batch. The leadtimes are for production of a single unit.

- Material Status codes
- Picking Rules
- Pick Slip Grouping Rules

Setting Up in Oracle Warehouse Management System

Set up the following in Oracle Warehouse Management System (WMS) application for a WMS-enabled Organization. Refer to the *Oracle Warehouse Management User's Guide* for details.

- Organization Parameters
Required
- Picking Rules
- Pick Slip Grouping Rules

Setting Up in Oracle Bills of Material

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

Setting Up in Oracle Process Manufacturing Product Development

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

- Product Development Parameters

Required

- Formulas

Required

- Activities

- Operations

- Routings

- Recipes

Required

- Recipe Validity Rules

Required

- Resources

- Plant Resources

- Process Parameters

Setting Up Parameters

The Oracle Process Manufacturing (OPM) Process Execution parameters are defined at the organization level. The OPM Product Development and Oracle Inventory Organization Parameters must be defined to set up OPM Process Execution parameters.

Prerequisites

- Set up organizations in the Oracle Inventory application.

- Complete setting up in OPM Product Development.

To set up OPM Process Execution parameters:

1. Navigate to the **Process Execution Parameters** window.
2. The following fields are display only and are set up on the OPM Product Development Parameters window:
 - **Name** is the name of the organization.
 - **Plant** is selected if the current organization is a plant.
 - **Laboratory** is selected if the current organization is a laboratory.

Batch Setup

3. Select **Display Unconsumed/Unyielded Material** to view the unconsumed ingredients and unyielded products when a batch is complete.
4. Select **Autoconsume From Supply Subinventory Only** to consume ingredients automatically only from the supply subinventory.
5. Enter **Supply Subinventory** as the subinventory from which to consume ingredients by default. Once the ingredient line is created, this value is not used. This is used as the default when a supply subinventory is not specified on the Organization Items window in the Oracle Inventory application. Required.

Refer to the *Oracle Inventory User's Guide* for more information on this window.
6. Enter **Supply Locator** to indicate the locator from which to consume ingredients by default. Note that this field is available only when a supply subinventory is defined. Required.
7. Enter **Yield Subinventory** to indicate the subinventory to which products and byproducts are yielded by default. Once the product line is created this value is not used. This is used as the default when a yield subinventory is not specified on the Organization Items window. Required.
8. Enter **Yield Locator** to indicate the locator to which products and byproducts are yielded by default. Note that this field is available only when a yield subinventory is defined.
9. Set **Allow Material Deletion** to:
 - **Pending** to allow material deletion only when a batch is pending.
 - **Pending and WIP** to allow material deletion when a batch is in pending or WIP

status.

10. Set **Validate Plan Dates** to:
 - **Validate Both Planned Dates** to validate both planned start and planned completion dates, against the validity rule date range, when creating or rescheduling a batch or firm planned order.
 - **Validate Planned Start Date Only** to validate only planned start dates, against the validity rule date range, when creating or rescheduling a batch or firm planned order.
11. Set **Incremental Backflush Factor** to:
 - **Single Product** to calculate the incremental backflush factor as a ratio of incremental quantity of an item to WIP planned quantity of a single product.
 - **Total of Product** to calculate the incremental backflush factor as a ratio of the incremental quantity of an item to total WIP planned quantity of all products.
12. Enter number of days in **Rule Based Reservation Time Fence**. Detailed reservations based on picking rules are created for batches which have material requirement date within this number of days. Required.

Create Batch

13. Select **Check Shortages** to check inventory shortages during batch creation. The shortages are checked at the inventory organization level.
14. Select **Copy Formula Text** to copy text from the formula header and details to the batch header and details during the batch creation process.
15. Select **Copy Routing Text** to copy text from routing steps, activities, and resources to the batch steps during batch creation.
16. Select **Create High Level Reservations** to create reservations at the item level for ingredients during batch creation. Note that high level reservations are not created for lot indivisible items.
17. Enter a **Reservation Time Fence** as the number of days within which high level reservations are made during batch creation. The material requirement dates must be within this time fence to create high level reservations during batch creation. If Create High Level Reservations is set to NO, then this field is not enabled. Required.
18. Select **Create Move Order** to create move orders during batch creation for the ingredients that do not have sufficient inventory in the supply subinventory.

19. Enter a **Move Order Time Fence** as the number of days within which a move order can be created for an ingredient. The material requirement dates must be within this time fence to create move orders. If Create Move Orders parameter is set to NO, then this field is not enabled. Required.

Batch Steps

20. Select **Step Controls Batch Status** to allow a step to control the status of the batch. For example, if the batch is pending and a step is released, then the batch is also released.
21. Select **Backflush Resource Usage** to backflush resource usage when incremental backflushing is performed on the product.
22. Select **Default Actual Resource Usage** to copy the planned resource usage to the actual resource usage upon step completion when the actual resource usage has not been entered.
23. Select **Calculate Interim Resource Usage** to calculate the actual step quantity and resource usages when a step is in WIP status. This only applies when using Automatic Step Quantity Calculation.
24. Select **Allow Qty Below Min Capacity** to allow a resource process quantity to be less than the resource capacity.
25. Select **Display Non Working Days** to display the nonworking days in the Production Scheduler.

Document Numbering

26. Set **Batch Numbering** as:
 - **Automatic** to generate the batch numbers automatically.
 - **Manual** to enter a batch number manually.
27. Enter the last batch number assigned in **Batch Last Assigned**, if using Automatic numbering for batches. The automatic batch numbering starts by adding one to this number. Required.
28. Set **Firm Planned Order Numbering** as:
 - **Automatic** to generate the Firm Planned Order (FPO) numbers automatically.
 - **Manual** to enter a FPO number manually.
29. Enter the last FPO number assigned, if using Automatic numbering for FPOs. The automatic numbering of FPOs starts by adding one to this number. Required.

Setting Up Profile Options

Each applications user's guide provides details on how the application uses profile options. Set a value for selected profile options to specify how the application controls access to and processes data. Set up Oracle Process Manufacturing (OPM) profile options prior to implementation. 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 to view or set your profile options at the user level. Consult the Oracle Applications System Administrator's Guide for a list of profile options common to all Oracle Applications.

GME: Batch Prefix for WIP Entities

This profile option specifies the alphanumeric string to add to the batch number to form the WIP Entity Name.

Default

Batch

Options

Alphanumeric character string

Recommended Change Level

Site

GME: FPO Prefix for WIP Entities

This profile option specifies the alphanumeric string to add to the Firm Planned Order number to form the WIP Entity Name.

Default

FPO

Options

Alphanumeric character string

Recommended Change Level

Site

Firm Planned Orders

This topic provides a general understanding of firm planned orders, including how to find one once it is created on the Create Batch/Firm Planned Order window. You are shown how to modify a firm planned order, how to select validity rules, and reroute it. You are also shown how to reschedule the firm planned order. This topic also discusses how to convert the firm planned order to a batch, how to display material details in the order, and how to scale the firm planned order. Creating a firm planned order is similar to creating a batch.

Refer to "Creating a Batch or Firm Planned Order" for more information on creating a firm planned order.

This chapter covers the following topics:

- Requirements
- Understanding Firm Planned Orders
- Finding a Firm Planned Order
- Editing a Firm Planned Order
- Rerouting a Firm Planned Order
- Rescheduling a Firm Planned Order
- Converting a Firm Planned Order to a Batch
- Scaling a Firm Planned Order

Requirements

The following answers some questions regarding firm planned orders in Process Execution.

Can the firm planned order be used as a material planning tool?

Yes. Although the firm planned order does not commit onhand inventory, it is a useful

planning tool, since it serves as both a reminder of future production events and can be used to create batches. The pending supply and demand from a firm planned order is visible to and used by Oracle Process Manufacturing Process Planning applications.

Using the Firm Planned Order as a Planning Tool

A firm planned order is similar to a production batch in that it creates a time phased supply and demand of material . However, the firm planned order itself does not commit current onhand inventory. This distinction separates medium and long range demand from close range production batch demand. Inventory cannot be reserved against a firm planned order. However, the firm planned order can be converted into multiple, simultaneous, or consecutive batches. Therefore, it is possible for firm planned orders to be used for aggregate production planning or as a multi-batch entry tool.

Can you reschedule a firm planned order?

Yes. Firm planned orders can be rescheduled and subsequently modified using the Reschedule window available from the Firm Planned Order: Details window.

Reschedule or Modify Firm Planned Orders Quickly

The Reschedule window is used to change the Planned Start date or Planned Completion date fields. The application recalculates the field that was not changed. You can also scale firm planned orders that are not yet converted to batches.

Can you reroute a firm planned order?

Yes. A firm planned order can be rerouted using the Reroute option from the Actions menu of the Firm Planned Order: Details window.

When you choose Reroute, the Recipe Validity Rules Summary dialog box displays and is used to select a validity rule with a different routing.

Can you scale a firm planned order?

Yes. A firm planned order can be scaled using the Scale Batch window.

The Scale Batch window enables you to scale a batch or firm planned order by a percentage or a specific amount.

Understanding Firm Planned Orders

Firm Planned Orders are designed for medium and long range production planning. Inventory planners manage discrepancies between net requirements and actual orders that cover them. Unplanned events can change gross requirements. Planners cannot change the actual quantities of these gross requirements directly, however they can change the timing and quantities of material on orders. The firm planned order enables them to do this.

Creating a Firm Planned Order

You create firm planned orders:

- From the MRP Action Messages Inquiry.
- From an Oracle Applications Advanced Planning and Scheduling Planner Workbench run.
- On the Create Batch/Firm Planned Order window.
- By selecting New on the Find Firm Planned Orders window.
- By selecting New on the Find Firm Planned Orders window from the Process Execution Workbench.

Firm planned orders serve as a guideline for batch creation. When you convert a firm planned order to one or more batches, the application selects the appropriate formula or recipe and validity rule to use. If more than one validity rule exists, then select the appropriate one for the production run. The application displays the appropriate Recipe Validity Rules Summary window for this selection. If you are converting a firm planned order to more than one batch, then you can use one validity rule for all batches, or you can select individual validity rules for each batch. Since batches are created from firm planned orders based on a formula or recipe that is set up in the Oracle Process Manufacturing (OPM) Product Development application, and not on the firm planned order itself, you cannot edit the products, ingredients, or byproducts on the firm planned order. Since the batch is based on a formula and not directly on the firm planned order, you cannot edit the quantities of these items directly. If you were permitted to edit these fields on the firm planned order, then the changes would be lost when you converted the firm planned order to a batch. However, you can scale a firm planned order. Since a batch is based on the firm planned order product quantity, the batch is automatically scaled when it is created.

Refer to "Creating a Batch or Firm Planned Order" for more information.

Finding a Firm Planned Order

The Find Firm Planned Orders dialog box lets you search for firm planned orders that are created for a plant.

Prerequisites

- Create a firm planned order.

To find a firm planned order:

1. Navigate to the Find Firm Planned Orders dialog box.
2. Make no entries to search all records. Enter any of the following criteria to narrow the search:
 - **Status** of the firm planned order as:
 - **Canceled** to find canceled firm planned orders.
 - **Converted Firm Planned Order** to find firm planned orders that were converted to batches.
 - **Pending** to find pending firm planned orders.
 - **Document** number to find a specific firm planned order using its document number.
 - **Step number** to find a specific batch using its step number.
 - **Recipe** and **Version** to find firm planned orders that use a specific recipe or recipe and version combination.
 - **Formula** and **Version** to find firm planned orders that use a specific formula or formula and version combination.
 - **Routing** and **Version** to find firm planned orders that use a specific routing or routing and version combination.
 - **Product** to find firm planned orders that produce specific product.
 - **Revision** to find firm planned orders that produce a specific revision of the product.
 - **Planned Dates** for the firm planned order, including its:
 - **From Start** date and **To Start** date to find a specific range of planned starting dates for firm planned orders.
 - **From Completion** date and **To Completion** date to find a specific range of planned completion dates for firm planned orders.
 - **From Required** date and **To Required** date to find a specific range of dates firm planned orders are required.
3. Click **Find**. The **Firm Planned Order: Details** window displays the results of the

search.

To enter a new firm planned order from the Find Firm Planned Orders window:

1. Click **New**.
2. Enter the new firm planned order as described in "Creating a Batch or Firm Planned Order."

Editing a Firm Planned Order

The Firm Planned Order: Details lets you edit an existing firm planned order. You can edit text, convert the firm planned order to a batch, cancel the order, reroute or reschedule, and scale the Firm Planned Order.

You can use folders and flexfields with this window.

See: *Oracle Applications User's Guide and Oracle Applications Flexfields Guide*

Prerequisites

- Create a firm planned order.

To edit a firm planned order:

1. Navigate to the **Firm Planned Order: Details** window.

Main

2. The following fields are display only:
 - **Document** is the document number assigned when you created the Firm Planned Order.
 - **Status** is the current status of the Firm Planned Order as:
 - **Pending** indicates that the order is pending.
 - **Canceled** indicates that the firm planned order is canceled.
 - **Converted Firm Planned Order** indicates that the Firm Planned Order has been converted to one or more batches.
 - **Step** is the step number for a Firm Planned Order query.
 - **Recipe** is the code for the recipe used in the Firm Planned Order.

- **Recipe Version** is the version of the recipe used for the Firm Planned Order.
 - **Parent** is the parent Firm Planned Order number if the Firm Planned Order is a phantom.
 - **Phantom** is selected for a phantom Firm Planned Order.
 - **Planned Completion** displays the date that is calculated automatically from the routing or item leadtime.
3. **Planned Start** displays the planned start date for the Firm Planned Order. This field defaults from the date assigned on the Create Batch/Firm Planned Order window. Edit this field for a Pending Firm Planned Order by choosing Reschedule from the Actions menu.
 4. Enter the **Required Completion** date for the Firm Planned Order.

Additional Information

5. The following fields are display only:
 - **Formula** is the code for the formula used in the Firm Planned Order.
 - **Automatic Step Calculation** is selected when the automatic step quantity calculation feature is enabled.
 - **Formula Version** is the formula version used in the Firm Planned Order.
 - **Routing** is the code for the routing used in the Firm Planned Order. Edit this field on a Pending Firm Planned Order by choosing Reroute from the Actions menu.
 - **Routing Version** is the routing version used in the Firm Planned Order.
 - **Enforce Step Dependency** is selected when Enforces Step Dependency is set on the routing. Refer to the "Understanding Batches" topic for a complete explanation of this feature.
 - **Recipe Description** is a brief description of the recipe.
 - **Formula Description** is a brief description of the formula.
 - **Routing Description** is a brief description of the routing.
6. **Routing** is the code for the routing used in the Firm Planned Order. Edit this field on a Pending Firm Planned Order by choosing Reroute from the Actions menu.
7. **Firmed** is selected when the WPS engine should not reschedule the Firm Planned

Order. You can edit this indicator.

Refer to "Defining Firmed Batches" in the *Oracle Process Manufacturing process planning User's Guides* for additional information.

Ingredients

8. The following fields are display only:

- **Line** is the Firm Planned Order line number for the ingredient.
- **Item** is the item code for the ingredient.
- **Description** is a brief description of the ingredient as it appears on the Item Master.
- **Revision** is the revision of the item in the line.
- **Original Qty** is the initial quantity of each ingredient when the Firm Planned Order was first created. This field is a baseline from the initial creation of the Firm Planned Order, and cannot be changed.
- **Planned Qty** is the quantity of ingredients that were planned. The Planned Qty can only be changed by scaling the Firm Planned Order.
- **UOM** is the unit of measure in which the quantities are expressed.
- **Consumption Type** displays the type of ingredient consumption as:
 - **Automatic** when ingredients are consumed automatically when the batch is released.
 - **Manual** when ingredients are consumed manually.
 - **Incremental** when ingredient quantities are backflushed by incremental backflushing.
 - **Automatic by Step** when ingredients are consumed automatically as the step is released.
- **Requirement Date** is the date the ingredient is planned to be consumed.
- **Subinventory** is the supply subinventory of the line.
- **Locator** is the supply locator of the line.
- **Contribute to Yield** displays as Yes if the ingredient contributes to yield.
- **Scale Type** displays:

- **Fixed** if the ingredient is not scalable.
 - **Proportional** if the ingredient is scalable.
 - **Integer** if the ingredient is scalable by multiples.
- **Scale Multiple** displays the scaling increment for the ingredient if the scale type is Integer.
 - **Scale Rounding Variance %** displays the percent variance allowable for rounding when the Scale Type is Integer.
 - For Integer scale type, **Rounding Direction** displays
 - **Down** if the acceptable rounding direction is down to the nearest multiple.
 - **Up** if the acceptable rounding direction is up to the nearest multiple.
 - **Either** if the acceptable rounding direction is up or down to the nearest multiple.
 - **Dispensable** is selected if the ingredient can be dispensed.
 - **Scrap Factor %** is the anticipated percentage of ingredient lost in adding the ingredient to the manufacturing process. For example, if the Scrap Factor is 10 percent, then an additional 10 percent of material is added to accommodate for this loss.
 - **Scrap Qty** is the anticipated quantity of ingredient lost in adding the ingredient to the manufacturing process.
 - **Phantom Type** displays as:
 - Not a phantom indicates the ingredient is not a phantom item.
 - Automatic indicates that the ingredient is a phantom item that is exploded automatically.
 - Manual indicates that the ingredient is a phantom item that requires manual explosion from the Actions menu.
 - **Phantom** displays as:
 - Exploded if the phantom ingredient is exploded.
 - Unexploded if the phantom ingredient is not exploded.

- **Contribute to Step Qty** displays Yes if the ingredient contributes to the step quantity.
- **Step** is the step associated to the ingredient.

Products

9. The following fields are display only:

- **Line** is the Firm Planned Order line number for the product.
- **Item** is the item code for the product.
- **Description** is a brief description of the product.
- **Revision** is the revision of the item on the line.
- **Original Qty** is the initial quantity of each product when the Firm Planned Order was first created. This field is a baseline from the initial creation of the Firm Planned Order, and cannot be changed.
- **Planned Qty** is the quantity of product that is planned to be produced. The Planned Qty can only be changed by scaling the Firm Planned Order.
- **UOM** is the unit of measure in which the quantities are expressed.
- **Yield Type** displays the type of product yield as:
 - Automatic when products are yielded automatically when the batch is completed
 - Manual when products are yielded manually.
 - Incremental when product yield is calculated by incremental backflushing.
- **Yield Date** is the date the material is planned to be yielded, based on the planned completion date of the Firm Planned Order or step.
- **Subinventory** is the yield subinventory.
- **Locator** is the yield locator.
- **Scale Type** displays as:
 - Fixed if the product is not scalable.
 - Proportional if the product is scalable.

- **Cost Allocation** is the decimal cost allocation for the product.
- **Contribute to Step Qty** displays Yes if the product quantity is used in calculating step quantities.
- **Step** is the step associated to the product.

By-Products

10. The following fields are display only:

- **Line** is the Firm Planned Order line number for the byproduct.
- **Item** is the item code for the byproduct.
- **Description** is a brief description of the byproduct.
- **Revision** is the item revision on the line.
- **Original Qty** is the initial amount of each byproduct when the Firm Planned Order was first created. This field is a baseline for the initial creation of the Firm Planned Order, and cannot be changed.
- **Planned Qty** is the quantity of byproduct that is planned to be produced. The Planned Qty can only be changed by scaling the Firm Planned Order.
- **UOM** is the unit of measure in which the quantities are expressed.
- **By-Product Type** displays as any one of the following:
 - Rework
 - Sample
 - Waste
 - Yield
- **Yield Type** displays the type of byproduct yield as:
 - Automatic when byproducts are yielded automatically when the Firm Planned Order is completed.
 - Manual when byproducts are yielded manually.
 - Incremental when byproduct yield is calculated by incremental backflushing.

- Automatic by Step when byproducts are yielded automatically as the step is completed.
- **Yield Date** is the date the material is planned to be yielded, based on the planned completion date of the Firm Planned Order or step.
- **Subinventory** is the yield subinventory for the item.
- **Locator** is the yield locator for the item.
- **Scale Type** displays:
 - Fixed if the byproduct is not scalable.
 - Proportional if the byproduct is scalable.
- **Contribute to Step Qty** displays Yes if the product quantity is used in calculating step quantities.
- **Step** is the step associated to the byproduct.

To edit text in a Firm Planned Order:

1. Choose **Edit Text** from the **Tools** menu. The **Select Text Paragraph** window displays.
2. Make appropriate text changes.

To display process instructions:

Choose **Process Instructions** from the **Tools** menu.

To display the workday calendar:

Choose **Workday Calendar** from the **Tools** menu.

To display recipe validity rules:

Choose **View Validity Rule** from the **Tools** menu.

To navigate from a phantom Firm Planned Order to its parent Firm Planned Order:

Choose **Edit Parent** from the **Tools** menu from the phantom Firm Planned Order.

To navigate to the phantom Firm Planned Order that produces a phantom ingredient:

1. Select a phantom ingredient.
2. Choose **Edit Phantom** from the **Tools** menu.

To convert a Firm Planned Order to a batch:

1. Choose **Convert To Batch** from the **Tools** menu.
2. Convert a Firm Planned Order into one or more batches as described in "Converting a Firm Planned Order to a Batch."

To scale a Firm Planned Order:

1. Choose **Scale Firm Planned Order** from the **Tools** menu.
Refer to "Scaling a Firm Planned Order" for more information.

Rerouting a Firm Planned Order

The Recipe Validity Rules Summary dialog box displays when you reroute a firm planned order so that you can select the appropriate validity rule.

Prerequisites

- Create a firm planned order.

To reroute a firm planned order:

1. Navigate to the **Firm Planned Order: Details** window.
2. Choose **Reroute** from the **Actions** menu. The Recipe Validity Rules Summary dialog box displays so that you can select a validity rule with a different routing. A message displays when no other validity rules exist for the formula.
3. Select a new validity rule.
4. The following message displays:
"Use Workday Calendar?"
5. Click **Yes** to use the workday calendar.

Refer to the *Oracle Process Manufacturing Product Development User's Guide* for a

complete discussion of selecting and using recipe validity rules.

Rescheduling a Firm Planned Order

The Reschedule dialog box is available from the FPO: Material Details window. You use it to change a scheduled firm planned order. You can change the planned start date and time and the planned completion date and time on a firm planned order.

By changing the planned start date and time, you also change the planned start date and time for any pending ingredient transactions. By changing the planned completion date and time, you also change the planned completion date and time for any pending product and byproduct transactions.

If you change either the Planned Start or Planned Completion field, then the application queries whether to apply the change to the other field. If you respond Yes, then the application calculates the difference between the original date and time and the new date and time, and applies this difference to the entry in the field you did not enter. For example, if you add three days to the planned start date three days, then the application adds three days to the planned completion date and time.

Prerequisites

- Create a firm planned order.

To reschedule a firm planned order:

1. Navigate to the Reschedule dialog box.
2. Enter one of the following:
 - **Planned Start** date for the firm planned order.
 - **Planned Completion** date for the firm planned order.
3. Select **Use Workday Calendar** to use the Workday Calendar for rescheduling the firm planned order.
4. Click **OK**. **The following message displays:**

Do you want the application to calculate the other date based on the batch duration? If you click **No** then date gaps or date truncation may occur.
5. Click **Yes** to recalculate either the Planned Start or Planned Completion dates based on the date entered in step 2.
6. Click **OK**.

Converting a Firm Planned Order to a Batch

The Convert Firm Planned Order To Batch window enables you to create one or more batches based on the firm planned order.

This window displays when you choose Convert to Batch from the Tools menu of the Firm Planned Orders: Details window. After you complete all required fields on the Convert Firm Planned Order To Batch window, the Recipe Validity Rules Summary window displays when there is more than one validity rule. You can use a different validity rule for the batch than you used for the firm planned order.

Leadtime defaults are based on the item leadtimes, but can be changed. The Use Leadtime Entered indicator lets you select whether to use the leadtime, or have the batch creation process use the calculated duration from the production rules or the routing, if one exists.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Create a firm planned order.

To convert a firm planned order to a batch:

1. Navigate to the **Convert Firm Planned Order To Batch** window.
2. **Product** displays the product code and product description for the primary product produced by the firm planned order.
3. Enter the **Start the Completion** date. Required.
4. Select **Use Workday Calendar** to schedule the Firm Planned Order-to-batch conversion according to the workday calendar associated to the organization.
5. Enter the **Quantity Per Batch** as the quantity of product to produce by each batch created from the firm planned order. You can change the default value. Required.
6. **Product Quantity** displays the quantity of product to produce by the batch.
7. Enter the total number of **Batches** to produce from the firm planned order. The default is one. If you enter a Quantity Per batch that is less than half the Product Quantity, then it changes to Product Quantity divided by the Quantity Per Batch. Required.
8. The following fields are display only:

- **Assigned** displays a quantity that is equal to the quantity per batch multiplied by the number of batches, and can be greater than the initial Firm Planned Order quantity.
 - **Unassigned** displays the difference between the product quantity and the assigned quantity. This quantity remains in the Firm Planned Order.
9. Enter the **Offset Type** as the multiple batch scheduling method to use by selecting:
- **Start to Start** if the Firm Planned Order requires scheduling of several batches that can start one after the other, their start dates separated only by any offset that is specified in the Batch Offset field, or start simultaneously if you enter a zero offset.
 - **Finish to Start** if the Firm Planned Order requires scheduling of several batches that can only start after each individual batch has finished.
- Finish to Start is required when multiple batches are scheduled.
10. Enter a **Batch Offset** as the amount of time between batches. This field is dependent on the scheduling method selected in the Offset Type field.
- If you select the **Start to Start** scheduling method, then the value entered indicates the number of hours from the start of one batch to the start of another batch. For example, if you enter an offset value of 2, and the first batch starts at 8:00 a.m., then the next batch begins at 10:00 a.m.
 - If you select the **Finish to Start** scheduling method, then the value entered indicates the number of hours from the end of one batch to the start of another batch. For example, if you enter an offset value of 2, and the first batch ends at 10:00 a.m., then the next batch begins at noon.
11. Enter the **Leadtime** as the number of hours required to manufacture one batch. This is added to the Planned Start date to calculate the Planned Completion date. If the leadtime can be calculated from the batch steps or item leadtime, then any value entered here is overridden unless you select Use Leadtime Entered. Required.
12. Select **Use Leadtime Entered** to enforce the leadtime you entered. Deselect this indicator to use the calculated duration from the item leadtime or the routing.
13. The following fields are display only:
- **Seq** is the sequential number for each batch.
 - **Batch Num** is the batch document number. This is initially assigned as NEW. This field is editable when you use manual document numbering.

- **Batch Quantity** displays the quantity of product to produce by the batch.
- **Planned Start** displays the planned start date and time for the batch.
- **Planned Completion** displays planned completion date and time for the batch.

To display the workday calendar:

Click **Workday Calendar** to display the workday calendar.

Scaling a Firm Planned Order

The Scale Batch window enables you to scale a batch or firm planned order by a percentage or a specific amount. Enter a percentage to scale any selected item up or down by a percent of the displayed quantity. For example, from the product, if you enter 100 percent, then the product quantity is scaled up by 100 percent, or doubled, and the ingredient quantities are increased accordingly. If you enter -50, or negative fifty percent, then the product quantity is decreased by half. Alternatively, you can enter the desired quantity to scale to.

To scale a firm planned order refer to the "Scaling a Batch or Firm Planned Order" topic.

Batch Creation

This topic provides a basic understanding of batches and batch status. You are shown how to find a batch, create a batch or firm planned order, select validity rules for a batch, reroute a batch, pick a batch, and how to edit a batch. The process of finding and editing batch details is presented. You are also shown how to find individual batch steps and edit specific information in them, including batch step dependencies, and step activities. Other topics covered are the editing of batch step resources, the association of batch steps to items, and using the theoretical yield calculation. You are shown how to scale a batch or firm planned order, and how to reschedule a batch.

This chapter covers the following topics:

- Requirements
- Understanding Batches
- Understanding Batch Statusbatch statusoverview
- Finding a Batch
- Creating a Batch or Firm Planned Order
- Substituting Items During Batch Creation
- Selecting Validity Rules for a Batch
- Rerouting a Batch
- Editing a Batch
- Picking Ingredients for a Batch
- Defining Picking Rules
- Understanding Task Creation
- Understanding Cross Docking
- Understanding Batch Step Quantity Calculations
- Finding Batch Steps
- Editing Batch Steps

- Editing Batch Step Dependencies
- Editing Batch Step Activities
- Editing Batch Step Resources
- Adding or Modifying Process Parameters
- Associating Batch Steps with Items
- Using the Theoretical Yield Calculation
- Understanding Batch Scaling
- Scaling a Batch or Firm Planned Order
- Rescheduling a Batch

Requirements

Following are some requirements that customers have for batches in Process Execution.

Is it possible to get a list of all completed batches for a plant by financial period?

Yes. Use the Workbench Find Batches dialog box to list all completed batches in the defined financial period.

Display Batches Completed in a Financial Period

The Find Batches option on the Workbench can be used to find all completed batches in a defined financial period. Using the Advanced region on the Find Batches dialog box, enter the Actual Start Date with a Condition greater than or equal to the beginning of the financial period. Tab to the next row, and enter the Actual Start Date with a Condition less than or equal to the end date of the financial period. Click Find to list all batches in the defined period.

Does the application allow using up material that is near expiration?

Yes. By creating a batch with a defined input quantity, it is possible to scale a batch to use up ingredients before they expire.

Create Batches by Recipe, Product Output, Total Output or Total Input

The Create Batch/Firm Planned Order window provides the following methods to enter a batch or firm planned order:

- Enter a recipe when a default output quantity is required.
- Enter product output when a specific quantity of a single product is required.
- Enter total output when a total quantity of all products and byproducts yielded by the batch is required.

- Enter total input when the total quantity of all ingredients that need to be consumed is required.

Does the application support consuming ingredients in multiples rather than fractional units?

Yes. It is common for raw materials to be consumed in fractional quantities, but the Process Execution application also allows scaling and consuming ingredients in whole units.

Scale Batches by Increments

Ingredients are often consumed in full units of a specified size. For example, granulated sugar is available in 30-pound bags. When large production runs make relatively small variances in an ingredient virtually imperceptible, the application supports scaling to the closest integer quantity. Rather than specifying 87.2 pounds, integer scaling plans for 90 pounds, or three 30-pound bags.

Can a process be modeled on a process flow rather than material consumption basis?

Yes. By assigning an individual status to each batch step and interrelating steps with step dependencies, the application automatically maintains the in process status of each step based on the status of the steps dependent on it.

Understanding Batches

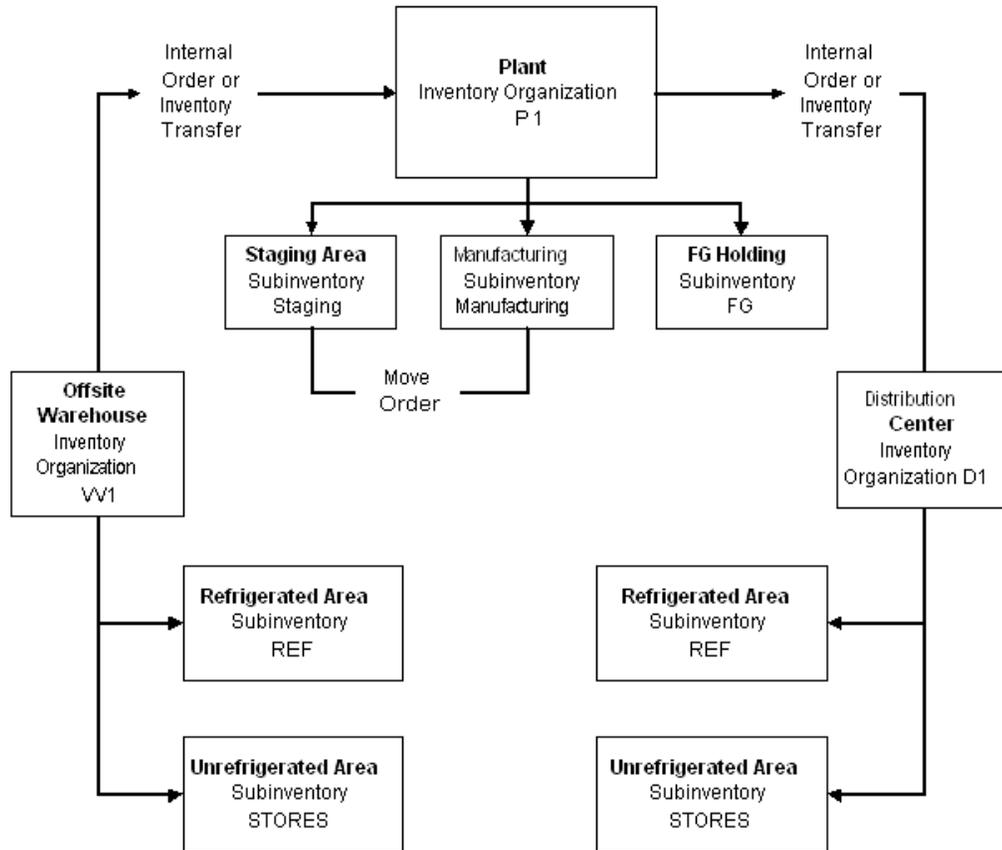
Batch Manufacturing is characterized by discrete and independent production events called batches. These events are processed through a series of steps on resources that occur at different work centers. Specific ingredients are consumed at individual batch steps. Products or byproducts are yielded at specific steps.

Continuous Manufacturing is sometimes referred to as a continuous process run. This type of production is usually done on dedicated equipment. For example, paper production is performed using continuous manufacturing. From the entry of raw material at the beater box to the output of product onto a roll, production progresses without intermission.

Organization

A typical manufacturing plant is organized into warehouse, staging area, manufacturing area, holding area, and distribution centers. Oracle Process Manufacturing (OPM) Process Execution introduces the Inventory Organization Structure that supports all the aspects of manufacturing. The following figure depicts an example of an inventory organization structure.

Inventory Organization Structure



Inventory Organization

Inventory Organization is a plant where the batches are produced or an organization that holds the inventory at specified locations. Offsite warehouses and distribution centers are also designated as inventory organizations. For example: Plant P1, Offsite Warehouse W1, Distribution Center D1.

Subinventory

Subinventory is a subdivision of an inventory organization representing either a physical area or a logical grouping of items, such as a storeroom or damaged inventory. Inventory balances are tracked here. Reservations can be placed against inventory at this level. Items can be restricted to certain subinventories. A subinventory can also be a division of a warehouse that holds inventory with similar planning and reservation characteristics. For example, staging area, manufacturing area, and distribution center.

Supply Subinventory is the subinventory from which the items required for batch production are consumed. It can be the shop floor or a staging location.

Locator is a specific physical area within a subinventory such as a row, aisle, bin, or shelf.

Supply Locator is a locator from which the items required for production are consumed.

Yield Subinventory is a subinventory where the produced items are stored.

Yield Locator is a specific physical area within the yield subinventory where the produced items are stored.

Item

A multi segment number is supported for an item in an organization and any item entered on a batch is designated in the Item Master as Process Execution-enabled. An item revision can be entered if a specific revision is consumed or produced. The default supply subinventory and yield subinventory for an item is defined within an inventory organization.

Refer to "Setting Up" for detailed information.

Refer to the *Oracle Inventory User's Guide* for additional information.

Understanding Batch Security

Your access to batches depends on the implementation of Process Execution in your facility. Contact your System Administrator when you have questions about your individual access or assigned responsibility.

Creating a Batch

Batches are created through:

- Conversion from a firm planned order.
- Conversion from a material requirements planning order as discussed in the *Oracle Process Manufacturing Planning application user's guides*.
- Entry on the Create Batch/ Firm Planned Order window.
- By selecting new on the Find Batches window.

When a batch is created, it is assigned a status of Pending.

Batch Creation Calculations

When the batch is created, the total output of the batch is divided by the routing quantity to compute a scale factor. The individual routing steps are then multiplied by this scale factor to calculate the batch step quantities. Based on these step quantities, the resource usages are computed according to the scale type assigned to each resource

(proportional, fixed, or by charge). From these resource usages, the duration of the resources, activities, steps, and batch are computed considering offsets defined at the activity and resource level. Step dependency is also considered in the calculation.

Allowing for Planned Process Loss

When creating a batch, you can allow for a planned process loss to reflect the planned percentage of material lost for a specific routing. Due to factors such as evaporation or changeovers, materials can be lost or unrecoverable in a production step. Lost materials need to be planned for to achieve the targeted process quantity for steps. The loss can vary depending on the material being processed. Therefore, a production loss factor can be defined at the routing level and this loss must be reflected in both planning for and production of ingredients associated with a particular step.

Using the Oracle Process Manufacturing Product Development Simulator and Optimizer Tool

The OPM Product Development Simulator and Optimizer windows:

- Optimize the quantities for batch material lines
- Update a batch with the result of optimized quantities
- Rebalance a batch

Refer to the *Oracle Process Manufacturing Product Development User's Guide* for a complete discussion of the Simulator and Optimizer.

Understanding Material Requirement Date

The requirement date for autoconsumption ingredients is the batch planned start date. For ingredients with consumption of automatic by step, manual, or incremental, the step planned start date is the requirement date.

When you select Completed, to complete a transaction for a manual consumption ingredient, the transaction date defaults to the system date. Similarly, when a transaction for an incremental consumption ingredient is completed either through incremental backflushing, or by selecting Completed, the transaction date also defaults to the system date. These rules apply to manual and incrementally yielded products.

Selecting Appropriate Validity Rules

When you create a batch, select a validity rule. A validity rule determines whether a recipe can be used for a particular batch. This is based on manufacturing requirements such as, product quantity, planned start, and completion dates. Process loss can be overridden at the validity rule level, since quantities at the recipe level may not represent those quantities used in manufacturing. However, the standard quantity entered on a validity rule usually does represent these quantities. You can override the

process loss on individual validity rules. Process Execution uses this process loss if it has been defined.

Workday Calendar Impact on Scheduling Batches and Firm Planned Orders

The workday calendar lets production planners specify when a plant is operational and when it is not operational. Uptime and downtime can be based on the day of week, and edited for individual days to take into account holidays, overtime, and other nonworking time. Planning applications such as Advanced Planning and Scheduling (APS) use the workday calendar when planning production. These applications do not recommend starting a batch during plant downtime.

When you create a batch, the workday calendar is used to calculate the batch duration. If you attempt to reschedule, scale, reroute, or create an existing batch or batch step, and the organization is associated to a workday calendar, then the rescheduling operation considers the workday calendar when you select Use Workday Calendar.

How does this impact other Oracle applications?

Applications such as APS that query pending resource transactions in OPM Process Execution can be affected, because resource transactions can be created in multiple segments instead of a single segment. Refer to the *Oracle Process Manufacturing process planning user's guides* for a complete discussion on setting up the workday calendar.

Implementation Considerations

Following are implementation considerations that define the limits of the workday calendar feature:

Rescheduling the Batch and Batch Steps

All dates must comply with working time available on the workday calendar if one is available for use. Steps are rescheduled by recalculating dates. This is enforced whether or not the workday calendar is used.

Date Changes for Batches and FPOs without Routing or Production Rules

If you enter dates for a batch or an FPO without a routing or a production rule, then it is assumed that the dates entered are accurate and reflect any downtime that occurs during production. The application does not consider the workday calendar to adjust for downtime under these circumstances. However, dates entered are validated against the workday calendar to warn you of scheduling during nonworking time. When the dates are accepted, the batch is created in a single, contiguous block of time.

The following actions do not make use of the workday calendar:

- Editing a step and step details
- Changing step dependencies

- Deleting a step or step details

Limitations for Staggered Activities

Following is an example of staggered activities affected by workday calendar scheduling of nonworking time:

- Act1 is the startup activity
- Act2 is the actual process
- Act3 is the cleanup

In order to model this to be a startup, process, and cleanup, stagger these activities with offsets so that they follow each other:

- Act1 has an offset of zero and usage of one hour
- Act2 has an offset of one hour and usage of two hours
- Act3 has offset of three hours and usage of one hour

Assume that:

- Act1 starts at noon and lasts until 1 p.m.
- Act2 starts at 1 p.m. and lasts until 3 p.m.
- Act3 starts at 3 p.m. and lasts until 4 p.m.

If a workday calendar is applied that has working hours for a shop day defined from noon until 2 p.m. and from 3 p.m. until 5 p.m., then the times are:

- Act1 starts at noon and lasts until 1 p.m.
- Act2 starts at 1 p.m. and lasts until 4 p.m., and consists of two transactions:
 - Transaction1: 1 p.m. to 2 p.m.
 - Transaction 2: 3 p.m. to 4 p.m.
- Act3 starts at 3 p.m. and lasts until 4 p.m. Note this is not properly sequenced, because you do not begin cleanup until Act2 is complete.

The activities are modeled to be offset from the beginning of the step and not from each other. There is currently no way to accommodate dependencies among these activities.

Understanding Warning Conditions

Warnings are issued for the reasons specified:

- If you attempt to schedule a batch that starts during nonworking time
- If you enter a planned completion date during nonworking time
- If the batch step spans nonworking time
- If the Contiguous indicator is set to Yes, and the batch spans nonworking hours

Workday Calendar Impact on Enforcing Step Dependencies

If Enforce Step Dependency is selected, then you can change either the Planned Start Date or the Planned Completion Date, but you cannot change both dates. When you change one of these dates, then the other date is disabled. This restriction is enforced because the application must recalculate all dates based on a single date change. Business rules must maintain synchrony with the underlying data already entered.

If Enforce Step Dependency is not selected, the following displays:

Do you want the application to recalculate the other date based on current resource usage? If you click No, then date gaps or date truncation can occur.

Date gaps occur when the span of the batch dates becomes larger than the calculated duration for the batch. The batch start date and batch completion date are truncated to meet the actual dates you enter on the Reschedule dialog box.

If there is no routing, then you can enter one or both dates, and no truncation errors are reported.

Terminating Batches

The Terminate Batch option on the Actions menu of the Batch Details window lets you terminate the remainder of a batch. This option is available only for WIP batches. When you terminate a batch, the application:

- Selects the Terminated indicator on batch header.
- Completes all the WIP steps without incurring more consumption or resource usage and sets indicators on these steps to Terminated.
- Cancels steps that are Pending. A Step Status of canceled is assigned.
- Deletes all pending resource transactions.
- Retains actual quantities and actual usages as they were at termination. This action does not change actual values.
- Permits entry of the actual completion date (termination date) as when completing a batch. The default is the system date.
- Completes the batch. Search for completed batches that were terminated.

- Deletes any remaining move orders and reservations.
- Deletes any pending product lots in the batches.

When a batch is terminated, the sample creation workflow notifications open are canceled. Manage any samples that are physically taken against the batch. You can edit transactions and actual quantities for a terminated batch but you cannot revert the batch to WIP.

Terminating Batch Steps

Pending steps canceled have no actual values. Phantom batches associated to pending steps are canceled regardless of their connection to a quality control sampling activity. WIP steps are completed, and are marked with the terminated indicator. Completed steps remain as they were at batch termination. A batch with a Terminated status can be closed in the same way as a Completed batch. A batch history record is created on terminating the batch. When a batch step is terminated, the sample creation workflow notifications open for this step are canceled. Manage any samples physically taken against the batch step.

Managing Insufficient On-hand Inventory

At batch release, if an automatic consumption, non-lot-or-location-controlled ingredient has insufficient on-hand quantity, and inventory cannot be driven negative, then the available quantity of material is consumed, and the remaining quantity displays in the material transaction as exception quantity on the Material Exceptions window. This only works for a plain or locator-controlled item where supply subinventory and locator is specified. For the lot-controlled items, only reservations are automatically consumed, and the reservations are a guarantee of the availability. If the actual quantity is not equal to the WIP planned quantity and the Process Execution parameter Display Unconsumed/Unyielded Material is setup, then the Material Exceptions window displays.

Understanding the Enforce Step Dependency Indicator

The Enforce Step Dependency indicator is set on the routing header. If a recipe uses this routing, then batches created from the recipe have the indicator selected on the Batch Details window.

When Enforce Step Dependency is selected, several business rules apply:

- The Step Release Type field is set to Manual to indicate the step must be released and completed manually.
- You cannot change the step dependency and step release type at the step level.
- All steps must be completed before you can complete the batch.

- All steps must be closed before you can close the batch.
- To close a step that is dependent on its previous step, the previous step must be closed.
- To unrelease the batch step, its succeeding dependent step must be pending.
- Release a step before you can complete it.
- Before you can revert a dependent batch step to work in process, revert any preceding completed or closed dependent batch steps to work in process.
- Business rules validate step start and completion dates and times for appropriate batch step rescheduling.

Refer to the "Editing Batch Dependencies" topic for definitions of step dependency.

Using Minimum Transfer Quantities

In the process of defining a routing, you can define a Minimum Transfer Quantity (MTQ) for a step. However, this limits the definition of what the routing step actually yields. By entering a MTQ value for a specific product in the batch step item association, the routing definition is enhanced beyond the ingredient level to the product level. The product must be associated to a batch step to permit the proper calculation of the time point where yield can be consumed. The value entered can be blank (null) to indicate that the material is consumed at the end of the step, or greater than or equal to zero. When a value greater than or equal to zero is entered, Advanced Planning and Scheduling (APS) identifies the point in the batch step where the material yielded can be consumed by another demand. If you only define the MTQ, then APS can only identify when the material can be taken. This does not constrain the timeframe in which the material can be consumed. Definition of a minimum delay and maximum delay, also known as a hardlink, applies this constraint to the MTQ yield point in the step for material yielded.

Record the minimum and maximum delay on the Batch Step/Batch Item Association window. This entry is in the hour unit of measure for actual calendar time. The minimum delay informs APS there is a waiting period after the MTQ yield point before material can be consumed. The maximum delay is added to the MTQ yield point to create the hard constraint for material being consumed by another batch. The maximum delay informs APS that the material cannot be consumed after the defined time point.

The values for the minimum delay and maximum delay cannot be negative. If you enter a maximum value, then the minimum must be less than or equal to it. The entry of a MTQ for any of the products is not required for the entry of stationary or hardlink values. Refer to *Oracle Process Manufacturing process planning User's Guides* for detailed information. for additional information.

Understanding Batch Status

The status of the whole batch and individual batch steps progresses from Pending to Work in Process to Completed to Closed.

Use the Batch Details window to change whole batch status. Choose an action from the Actions menu:

- From Pending to Work in Process, choose Release.
- From Work in Process to Pending, choose Unrelease.
- From Pending or Work in Process to Completed, choose Complete.
- From Completed to Work in Process, choose Revert to WIP.
- From Completed to Closed, choose Close.
- From Closed to Completed, choose Reopen.
- Choose Terminate to terminate a WIP batch.
- Choose Cancel to cancel the batch or Firm Planned Order.

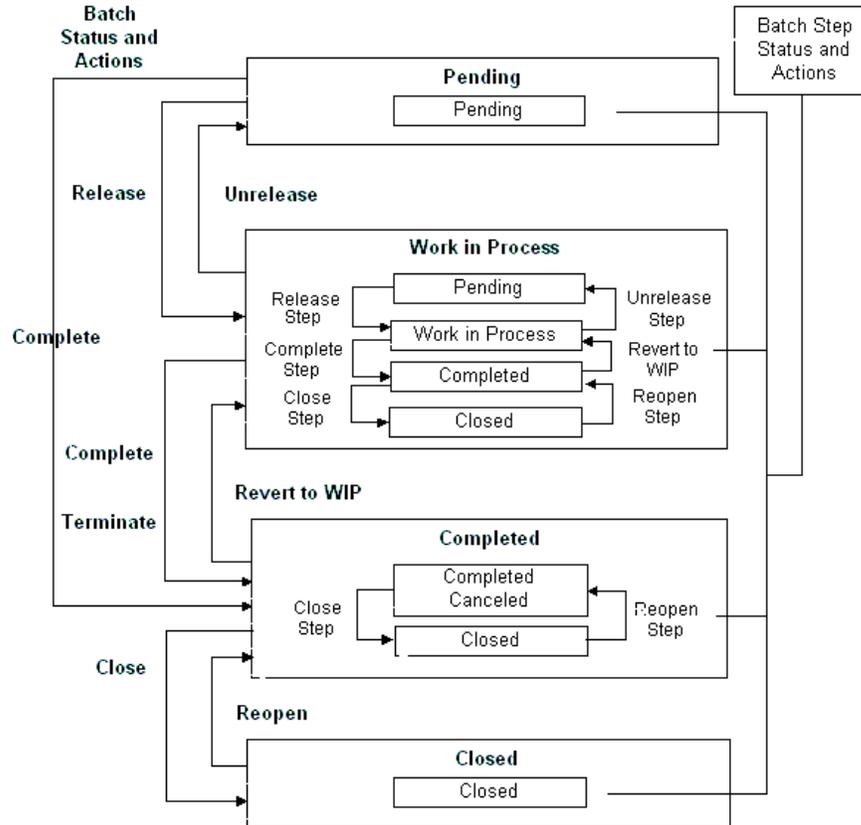
Change batch step status on the Batch Steps window.

Pending batches can only have batch steps with a status of Pending. Work in Process batches can have batch steps with a status of Pending, Work in Process, Completed, or Closed. Completed batches can have batch steps with a status of Completed or Closed. Closed batches can only have batch steps with a status of Closed.

To change batch step status, choose the action indicated from the Actions menu:

- From Pending to Work in Process, choose Release Step.
- From Work in Process to Pending, choose Unrelease Step.
- From Pending or Work in Process to Completed, choose Complete Step.
- From Completed to Work in Process, choose Revert to WIP.
- From Completed to Closed, choose Close Step.
- From Closed to Completed, choose Reopen Step.

Terminating a batch cancels any remaining pending steps. The following diagram summarizes the previous discussion:



Finding a Batch

The Find Batches dialog box lets you search for batches entered for an organization.

Prerequisites

- Create a batch.

To find a batch:

1. Navigate to the Find Batches dialog box.
2. Make no entries to search for all records. Enter any of the following criteria to narrow the search:
 - **Status** of the batch as:
 - **Canceled** to find canceled batches.

- **Pending** to find batches that are scheduled.
- **WIP** to find batches that are work in process.
- **Completed** to find batches that are complete.
- **Closed** to find batches that are closed.
- **Terminated** as:
 - **Yes** to find batches that were terminated.
 - **No** to find batches that were not terminated.
- **Document** number to find a specific batch using its document number.
- **Step** to find a specific batch using its step number.
- **Recipe** and **Version** to find batches that use a specific recipe or recipe and version combination.
- **Formula** and **Version** to find batches that use a specific formula or formula and version combination.
- **Routing** and **Version** to find batches that use a specific routing or routing and version combination.
- **Product** to find batches that produce a specific product.
- **Revision** to find batches that produce a specific version of the product.
- **Planned Dates** for the batch, including its:
 - **From Start** date and **To Start** date to find a specific range of planned starting dates for batches.
 - **From Completion** date and **To Completion** date to find a specific range of planned completion dates for batches.
 - **From Required** date and **To Required** date to find a specific range of dates batches are required.
- **Actual Dates** for the batch, including its:
 - **From Start** date and **To Start** date to find a specific range of actual starting dates for batches.

- **From Completion** date and **To Completion** date to find a range of specific actual completion dates for batches.
 - **From Batch Close** date and **To Batch Close** date to find a specific range of actual batch closing dates
3. Click **Find**. The **BatchDetails** window displays the results of the search.

To create a new batch from Find Batches dialog box:

1. Click **New**. The **Create Batch/Firm Planned Order** window displays.
2. Create the new batch as described in "Creating a Batch or Firm Planned Order."

Creating a Batch or Firm Planned Order

The Create Batch/Firm Planned Order window lets the Production Supervisor responsibility create a batch or a firm planned order. If you have this responsibility, then you can access this window from the Batches or the Firm Planned Order windows. Also access this window from the navigator.

Planned Start date, Planned Completion date, and Required Completion date fields are calculated as follows:

- Planned Start date defaults to the current date. You are warned when you enter a date earlier than the current date for a new batch or firm planned order.
- Planned Completion date is calculated automatically from the routing item leadtimes. If a routing exists, then the total routing time is added to the Planned Start date to calculate the Planned Completion date. If a routing does not exist, then the fixed and variable leadtimes entered on the Item Master are added to the Planned Start date to calculate the Planned Completion date. If neither a routing nor leadtimes exist, then the Planned Completion date can be entered manually and defaults to the Planned Start date. If Planned Start Date is not entered, then it is calculated from the Planned Completion date entered. The calculated Planned Completion date displays after the batch is saved.
- Required Completion date defaults to the planned completion date, and is not used in calculations.

The application uses a manually entered Planned Completion date when a routing or production rule does not exist. For each batch, either the planned start date or both the planned start date and planned completion date are validated against the validity rule dates depending on the setting of the Process Execution parameter Validate Plan Dates. The date cannot be outside the date range defined on the validity rule.

If you enter the recipe and version on the Recipe tab, then the batch is created for the standard quantity specified on the item or formula. If you want to specify a different quantity, then use the Total Output tab or the Product Output tab to enter the recipe, version, and output quantity (quantity of products and byproducts). If you have only one product, then this is equivalent to entering the product quantity on the Product Output tab.

Prerequisites

- Set up the application as described in "Setting Up."

To create a batch or firm planned order:

1. Navigate to the **Create Batch/ Firm Planned Order** window.
2. Select the context organization from the **Organizations** window.
3. **Organization Name** defaults to the organization that owns the batch.
4. Enter the appropriate **Document Type** to indicate entry of a **Batch** or creation of a **Firm Planned Order**. The Document Type defaults when you arrive from the **Batch Details** window, the **Firm Planned Orders** window, or from the navigator. The default Document Type is Batch when you access the window from windows that relate to both batches and firm planned orders. Required.
5. Determine whether to use automatic or manual document numbering. The **Document Number** associated with the batch or firm planned order is entered as follows:
 - If you are using automatic document numbering, then a document number is assigned automatically and displays in this field after the batch is created.
 - If you are using manual document numbering, then enter the number for the batch or firm planned order.
6. **Laboratory Batch** indicator is:
 - Selected if the current organization is a laboratory only and cannot be changed.
 - Deselected if the current organization is a plant only. You can select this indicator for a lab batch.
7. Select **Update Inventory** to update the inventory when inventory transactions are created. This is selected by default and can be deselected only for laboratory batches.

8. Click one of the following regions to enter the batch or firm planned order:
 - **Recipe** to enter by specifying a recipe version with its default output quantity. Proceed to step 9.
 - **Product Output** to enter by specifying the product and quantity of a product required. Proceed to step 10.
 - **Total Output** to enter by specifying a recipe version and a required output quantity. Proceed to step 11.
 - **Total Input** to enter by specifying a recipe version and defined input quantity. Proceed to step 12.

Required.

Recipe

9. To enter the batch or firm planned order by specifying a recipe with its default output quantity:
 1. Enter the **Recipe** to use in the batch or firm planned order. The **Recipe Description** displays. Required.
 2. Enter the recipe **Version** to use in the batch or firm planned order. Required.
 3. Proceed to step 13.

Product Output

10. To enter the batch or firm planned order by specifying the quantity of product required.
 1. Enter the **Product** code. The **Product Description** displays. Required.
 2. Optionally, enter the required **Revision** of the product.
 3. Optionally, enter the **Product Quantity** and its **UOM**. The **UOM Description** displays. Required.
 4. Proceed to step 13.

Total Output

11. To enter the batch or firm planned order by specifying a recipe version and a required output quantity:
 1. Enter the **Recipe** to use in the batch or firm planned order. The **Recipe Description** displays. Required.

2. Enter the recipe **Version** to use in the batch or firm planned order. Required.
3. Enter the **Output Quantity** and its **UOM**. The **UOM Description** displays. Required.
4. Proceed to step 13.

Total Input

12. To enter the batch or firm planned order by specifying a recipe version and defined input quantity:
 1. Enter the **Recipe** and **Version** to use in the batch or firm planned order. The **Recipe Description** displays. Required.
 2. Enter the **Input Quantity** and its **UOM**. Required.
 3. Proceed to step 13.

The following steps refer to any of the four ways to create a batch:

13. Enter the **Planned Start** date for the batch or firm planned order. The current date and time is the default.
14. Enter the **Planned Completion** date for the batch or firm planned order. This date is calculated as described at the beginning of this topic. If you enter a Planned Start date, and the batch or firm planned order uses a routing or there are production rules for the product, then the Planned Completion date you enter is not used by the application.
15. Enter the **Required Completion** date to indicate the date and time required for batch completion. The Planned Completion date is the default.
16. Select **Use Workday Calendar** to use the workday calendar for batch scheduling.
17. Select **View Validity Rules by Cost** to view the validity rules in the order of least cost. Refer to the *Oracle Process Manufacturing Product Development User's Guide* for more information.
18. Click **OK** to create the batch or firm planned order. The Recipe Validity Rules Summary dialog box displays when there is more than one validity rule that is valid for creating the batch. Select the appropriate validity rule as described in the "Selecting Validity Rules for a Batch" topic, and click **OK**.
19. Note the document number assigned.

Displaying the Workday calendar in batch scheduling:

If a workday calendar is associated to the organization then Workday Calendar is enabled.

1. Click **Workday Calendar**.
2. View the workday calendar to determine available working time and nonworking time.

Substituting Items During Batch Creation

Item Substitution lists are used during the batch creation process. When you create a batch or a firm planned order from a formula that contains an item that has a valid substitute, the batch or firm planned order is created with the substitute item. The Oracle Process Manufacturing Process Execution provides the Item Substitution for Batches concurrent program to update the batch and replace the original item with the substitute item. The material requirement date is used to select the effective item. The Planned End Date is used if it was entered on the Create Batch window. Phantom items are not substituted. The concurrent program substitutes the item and displays the output that lists the updated batches and errors encountered during the substitution. Refer to the "Item Substitution for Batches concurrent Program" in the "Reports" chapter for more information.

Updating Pending Batches with Item Substitutions

Sometimes a batch is scheduled and after the batch is created a substitute is defined for an item that is effective for the material requirement date. Using the Item Substitution for Batches concurrent program, you can query and substitute items in pending batches that match specified criteria, such as batch number range, old item number, and effective date range. The pending batches with a material requirement date within the effective date range that you enter are checked and substitutions made where required. Existing reservations and move orders for the original item are deleted. If the item is reservable and transactable, then autodetail reservation is done for the substitute item. When you reschedule a batch to a date range for which there is an item substitute in effect, the items are not automatically substituted. Run the concurrent program to substitute the item.

Scaling a Batch with Substituted Items

When you scale a batch that contains a substituted item, select the Planned Quantity as the basis for scaling. If you scale the batch using Formula Quantity, then the scaling is based on the quantity of the effective item in the formula, as of the material requirement date of the batch.

Selecting Validity Rules for a Batch

Validity rules determine the conditions under which a recipe is used. If more than one validity rule meets the criteria entered for creating the batch, then the Recipe Validity Rules Summary window displays. Select the validity rule to use and click OK. Refer to the *Oracle Process Manufacturing Product Development User's Guide* for a complete discussion of selecting and using recipe validity rules.

Using the Validate Plan Dates Parameter

The Validate Plan Dates parameter validates the planned start date and planned completion date against the validity rule dates used for the batch. Dates cannot be outside the date range defined on the validity rule. This is enforced during batch creation and batch rescheduling, scaling, and routing. Certain business scenarios require extension of the planned completion date beyond the date entered on the validity rule without losing the planned start date validation.

This capability is also extended to validation of planned start date and planned completion date for firm planned orders.

The Process Execution parameter Validate Plan Dates controls how batch and firm planned order dates are validated against the validity rule used:

- Set to **Validate Both Planned Dates**. The planned completion and planned start dates are validated against the validity rule date range when creating or rescheduling a batch or firm planned order.
- Set to **Validate Planned Start Date Only**. Only the planned start dates are validated against the validity rule date range when creating or rescheduling a batch or firm planned order.

Rerouting a Batch

Rerouting is the process of selecting a different routing for the batch by selecting a new validity rule that specifies a different recipe that has the same formula but a different routing. When you reroute a batch, the Recipe Validity Rules Summary dialog box displays to select the appropriate validity rule.

Prerequisites

- Create a batch.

To reroute a batch:

1. Navigate to the **Batch Details** window.

2. Choose **Reroute** from the **Actions** menu.
3. Select an effective validity rule with a different routing. A message displays when other validity rules do not exist for the formula.
4. Select a new validity rule.
5. Click **OK**.

Refer to the *Oracle Process Manufacturing Product Development User's Guide* for a complete discussion of using recipe validity rules.

Editing a Batch

The Batch Details window lets you enter or modify header and product information for the batch, and displays all ingredients, products, and byproducts required for a batch. Update the actual quantities on this window or by using the Update Material Detail API that meets these criteria:

- Material is an item with no lot control, no location control, and no serial control.
- Batch status is WIP or complete.
- Only one real completed transaction exists for the material. It is updated automatically based on the actual quantity entered.

You can update the actual quantity for lot or location control items that have a single completed transaction. You can also update an effective plain item with a zero actual quantity. This creates a new completed transaction for the quantity you specify in the Actual Qty field.

You can use folders and flexfields with this window.

See: *Oracle Applications User's Guide* and *Oracle Applications Flexfields Guide*

Prerequisites

- Set up the application as described in the "Setting Up" topic.
- Create a Batch.

To edit a batch :

1. Navigate to the **Batch Details** window.
2. Query the batch **Document** number.

Main

3. The following fields are display only:
 - **Document** is the batch number.
 - **Status** is the current status of the batch:
 - **Pending** if a batch is created, but not yet released.
 - **WIP** if a batch is released to work in process.
 - **Completed** if a batch is completed, but not yet closed.
 - **Closed** if a batch is closed.
 - **Canceled** if a batch is canceled.
 - **Step** is the step number entered on the Find Batches window.
 - **Recipe** is the code for the recipe used in the batch.
 - **Terminate Reason** is the reason for termination.
 - **Terminated** is selected if the batch was terminated.
 - **Recipe Version** is the recipe version for the validity rule associated with the batch.
 - **Parent Batch** is the parent batch number or the firm planned order batch number if the batch or firm planned order is a phantom.
 - **Phantom** is selected when the batch is a phantom batch.
4. **Planned Start** displays the planned start date for the batch. This field defaults from the date assigned on the **Create Batch/Firm Planned Order** window. Edit this field for a pending batch by choosing **Reschedule** from the **Actions** menu.
5. **Actual Start** displays the date and time when the batch was released.
6. **Laboratory Batch** is selected for a lab batch.
7. **Planned Completion** displays the date calculated automatically from the routing or production rules. Edit this field by choosing **Reschedule** from the **Actions** menu.
8. **Actual Completion** displays the actual completion date for the batch.
9. **Update Inventory** is selected when inventory transactions are created and

inventory levels updated. This is selected by default and deselected only for a laboratory batch.

10. Enter the **Required Completion** date for the batch. This field is for reference purposes only and is the batch due date. You can edit this field for pending and WIP batches.
11. **Batch Close** displays the date and time entered on the Close Batch dialog box.

Additional Information

12. The following fields are display only:
 - **Formula** is the code for the formula used in the batch.
 - **Formula Version** is the formula version used in the batch.
 - **Automatic Step Calculation** is selected when the automatic step quantity calculation feature is enabled. Automatic Step Calculation is selected on the Recipe Details window in the Oracle Process Manufacturing Product Development application. When Automatic Step Calculation is selected, quantities shown for each step are cumulative, and represent a dynamic accounting of step materials as ingredients are consumed and products, coproducts, and byproducts are yielded by the step. Deselect the box to turn off the automatic step quantity calculation feature. You cannot select this indicator for a batch.
 - **Routing** is the code for the routing used in the batch. Edit this field for a Pending batch by choosing Reroute from the Actions menu.
 - **Routing Version** is the routing version used in the batch.
 - **Enforce Step Dependency** is selected when the batch enforces step dependency. Refer to "Understanding Batches" for a complete explanation of this feature.
 - **Recipe Description** is a brief description of the recipe.
 - **Firmed** is selected when the WPS engine should not reschedule the batch. Refer to the *Oracle Process Manufacturing process planning user's guides* for additional information.
 - **Formula Description** is a brief description of the formula.
 - **Finite Scheduled** is selected when the WPS engine reschedules the batch.
 - **Routing Description** is a brief description of the routing used in the batch.

- **Priority** indicates how important the batch is. Lower numbers are higher priority.
Refer to *Oracle Process Manufacturing process planning user's guides* for detailed information.
- **Firm Planned Order** is the firm planned order document number that created the batch. This field is blank when the batch is not created from a firm planned order.

Ingredients

13. The following fields are display only:

- **Line** is the line number for the ingredient.
- **Item** is the item code for the ingredient.
- **Item Description** is a brief description of the ingredient as it displays on the Item Master.
- **Revision** is the revision of the item in the line.
- **Actual Qty** is the actual quantity of each ingredient used in batch production.
- **Backordered Qty** is the quantity backordered for the line.
- **Unit of Measure** is the unit of measure for the actual quantity.
- **WIP Plan Qty** is the work in process planned quantity of the ingredients.
- **Original Qty** is the initial quantity of each ingredient when the batch was first created. This field is a baseline from the initial creation of the batch, and cannot be changed.
- **Planned Qty** is the quantity of ingredients that were planned. You can edit this field for a pending batch.
- **Reserved Qty** is the sum of all reservations for the line.
- **UOM** is the unit of measure for the original and planned quantities. You can edit this field for a pending batch.
- **Dispensable** is selected if the ingredient must be dispensed.

14. Select a **Consumption Type** for ingredient consumption:

- **Automatic** when ingredients are consumed automatically when the batch is

released.

- **Manual** when ingredients are consumed manually.
- **Incremental** when ingredient quantities are backflushed by incremental backflushing.
- **Automatic by Step** when ingredients are consumed automatically as the step is released.

You can edit this field for a pending batch.

15. Enter a **Requirement Date** as the date the ingredient is required.
 16. Enter the **Subinventory** as the supply subinventory for the line. You can edit this field.
 17. Enter the **Locator** as the supply locator for the line. You can edit this field.
 18. **Contribute to Yield** displays as Yes when the ingredient contributes to yield. You can edit this field for a pending batch.
 19. Select a **Scale Type** as:
 - **Fixed** if the ingredient is not scalable.
 - **Proportional** if the ingredient is scalable.
 - **Integer** if the ingredient is scalable by multiples.
 20. Enter a **Scale Multiple** as the scaling increment for the ingredient.
 21. Enter **Scale Rounding Variance %** as the percent variance allowable for rounding when the Scale Type is Integer. If the Rounding Variance field is left blank, then rounding occurs without regard to variance.
 22. Select **Rounding Direction** as:
 - **Down** to allow the acceptable rounding direction down to the nearest multiple.
 - **Either** to allow the acceptable rounding direction up or down to the nearest multiple.
 - **Up** to allow the acceptable rounding direction up to the nearest multiple.
- You can edit this field.
23. **Dispensable** is selected if the ingredient must be dispensed.

24. Enter a **Scrap Factor%** as the anticipated amount of ingredient lost in the manufacturing process as a percentage. For example, if the Scrap Factor is 10 percent, then an additional 10 percent of material is added to accommodate for this loss. You can edit this field for a pending batch.
25. Enter the **Scrap Qty** as the actual quantity of the ingredient lost in the production process.
26. Select **Phantom Type** as:
 - **Not a Phantom** when the ingredient is not a phantom item.
 - **Automatic** when the ingredient is a phantom item that is exploded automatically.
 - **Manual** when the ingredient is a phantom item that requires manual explosion from the Actions menu.
27. **Phantom** displays as:
 - **Exploded** if the phantom ingredient is exploded previously.
 - **Unexploded** if the phantom ingredient is not exploded.
28. **Contribute to Step Qty** displays as **Yes** if the ingredient contributes to step quantity.
29. **Step** is the batch step number to which the ingredient is associated.

Products

30. The following fields are display only:
 - **Line** is the batch line number for the product.
 - **Item** is the item code for the product.
 - **Item Description** is a brief description of the product as it appears on the Item Master.
 - **Revision** is the revision of the item on the line.
 - **Original Qty** is the initial quantity of each product when the batch was first created. This field is a baseline from the initial creation of the batch, and cannot be changed.
 - **UOM** is the unit of measure for the original and planned quantities. You can edit this field for a pending batch.

- **Actual Qty** is the actual quantity of products yielded. This field displays on batches with a status of WIP or Completed.
31. Enter the **Planned Qty** as the amount of product to produce by the batch. The Planned Qty changes when the batch is scaled, and is editable in a batch with a status of Pending.
 32. Select a **Yield Type** as the type of product yield as:
 - **Automatic** when products are yielded automatically when the batch is completed.
 - **Manual** when products are yielded manually.
 - **Incremental** when product yield is calculated by incremental backflushing.
 - **Automatic by Step** when products are yielded automatically as the step is completed.

You can edit this field for a pending batch.

33. Enter the **Yield Date** as the planned completion date of the batch or batch step. When the materials are inserted in WIP status, the actual completion dates display.
34. Enter the **Subinventory** as the yield subinventory. You can edit this field.
35. Enter the **Locator** as the yield locator. You can edit this field.
36. Select a **Scale Type** as:
 - **Fixed** if the product is not scalable.
 - **Proportional** if the product is scalable.
37. Enter the **Cost Allocation** as the percent cost allocation for the product. You cannot edit this field for completed batches. Cost allocation defaults to zero for a new product line.
38. **Contribute to Step Qty** displays as Yes if the product contributes to the step quantity
39. **Step** is the step associated to the product.

By-Products

40. The following fields are display only:
 - **Line** is the batch line number for the byproduct.

- **Item** is the item code for the byproduct.
- **Item Description** is a brief description of the byproduct as it displays on the Item Master.
- **Revision** is the item revision on the line.
- **Original Qty** is the initial amount of each byproduct when the batch was first created. This field is a baseline for the initial creation of the batch.
- **Planned Qty** is the amount of byproducts that were planned. The Planned Qty changes when the batch is scaled, and is editable in a batch with a status of Pending.
- **UOM** is the unit of measure for the original and planned quantities. You can edit this field for a pending batch.
- **Actual Qty** is the actual quantity of byproducts yielded. This field displays on batches with a status of WIP or Completed.

41. Select the **By-Product Type** as any one of the following:

- Rework
- Sample
- Waste
- Yield

42. Select a **Yield Type** as any one of the following:

- **Automatic** when byproducts are yielded automatically when the batch is completed.
- **Manual** when byproducts are yielded manually.
- **Incremental** when byproduct yield is calculated by incremental backflushing.
- **Automatic by Step** when byproducts are yielded automatically as the step is completed.

43. Enter the **Yield Date** as the planned completion date of the batch or batch step. When the materials are inserted in WIP status, the actual completion dates display.

44. Enter the **Subinventory** as the yield subinventory. You can edit this field.

45. Enter the **Locator** as the default yield locator for the item.
46. Enter a **Scale Type** as:
 - **Fixed** if the byproduct is not scalable.
 - **Proportional** if the byproduct is scalable.
47. **Contribute to Step Qty** displays as Yes if the ingredient contributes to step quantity.
48. **Step** displays the step associated to the byproduct.
49. Click **Batch Steps** to navigate to the **Batch Steps** window.

To edit text in a batch:

1. Choose **Edit Text** from the **Tools** menu.
2. Make appropriate changes.

To display process instructions:

1. Choose **Process Instructions** from the **Tools** menu.
2. View all process instructions.

To display e-record details:

1. Choose **eRecord Details** from the **Tools** menu.
2. Click on the individual event name for details.

To display the workday calendar:

Choose **Workday Calendar** from the **Tools** menu.

To view validity rules for a batch:

Choose **View Validity Rules** from the **Tools** menu.

To edit a parent batch:

1. Select the parent batch.
2. Choose **Edit Parent** from the **Tools** menu. Edit the parent batch.
This option is available only for a phantom batch.

To edit a phantom batch:

1. Select a phantom ingredient.
2. Choose **Edit Phantom** from the **Tools** menu.

To display specifications for a batch:

Choose **Specifications** from the **Tools** menu.

To display samples for a batch:

1. Choose **Samples** from the **Tools** menu.
2. View the sample summary details associated with the material.
Refer to the *Oracle Process Manufacturing Quality Management User's Guide* for information.

To scale a batch:

1. Choose **Scale Batch** from the **Tools** menu.
2. Scale the batch as described in the "Scaling a Batch or Firm Planned Order" topic.

To apply theoretical yield:

1. Choose **Theoretical Yield** from the **Tools** menu.
2. Apply the yield as described in the "Using the Theoretical Yield Calculation" topic.

To display the batch progression:

1. Choose **Batch Progression** from the **Tools** menu.
2. View the batch progression details.
Refer to the *Oracle Process Manufacturing Process Operations User's Guide* for more information.

To release a batch:

1. Choose **Release** from the **Actions** menu.
2. Enter the **Actual Start Date** for the batch.
3. Click **OK**.

To complete a batch:

1. Choose **Complete** from the **Actions** menu.
2. Enter the **Actual Completion Date** as the date the batch was completed.
3. Click **OK**.

To close the batch:

1. Choose **Close** from the **Actions** menu.
2. Enter the **Batch Close Date**.
3. Click **OK**.

To cancel the batch:

Choose **Cancel** from the **Actions** menu. If a batch has a status of **Pending**, then it can be canceled. To cancel a **WIP** batch, you must **unrelease** the batch. You cannot restore a canceled batch.

To unrelease a batch:

1. Choose **Unrelease** from the **Actions** menu.
2. The batch **Status** changes to **Pending**.

To revert a batch to WIP:

1. Choose **Revert to WIP** from the **Actions** menu.
2. The batch **Status** changes to **WIP**.

To reopen a batch:

Choose **Reopen Batch** from the **Actions** menu. The **Batch Status** field displays **Completed**.

To reschedule a batch:

1. Choose **Reschedule** from the **Actions** menu.
2. Reschedule the batch as described in the "Rescheduling a Batch" topic.

To reroute a batch:

1. Choose **Reroute** from the **Actions** menu
2. Select a recipe validity rule. A message displays when no other validity rules exist for the formula.
3. Click **OK**.

To terminate a batch:

1. Choose **Terminate** from the **Actions** menu. A message displays:
Are you sure you want to terminate the batch? Yes/No.
2. Select **Yes** to terminate the batch. The following information displays:
3. **Actual Start Date** displays the actual start date of the batch.
4. Enter the **Batch Termination Date** as the date the batch is terminated
5. Enter a **Terminate Reason**.
6. Click **OK**.

To incrementally backflush a batch:

1. Choose **Incremental Backflush** from the **Actions** menu.
2. Perform the incremental backflushing as described in the "Performing Incremental Backflushing" topic.

To create a phantom:

1. Select an unexploded phantom ingredient.
2. Choose **Create Phantom** from the **Actions** menu. This option is available only for a phantom type material.

To print labels:

Select **Print Labels** from the **Actions** menu. Refer to the *Oracle Process Manufacturing Process Operations User's Guide* for more information.

To display the batch e-records:

Choose **Batch E-Records** from the **Actions** menu. Refer to "Appendix C" for information on e-records

To maintain reservations:

Choose **Maintain Reservations** from the **Inventory** menu. Refer to "Entering Reservations" for more information.

To create high level reservations for a batch:

Choose **Reserve Batch** from the **Inventory** menu. Refer to "Creating High Level Reservations" for more information.

To create high level reservation for a material line:

1. Choose **Reserve Line** from the **Inventory** menu.
2. View the reserved quantity on the **Batch Details** window.
Refer to "Creating High Level Reservations" for more information.

To create detail level reservations for a batch:

Choose **Auto Detail Reserve Batch** from the **Inventory** menu. Refer to "Creating Detailed Level Reservations" topic for more information.

To create detail level reservation for a material line:

1. Choose **Auto Detail Reserve Line** from the **Inventory** menu.
2. View the reserved quantity on the **Batch Details** window.

To enter the pending product lots:

1. Choose **Pending Lots** from the **Inventory** menu.
2. Enter the pending product lots information. Refer to the "Entering Pending Product Lots " for more information.

To transact material reservations:

1. Choose **Transact Material** from the **Inventory** menu.
2. Transact the material requirements for the batch. Refer to "Transacting Material Reservations" for more information.

To edit material transactions:

1. Choose **Correct Material Transactions** from the **Inventory** menu.
2. Make the corrections to the material transactions. Refer to "Editing Material

Transactions" for more information.

To pick ingredients for a batch:

1. Choose **Picking** from the **Inventory** menu.
2. Query the batch and perform ingredient picking as described in the "Finding Ingredient Requirements for Picking" topic.

To display move orders:

Choose **View Move Order** from the **Inventory** menu. Refer to "Viewing Move Orders" for more information.

To display a summary of available inventory for an item:

1. Select the item.
2. Choose **Material Summary** from the **Inventory** menu. Refer to the *Oracle Inventory User's Guide* for more information.

To display inventory shortages:

Choose **View Org Level Shortages** from the **Inventory** menu. Refer to "Managing Inventory Shortages" for more information.

To display subinventory shortages:

Choose **View Subinventory Level Shortages** from the **Inventory** menu. Refer to "Managing Inventory shortages" or more information.

To view material transactions:

Choose **View Material Transactions** from the **Inventory** menu. Refer to "Transacting Materials" for more information.

Picking Ingredients for a Batch

Pick releasing a batch allows you to pick material for the batch. Move orders are created when you pick material. Move orders are requests for the movement of material within an organization. Refer to "Picking Material" for more information.

Move order is equal to the open requirement minus the unreserved material in the supply subinventory:

- If the move order quantity is less or equal to zero, then a move order is not created for this ingredient line and the open requirement is fulfilled by reserving the material in the supply subinventory.

- If the move order quantity is greater than zero, then the material is reserved in the supply subinventory and a move order is created to transfer the remaining quantity.

On transacting the move order, the ingredient quantities are moved to the manufacturing staging area or supply subinventory. The source locations for picking material are derived from picking rules. Reservations are also considered during picking. Refer to "Ingredient Picking Workbench" for more information on ingredient picking.

Defining Picking Rules

Predefined picking rules determine the source locations for each ingredient and help in streamlining the management of material flow for production. Picking rules are defined on the Picking Rules window in Oracle Inventory. If the Oracle Warehouse Management Systems (WMS) is installed, then the picking rules are defined on the WMS Rules window in Warehouse Manager. Refer to the *Oracle Warehouse Management User's Guide* for information on setting up picking rules for a WMS-enabled organization. Refer to the *Oracle Inventory User's Guide* for information on setting up inventory picking rules.

Understanding Task Creation

Move orders in the Oracle Warehouse Management Systems (WMS) enabled organization are dispatched in the form of tasks for execution on a mobile device. WMS tasks can only be transacted on mobile devices. The Oracle Mobile Supply Chain Applications (MSCA) supports the interface of a mobile client device with a networked computer system. This application performs shop floor and warehouse transactions from any location in a facility using wireless radio frequency devices. MSCA supports WMS tasks related to production batches. Refer to the *Oracle Mobile Supply Chain Application for Oracle Process Manufacturing* guide for more information.

The process flow for the task creation and execution is as follows:

- Pick releasing a batch creates preapproved move orders for the ingredient requirements.
- The move order is allocated based on predefined WMS picking rules. If insufficient inventory is available, then a backorder is recorded. Backordered quantity is selected for cross docking. Refer to "Cross Docking" for more information.
- Move orders are labeled with a system task type (Pick), and cannot be edited.
- A user-task type is assigned to the task. They are assigned based on predefined Task Type Assignment Rules. The task type controls the skill set and equipment required to perform the task. Task type assignment does not assign a task to an

operator, but rather to a skill set and optionally to an equipment item.

- Tasks can be split if necessary based on the capacity of equipment required to perform the tasks. Tasks are dispatched to the users when they log into the application through their mobile devices and request a task. The user receives the highest priority task sequenced by subinventory and locator picking order and based upon their current location in the warehouse.
- Operators can load or drop a task. Loading a task indicates that the material was loaded onto a piece of equipment or into the hands of a warehouse operator.
- Task drop confirms that the material is moved to the manufacturing staging subinventory.

Understanding Cross Docking

Cross docking moves the received material directly to the source of unfulfilled demand, without putting it away in its usual storage location. For example, when material arrives, pick requirements on the truckload are selected. If there are requirements, then the material needed is routed directly from receiving to a shipping dock or a shipment staging area. Backordered quantities are selected for cross docking. Cross docking is available only for the Oracle Warehouse Management Systems (WMS) enabled organizations and supports the following flows:

- Purchase receipt to sales order
- Purchase receipt to batch demand
- Batch yield to sales order
- Batch yield to batch demand

Note: If you are using rules-based picking in a WMS-enabled organization, and the warehouse is enabled for cross docking, then the WMS rules engine checks for backorders and creates move orders to put material directly into the staging area.

Understanding Batch Step Quantity Calculations

The quantity of material required in a specific step is dependent on the quantity of material that passes into and out of that step. Input material consists of ingredients injected directly into steps or material transferred from preceding steps.

If you use automatic step quantity calculations, then the step quantities are calculated from the quantities of the items in the formula, after you tie the routing and formula

together in a recipe, and specify the item-step associations and routing step dependencies. Step quantities are calculated from the quantity of ingredients being added to each step, and the quantity that comes from previous steps based on step dependencies. This is where the transfer percent affects as it is used to specify how much of the quantity from a step flows on to a subsequent step, after subtracting out any product or byproduct yielded by the step.

If you are not using automatic step quantity calculation, then you enter step quantities. When you create a batch, the total output quantity is compared to the routing quantity to determine a scale factor. The scale factor is applied to the routing step quantities to scale them up or down for the batch step quantities.

The following example shows how material can be input, transferred, and output from a series of production steps:

Step 1: Add 10 pounds of Ingredient 1 to 25 pounds of Ingredient 2. The resulting 35 pounds of intermediate yields 5 pounds of Byproduct 1, and there is a complete, 100 percent transfer of 30 pounds of material to step 2.

Step 2: The material transferred to step 2 is processed and split as follows:

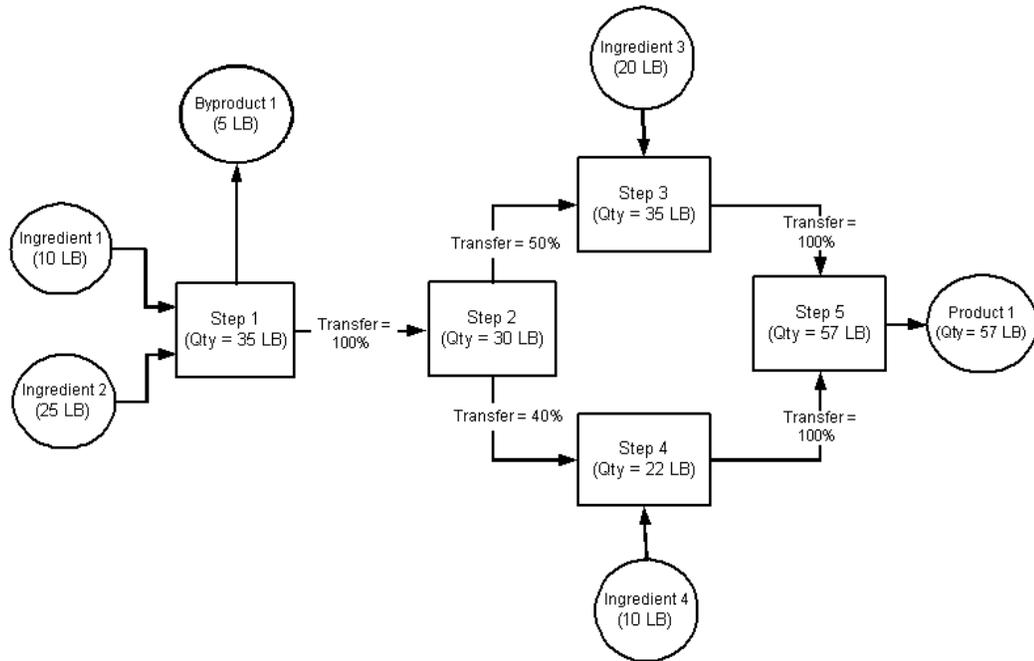
- 50 percent, representing 15 pounds, is transferred to step 3.
- 40 percent, representing 12 pounds, is transferred to step 4.

Step 3: Add 20 pounds of Ingredient 3 to the 15 pounds of material transferred from step 2. Transfer all 35 pounds of this material to step 5.

Step 4: Add 10 pounds of Ingredient 4 to the 12 pounds of material transferred from step 2. Transfer all 22 pounds of this material to step 5.

Step 5: This step processes the 57 pounds of material from steps 3 and 4 to produce product 1.

The following depicts the previously described example. LB is equal to pounds.



Finding Batch Steps

The Find Batch Steps dialog box lets you find batch steps using batch status, batch document number, routing, or routing version as search criteria.

Prerequisites

- Create a batch.

To find batch steps:

1. Navigate to the Find Batch Steps dialog box.
2. Make no entries to search all records. Enter any of the following criteria to narrow the search:
 - **Status** of the batch as:
 - **Canceled** to find canceled batch steps.
 - **Pending** to find pending batch steps.
 - **WIP** to find batch steps that are work in process.
 - **Completed** to find batch steps that are completed.

- **Closed** to find batch steps that are closed.
 - **Terminated** as **Yes** to find terminated batches.
 - **Document** to find batch steps in a specific batch document number in the listed organization.
 - **Routing** to find batch steps in a specific routing.
 - **Version** to find batch steps associated to a specific routing version.
3. Click **Find**. The **Batch Steps** window displays the results of the search.

Editing Batch Steps

The Batch Steps window lets you display and edit batch steps in a specific production run. View the planned and actual values for start dates, completion dates, step quantities, charges, due date, and step date. The Batch Steps window also lets you release, complete, or close a batch step. In addition, view planned operations, planned start dates, planned completion dates, and the status of each batch step.

The Firm Planned Order Steps window is display only. Field definitions are the same except they apply to a firm planned order.

E-Record and E-Signature Approvals

There can be an e-signature event associated with this window. Refer to "Appendix C" for additional information on e-record and e-signature approvals associated with this window.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Create a batch.

To edit batch steps:

1. Navigate to the **Batch Steps** window.
2. Query the **Document** number.
3. The following fields are display only:

- **Document** displays the batch document number.
- **Status** displays the status of the batch as:
 - **Canceled** if a batch is canceled.
 - **Completed** if a batch is completed, but not yet closed.
 - **Closed** if a batch is closed.
 - **Pending** if a batch is created, but not yet released.
 - **WIP** if a batch is released to work in process.
- **Terminated** is selected if the batch was terminated.
- **Enforce Step Dependency** is selected when the batch enforces step dependency. Refer to "Understanding Batches" for a complete explanation of this feature.
- **Automatic Step Calculation** is selected when the automatic step quantity calculation feature is enabled. When Automatic Step Calculation is selected, quantities display for each step are cumulative, and represent a dynamic accounting of step materials as ingredients are consumed, and products, coproducts, and byproducts are yielded by the step.
- **Routing** displays the code for the routing used in the batch.
- **Routing Version** displays the routing version used in the batch.
- **Production Routing Qty** displays the total quantity of material planned to be yielded.
- **Routing Qty UOM** displays the unit of measure for the Batch Routing Qty field.

Planned Dates

4. If you insert a new step, then you can edit information. The following fields display step-specific information:
 - **Step** displays the step number for the operation in the routing, and can be edited when you enter a new step.
 - **Operation** displays the code for the operation performed in the step, and can be edited when you enter a new step.
 - **Version** displays the operation version number.

- **Step Status** displays the status of the step as:
 - **Completed** for a step that is completed.
 - **Closed** for a step that is closed.
 - **Canceled** for a step that is canceled.
 - **Pending** for a step that has not started.
 - **WIP** for a step that is work in process.
5. **Start** displays the planned start date for the batch step. Enter a new Start date when the batch step status is Pending by choosing **Reschedule** from the **Actions** menu.
 6. **Completion** displays the planned completion date for the batch step. Enter a new completion date for the batch step when the batch step status is Pending or WIP by choosing **Reschedule** from the **Actions** menu.
 7. **Due Date** is the scheduled due date for the batch step.

Actual Dates

8. If you insert a new step, then you can edit information. The following fields display step-specific information:
 - **Step** displays the step number for the operation in the routing, and can be edited when you are entering a new step.
 - **Operation** displays the code for the operation performed in the step, and can be edited when you are entering a new step.
 - **Version** displays the operation version number.
 - **Step Status** displays the status for each operation step number.
9. The following fields are display only:
 - **Start** is the actual start date for each step entered on the **Release Step** window.
 - **Completion** is the actual completion date for each step entered on the **Complete Step** window. You cannot edit this field until the step is closed.
 - **Close Date** is the date the step was closed.

Step Quantities

10. If you insert a new step, then you can edit information. The following fields display

step-specific information:

- **Step** displays the step number for the operation in the routing.
- **Operation** displays the code for the operation performed in the step.
- **Version** displays the operation version number.
- **Step Status** displays the status for each operation step number.

11. **Planned** displays the planned step quantity for each step as follows:

- If the automatic step quantity calculation feature is on, then the planned step quantity is calculated from item step associations and step dependencies.
- If the automatic step quantity calculation feature is off, then the planned step quantity defaults to the routing step quantity, as it is scaled to the total batch quantity.

12. **Actual** displays the actual step quantity for each step with its **UOM**. If you do not enter a value in this field, then it defaults as follows:

- If the automatic step quantity calculation feature is on, then the actual step quantity is calculated from item step associations and step dependencies.
- If the automatic step quantity calculation feature is off, then the actual step quantity is the planned quantity when the step is completed.

Charges

13. If you insert a new step, then you can edit information. The following fields display step-specific information:

- **Step** displays the step number for the operation in the routing.
- **Operation** displays the code for the operation performed in the step.
- **Version** displays the operation version number.
- **Step Status** displays the status for each operation step number.
- **Capacity** displays the maximum step capacity with its **UOM**. This is calculated as the smallest maximum capacity of the resources marked as capacity constraining.
- **Planned Charges** displays the planned number of charges for the operation. It is calculated from the step quantity and step capacity.

- **Actual Charges** displays the actual number of charges for the operation. It is calculated from the step quantity and step capacity.

Others

14. If you insert a new step, then you can edit information. The following fields display step-specific information:

- **Step** displays the step number for the operation in the routing.
- **Operation** displays the code for the operation performed in the step.
- **Version** displays the operation version number.
- **Step Status** displays the status for each operation step number.
- **Release Type** displays:
 - **Automatic** to indicate the step is automatically released or completed when subsequent steps are released or completed.
 - **Manual** to indicate that the step must be released and completed manually, or by completing the batch.

Required.

- **Minimum Transfer Quantity** is used by the Oracle Advanced Planning and Scheduling application. It is intended to reduce overall lead times by defining the minimum amount of material produced in a step at a specific production operation and resource before the next operation can begin. This reduces bottlenecks by letting processes transfer an interim quantity of completed material to the next step without the requirement to complete the entire step.
- **Quality Status** displays requirements for the step specified in the Oracle Process Manufacturing Quality Management application:
 - **No Sample Required** indicates a quality inspection sample is not required for the step.
 - **Sample Required** indicates a quality inspection sample is required for the step.
 - **Results Required** indicates results are required for the step.
 - **No Results Required** indicates test results are not required for the step.
 - **Action Required** indicates a follow-up response is required for the test result.

- **In Spec** indicates the result conforms to the specification.

Refer to the *Oracle Process Manufacturing Quality Management User's Guide* for more information on quality statuses.

- **Terminated** is selected if the step was terminated.

15. Click **BatchDetails** to display the **Batch Details** window.

To insert a new step in a batch:

1. Select the first blank **Step** field after the last step displayed on the **Operation Details** pane.
2. Enter the new **Step** number.
3. Complete all required fields.
4. Save the window.
5. Close the window and reopen it to display the new **Step** in its proper sequence.

To edit text in a batch:

1. Choose **Edit Text** from the **Actions** menu.
2. Make appropriate text changes.
3. Save the window.

To display activity details for a step:

1. Select the **Step**.
2. Choose **Activity Details** from the **Actions** menu.

To display batch step and batch item associations:

1. Select the **Step**.
2. Choose **Item-Step Association** from the **Actions** menu.

To display batch step dependencies:

1. Select the **Step**.
2. Choose **Step Dependencies** from the **Actions** menu.

To release a batch step:

1. Select the **Step**.
2. Choose **Release Step** from the **Actions** menu.
3. Enter the **Actual Start Date**. If you do not enter a date, then this field defaults to system date.
4. Click **OK**. Step status changes from **Pending** to **WIP**.

To unrelease a batch step:

1. Select the **Step**.
2. Choose **Unrelease Step** from the **Actions** menu. The **Step Status** changes from **WIP** to **Pending**.

To complete a batch step:

1. Select the **Step**.
2. Choose **Complete Step** from the **Actions** menu.
3. Enter the **Actual Start Date**. You can enter the Actual Start Date only for a Pending Batch.
4. Enter the **Actual Completion Date**. This field defaults to the system date and time.
5. Click **OK**.

To revert a completed step to work in process:

1. Select the **Step**.
2. Choose **Revert to WIP** from the **Actions** menu. The **Step Status** changes from **Complete** to **WIP**.

To close a batch step:

1. Select the completed **Step**.
2. Choose **Close Step** from the **Actions** menu.
3. Enter the **Batch Step Close Date**. If you do not enter a Batch Step Close Date, then this defaults to the system date and time.
4. Click **OK**.

To reschedule a batch step:

1. Select the **Step**.
2. Choose **Reschedule Step** from the **Actions** menu.
3. Enter the rescheduled **Planned Start** date.
4. Select **Reschedule Preceding Steps** to reschedule the steps preceding the current step.
5. Select **Reschedule Succeeding Steps** to reschedule the steps succeeding the current step.
6. Click **OK**.
7. If the batch is finite scheduled, then the following message displays:

This batch step was previously scheduled by Manufacturing Scheduler, continue (Y/N)?

Click **Yes** to reschedule. Note if the batch step is rescheduled, then the finite scheduled indicator on the Batch window is reset.

To reschedule a batch step using the workday calendar:

1. Select the batch step to reschedule.
2. Choose **Reschedule Step** from the **Actions** menu.
3. Select **Use Workday Calendar** to schedule the batch step according to the workday calendar associated to the organization.
4. Enter one of the following:
 - **Planned Start** to reschedule the step planned start date.

- **Planned Completion** to reschedule the step planned completion date.
Click **Yes** to indicate whether you want the application to recalculate the other date based on the batch duration.
5. Select **Reschedule Preceding Steps** to reschedule the steps preceding the current step.
 6. Select **Reschedule Succeeding Steps** to reschedule the steps succeeding the current step.
 7. Click **OK**.
 8. If the batch is finite scheduled, then the following message displays:
This batch step was previously scheduled by Manufacturing Scheduler, continue (Y/N)?
Click **Yes** to reschedule. Note if the batch step is rescheduled, then the finite scheduled indicator on the Batch window is reset.

To display resource details for an activity:

1. Select the **Step**.
2. Choose **Activity Details** from the **Actions** menu. The **Step Activities** window displays.
3. Select the **Activity**.
4. Choose **Resource Details** from the **Actions** menu.

To display transaction details for a step:

1. Select the **Step**.
2. Choose **Activity Details** from the **Actions** menu. The **Step Activities** window displays.
3. Select the **Activity**.
4. Choose **Resource Details** from the **Actions** menu. The **Step Resources** window displays.
5. Select the **Resource**.
6. Choose **Transactions** from the **Actions** menu.

To reopen a step:

1. Select the **Step**.
2. Choose **Reopen Step** from the **Actions** menu. The **Step Status** changes from **Closed** to **Completed**.

To display the E-Record Generic Query:

Choose **E-Record Details** from the **Actions** menu. The **E-Record Generic Query** displays if this option is implemented in your application. Refer to "Appendix C" for information on e-records.

To display the workday calendar

Choose **Workday Calendar** from the **Actions** menu.

To display process instructions:

Choose **Process Instructions** from the **Tools** menu.

To log nonconformance:

1. Choose **Log nonconformance** from the **Tools** menu.
2. View the quality results.

Refer to the *Oracle Process Manufacturing Quality Management User's Guide* for more information.

To view batch progression:

Choose **Batch Progression** from the **Tools** menu. Refer to the *Oracle Process Manufacturing Process Operations User's Guide* for more information.

Editing Batch Step Dependencies

The Batch Step Dependencies window lets you create, modify, or delete batch step dependencies. Step dependencies are relationships between individual routing steps that assign how and when steps can start. Some steps cannot start until a previous step completes. For example, a cooling operation cannot begin until the heating operation that precedes it is complete. Batch step dependencies are used to calculate planned start times and can be overwritten. Do not create circular step dependences. For example, do not create dependencies where step 10 must occur before step 20, and step 20 must occur before step 10.

Step Dependencies are definable as:

- Finish-to-start with no offset, to indicate that a process step begins immediately after the completion of its preceding step. For example, a consecutive addition of ingredients is required without interruption.
- Finish-to-start with positive offset, to indicate that a process step begins a specified period of time after the completion of its preceding step. For example, time is required to rest material before the addition of another ingredient.
- Finish-to-start with negative offset, to indicate that a process step begins a specified period of time before the completion of its preceding step. For example, a production device needs to be activated before the addition of the next ingredient.
- Start-to-start with no offset, to indicate that a process step begins at the same time as the step it depends on. For example, there is a need for simultaneous addition of ingredients without interruption.
- Start-to-start with positive offset, to indicate that a process step begins a specified time after the beginning of its preceding step. This is similar to finish-to-start with negative offset, but by specifying that the dependency is start-to-start, you ensure the positive offset is maintained when the previous dependent step finishes early.

The offset is defined in the Standard Delay field as a positive or negative number. The application uses step dependencies when individual steps are rescheduled.

You can edit step dependencies only for a pending batch.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Create recipes.
- Create a batch or firm planned order.

To edit batch step dependencies:

1. Navigate to the **Batch Steps** window.
2. Select the **Step** to make dependent on another step.
3. Choose **Batch Step Dependencies** from the **Actions** menu. The **Step Dependencies** window displays for the selected step.
4. The following fields are display only:

- **Document** displays the batch document number.
- **Batch Step** displays the batch step selected on the **Batch Steps** window.
- **Routing** displays the routing identification number associated to the step.
- **Routing Version** displays the routing version number.
- **Routing Description** displays a brief description of the routing.
- **Operation** displays the operation associated with the batch step displayed.
- **Operation Version** displays the version number of the operation.
- **Operation Description** displays a description of the operation.

Dependencies

5. Enter the **Previous Step** that the Batch Step displayed is dependent on. The dependent step must follow the Routing Step entered in this field. For example, if the displayed Batch Step is step 30, and the previous step number is dependent on is step 20, then you enter 20.
6. The following fields are display only:
 - **Operation** displays the operation associated with the batch step.
 - **Version** displays the version of the operation associated with the batch step.
7. Select a **Dependency Type**:
 - **Start-to-start** if the start of the step specified in the Batch Step field is dependent on the start of the step displayed in the Previous Step field.
 - **Finish-to-start** if the start of the step specified in the Batch Step field is dependent on the completion of the step displayed in the Previous Step field. For example, when Step 20 is dependent on Step 10 and there is no specified offset, then Step 20 is scheduled to start when Step 10 finishes. If an offset of one hour is specified, then Step 20 is scheduled to start one hour after Step 10 ends. Create overlapping steps by defining a Finish-to-start dependency with a negative offset so that Step 20 starts before step 10.
8. Enter the **Standard Delay** as the standard number of hours from the end of the preceding step to the start of the current step, or the start of the preceding step to the start of the current step, depending on the Dependency Type entered. This field is used to calculate step start times. If you enter a value equal to zero, then the step following the current step begins immediately after the step ends or starts. If the

Dependency Type is finish-to-start, then enter a negative Standard Delay to create overlapping steps.

9. Enter the **Transfer Percent** as the percentage of material that goes to the dependent step after all products and byproducts are yielded. If automatic step quantity calculations are on, then this percentage is used to calculate the quantity of the dependent step. For example:
 - If 40 percent of the material from the Previous Step comes into the current Batch Step as a result of 60 percent of the material going to another step, then enter 40 for the Transfer Percent.
 - If 90 percent of the material from the Previous Step comes into the current Batch Step as the result of 10 percent being lost to evaporation or being retained by processing equipment, then enter 90 for the Transfer Percent.

Editing Batch Step Activities

The Step Activities window lets you view activity details for each batch step.

The Firm Planned Order Step Activities window is display only. Field definitions are the same except they apply to a firm planned order.

You can use folders and flexfields with this window.

See: *Oracle Applications User's Guide* and *Oracle Applications Flexfields Guide*

Prerequisites

- Create a batch.

To edit batch step activities:

1. Navigate to the **Batch Steps** window.
2. Select the **Step** containing the activities to edit.
3. Choose **Activity Details** from the **Actions** menu. The **Step Activities** window displays for the selected step.
4. The following fields are display only:
 - **Document** displays the batch document number.
 - **Status** is the batch status.
 - **Step** displays the batch step number.

- **Step Status** displays the batch step status as:
 - **Completed** for a step that is completed.
 - **Closed** for a step that is closed.
 - **Canceled** for a step that is canceled.
 - **Pending** for a step that has not yet started.
 - **WIP** for a step that is work in process.
- **Terminated** is selected if the batch step was terminated.
- **Operation** displays operation number associated with the displayed batch step.
- **Operation Version** displays the version of the operation displayed.
- **Operation Description** displays a brief description of the operation.
- **Planned Start** displays the planned start date for the batch step.
- **Planned Completion** displays the planned completion date for the batch step.

Planned

5. The following fields are display only:
 - **Activity** displays the activity required for the batch operation.
 - **Description** displays a brief description of the activity.
6. **Offset (Hours)** displays the planned number of hours from the start of the step to the start of the activity. You can edit this field. Required.
7. Enter a **Start** date for the activity.
8. Enter a **Completion** date for the activity.
9. **Factor** displays the number of times the activity is performed. You can edit this field.
10. If **Sequence** is selected, then the step is a sequence-dependent activity.

Actual

11. The following fields are display only:

- **Activity** displays the activity required for the batch operation.
 - **Description** displays a brief description of the activity.
12. Enter a **Start** date for the activity.
 13. Enter a **Completion** date for the activity.
 14. **Factor** displays the actual number of times the activity was performed. You can edit this field.

To edit text in a batch:

1. Choose **Edit Text** from the **Actions** menu.
2. Make appropriate text changes.
3. Save the window.

To display resource details:

1. Choose **Resource Details** from the **Actions** menu.
2. Make appropriate changes.
3. Save the window.

Editing Batch Step Resources

The Step Resources window lets you display detailed planned information about batch resources at the step level. This information includes the planned and actual throughput, planned and actual production dates, scheduling information, capacity, cost, and production parameters.

Process quantity is the quantity that is processed by the resource. At the operation level, it is used along with usage to define a throughput rate.

The Firm Planned Order Step Resources window is display only. Field definitions are the same except they apply to a firm planned order.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Create a batch.

To enter batch step resources:

1. Navigate to the **Batch Steps** window.
2. Select the **Step** containing the resources to edit.
3. Choose **Activity Details** from the **Actions** menu. The **Step Activities** window displays.
4. Select the **Activity** containing the resources to edit, and choose **Resource Details** from the **Actions** menu. The **Step Resources** window displays for the selected step.
5. The following fields are display only:
 - **Document** displays the batch document number.
 - **Status** displays the status of the batch.
 - **Step** displays the batch step you selected on the **Batch Steps** window.
 - **Step Status** displays the batch step status as:
 - **Completed** for a step that is completed.
 - **Closed** for a step that is closed.
 - **Canceled** for a step that is canceled.
 - **Pending** for a step that has not yet started.
 - **WIP** for a step that is work in process.
 - **Terminated** is selected if the batch step was terminated.
 - **Operation** displays the operation associated with the batch step with the **Operation Version**.
 - **Operation Description** displays a brief description of the operation.
 - **Activity** displays the activity associated to the displayed operation.
 - **Activity Description** displays a brief description of the activity.

Note: If you want to display or modify process parameters, then click Process Parameters at the bottom of the window.

Planned

6. The following fields are display only:
 - **Resource** displays the resource associated with the displayed step.
 - **Description** displays a brief description of the resource.
 - **Count** displays the planned number of resources needed for this activity.
7. Enter the **Count** as the planned number of resources needed for this activity.
8. Enter the **Process Qty** as the planned quantity of material for the resource to process. This value combined with the Usage defines the usage rate. For example, if a resource can mix 200 gallons per hour, enter 200 as the Process Quantity, enter 1 for the Usage, and the UOM for hours.
9. **UOM** is the unit of measure for the planned process quantity.
10. Enter the **Total Usage** as the planned amount of time the resource can be used. This value is usually expressed in hours or partial hours. For example, enter one hour and 15 minutes as 1.25. $\text{Resource Usage} = \text{Count} * \text{Usage} * \text{Charges}$
11. **Usage UOM** is the unit of measure for the Usage field, and is usually expressed in hours. However, usage can also be calculated for electrical power and process flow rate.
12. Enter the **Start** date as the planned start date for the resource in the displayed step. This field can be edited while the batch step has a status of Pending.
13. Enter the **Completion** date as the planned completion date for the resource in the displayed step. This field can be edited while the batch step has a status of Pending or WIP.

Actual

14. The following fields are display only:
 - **Resource** displays the resource associated with the displayed step.
 - **Description** displays a brief description of the resource.
15. Enter the actual **Count** for the planned number of resources needed for this activity.

16. Enter the actual **Process Qty** of material processed by the resource. This can be edited for a WIP and Completed step.
17. **UOM** displays the unit of measure for the actual process quantity.
18. Enter the actual **Total Usage** for the resource. For example, one hour and 15 minutes is entered as 1.25. Required.
19. **Usage UOM** displays the unit of measure for the Usage field.
20. Enter **Start** as the actual start date for the resource in the displayed step.
21. Enter **Completion** as the actual completion date for the resource in the displayed step.

Scheduling Information

22. The following fields are display only:
 - **Resource** displays the resource associated with the displayed step.
 - **Description** displays a brief description of the resource.
23. Select one of the following as Resource Type:
 - **Primary** to indicate that this is the rate determining resource. It limits or determines throughput. It is also referred to as the bottleneck or critical resource. For example, the labor needed to operate the mixing equipment and the tank that holds the paint are two listed resources for paint production. The tank must be the primary resource, since even when there is an increase in labor, the time required to mix the paint does not change, since tank capacity is constant.
 - **Secondary** to indicate a resource that replaces the primary resource when it is not available. This resource performs the same task as the primary resource. It is unconstrained, and it has usage. The Advanced Planning and Scheduling application does not schedule the secondary resource.
 - **Auxiliary** for resources that work as companions with the primary resources to perform an activity. These resources do not affect the rate.
24. Enter the **Offset (Hours)** interval as the time delay from the start of the activity to the point where the resource is actually required. Required.
25. Select one of the following as **Scale Type**:
 - **Proportional** if the resource usage is scaled in a ratio that is proportional to the quantity of material being processed.

- **Fixed** if the resource usage is not scaled, regardless of the quantity of material being processed.
 - **By Charge** if resource usage is scaled in multiples based on the number of charges specified. With this type of scaling:
Resource Usage = Count * Usage * Charges
26. The following fields are display only:
- **Min Capacity** displays the minimum capacity for the displayed resource.
 - **Max Capacity** displays the maximum capacity for the displayed resource.
 - **UOM** displays the unit of measure for capacity.
 - **Constraint is:**
 - Selected if the capacity of this resource is used in calculating the step capacity.
 - Deselected if this resource is not used in calculating step capacity.

Costing Information

27. The following fields are display only:
- **Resource** displays the resource associated with the displayed step.
 - **Description** displays a brief description of the resource.
28. Enter the **Analysis** code for the resource. Analysis Codes are set up on the **Cost Analysis Codes** window in the Cost Management application. For example, you may want to distinguish between a value-added and a non-value-added activity.
29. **Analysis Description** displays a description of the analysis code.
30. Enter the **Component Class** code for the resource. Component classes group resources for reporting purposes.
31. **ComponentClass Description** displays a brief description of the Component Class field.

To enter or modify process parameters:

Click **Process Parameters**. Refer to "Adding or Modifying Process Parameters" for information on this window.

To enter or modify resource transactions

Choose **Transactions** from the **Actions** menu. Refer to "Editing Resource Transactions" for information on this window.

Adding or Modifying Process Parameters

Process parameters are a component of the process instructions necessary to run resources during the batch process. They are usually machines or instruments and are the standard for executing a task. They can be generic or specific. Each industry and company uses different machines and instruments, and there are different requirements for recording process parameters.

A process parameter details information such as temperature, pressure, or time that is pertinent to the product, but does not fall into the classification of input or output. You can use process parameters as set points, comparison values, or in conditional logic.

You can use folders and flexfields with this window.

See: *Oracle Applications User's Guide* and *Oracle Applications Flexfields Guide*

Prerequisites

- Set up process parameters.

See: *Oracle Process Manufacturing process planning user's guides* and *Oracle Process Manufacturing Product Development User's Guide*.

To display the Resource Process Parameters window:

1. Navigate to the **Resource Process Parameters** window from the **Step Resources** window.
2. The following fields are display only:
 - **Document** displays the batch number where the process parameters actual values are added.
 - **Status** displays the batch status.
 - **Step** displays the step of the batch.
 - **Step Status** displays the status of the step.
 - **Operation** displays the operation of the step, the **Operation Version**, and the **OperationDescription**.

- **Activity** displays the activity related to the step and the **Activity Description**.
- **Resource** displays the resource attached to the activity and the **Resource Description**. This is the resource that has the process parameters attached to it.
- **Device** displays the code for the process device.

To enter or modify process parameters:

1. Position the cursor in the **Process Parameter** field, and enter one of the listed process parameters. Required.
2. The following fields default from the process parameter set up in the planning application:
 - **Process Parameter** is the name of the process parameter.
 - **Description** is a description of the process parameter entered.
 - **Target** indicates the target value for the process parameter.
 - **Actual** displays the actual value from the machine or process. You can only enter this value if the step has a status of WIP or Complete.
 - **Minimum** is the lowest acceptable value for a numeric range type of process parameter.
 - **Maximum** is the highest acceptable value for a numeric range type of process parameter.
 - **Units** is the unit of measure for the process parameter.
3. Enter a flexfield for the process parameter, if desired.

To read the process parameter:

Select the process parameter and click **Read Selected Process Parameter**. Refer to the *Oracle Process Manufacturing Process Operations User's Guide* for more information.

Associating Batch Steps with Items

The Step Material Association window lets you modify the batch steps in pending batches, where items are introduced into or yielded from the production process.

It is currently an optional window used to record information for user defined reports. The application provides a record of ingredients or items that go into a given batch step.

Use this window to change any of the steps where items are introduced into or yielded from the process.

Prerequisites

- Create a batch.

To associate batch steps with batch items:

1. Navigate to the **Batch Steps** window.
2. Select the **Step** to modify.
3. Choose **Item-Step Association** from the **Actions** menu. The **Step Material Association** window displays for the selected step.
4. The following fields are display only:
 - **Document** displays the batch document number.
 - **Status** displays the status of the batch.
 - **Routing** displays the routing used in the batch.
 - **Routing Version** displays the routing version number.
 - **Routing Description** displays a brief description of the routing.
 - **Formula** displays the formula used in the batch.
 - **Formula Version** displays the formula version number.
 - **Formula Description** displays a brief description of the formula.
 - **Step** displays the batch step number.
 - **Operation** displays the operation code.
 - **Version** displays the operation version number.
 - **Description** displays a brief description of the operation.
 - **Planned Quantity** displays the planned quantity processed by the step with its UOM.
5. Enter the **Step** number to associate to the item listed on the same line.

6. The following fields are display only:
 - **Line Type** displays:
 - **Ingredient** if the item is an ingredient in the formula.
 - **Product** if the item is a product in the formula.
 - **By-Product** if the item is a byproduct in the formula.
 - **Line** displays the line number of the material in the formula.
 - **Item** displays the item code.
 - **Revision** displays the item revision.
 - **Description** displays a brief description of the item as it appears on the Item Master.
 - **Planned Quantity** displays the planned quantity of material to be used in the batch with its **UOM**.

Using the Theoretical Yield Calculation

The Calculate Theoretical Yield dialog box lets you adjust the product quantities based on the ingredient quantities and a user-defined yield factor. The application sums the quantities of all ingredients that contribute to yield. This sum is multiplied by the yield percent, and the product quantities are adjusted to total the resulting quantity. This only adjusts the total product quantities, while leaving the ingredient quantities unchanged.

Prerequisites

- Create a batch or firm planned order.

To calculate theoretical yield for batches:

1. Navigate to the Calculate Theoretical Yield dialog box.
2. Enter the **Yield Percent**.
3. Click **OK**.

To calculate theoretical yield for firm planned orders:

1. Navigate to the Calculate Theoretical Yield dialog box.
2. Enter the **Yield Percent**.
3. Click **OK**.

Understanding Batch Scaling

Scale batches up or down by input or output:

- If the batch ingredients are scaled, then a specific scaling factor is applied to all scalable ingredients. A calculated output scale factor is applied to all scalable outputs.
- If the batch outputs are scaled, then a factor is applied to all scalable outputs. A calculated input scale factor is applied to all scalable ingredients.

In order for this approach to be successful, specify whether the quantities of each item in the batch are fixed or scalable.

Proportional scaling is the least complex scale type since the given and calculated factors are applied appropriately to the scalable item inputs or outputs. In addition to being present in fixed or scalable quantities, items in a batch can contribute to the yield. In order to scale batches properly, specify whether the ingredients need to be increased using fixed or proportional scaling. It is possible to have fixed scale ingredients that do not contribute to yield.

Scale Type Definitions

The quantities of items which are fixed scale are not altered when a formula or batch is scaled. For example, if a formula has a fixed scale ingredient with a quantity of 10 kg and the formula is scaled by a factor of two, then the quantity remains fixed at 10 kg.

Items that are proportionally scaled have their quantities changed when a formula is scaled up or down. With proportional scaling, the scaling is continuous in that the scaled quantities can contain decimals. Proportionally scaled items may or may not contribute to yield.

While proportional scaling makes sense for many items in process industries, it does not make sense for all items.

The following lists the types of batch scaling available:

- Type 1 is Proportional scaling.
- Type 2 is Integer scaling.

- Type 0 is Fixed scaling.

The following lists the Contribute to Yield types available in Process Execution:

- Yes indicates that an ingredient contributes to yield.
- No indicates that an ingredient does not contribute to yield.

Understanding Scale Type Rules

The following summarizes the business rules in effect for scale types:

- The Contribute to Yield type for ingredients can be set to Yes or No.
- Products and byproducts cannot have an Integer scale type.
- Ingredients can be assigned a scale type of Fixed, Proportional, or Integer.
- If an ingredient is assigned a scale type of Integer, then it must also be assigned a:
 - Scale Multiple, to specify the multiple in which the ingredient can be used in a batch. For example, a Scale Multiple of 30 indicates the ingredient is used in quantities of 30, 60, or 90, and so forth.
 - Rounding Variance, to specify an acceptable percent deviation up or down from the calculated ingredient quantity. If the Rounding Variance field is left blank, then rounding occurs without regard to variance. You do not have to enter any value for ingredients that have a scale type of integer. If the rounding variance is not entered, then the value is appropriately rounded up or down to the integer value depending on the rounding direction without respect to the variance.
 - Rounding Direction, to specify whether the quantity of material must be rounded up to the next higher scale multiple of material, down to the next lowest scale multiple of material, or if the material can be rounded up or down. If the material can be rounded up or down, then it is rounded to the nearest multiple.

Fixed Scale

To scale a batch with fixed scale items, the application must convert the quantities of ingredients, products, and byproducts to a common unit of measure. The unit of measure used for this calculation is the base unit of measure specified by the Oracle Process Manufacturing (OPM) Product Development Parameter Default Consumption/Yield Type. This is usually mass. All items in the batch that contribute to yield must be convertible to this unit of measure.

Refer to "Setting Up" and the *Oracle Process Manufacturing Product Development User's*

Guide for more information on OPM Product Development parameters.

If the batch contains fixed quantity ingredients that contribute to yield, then the scalable ingredients are scaled by an amount necessary to produce the new product quantity, not by the percent entered as the scale factor. If all products are set to fixed quantity, then no quantities in the batch are changed.

Fixed Scale With Yield Contribution

The quantities of items for this scale type are not altered when a batch or batch step is scaled. If a batch has a fixed scale ingredient with a quantity of 2000 kg and the batch output is scaled by a factor of 2, then the quantity remains fixed at 2000 kg.

These quantities are taken into account when calculating the factor to apply to the scalable ingredients so that the yield ratio is preserved. In the example that follows, the ratio is 115:120 before scaling and 230:240 after scaling the output by a factor of 2.

Item	Batch Quantity	Quantity After Scaling
Product A	11500 kg	23000 kg
Ingredient A, Proportional Scaling	5000 kg	11000 kg
Ingredient B, Proportional Scaling	5000 kg	11000 kg
Ingredient C, Fixed and Contributing	2000 kg	2000 kg

Fixed Scale Without Yield Contribution

The quantities of items for this scale type are also not altered when a batch is scaled. This is the same as the previous example, however the item quantities are not considered when scaling the remaining ingredients. These quantities have no effect on scaling at all. For example, in the following, batch Ingredient C is fixed scale without yield contribution. If the product is scaled by a factor of 2, then the quantities after scaling appear as if ingredient C were not included.

Item	Batch Quantity	Quantity After Scaling
Product A	10000 kg	20000 kg
Ingredient A, Proportional Scaling	5000 kg	10000 kg

Item	Batch Quantity	Quantity After Scaling
Ingredient B, Proportional Scaling	5000 kg	10000 kg
Ingredient C, Fixed and Noncontributing	2000 kg	2000 kg

See: *Oracle Process Manufacturing Inventory Management User's Guide*

Proportional Scale

If the batch contains proportionally scalable ingredients, then the scalable ingredients are increased in a direct ratio to produce the new product quantity. In the following example, Product A is proportionally scaled from 10000 kg to 20000 kg.

Item	Batch Quantity	Quantity After Scaling
Product A	10000 kg	20000 kg
Ingredient A, Proportional Scaling	5000 kg	10000 kg
Ingredient B, Proportional Scaling	5000 kg	10000 kg

With proportional scaling, Ingredient A and Ingredient B are multiplied by a factor of 2.

Examples of Single and Mixed Scale Types

The following discussion compares different scale types:

Single Type Scaling

If a batch consists solely of proportionally scalable items, then scaling the output or the input scales everything in the same ratio. It is also possible to construct a batch from items that are all fixed scale. This batch is ineligible for scaling.

Mixed Type Scaling: Fixed and Proportional With Yield Contribution

If a batch contains both fixed and proportionally scaled items, then the factor applied to the scalable quantities is not the same as the overall scaling factor. Consider a batch that yields 3000 kg of scalable product by converting 1000 kg of fixed scale Ingredient 1 and 2000 kg of scalable Ingredient 2. If the product is scaled by a factor of 2 to produce 6000

kg, then 5000 kg of Ingredient 2 is required, not 4000 kg. The factor applied to the Ingredient 2 quantity is therefore 2.5 rather than 2. If the inputs are scaled by a factor of 2, then the output is 5000 kg, or 2 times 2000 kg of Ingredient 2 plus 1000 kg of Ingredient 1. The yield of the product is scaled by a factor of 1.667 rather than by a factor of 2, as shown in the following:

Item	Batch Quantity	Quantity After Scaling
Product B	3000 kg	6000 kg
Ingredient 1 Fixed and Contributing	1000 kg	1000 kg
Ingredient 2 Proportional Scaling	2000 kg	5000 kg

Mixed Type Scaling: Proportional With Yield Contribution and Fixed Without Yield Contribution

If the fixed quantity of an ingredient has no effect on batch yield, then the batch line yield contribution field must indicate this. When a fixed quantity item that does not contribute to yield is encountered by the scaling algorithms, the item quantity is not scaled, and is ignored when deriving the scale factor to apply to the remaining items. The batch is treated as consisting only of the remaining items.

If a batch is scaled so that 2000 kg of scalable product is made by converting 2000 kg of scalable Ingredient 1 in the presence of 1000 kg of fixed scale Ingredient 2 that does not contribute to the yield, then the output doubles. Scaling the inputs by a factor of 2 doubles the output quantity, since the fixed scale ingredient quantity is not to be changed. It does not matter if 100 kg of Ingredient 2 is used. The same is true when outputs are scaled.

Item	Batch Quantity	Quantity After Scaling
Product C	2000g	4000 kg
Ingredient 1 Proportional Scaling	2000 kg	4000 kg
Ingredient 2 Fixed and Noncontributing	1000 kg	1000 kg

Understanding Integer Scaling

Some material in process industries is picked from inventory in eases, such as a 30 pound bag of defoamant or a box of antistatic sheets. If an item is issued in 30 pound bags, then it is supplied in full bags and managed on the production floor appropriately. If the UOM used in the formula or batch is the bag, then scale in whole integer increments. To express the ingredient in pounds, the use of integer scaling is not sufficient. You need a way to specify that the ingredient must only be scaled in multiples of 30 pounds.

When materials are scaled by a multiple, a scaling direction and a rounding variation value need to be specified so that the scaled quantity is rounded properly. Scaling by a multiple results in ingredients being rounded up or down to the next whole multiple specified for the item in the batch. It is possible that the batch ingredient is not scaled as a result of not meeting the criteria to round up or down.

If the Rounding Variance field is left blank, then rounding occurs without regard to variance.

Examples of Integer Scaling

When the Integer scale type is selected, specify the Scale Multiple, Rounding Variance, and Rounding Direction. In the following example, Product C is scaled up by 60 percent.

Simple Integer Scaling

The following is a simple example of using the Integer scale type with directional rounding:

Item	Batch Quantity	Quantity After Scaling
Product Pkg1	1000 kg	2500 kg
Ingredient 1 Proportional Scaling	1000 kg	2500 kg
Ingredient 2 Integer	1 pallet	3 pallets

Ingredient 2 has a Batch Quantity of 1 pallet with the following specifications:

- Scale Multiple = 1
- Rounding Variance = 100 percent
- Rounding Direction = Either

Since it is not possible to use 2.5 pallets, the Integer scale type rounds the requirement up to 3 pallets.

Complex Integer Scaling

The following example is a more complex example of using the Integer scale type with directional rounding:

Item	Batch Quantity	Quantity After Scaling
Product C	2000 kg	3200 kg
Ingredient 1 Proportional Scaling	2000 kg	3200 kg
Ingredient 2 Integer	25 kg	40 kg

Ingredient 2 has a Batch Quantity of 25 kg with the following specifications:

- Scale Multiple = 25 kg
- Rounding Variance = 30 percent of the Batch Quantity After Scaling. This is 0.3 of 40 kg, or up to 12 kg
- Rounding Direction = Down

The decision is whether to use 25 kg or 50 kg of material to produce Product C, since Ingredient 3 is only dispensed in multiples of 25 kg. The differences between the required Batch Quantity and the Scale Multiple is 10 kg for the Up Rounding Direction, and 15 kg for the Down Rounding Direction. The Down Rounding Direction is calculated as follows:

- Lower Scale Multiple - Quality After Scaling
 $= 25 - 40$
 $= -15$ kg for the Down Rounding Direction

Take the absolute value of any negative Rounding Direction. In this case, the lower Rounding Direction has an absolute value of 15 kg.

The acceptable Rounding Variance is up to 12 kg. The Rounding Direction is Down, and the calculated absolute value for the down Rounding Direction is 15 kg, representing 3 kg more than the acceptable Rounding Variance. It is not acceptable to round down to 25 kg, so 40 kg of Ingredient 3 must be used in the batch.

If the Rounding Direction were Up, then it is acceptable to use 50 kg of Ingredient 3, since a 10 kg difference is less than the acceptable Rounding Variance of 12 kg. The Up Rounding Direction is calculated as follows:

- Upper Scale Multiple - Quantity After Scaling
= 50 - 40
= 10 kg for the Up Rounding Direction.

Limitations for Repeated Scaling of an Integer Scaled Item

Scaling issues occur when an item with an Integer scale type is scaled more than once during the production cycle. The following example presents the issues:

Item P1 is a product with an original quantity of 100 units. Its planned quantity before scaling is 100.

Item P1 is composed of the following ingredients:

- I1, ingredient one, has a original quantity of 100 units and is scaled proportionately.
- I2, ingredient two, has a original quantity of 50 units and is scaled proportionately.
- I3, ingredient three, has an original quantity of 25 units and is scaled with the Integer scale type. The increment is 25, the rounding tolerance is 100 percent, and the scaling direction of Up.

When item P1 is scaled from 100 to 150 units:

- I1 is scaled from 50 to 75 units.
- I2 is scaled from 25 to 37.5 units.
- I3 is scaled from 25 to 37.5, and rounded up to 50 using the specified increment and rounding tolerance.

If item P1 is scaled again from 150 units to 300 units, then a proportional scaling factor of two is applied to the planned quantity:

- I1 is scaled from 75 to 150 units.
- I2 is scaled from 37.5 to 75.

A scaling issue occurs with I3, since the quantity calculated at second scaling is 100. However, it must be scaled to 75. This calculation is obvious when the original quantity is used for scaling. If the original quantity is used, then there is no issue.

If an ingredient, I4, is added to the batch, then its original quantity is zero. When a scale factor is applied, the quantity remains zero. If the original quantity of P1 was itself an scale multiple, and scaling occurred at batch creation, then using the original quantity does not prevent the rounded quantity from being scaled. This results in an inflated quantity when the rounding direction is up, or a deflated quantity when the rounding direction is down.

Editing a Planned Quantity of Ingredient Manually

If a planned quantity is edited manually, then it is not possible to use either the original quantity or the formula quantity, since using either quantity results in loss of the manually entered quantity. For example, if the planned quantity of I1 is adjusted from 75 to 85 after the batch is scaled initially, then the application of the scale factor results in a new scaled quantity of 150, rather than 170.

Resolving the Issues

You have the option to choose either the original formula quantity or the planned quantity of an ingredient when you attempt to scale an item with an Integer scale type.

Using the Original Formula Quantity

The original formula quantity is used for scaling. No rounded quantities are used. If items are inserted in the batch, then there is no formula quantity, and these items are not scaled. Enter their quantities manually. The issue of inflated or deflated scaled quantities is eliminated.

Using the Planned Quantity

Edits made to the planned quantity are not lost. Rounded quantities are scaled. This results in either inflated or deflated quantities. Enter these quantities manually.

Scaling a Batch or Firm Planned Order

The Scale Batch window lets you scale a batch or firm planned order by a percentage or a specific amount. When a pending batch is scaled, the application updates the planned quantity of items and other planned numbers, such as step quantity and resource usage.

When a work in process batch is scaled, the application updates the work in process planned quantities for material, however step quantity and resource usage are not scaled.

- If the automatic step quantity calculation is off, then the planned numbers for Pending steps are scaled, and WIP and Completed steps are not changed.
- If the automatic step quantity calculation is on, then the step quantities and resource usage are not changed, since none of the material quantities used were changed. Once the steps are completed, the automatic step quantity calculation selects the appropriate actual quantities to use in calculations.

Using a Percent to Scale Materials

You enter a percentage to scale any scalable ingredient up or down by a percent of the displayed quantity. For example, if you enter 100 percent, then the quantity of the selected item is scaled up by 100 percent, or doubled, and the other quantities are increased accordingly. If you enter -50, or negative fifty percent, then the item quantity

is decreased by half.

Using an Item Quantity to Scale Materials

This is the simplest method to scale any scalable ingredients. Enter a new quantity of material.

Prerequisites

- Create a batch or firm planned order.
- Batch status must be Pending or WIP.
- Completed batches must be reverted to work in process prior to scaling.

To scale material in a batch or firm planned order by a percentage:

1. Select the material to scale. For example, select the product.
2. Choose one of the following from the **Tools** menu:
 - **Scale Batch.** The Scale Batch dialog box displays.
 - **Scale Firm Planned Order.** The Scale Firm Planned Order dialog box displays.
3. Select **Percent**.
4. Enter a percentage for the scaling **Factor**. For example, to double the material, enter 100.
5. Click **OK**.

To scale material in a batch or firm planned order by entering a new quantity:

1. Select the material to scale. For example, select the product.
2. Select one of the following from the **Tools** menu:
 - **Scale Batch.** The Scale Batch dialog box displays.
 - **Scale Firm Planned Order.** The Scale Firm Planned Order dialog box displays.
3. Select **Item Quantity**.
4. Select one of the following:

- **Planned Qty** to scale the batch by the planned quantity.
 - **Formula Qty** to scale the batch by the original formula quantity.
5. The following fields are display only:
 - **Line** displays the line number of the material.
 - **Item** displays the item code of the material.
 - **Description** displays a brief description of the material.
 - **Old Quantity** displays the quantity to rescale with its **UOM**.
 6. Enter a **New Quantity** for the material.
 7. Select **Recalculate Dates** to calculate the new dates after scaling the batch.
 8. Select **Use Workday Calendar** to use the workday calendar to recalculate the dates
 9. Click **OK**.

To scale a completed batch:

1. Choose **Revert to WIP** from the **Actions** menu to change the batch status to work in process.
2. Scale the batch as described in this topic.

Rescheduling a Batch

The Reschedule dialog box is available from the Batch window. Use it to change a scheduled batch. Change the planned start date and time on a Pending batch. You can also change the planned completion date and time on a Pending or WIP batch. Completed batches cannot be rescheduled.

By changing the planned start date and time, you also change the planned start date and time for any pending ingredient transactions. By changing the planned completion date and time, you also change the planned completion date and time for any pending autorelease product and byproduct transactions.

If you change either the Planned Start or Planned Completion dates, then the application queries whether to apply the change to the other field. If you respond Yes, then the application calculates the duration of the batch, and computes the other date by taking the workday calendar into account if it is selected for use.

Refer to "Workday Calendar Impact on Scheduling Batches and Firm Planned Orders"

for additional information on using the workday calendar to reschedule batches.

Prerequisites

- Create a batch.

To reschedule a batch:

1. Navigate to the Reschedule dialog box.
2. Enter one of the following:
 - **Planned Start** date for the batch. You can only edit this field if the batch has a status of Pending.
 - **Planned Completion** date for the batch.
3. Select **Use Workday Calendar** to use the workday calendar to reschedule dates.
4. Click **OK**.
5. A decision box displays the message:

Do you want the application to recalculate the other date based on the batch duration? If you click No, then date gaps or date truncation can occur.
6. Click **Yes** to recalculate either the Planned Start or Planned Completion dates based on the date entered in step 2.
7. If the Batch is finite scheduled, then the following message displays:

This batch was previously scheduled by Manufacturing Scheduler, continue (Y/N)?

Click **Yes** to reschedule. Note that if the batch is rescheduled, then the finite scheduled indicator on the Batch Details window is reset.

Batch Materials

Understand and use batch reservations, material move orders, and inventory transactions. Understand differences between high-level reservations and detailed-level reservations. Create detailed-level reservations. Understand material transactions. View move orders and enter pending product lots. Understand how to manage inventory shortages and to reserve a batch as a supply source for inventory reservations. Cross-integrate the Process Execution application with Mobile Supply Chain applications for Oracle Process Manufacturing.

This chapter covers the following topics:

- Requirements
- Using Reservations, Move Orders, and Transactions
- Understanding Batch Reservations
- Creating High-Level Reservations
- Creating Detailed-Level Reservations
- Entering Reservations
- Creating Reservations Using the Simulator and Optimizer
- Transacting Materials
- Viewing Material Transactions
- Using the Lot Entry Window
- Viewing Material Exceptions
- Editing Material Transactions
- Viewing Move Orders
- Entering Pending Product Lots
- Managing Inventory Shortages
- Using the Select Available Inventory Window

- Reserving a Batch as a Supply Source for Inventory Reservations
- Integrating Process Execution with Mobile Supply Chain Applications

Requirements

Does the application support automatic ingredient reservation?

Yes. The application can reserve ingredients automatically or manually.

Reserve Ingredients Automatically or Manually

Use automatic reservation to select lots without your intervention. Make manual reservations using the Item Reservations window and Select Available Inventory window. The Picking Rules engine provides the appropriate input parameters like Batch, Product, Ingredient, and Material Requirement Date for reservation suggestions that indicate the lots from which the material can be picked.

Can inventory shortages be managed from the shop floor?

Yes. The Inventory Shortages window displays a line by line summary of materials that have a planned quantity greater than available inventory.

Manage Inventory Shortages from the Shop Floor

Inventory shortages display in the Inventory Shortages window. Production Operators can determine the shortage and act on it immediately from the shop floor.

Using Reservations, Move Orders, and Transactions

The following sequence of steps summarizes how you can use reservations, move orders, and transactions to control material movement from staging to production:

1. Create a batch.
2. Optionally, create high-level or detailed-level reservations or both.

Reservations are a guarantee of available inventory. When you create a batch, if there is sufficient available inventory, then you can configure the application optionally to create a high-level reservation. This high-level reservation guarantees the quantity you need is available at the time of batch production. Once the batch is created, you can also create detailed-level reservations. A detailed reservation specifies the lot to reserve, and the subinventory and locator from which to reserve it.

Refer to "Creating High-Level Reservations" and "Creating Detailed-Level Reservations" for more information.

3. Create a move order.

Move orders are documents used to control the movement of inventory. Move orders are useful to manufacturers to more closely model and control the movement of inventory from storage locations to a production staging location or shop floor. The use of move orders is optional in Process Execution. Use move orders by selecting Create Move Order parameter. Move order is allocated to the batch when you perform picking and is based on picking rules. The picking rules provide suggestions for picking material from the inventory. If you select the Rule Based Reservation Time Fence parameter, then you can use picking rules.

Refer to "Setting Up" for more information on setting up parameters.

4. Pick material and move to supply subinventory. This creates a detailed reservation to the batch in the supply subinventory.
5. Consume the ingredient from the supply subinventory by releasing the batch, releasing a step, performing incremental backflushing, or by consuming manually.
6. View the details of the ingredient consumption that are recorded as material transactions on the View Material Transactions window.

Understanding Batch Reservations

A reservation is a guaranteed allotment of material to a specified demand or supply source. Reservations can be made against on-hand inventory or different document types like a batch, sales order, or purchase order. You can have high-level or detailed-level reservations for items in a batch. A high-level reservation guarantees that the quantity you need is available in the inventory when you execute the batch. A detailed reservation specifies the lot to reserve, and the subinventory and locator from which to reserve it. Once you have detailed reservations for a material to a batch, other sources of demand are prevented from reserving or using this inventory.

When inventory is allocated during picking, reservation is used as the basis for this allocation, and when the inventory is consumed the reservation is relieved. If there is no detailed reservation, then the allocation is done based on the picking rules. Refer to "Ingredient Picking Workbench " for information on ingredient picking and the *Oracle Inventory User's Guide* for detailed information on picking rules.

Reservations can be transferred from one demand or supply source to another, but reserved inventory cannot be allocated to another demand source or transferred to inventory. The Item Reservations window is used to view and update batch reservations. Reservations are not updated automatically upon change in planned or WIP planned quantity. View all unconsumed reservations as exception quantities on the Material Exceptions window.

Firm Planned Orders cannot have reservations as they are used for planning a batch and actual inventory does not need to be reserved while planning. Lab batches with update inventory indicator set to No cannot have any reservations. A lab batch with update inventory set to Yes is treated as a regular batch and it can have reservations

and be both a source of demand or supply.

Creating High-Level Reservations

Create high-level reservations to ensure that items required for batch production are available in the inventory organization. High-level reservations are created automatically during batch creation when Create High-Level Reservations is enabled and the material requirement date is within the Reservation Time Fence specified on the Oracle Process Manufacturing (OPM) Process Execution Parameters window. Refer to "Setting Up" for information on OPM Process Execution parameters.

You can also create high-level reservations for a batch or a material line by choosing Reserve Batch and Reserve Line respectively from the Inventory menu on the Batch Details window.

If the entire planned quantity for an ingredient is not available in the inventory, then the high-level reservation is created only for the available quantity. You can create reservations for a batch or a material line. Creation of high-level reservation is allowed in pending and WIP status of a batch or for items associated with steps. High-level reservations cannot be created for lot indivisible items.

Prerequisites

- Create a batch.

To create high-level reservations for a batch:

1. Navigate to the **Batch Details** window.
2. Choose **Reserve Batch** from the **Inventory** menu. **Reserved Qty** displays the reserved ingredient quantity.

To create high-level reservation for a material line:

1. Navigate to the **Batch Details** window.
2. Select the material line.
3. Choose **Reserve Line** from the **Inventory** menu. **Reserved Qty** displays the reserved quantity for that line.

Creating Detailed-Level Reservations

A detailed-level reservation is an inventory reservation for an item at a more detailed-level of inventory control-revision, lot, subinventory, and locator. Detailed reservations are 'hard' reservations; once you have reserved material to a batch, other

sources of demand are prevented from reserving or using this inventory. Detailed-level reservations can also be partially detailed. For example, you can reserve a lot without having to specify the subinventory or locator. If the lot is moved around between the time you create the reservation and the time it is needed in the batch, then you do not have to update the reservation. If the lot exists in more than one location at the time it is needed, then it can be picked from any of those locations based on picking rules.

Reservation of a lot-controlled item at the subinventory level cannot be created without specifying the lot information. Detailed-level reservations can be created manually or automatically. A detailed reservation can be created in the following ways:

- Material can be selected automatically by the application using picking rules. This is also referred to as Rules Based Reservation.
- Material can be selected and reserved from the Select Available Inventory window.
- Detailed reservations can be entered manually on the Item Reservations window.

Rules Based Reservations

Rules based reservations enable the creation of detailed-level reservations based on suggestions from picking rules. Picking rules can be inventory picking rules or the Oracle Warehouse Management Systems (WMS) picking rules in case of WMS-enabled organization. The application determines whether the item qualifies for rule-based reservations depending on the Rule Based Reservations Time Fence parameter and the item requirement date. If the requirement date is within the reservation time fence, then the item qualifies for rules-based reservation. Refer to "Setting Up" for more information.

To create rules-based reservation automatically:

1. Navigate to the **Batch Details** window.
2. Choose **AutoDetail Batch** from the **Inventory** menu. **Reserved Qty** displays the reserved quantity for the ingredients.

To create detailed-level reservation for a material line:

1. Navigate to the **Batch Details** window.
2. Select the material line.
3. Choose **AutoDetail Line** from the **Inventory** menu. **Reserved Qty** displays the reserved quantity for that line.

To create a detailed-level reservation manually:

Create detailed-level reservation manually for a batch and material lines using the

Select Available Inventory window from the Item Reservations window. Refer to "Using the Select Available Inventory window" for more information.

To create a detailed-level reservation using the Item Reservations window:

Create a detailed-level reservation manually for a batch and material lines using the Item Reservations window. Refer to "Entering Reservations" for more information.

Entering Reservations

The Item Reservations window lets you view, insert, and update the reservations for a batch.

To enter reservations:

1. Navigate to the **Batch Details** window.
2. Click **Reservations** or choose **Maintain Reservations** from the **Inventory** menu.

Refer to the *Oracle Inventory User's Guide* for detailed information on the Item Reservations window.

Creating Reservations Using the Simulator and Optimizer

You can create reservations for a batch using the Oracle Process Manufacturing Product Development Simulator and Optimizer tool. Refer to the *Oracle Process Manufacturing Product Development User's Guide* for detailed information.

Transacting Materials

The Material Transactions window displays all the material transactions for a batch and can complete the transactions for materials reserved for a batch. If you do not have any material reservations for a batch, then enter material transactions by entering the required quantities on this window and then transacting them. The transaction date also displays and has the following defaults:

- When the batch is created, ingredient transactions default to the planned start date of the batch. Ingredients with a consumption type of Automatic by Step default to the planned start date of the step to which they are associated.
- When the batch is released, ingredients with a consumption type of automatic default to the actual start date and time and the transaction is completed.
- Ingredients with a consumption type of manual or incremental default to the system date and time when the completion indicator on the Line Allocations

window is selected. For incremental consumption items, this happens through incremental backflushing.

Transaction dates do not update if you change the:

- Actual start date after releasing a batch.
- Actual completion date after completing the batch.

When you enter material transactions in the Material Transactions window select a transaction type for:

- **Ingredients:**
 - **WIP Issue:** Issues ingredients from inventory to batches to fulfill material requirements. If you issue lot-controlled ingredients, then identify the lot numbers to issue.
 - **WIP Return:** Returns ingredients from batches to inventory. For example, when you unrelease a batch it does not consume the ingredients and returns them to the inventory. WIP Returns reverse WIP Issues.
- **Products:**
 - **WIP Completion:** Issues the products produced from the batches to the inventory.
 - **WIP Return:** Returns the products from inventory to batches. For example, if you accidentally complete a batch and revert back to WIP, then the inventory returns the products.
- **Byproducts:**
 - **WIP Completion:** Issues the byproducts produced from the batches to the inventory.
 - **WIP Return:** Returns the byproducts from inventory to batches. For example if you accidentally complete a batch and then revert back to WIP, then the Inventory returns the products.

If you issue or return lot-controlled ingredients, products, or byproducts, then specify the lots using the Lot Entry window. Refer to "Using the Lot Entry Window" for more information.

Prerequisites

- Create a batch.

- Release the batch.

To transact material:

1. Navigate to the **Batch Details** window.
2. Choose **Transact Material** from the **Inventory** menu.
3. The **Material Transactions** window displays.
4. The following fields are display only:
 - **Line Type** indicates the material type as ingredient, product, or byproduct.
 - **Line** is the line number of the material in the batch.
 - **Item** is the inventory item on the material line.
 - **Revision** is the revision of the item on the material line.
 - **Target Qty** is the quantity of the item to transact for the current transaction. This field has the following defaults:
 - When you release a batch, the WIP planned quantity is the target quantity.
 - When you incrementally backflush a batch, the incremental quantity is the target quantity.
 - **Transacted Qty** is the quantity of the item transacted in the current transaction.
 - **Exception Qty** is the quantity of the item not transacted in the current transaction.
 - **UOM** is the unit of measure in which the item is expressed.
 - **Subinventory** is the subinventory for the item.
 - **Locator** is the locator in the subinventory for the item.
 - **WIP Plan Qty** is the planned quantity of the item to consume or yield.
 - **Actual Qty** is the actual quantity of the item consumed or yielded.
5. **Pending Move Orders** is selected when pending move orders exist for this item. It is deselected when there are no pending move orders.
6. **Pending Reservations** is selected when unconsumed reservations exist for this item. It is deselected when there are no unconsumed reservations for the item.

7. **Dispensable** is selected if the item is to be dispensed. Refer to the *Oracle Process Manufacturing Process Operations User's Guide* for more information on dispensing.
8. Select **Transact** to select the material line to transact.
9. Enter a **Transaction Type** for:
 - **Products** as WIP Complete or WIP Complete Return
 - **Ingredients** as WIP Issue or WIP Return
 - **Byproducts** as WIP Complete
10. Enter **Item Revision** if the item is revision-controlled.
11. Enter the **Subinventory** from which the item is to be consumed.
12. Enter the **Locator** in the subinventory from which the item is to be consumed.
13. Enter the **Lot** number to use for the consumption if the item is lot-controlled.
14. **Quantity** is the quantity of material being consumed from the specified lot. This defaults to the reserved quantity of the item, if you have made reservations for this item. You can edit this field.
15. **UOM** is the unit of measure in which the quantity is expressed.
16. **Secondary Qty** is the quantity of material to consume or yield, if the item is dual unit of measure controlled.
17. **Secondary UOM** is the unit of measure in which the secondary quantity is expressed.
18. Enter a **Reason** code as the reason for the transaction.
19. **Transaction Date** is the date of transaction.
20. **Primary Qty** is the quantity of the item to consume or yield in the primary unit of measure.
21. **Primary UOM** is the primary inventory unit of measure for the item.
22. **Onhand Qty** is the total quantity available in inventory in the specified subinventory and locator.
23. **Available to Transact** is the usable material that you can use for the transaction.
24. Click **Transact** to complete the transaction or click **Cancel** to cancel the changes and

close the window.

To view move orders:

Click **Move Order**. Refer to "Viewing Move Orders" for more information.

To select the available inventory for creating transactions :

Choose the **Select Available Inventory** from the **Actions** menu. Refer to the *Oracle Inventory User's Guide* for more information on this window.

To assign lot numbers:

Click **Lot Serial**. Refer to "Using the Lot Entry Window" for more information.

Viewing Material Transactions

You can view the material transactions for a batch using the View Material Transactions window. The configuration for this window is the same as the Material Transactions window except that the fields are not editable.

To view the material transactions for a batch:

1. Navigate to the **Batch Details** window.
2. Choose **View Material Transactions** from the **Inventory** menu. Refer to "Transacting Materials" for a detailed window description.

Using the Lot Entry Window

The Lot Entry window lets you choose lot numbers for the line item quantity to issue or return. You can view the Lot Entry window only for items that are lot-controlled. Lot/Serial is not enabled if a Lot is already entered on the Material Transactions window.

To assign lot numbers:

1. Navigate to the **Material Transactions** window.
2. Click **Lot/Serial**.

Refer to the *Oracle Inventory User's Guide* for detailed description of the window.

Viewing Material Exceptions

The Material Exceptions window displays the items not transacted. This window has

the same field definition as the Material Transactions window and displays when you:

- Release a batch and any ingredients with a consumption type of Automatic and are not fully transacted.
- Release a step and any ingredients associated with the step that have a consumption type of Automatic by Step and are not fully transacted.
- Use incremental backflushing and the quantities that are backflushed and are not fully transacted.
- Complete a batch and have not transacted any of the ingredients, products, or byproducts in the batch.
- Complete a batch step and any items associated to the step with a consumption type or yield type of Automatic by Step and are not fully transacted.

The Material Exceptions window lets you:

- View ingredients that have unconsumed or partially specified reservations with the reservation already entered in the transaction block.
- Manually create transactions for any material type.
- Use Select Available Inventory for ingredients to create either detailed reservations or transactions.

Prerequisites

- Create a batch.
- Create reservations.
- Release, complete, or incrementally backflush the batch.

To view material exceptions:

1. Navigate to the **Material Exceptions** window.
2. The following fields are display only:
 - **Line Type** indicates the material type as ingredient, product, or byproduct.
 - **Line** is the line number of the material in the batch.
 - **Item** is the inventory item on the material line.
 - **Revision** is the revision of the item on the material line.

- **Target Qty** is the quantity of the item to transact for the current transaction. This field has the following defaults:
 - When you release a batch, the WIP planned quantity is the target quantity.
 - When you incrementally backflush a batch, the incremental quantity is the target quantity.
 - **Transacted Qty** is the quantity of the item transacted in the current transaction.
 - **Exception Qty** is the quantity of the item not transacted in the current transaction.
 - **UOM** is the unit of measure in which the item is expressed.
 - **Subinventory** is the subinventory for the item.
 - **Locator** is the locator in the subinventory for the item.
 - **WIP Plan Qty** is the planned quantity of the item to consume or yield.
 - **Actual Qty** is the actual quantity of the item consumed or yielded.
3. **Pending Move Orders** is selected when pending move orders exist for this item. It is deselected when there are no pending move orders.
 4. **Pending Reservations** is selected when unconsumed reservations exist for this item. It is deselected when there are no unconsumed reservations for the item.
 5. Select **Dispensable** if the item is to be dispensed.
Refer to the *Oracle Process Manufacturing Process Operations User's Guide* for more information on dispensing.
 6. Select **Transact** to select the material line to transact.
 7. Enter a **Transaction** Type for:
 - **Products** as WIP Complete or WIP Complete Return
 - **Ingredients** as WIP Issue or WIP Return
 - **Byproducts** as WIP Complete
 8. Enter **Item Revision** if the item is revision-controlled.
 9. Enter the **Subinventory** from which the item is to be consumed.

10. Enter the **Locator** in the subinventory from which the item is to be consumed.
11. Enter the **Lot** number to use for the consumption if the item is lot-controlled.
12. **Quantity** is the quantity of material being consumed from the specified lot. This defaults to the reserved quantity of the item, if you have made reservations for this item. You can edit this field.
13. **UOM** is the unit of measure in which the quantity is expressed.
14. **Secondary Qty** is the quantity of material to consume or yield, if the item is dual unit of measure controlled.
15. **Secondary UOM** is the unit of measure in which the secondary quantity is expressed.
16. Enter a **Reason** code as the reason for the transaction.
17. **Transaction Date** is the date of transaction.
18. **Primary Qty** is the quantity of the item to consume or yield in the primary unit of measure.
19. **Primary UOM** is the primary inventory unit of measure for the item.
20. **Onhand** is the total quantity available in inventory in the specified subinventory and locator.
21. **Available to Transact** is the usable material that you can use for the transaction.
22. Click **Proceed** to complete the transaction or **Cancel** to cancel the changes and return to the Batch Details window.

Editing Material Transactions

The Correct Material Transactions window displays the transactions for all materials of a batch and lets you make corrections to the displayed completed transactions.

Prerequisites

- Create a batch.
- Create reservations.
- Transact the batch reservations.

To correct transaction corrections:

1. Navigate to the **Batch Details** window.
2. Choose **Correct Material Transactions** from the Inventory menu.
3. The **Correct Material Transactions** window displays.
4. The following fields are display only:
 - **Line Type** indicates the material type as ingredient, product, or byproduct.
 - **Line** is the line number of the material in the batch.
 - **Item** is the inventory item on the material line.
 - **Revision** is the revision of the item on the material line.
 - **Target Qty** is the quantity of the item to transact for the current transaction. This field has the following defaults:
 - When you release a batch, the WIP planned quantity is the target quantity.
 - When you incrementally backflush a batch, the incremental quantity is the target quantity.
 - **Transacted Qty** is the quantity of the item transacted in the current transaction.
 - **Exception Qty** is the quantity of the item not transacted in the current transaction.
 - **UOM** is the unit of measure in which the item is expressed.
 - **Subinventory** is the subinventory for the item.
 - **Locator** is the locator in the subinventory for the item.
 - **WIP Plan Qty** is the planned quantity of the item to consume or yield.
 - **Actual Qty** is the actual quantity of the item consumed or yielded.
5. **Pending Move Orders** is selected when pending move orders exist for this item. It is deselected when there are no pending move orders.
6. **Pending Reservations** is selected when unconsumed reservations exist for this item. It is deselected when there are no unconsumed reservations for the item.
7. **Dispensable** is selected if the item is to be dispensed.

Refer to the *Oracle Process Manufacturing Process Operations User's Guide* for more information on dispensing.

8. Select **Correct** to select the material transaction to correct.
9. Enter a **Transaction Type** for:
 - **Products** as WIP Complete or WIP Complete Return
 - **Ingredients** as WIP Issue or WIP Return
 - **Byproducts** as WIP Complete
10. Enter **Item Revision** if the item is revision-controlled.
11. Enter the **Subinventory** from which the item is to be consumed.
12. Enter the **Locator** in the subinventory from which the item is to be consumed.
13. Enter the **Lot** number to use for the consumption if the item is lot-controlled.
14. **Quantity** is the quantity of material being consumed from the specified lot. This defaults to the reserved quantity of the item, if you have made reservations for this item. You can edit this field.
15. **UOM** is the unit of measure in which the quantity is expressed.
16. **Secondary Qty** is the quantity of material to consume or yield, if the item is dual unit of measure controlled.
17. **Secondary UOM** is the unit of measure in which the secondary quantity is expressed.
18. Enter a **Reason** code as the reason for the correction.
19. Enter a new **Transaction Date** for the transaction.
20. **Primary Qty** is the quantity of the item to consume or yield in the primary unit of measure.
21. **Primary UOM** is the primary inventory unit of measure for the item.
22. **Onhand Qty** is the total quantity available in inventory in the specified subinventory and locator.
23. **Available to Transact** is the usable material that you can use for the transaction.
24. Click **Correct** to save the changes to the material transactions or **Cancel** to cancel

the changes and return to the Batch Details window.

Viewing Move Orders

Move orders are documents used to control the movement of inventory. Move orders are useful to manufacturers who want to more closely model and control the movement of inventory from storage locations to a production staging location or shop floor. They allow planners and facility managers to request the movement of material within a warehouse or facility for purposes like replenishment, material storage relocations, and quality handling. You can generate move orders either manually or automatically. Refer to the *Oracle Inventory User's Guide* for information on creating move orders.

You can configure the Oracle Process Manufacturing (OPM) Process Execution application to create move orders automatically during batch creation for items with insufficient inventory in the supply subinventory but available in another subinventory, by setting up the Create Move Order parameter. Move orders are created only if the item requirement date is within the Move Order Time Fence. The use of move orders is optional in Process Execution. Refer to "Setting Up" for more information OPM Process Execution Parameters.

Prerequisites

- Create a batch.

To view a move order:

1. Navigate to the **Batch Details** window.
2. Choose **View Move Order** from the **Inventory** menu.

Refer to the *Oracle Inventory User's Guide* for detailed information on move orders.

Entering Pending Product Lots

The Pending Product Lots window lets you specify the exact revision of the product and the lot where a product is yielded.

To enter pending product lots:

1. Navigate to the **Batch Details** window.
2. Select the product to view the pending product lots.
3. Choose **Pending Lots** from the **Inventory** menu.
4. Enter **Sequence** as the order the lots are to be yielded.

5. **Item Revision** displays the item revision for the material line if it is revision-controlled. Otherwise, the highest revision displays. You can edit this field.
6. Enter the **Parent Lot** number. This is the parent lot to which a new lot is associated. The lot has default attributes derived from this parent lot during creation. This field does not display for lab lots.
7. Enter the **Lot Number**.
8. **Expiration Date** is the date of expiry for the product.
9. Enter the **Quantity** to yield into the lot.
10. The following fields are display only:
 - **UOM** is the unit of measure for the material. This defaults to the UOM specified on the material line.
 - **Secondary UOM** is the secondary unit of measure for the material. This displays if the item is dual unit of measure controlled. The value defaults from the secondary UOM specified on the material line.
 - **Primary Qty** is the material transaction quantity calculated using the **Primary UOM**.
11. If the item is dual unit of measure controlled, then enter the **Secondary Qty** of the material in the secondary unit of measure.
12. Enter a **Reason Code** to associate with the transaction.
13. Click **Done**.

To generate a new parent lot:

Click **Generate Parent**. A new parent lot is generated.

To generate a new lot:

Click **Generate Lot**. A new lot number is generated.

Managing Inventory Shortages

The Inventory Shortages window lets you view all inventory shortages for production batches during batch creation if material shortages exist. Shortages are based on material available to reserve (ATR) at the inventory organization level. The inventory shortages for phantom batches also display. For nonreservable items, the available to transact (ATT) values are used to compare against the planned quantity of the material

to determine shortage. Inventory shortages do not display for lab batches when the Update Inventory indicator is deselected.

Select the Process Execution Parameter Check Shortages to display inventory shortages. The inventory shortages window displays:

- Shortages at the Inventory Organization level based on the material status and ATR in the inventory organization. The ATT is determined from the formula: $ATT = ATR - \text{On-hand not suitable for production}$.
- Shortages at the subinventory level based on the material status and ATT in the supply subinventory. Only ingredient lines that have a supply subinventory defined on the material line display.

In case of revision control items, the shortages are derived based on the revision of the item used as a material in the batch. Nonstockable items are not considered for checking shortages.

To display inventory shortages at the organization level:

1. Navigate to the **Batch Details** window.
2. Choose **View Org Level Shortages** from the **Inventory** menu.
3. The following fields are display only:
 - **Line** is the material line number.
 - **Item** is the inventory item that corresponds to the material line.
 - **Revision** is the item for which the shortages exist. This is the revision on the material detail line.
 - **Item Description** is a brief description of the item.
 - **Planned Qty** is the planned quantity for the item.
 - **Reserved Qty** is the material quantity reserved in the line for high-level or detailed-level reservations.
 - **UOM** is the unit of measure for the material line used in the batch.
 - **Onhand Qty** is the quantity available for this item in the current organization.
 - **Available to Reserve** is the quantity of the item in the current organization that can be reserved for this batch.
 - **Available to Transact** is the quantity of the inventory item in the current organization that can be transacted for this batch.

To display inventory shortages at the subinventory level:

1. Navigate to the **Batch Details** window.
2. Choose **View Subinventory Level Shortages** from the Inventory menu.

Using the Select Available Inventory Window

You can create a detailed-level reservation manually for a batch and material line using the Select Available Inventory window. The Select Available Inventory window displays the available to transact inventory organized based on the inventory picking rules defined for an item. Use this window to create a detailed-level reservation manually or a transaction for a batch and material line. Refer to the *Oracle Inventory User's Guide* for more information.

Reserving a Batch as a Supply Source for Inventory Reservations

You can reserve the product yield of a production batch as a source of supply for the inventory reservations. For example, reserve the product yield of a batch to a sales order. Refer to "Appendix D", *Oracle Inventory User's Guide*, and *Using Oracle Order Management with Process Inventory* for more information on reserving a production batch to a sales order. If you reserve the output of a batch, then you cannot perform any batch actions that result in deduction of the on-hand quantity.

Integrating Process Execution with Mobile Supply Chain Applications

Oracle Process Manufacturing (OPM) Process Execution supports the Mobile Supply Chain Applications (MSCA), if the Warehouse Management Systems (WMS) is installed. Using handheld mobile devices, you can record transactions. For example, ingredient consumption, product yield, and resource usage can be recorded. OPM Process Execution and WMS interact through the use of move orders. You can use WMS Picking and Putaway with OPM Process Execution, and yield products into a License Plate Number (LPN). An LPN, is the basic entity managed by WMS; it can, for example, represent a pallet or similar grouping of inventory. Refer to *Oracle Process Manufacturing Mobile Supply Chain Application for Oracle Process Manufacturing* for more information.

Ingredient Picking Workbench

Understand how to find and pick ingredients for a batch. View the batch list summary information and identify picking materials and the ingredient summary.

This chapter covers the following topics:

- Requirements
- Understanding Ingredient Picking
- Finding Ingredient Requirements for Picking
- Viewing the Batch List Summary
- Viewing Batch Summary Information
- Picking Material
- Viewing the Ingredient Summary

Requirements

Can you automate the process of material staging to production?

Yes. Ingredient picking lets you automate, manage, and control the gathering of required materials for proper staging at their points of use. For some businesses, this process may not be required or may be unmanageable. The application lets you use the Ingredient Picking feature optionally.

Is the ingredient picking process available for non-Warehouse Management Systems organizations?

Yes. The Ingredient Picking process is available for both Warehouse Management Systems (WMS) and non-WMS organizations. Inventory picking rules are used for non-WMS enabled organizations. When WMS is not used, some advanced features such as cross docking, rule based allocation, and warehouse picking task management are not available.

Does the Ingredient Picking process consider reservations?

Yes. The Ingredient Picking process considers the detailed level reservations. The system can be configured so that, if a detailed (subinventory/locator and lot/sublot are specified) reservation is found for an ingredient, then it is used to create the transaction and the picking rules are not used.

Understanding Ingredient Picking

Ingredient picking refers to the process of moving materials from one or more source locations and issuing them to a staging subinventory before they are consumed. This process is also called material staging to production. Firm Plan Orders (FPO) and lab batches with update inventory indicator set to No are not eligible for ingredient picking.

Ingredient picking allows paperless picking of raw materials required by production by using:

- Predefined picking rules in Oracle Warehouse Management Systems (WMS) and Oracle Inventory to source the best material for the batch.
- Warehouse picking task management to direct the personnel in the warehouse to retrieve material for the batch.
- Mobile technology to reserve material, release, and complete a batch or batch step using mobile transactions.

Refer to the *Oracle Process Manufacturing Mobile Supply Chain Application for Oracle Process Manufacturing* guide for more information.

The use of the ingredient picking feature is optional and is designed to work with both Oracle Warehouse Management Systems (WMS) and non-WMS organization. If you install WMS, then the following features are available:

- Material Transactions based on the WMS picking rules engine
- Warehouse picking task management
- Yield into License Plate Number (LPN) and subsequent putaway
- Cross docking

Refer to the *Oracle Warehouse Management User's Guide* for more information.

When an ingredient line is picked:

- A move order is created based on the picking rules established through Oracle Inventory or Oracle WMS.
- The move order takes the inventory from the source subinventory and locator to the

supply location required by the batch.

- When there is insufficient inventory, the ingredient line is backordered. If you are using WMS, then backordered lines can be repicked when inventory is available or are eligible for cross docking if you have installed WMS.
- Plan Tasks are supported as an option when using WMS. Tasks are not automatically dispatched, but can be planned together with other open tasks.

Refer to "Understanding Task Creation" in the "Batch Creation" chapter for more information.

All materials are verified for their material status so that their effective status is consumable by process production.

Finding Ingredient Requirements for Picking

The Find Batches window lets you enter selection criteria to find batches that have ingredient requirements.

Prerequisites

- Create a batch.

To find batches with ingredient requirements:

1. Navigate to the **Find Batches** window.
2. Make no entries to search for all records. Enter a combination of any of the following search criteria in the **Standard** and **Advanced** tabs to narrow the search:

Standard

3. Enter **Batches** as:
 - **All** to include unpicked and backordered batches. Default.
 - **Backordered** for batches that have backordered requirements only.
4. Enter any of the following:
 - **FromBatch** number to search for batches with batch numbers starting with this number.
 - **To Batch** number to search for batches with batch numbers between this batch number and **From Batch** number.

- **Operation** to find batches that have open ingredient requirements for an operation.
 - **Version** to find batches that have open ingredient requirements for a version of the operation.
 - **Product** to find batches that produce a specific product.
 - **Ingredient** to search for batches that use a specific ingredient.
 - **Days Forward** as the number of days to consider requirements for the pick release.
 - **Material Requirement Date, From and To**, to search for batches that have ingredient requirements within a specific date range.
 - **Sales Order** to search for batches that are reserved for a specific sales order.
5. Select **Include Pending** to search for pending batches.
 6. Select **Include WIP** to search for WIP batches.

Advanced

7. Select any of the following **Items**:
 - Batch
 - Recipe Number
 - Recipe Version
 - Formula Number
 - Formula Version
 - Routing Number
 - Routing Version
 - Planned Start Date
 - Planned Completion Date
 - Actual Start Date
 - Product

- Ingredient
8. **Condition** lets you select a comparison operator. Select one of the following **Conditions** for the item to build a relational expression:
- Equal
 - Greater Than
 - Less Than
 - Greater or Equal
 - Less or Equal
 - Like
9. The following conditions are available for queries based on dates:
- Greater or Equal To Today + to generate a list of batches for which the date specified in the Item field is greater than or equal to the current date plus the value entered.
 - Greater or Equal To Today - to generate a list of batches for which the date specified in the Item field is greater than or equal to the current date minus the value entered.
 - Less or Equal To Today + to generate a list of batches for which the date specified in the Item field is less than or equal to the current date plus the value entered.
 - Less or Equal To Today - to generate a list of batches for which the date specified in the Item field is less than or equal to the current date minus the value entered.
 - Today to generate a list of batches for which the date specified in the Item field is equal to the current date.
10. Enter a **Value** for the selected condition.
11. Click **Find**.
12. The following information displays in the **Results** section:
- **Batch** is the batch number.
 - **Status** is the batch status.

- **Plan Start Date** is the planned start date for the batch.
- **Actual Start Date** is the actual start date for the batch.

Viewing the Batch List Summary

The Batch List Summary window displays the list of batches that meet the criteria entered on the Find Batches window.

Prerequisites

- Create Batches.

To view the batch list summary:

1. Navigate to the **Find Batches** window.
2. Query batches as described in the "Finding Ingredient Requirements for Picking" topic.
3. Click **Requirements**.
4. Click the **Batch** node.
5. The following information displays:
 - **Batch** is the batch number.
 - **Status** is the batch status.
 - **Plan Start Date** is the planned start date for the batch.
 - **Plan Completion Date** is the planned completion date for the batch.
 - **Product** is the name of the product produced by the batch.
 - **Plan Qty** is the planned quantity of the product to be produced by the batch.
 - **Actual Qty** is the actual quantity of the product produced.
 - **UOM** is the unit of measure for the product.
 - **Actual Start Date** is the actual start date for the batch.
 - **Recipe** is the code for the recipe used in the batch.

- **Recipe Version** is the recipe version used in the batch.
 - **Recipe Description** is brief description of the recipe.
 - **Formula** is the code for the formula used in the batch.
 - **Formula Version** is the formula version used in the batch.
 - **Formula Description** is a brief description of the formula used in the batch.
 - **Routing** is the code for the routing used in the batch.
 - **Routing Version** is the routing version used in the batch.
 - **RoutingDescription** is a brief description of the routing used in the batch.
6. Use the results to perform picking as described in "Picking Material."

Viewing Batch Summary Information

The Batch Summary window lets you view the batch information.

Prerequisites

- Create a batch.

To view batch summary information:

1. Navigate to the **Batch List** summary window.
2. Click the batch node for which you require the information.
3. The following information displays:
 - **Batch** is the batch number.
 - **Plan Start Date** is the planned start date for the batch.
 - **Plan Completion Date** is the planned completion date for the batch.
 - **Product** is the name of the product produced by the batch.
 - **Plan Qty** is the planned quantity of the product to produce by the batch.
 - **Actual Qty** is the actual quantity of the product produced.

- **UOM** is the unit of measure for the product.
- **Actual Start Date** is the actual start date for the batch.
- **Recipe** is the code for the recipe used in the batch.
- **Recipe Version** is the recipe version used in the batch.
- **Recipe Description** is brief description of the recipe.
- **Formula** is the code for the formula used in the batch.
- **Formula Version** is the formula version used in the batch.
- **Formula Description** is a brief description of the formula used in the batch.
- **Routing** is the code for the routing used in the batch.
- **Routing Version** is the routing version used in the batch.
- **Routing Description** is a brief description of the routing used in the batch.

Picking Material

Pick material for batches using the Batch List Summary window. A move order is created when you pick material. You can also plan tasks and create pick slips based on pick slip grouping rules.

Refer to the *Oracle Inventory User's Guide* and the *Oracle Warehouse Management User's Guide* for information on move orders, pick slip grouping rules, and creating tasks.

To pick material for a batch:

1. Navigate to the **Batch List** summary window.
2. Select **Include** to select the batch that you want to pick material for. When you select the batch, move orders are created for all the ingredients of the batch, that need to be moved to the supply subinventory. You cannot delete selected ingredients from a batch.
3. Enter a **Pick Slip Grouping Rule**.
4. Select **Print Pick Slips** to automatically submit a request to print the Pick Slip report.
5. Select **Plan Tasks** to create picking tasks for Oracle Warehouse Management Systems (WMS) to release the tasks. This is not enabled for non-WMS organizations.

6. Click **Pick Material**. When the pick release is complete a message displays the move order number.

If partial allocation occurs due to unavailable inventory, then the following message displays:

"Material requirements for some of the selected ingredients could not be fully allocated."

A backorder is created for the remaining quantities of the ingredients. You can perform repicking for these ingredients by querying batches with backorders. Refer to "Finding Ingredient Requirements for Picking" for more information.

7. Click **OK**.

Viewing the Ingredient Summary

The Ingredient Summary window lets you view the ingredient information for a specific batch.

To view the ingredient summary:

1. Navigate to the batch to view the ingredient information for.
2. Click on the required ingredient.
3. The following information displays:
 - **Line** is the number of the ingredient line containing the item.
 - **Item** is the item number.
 - **Revision** is the revision of the item used.
 - **Item Description** is a brief description of the item.
 - **Step** is the batch step number associated to the ingredient.
 - **Operation** is the name of the operation used in the batch step.
 - **Version** is the version of the operation used in the batch step.
 - **Requirement Date** is the required date for the ingredient.
 - **Plan Qty** is the planned quantity of the ingredient.
 - **Actual Qty** is the actual quantity of the ingredient used.

- **Backordered Qty** is the quantity of the item that was not allocated due to inventory shortage.
- **Open Qty** is the quantity of the ingredient that is currently required.
- **UOM** is the unit of measure for the ingredient.
- **Subinventory** is the subinventory from which the ingredient is consumed.
- **Locator** is the locator from which the ingredient is consumed.
- **Plan Start Date** is the planned start date for the batch.
- **Plan End Date** is the planned completion date for the batch.
- **Actual Start Date** is the start date for the batch.

Batch Production

This topic provides procedures for releasing and unreleasing a batch. Procedures are presented for editing batch steps in production, editing resource transactions, and recording batch operation work in process. The procedure for checking lot status when yielding product presents the business rules that are enforced when yielding batch material into an existing lot. You are given an understanding of and procedures for incremental backflushing. Discussions of activity factors and charges are provided to enhance your understanding of how these are used in the Oracle Process Manufacturing Process Execution application.

This chapter covers the following topics:

- Requirements
- Releasing a Batch
- Unreleasing a Batch
- Releasing a Batch Step
- Unreleasing a Batch Step
- Checking Material Status When Consuming Ingredients
- Checking Lot Status When Yielding Product
- Understanding Incremental Backflushing
- Calculating Resource Usage for an Incremental Backflush
- Performing Incremental Backflushing
- Editing Batch Steps in Production
- Understanding Charges
- Using Operation Charge Step Dependencies
- Calculating Charges for Dependent Stepschargefor dependent steps
- Understanding Activity Factors
- Editing Resource Transactions

- Recording Batch Operation Work in Process

Requirements

Following are some requirements that customers have for batch production in Process Execution:

Does the application keep inventory current for ingredients that are consumed incrementally in the production cycle?

Yes. Incremental backflushing provides a convenient method to keep inventory current for batches that consume ingredients incrementally throughout the time production occurs. Incremental backflushing is used to model continuous flow type production.

Keep Inventory Current with Incremental Backflushing

Incremental backflushing provides a simple method to record ingredient consumption and production yield as it occurs prior to batch completion. Incremental backflushing enables the timely entry of material transactions of ingredients for batches with a status of WIP, and eliminates the need to enter ingredient consumption quantities.

Does the application show batch production progress at a glance?

Yes. The Process Execution Workbench window provides a consolidated view of batch products, byproducts, ingredients, and steps. You can also view the batch progression from the Batch Details window by choosing Batch Progression from the Tools menu. If you install the Oracle Process Manufacturing Process Operations application, then this option is available.

Totally Integrate Batch Process Management

The Oracle Process Manufacturing Process Execution application manages the total batch production process from the material and nonmaterial resources. The Process Execution Workbench window displays batches in a single consolidated view. This allows viewing products, byproducts, and ingredients at both a summary level and at the individual step level.

Releasing a Batch

The Release Batch dialog box lets you enter a date for releasing a batch for production.

The application checks for the validity of the batch validity rule, and advises you, if the actual start date entered in the dialogue is outside the validity rule date range. The application checks for ingredient reservations to create transactions. If inventory shortages exist, then those ingredients are reported as exceptions. Solve these exceptions by manually specifying transactions or proceed with the release. If there are move orders in the inventory organization, then the move orders appear as exception if Autoconsume from Supply Subinventory parameter is set to Yes. It also checks for

unexploded phantoms, except for those that are Automatic by Step with a step association. If unexploded phantoms are found, then you can explode the phantoms before releasing the batch. At this point, the application releases batches recursively, and consumes materials as follows:

- For a production batch or a laboratory batch with Update Inventory indicator set to Yes, the application checks lot status and expiration dates, checks for inventory shortages, completes transactions, consumes the ingredients marked for autoconsumption, and updates the WIP planned, planned and actual quantities.
- For a laboratory batch, with the Update Indicator set to No, the application updates the WIP planned quantity to the planned quantity for all materials, and then updates the actual quantity of ingredients to the planned quantity.
- Batch status is set to work in process.
- An actual start date is assigned to the batch.

Prerequisites

- Create a batch.

To release a batch:

1. Navigate to the **Batch Details** window.
2. Query the batch **Document** to release.
3. Choose **Release** from the **Actions** menu.
4. Enter the **Actual Start Date** for the batch.
5. Click **OK**.

Unreleasing a Batch

Once a batch is released, you can to revert its status from Released to Pending. Completed transactions are reversed, actual values are reset to zero, and inventory is updated.

Prerequisites

- Create and release a batch.

To unrelease a batch:

1. Navigate to the **Batch Details** window.
2. Query the batch **Document** to unrelease.
3. Choose **Unrelease** from the **Actions** menu.
4. The following message displays:

Do you want to recreate reservations for ingredients and pending product lot records?

Click **Yes** to unrelease the batch and recreate reservations and pending product lot records from the transaction which is reversed or Click **No** to unrelease the batch without recreating reservations.

5. The batch **Status** returns to **Pending**.

Releasing a Batch Step

The Release Batch Step dialog box lets you enter a date for releasing a batch step. You can release a step even if the batch is pending.

Prerequisites

- Create a batch.

To release a batch step:

1. Navigate to the **Batch Steps** window.
2. Query the batch **Document** containing the step to release.
3. Select the **Step**.
4. Choose **Release Step** from the **Actions** menu.
5. Enter the **Actual Start Date**.
6. Click **OK**.

If the application finds ingredients associated with the step that have a consumption type of Automatic by Step and are not fully transacted, then the application consumes the ingredients and creates transactions. Refer to "Transacting Materials" for more information on material transactions

The step status changes from **Pending** to **WIP**.

Unreleasing a Batch Step

Once a batch step is released, you can revert its status from Released to Pending. Completed transactions are reversed, actual values are reset to zero, and inventory is updated.

Prerequisites

- Release a batch step.

To unrelease a batch step:

1. Navigate to the **Batch Steps** window.
2. Query the batch **Document** containing the step to unrelease.
3. Select the **Step**.
4. Choose **Unrelease Step** from the **Actions** menu.
5. The following message displays:

Do you want to recreate reservations for ingredients and pending product lot records associated to this step?

Click **Yes** to unrelease the batch step and recreate reservations and pending product lot records from the transactions which are reversed or Click **No** to unrelease the batch step without recreating reservations.

The step status changes from **WIP** to **Pending**.

Checking Material Status When Consuming Ingredients

Material status control specifies whether a transaction for a portion of inventory is allowed or disallowed. While the item status is associated with a particular item, material status is related to the particular instance of the item. Material status control makes it possible to control the movement and usage of portions of on-hand inventory that might have distinct differences because of grade, quality, or maturity level. Material status can be defined at the subinventory, locator, lot, and serial level. Refer to the *Oracle Inventory User's Guide* on setting up Material Status codes.

If the material to consume has a status that is not usable for production and does not allow a WIP issue transaction, then you cannot consume it.

Warning When Consuming Ingredients with Negative Inventory

If you try to consume an ingredient without inventory, then the following caution displays:

"Quantity will drive inventory negative."

Checking Lot Status When Yielding Product

If the existing quantity has a status different from the default status for the item, then the inventory organization parameter Allow Different Lot Status is used to prevent yielding an additional quantity of a lot into a specific location.

Warning When Yielding Batch Material into an Existing Lot

Use the inventory organization parameter Allow Different Lot Status to prevent yielding a lot into a location where the lot already exists, but has a status different from the item default status:

- Set to No, the parameter prevents the yield transaction from being saved. The application displays an error message indicating that the lot already exists in the target location and that it has a status different from the default status.
- Set to Yes, the parameter lets the yield transaction retain the status of the material already in the target location.
- Set to Yes With Exception, the parameter allows the yield transaction to be saved only if the on-hand balance of the lot in the target location is 0. In this case, the quantity yielded assumes the default status for the item.

The parameter only applies when the lot has a status different from the item status. If a lot yielded has the item default status, then you can yield an additional quantity into the same location.

Warning When Editing or Reversing Batch Material Transactions

Editing product yield can drive inventory negative. For example, if 100 kg of material is yielded into a location, subsequently moved to a different location, and you edit the original yield transaction from 100 kg to 90 kg, then a balance of -10 kg is posted.

The inventory organization parameter Allow Negative Balances determines whether or not inventory transactions drives the inventory balance of an item negative and warns you when editing or reversing product or byproduct yield:

- Set to No, if the change to the product or byproduct yield quantity drives inventory negative, then an error message displays and you cannot save your work.

- Set to Yes, you can save without warning or error.

Rechecking Negative Inventory and Lot Status When You Save

There is a possible delay between the entry of a transaction and the actual processing of the transaction as you save your work. The application rechecks the inventory balances when you save your work. An appropriate response displays depending on the settings previously described for the Allow Different Lot Status and Allow Negative Balances parameters.

Understanding Incremental Backflushing

Incremental backflushing lets you record production output or yield incrementally as it occurs prior to batch completion. The application calculates the ingredient usage by backflushing the ingredients based on product yield and WIP planned quantities. Set the Process Execution parameter Incremental Backflush Factor to calculate the incremental backflush factor as a ratio of incremental quantity of an item to WIP planned quantity of a single product or total WIP planned quantity of all products. Refer to "Setting Up Parameters" for more information on setting up Process Execution parameters.

Incremental backflushing can only be performed on batches with a status of WIP or Completed. Items must have a consumption type of Incremental to be backflushed by incremental backflushing.

With incremental backflushing, the application calculates actual quantities for the items set to a consumption type of incremental in a WIP batch. The application calculates the quantity to be backflushed for each incremental type material, but does not enforce the complete transaction of the quantity. The application displays the Material Exceptions window if the calculated quantity is not transacted, but you can ignore that and complete incremental backflushing process. Calculations are proportional to the quantity of the item selected for incremental backflushing. The following example illustrates how this works as new incremental quantities of a product are entered. The batch formula used for the illustration consists of three items that have manual and incremental consumption types. Both Proportional and Fixed contributing to yield scale types are shown.

Item	Type	Scale Type	Quantity
Product 1	Manual Yield Type	Proportional	100
Ingredient 1	Incremental Consumption Type	Proportional	90

Item	Type	Scale Type	Quantity
Ingredient 2	Incremental Consumption Type	Fixed Contributing to Yield	2
Ingredient 3	Manual Consumption Type	Proportional	8

Set incremental consumption types for formula lines in the Oracle Process Manufacturing (OPM) Product Development application. When the batch is released, the WIP planned and actual quantities are:

Item	WIP Planned Quantity	Actual Quantity
Product 1	100	0
Ingredient 1	90	0
Ingredient 2	2	0
Ingredient 3	8	0

An incremental backflushing is performed by entering an incremental quantity of 10 for Product 1.

When you accept the incremental backflushing, batch quantities become:

Item	WIP Planned Quantity	Actual Quantity
Product 1	100	10
Ingredient 1	90	9
Ingredient 2	2	2
Ingredient 3	8	0

When 10 units of Product 1 are incrementally backflushed, the actual quantity of Ingredient 1 is calculated to be 9. To calculate this, the application divides the incremental quantity of the item driving incremental backflushing by the WIP planned quantity of that item to calculate a scale factor. In the example, Product 1 drives

incremental backflushing. The incremental quantity entered for Product 1 is 10 and the scale factor is 10/100 or 0.1. The WIP planned quantity of each scalable item with a consumption type of Incremental is multiplied by this factor to calculate the incremental increase in the actual quantity of these items. In this example, the WIP planned quantity of Ingredient 1 is 90, which when multiplied by 0.1 gives an incremental quantity of 9. This was added to the previous actual quantity of 0 to give a new actual quantity of 9.

The quantity of Ingredient 1 is calculated without considering the scalability of other items in the batch or whether the consumption type of other items is Incremental.

For nonscalable, incremental items, the application consumes the full WIP planned quantity the first time you perform an incremental backflushing. The actual quantity of Ingredient 2, therefore, is calculated as 2, and not 0.2.

Ingredient 3 has a consumption type of Manual. Its quantity is not affected by the incremental backflushing. Manually enter the actual quantities for items with a Manual consumption type.

If one unit of Ingredient 1 was lost through a spill, and the quantity consumed was actually 10 instead of 9, then adjust this quantity on the Batch Details windows. The new batch quantities become:

Item	WIP Planned Quantity	Actual Quantity
Product 1	100	10
Ingredient 1	90	10
Ingredient 2	2	2
Ingredient 3	8	0

When you edit items with a consumption type of Incremental on the Batch Details window, they function the same as items with a consumption type of Manual, and there is no effect on the quantities of the other items in the batch.

When you perform another incremental backflushing of 10 units of Product 1, batch quantities adjust as follows:

Item	WIP Planned Quantity	Actual Quantity
Product 1	100	20
Ingredient 1	90	19

Item	WIP Planned Quantity	Actual Quantity
Ingredient 2	2	2
Ingredient 3	8	0

Another 10 units is added to the actual quantity of Product 1, and the scale factor is calculated to be 0.1. An incremental quantity of 9 units of Ingredient 1 is calculated and added to the previous actual quantity of 10, resulting in a new actual quantity of 19. The actual quantities of Ingredient 2 and Ingredient 3 remain unchanged.

Each time an incremental backflushing is performed, the application creates completed transactions for the incremental quantity. Look at the transactions for Ingredient 1, assuming for the moment that it is neither lot-controlled nor location-controlled, then you see the following:

Status	Quantity	Comment
Complete	9	From the first incremental backflushing
Complete	1	From the manual adjustment
Complete	9	From the second incremental backflushing

The item that drives incremental backflushing does not require a consumption or yield type of Incremental. Since the quantity of the item that drives incremental backflushing is measured and entered, and is not calculated by the application, it generally has a consumption or yield type of Incremental or Manual. In the previous example, Product 1 drives incremental backflushing. The incremental backflushing can also be driven by a byproduct or ingredient. It does not have to be a product.

Reserving Ingredients for Incremental Backflushing

If any of the ingredients with a consumption type of incremental are lot-controlled or locator-controlled, and you enter reservations before the incremental backflushing, then the application attempts to consume the additional actual quantity from those reservations automatically. For example, if Ingredient 1 in the previous example were lot-controlled, and 30 units were reserved from each of three lots before the first incremental backflushing, when you perform the incremental backflushing, then the application consumes all nine units from the first lot reserved.

Similarly, if the product were lot-controlled or locator-controlled, and a pending

product lot record was created before the incremental backflushing, then the application automatically yields into the lots in the same order that they were given out to the Pending Product Lots window. The application does not create new reservations with incremental backflushing. It consumes ingredients from already existing lot reservations.

For lot-controlled or locator-controlled items, the application determines the lot or locator for the full incremental quantity. This is required because all completed transactions for lot-controlled items must specify a lot. If this were not required, then the on-hand balances would not reflect the current total on-hand inventory. If there is insufficient quantity in reservations or pending product lots to consume from or yield into when an incremental backflushing is performed, then the Material Exceptions window displays the exception quantities. You can proceed with incremental backflushing without solving the exceptions.

You can also adjust quantities downwards by entering a negative incremental quantity or a new actual quantity that is less than the current actual quantity. If actual quantities are reduced through incremental backflushing, then the application recreates reservations.

Incremental Backflushing Scenarios

The following two scenarios show how to use incremental backflushing in a situation where the full planned quantities of the product and ingredients are reserved and when product lots are not reserved.

Full Planned Quantities of Product and Ingredient Reserved

The planned quantity of the ingredients is reserved and the planned quantity of products is entered in the Pending Product Lots window before the batch is run. The following are the steps in this scenario:

1. Create a batch.
2. Reserve the planned quantity of the ingredients.
3. Enter the planned quantity of the product in the Pending Product Lots window.
4. Release the batch.
5. Each time you record a new quantity of the product yielded by the batch, enter it on the Incremental Backflushing window. Enter an incremental quantity, the new actual quantity, or the percent of planned quantity produced until the time of making the entry.
6. Click OK to save the batch with the actual quantity updated for the product and ingredients, and the quantities are consumed from the existing reservations.
7. When the batch is finished, choose Complete from the Actions menu on the Batch

Details window.

Product Lots Not Reserved

The planned quantity of the ingredients is reserved before the batch is run, but the product is not reserved. Each time a new lot of the product is yielded, the lot number and quantity produced is reported. The following are the steps in this scenario:

1. Create a batch.
2. Reserve the planned quantity of the ingredients.
3. Release the batch.
4. Each time a lot of the product is yielded, enter the new lot and quantity on the Pending Product Lots window available from the Batch Details window.
5. Click Generate Lot to generate a new lot number.
6. Click OK on the Pending Product Lots window. Return to the Batch Details window.
7. Choose Backflush from the Actions menu on the Batch Details window. The Incremental Backflushing window displays the new actual quantity and the incremental quantity entered for the new lot.
8. Click OK to redisplay the Batch Details window. Note the actual quantity of the ingredients is backflushed.
9. Save the batch.
10. When the batch is complete, choose Complete from the Actions menu on the Batch Details window.

Incrementally Backflushing Phantom Ingredients

If you perform incremental backflushing on a parent batch that contains phantoms, then ingredients in the phantom batches that have an incremental consumption type are also backflushed.

Scaling Phantoms

If you manually edit the actual quantity of an incremental release phantom ingredient in the parent batch, then you can scale the phantom batches. This is no different from editing the quantity of a nonincremental phantom, as all items in the phantom batch are scaled.

Changing the Yield Type After Incremental Backflushing

If you change the yield type of a product or byproduct to Incremental after you perform incremental backflushing, then the product with a yield type change is updated by any future incremental backflushing. Its percent of plan, however, is not the same as the percent of plan of the other Incremental items. This happens as a result of the incremental scale factor being applied during incremental backflushing. You can change the consumption/yield type of material only in a pending batch.

For example, you perform incremental backflushing for 50 percent of the planned quantity of an item. The Incremental release items are updated so that their actual quantity is 50 percent of their planned quantity. If you change the yield type of the product from Automatic release to Incremental release, and you perform another incremental backflushing for an additional 10 percent of the item driving incremental backflushing, then 10 percent of the planned quantity is added to the actual quantity of all Incremental items in the batch. Therefore, the items that had an Incremental release before any changes were made, have an actual quantity equal to 60 percent of their planned quantity, while the product that just had its yield type changed has an actual quantity equal to only 10 percent of its planned quantity.

Adjusting Actual Quantities After Full Completion

Incremental backflushing allows you to adjust actual quantities after batch completion.

Calculating Resource Usage for an Incremental Backflush

Resource usage can be calculated for a step in work in process status and driven by ingredient consumption when the Automatic Step Quantity Calculation (ASQC) option is selected, and the Calculate Interim Resource Usage parameter is set to Yes. You can calculate resource usage for an associated step and the resource usage for prior dependent steps. Refer to "Using the Calculate Interim Resource Usage Parameter" for more information on this parameter.

To backflush resource usage based on product yield, use the incremental backflushing functionality without ASQC selected, and the Backflush Resource Usage parameter set to Yes. Performing an incremental backflush on a product that is associated to a step records the resource usage proportionally when this parameter is set to Yes.

Step Dependency Impact

If the dependency is start-to-start, then the ratio calculated from incremental backflush is applied to the step, and to the resource. If the dependency is finish-to-start, then the step is considered complete, and the usage and quantities are calculated at 100 percent of the plan. If a preceding dependent step is completed, then it remains unchanged.

Implementation Considerations

- If the product is set to the incremental or manual yield type and the yield was not completely recorded using incremental backflushing, then when the batch is completed, these materials display in the Material Exceptions window. You can record the remaining yield. Because this is a manual process and not done through incremental backflushing, the resource usage is not backflushed.
- Only the step associated to the product that incremental backflushing is initiated from and all its dependent preceding steps have the usage backflushed.
- If the product that incremental backflushing is initiated from is not associated to a step, then a resource usage is not backflushed.
- ASQC must be set to Off. The Calculate Step Quantities indicator on the recipe header must be deselected.
- If an associated step or any dependent step is not completed, then the usage is not backflushed. This extends to completed batches where it is possible to initiate incremental backflushing for materials, but does not affect the resource usages.
- To use incremental backflushing on the product, it is a requirement that the yield type of the product must be Manual or Incremental.

Example 1: Impact of Incremental Backflushing on Start-to-Start Step Dependency

Product 1 is associated to step 30, has a plan quantity of 100, and 50 are produced. An incremental backflush is performed on Product 1. All step resources are calculated at 50 percent.

Following is a table of the step dependencies, plan resource usage, and actual resource usage:

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 10 WIP	n/a	n/a	1 hour	0.5 hour
Step 20 WIP	Start-to-Start	10	6 hours	3 hours
Step 30 WIP	Start-to-Start	20	4 hours	2 hours

Following is an illustration of the previously tabulated WIP step dependencies, plan resource usage, and actual resource usage:



Example 2: Impact of Incremental Backflushing on Finish-to-Start Step Dependency

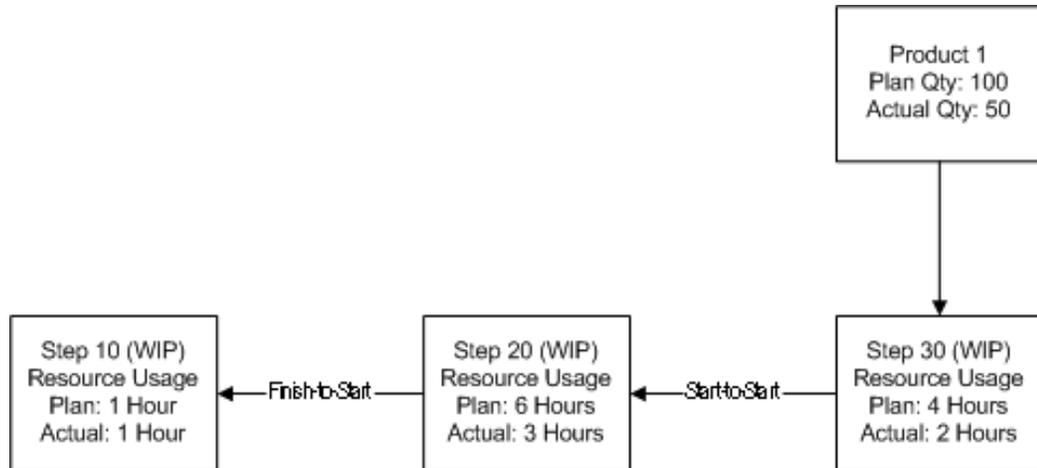
Product 1 is associated to step 30, has a plan quantity of 100, and 50 are produced.

Following is a table of the step dependencies, plan resource usage, and actual resource usage:

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 10 WIP	n/a	n/a	1 hour	1 hour
Step 20 WIP	Finish-to-Start	10	6 hours	3 hours
Step 30 WIP	Start-to-Start	20	4 hours	2 hours

The usage for Step 10 is calculated at 100 percent for the first incremental backflush, and remains unchanged for subsequent incremental backflushing. This is because, based on the finish-to-start dependency between steps 20 and step 10, it is assumed that as step 20 has started, step 10 must be finished and its resources have therefore run for their entire planned usage.

Following is an illustration of the previously tabulated WIP step dependencies, plan resource usage, and actual resource usage:



Example 3: Impact of Incremental Backflushing on a Step Prior to a Completed Step

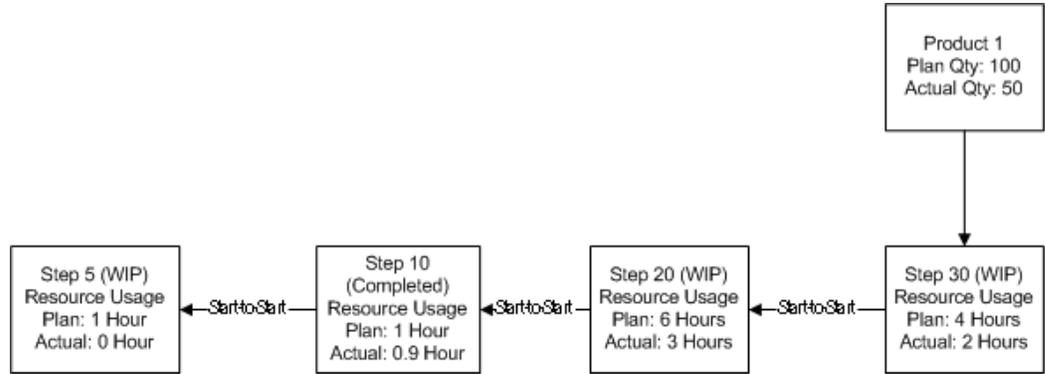
Product 1 is associated to step 30, has a plan quantity of 100, and 50 are produced.

Following is a table of the step dependencies, plan resource usage, and actual resource usage:

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 5 WIP	n/a	n/a	1 hour	0 hour
Step 10 Complete	Start-to-Start	5	1 hour	0.9 hour
Step 20 WIP	Start-to-Start	10	6 hours	3 hours
Step 30 WIP	Start-to-Start	20	4 hours	2 hours

Step 10 is complete. The usage remains unchanged for Step 10 each time incremental backflushing is initiated on Product 1. This example also shows a start-to-start dependency from Step 10 to Step 5. Step 5 shows no usage calculation because when a completed step is encountered, the usage backflushing does not continue.

Following is an illustration of the previously tabulated step dependencies, plan resource usage, and actual resource usage:



Example 4: Impact of Additional Yield on Resource Usage after Batch Completion

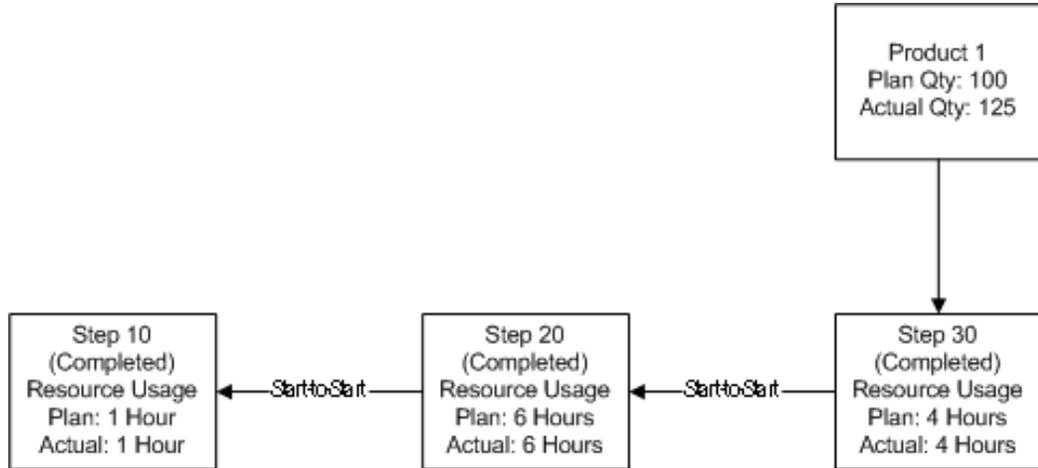
Product 1 is associated to step 30, has a plan quantity of 100, and 125 are produced.

Following is a table of the step dependencies, plan resource usage, and actual resource usage:

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 10 Completed	n/a	n/a	1 hour	1 hour
Step 20 Completed	Start-to-Start	10	6 hours	6 hours
Step 30 Completed	Start-to-Start	20	4 hours	4 hours

This example shows incremental backflushing in a completed batch. The material produced an additional yield. However, the resource usage does not reflect this. If required, then you can adjust the usage manually.

Following is an illustration of the previously tabulated step dependencies, plan resource usage, and actual resource usage:



Example 5: Impact of Incremental Backflushing on Two Incremental Type Products

Product 1 is an incremental type product associated to step 30, has a plan quantity of 100, and 50 are produced. Product 2 is associated to step 60, has a plan quantity of 100, and 50 are produced. Step 70 is not associated to a material.

Following are tables of the step dependencies, plan resource usage, and actual resource usage:

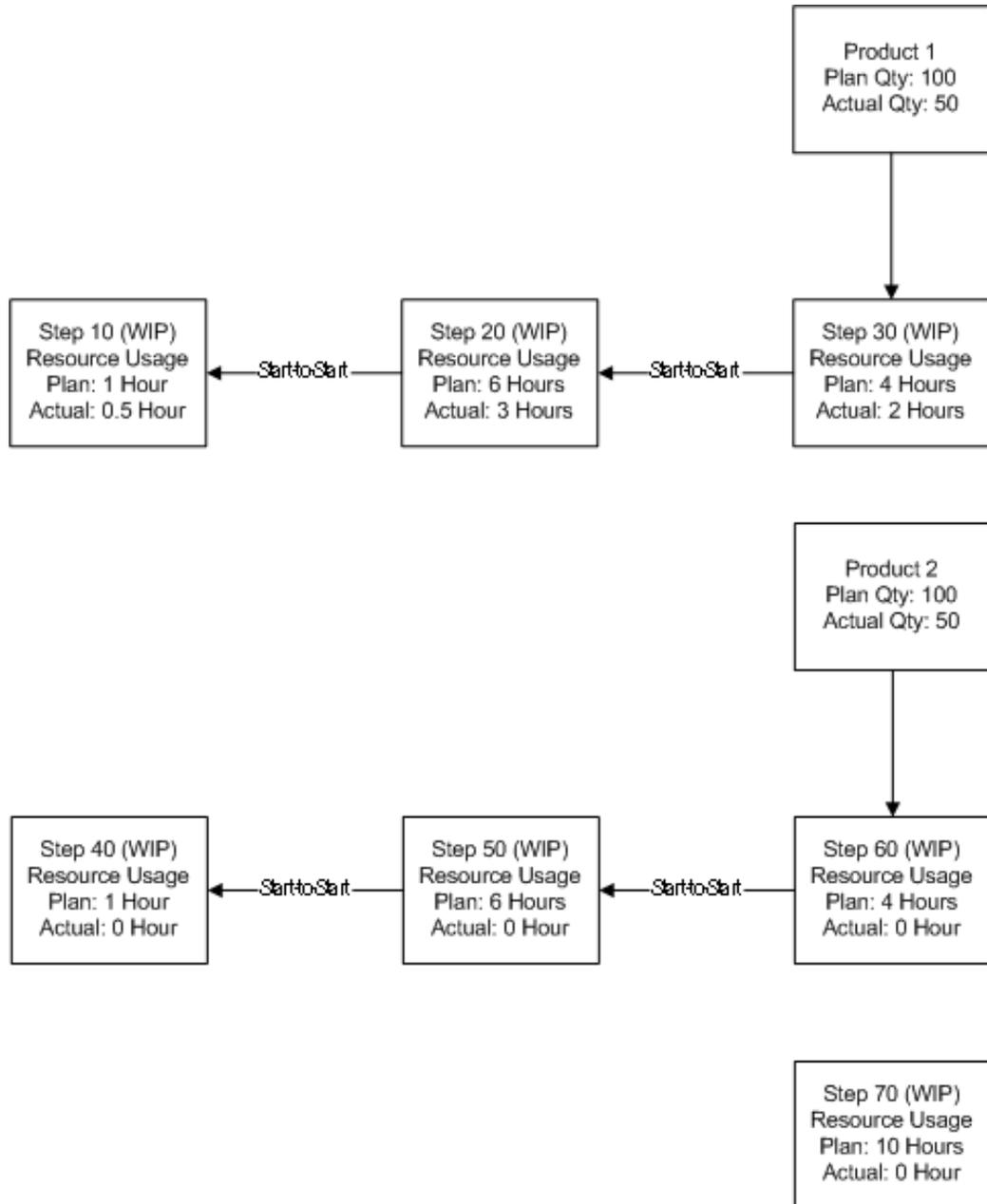
Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 10 WIP	n/a	n/a	1 hour	0.5 hour
Step 20 WIP	Start-to-Start	10	6 hours	3 hours
Step 30 WIP	Start-to-Start	20	4 hours	2 hours

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 40 WIP	n/a	n/a	1 hour	0 hour
Step 50 WIP	Start-to-Start	40	6 hours	0 hour
Step 60 WIP	Start-to-Start	50	4 hours	0 hour
Step 70 WIP	Start-to-Start	n/a	10 hours	0 hour

If you initiate an incremental backflush on Product 1 for 50 percent of plan, then material incremental backflushing calculates an actual quantity of 50 for both products. Resource usage backflushing is done for Steps 30, 20, and 10. Steps 60, 50, and 40 remain unchanged because they are associated to Product 2. Product 2 is not the product that incremental backflushing was initiated from. Step 70 remains unchanged because it is not associated to either.

In this scenario, make both products manual yield. This lets you initiate an incremental backflush on Product 1 and the usage for its associated step and dependent steps is calculated, but Product 2 and its associated and dependent steps remain unchanged. When backflushing is initiated from Product 2, Product 1 and its steps remain unchanged.

Following is an illustration of the previously tabulated step dependencies, plan resource usage, and actual resource usage:



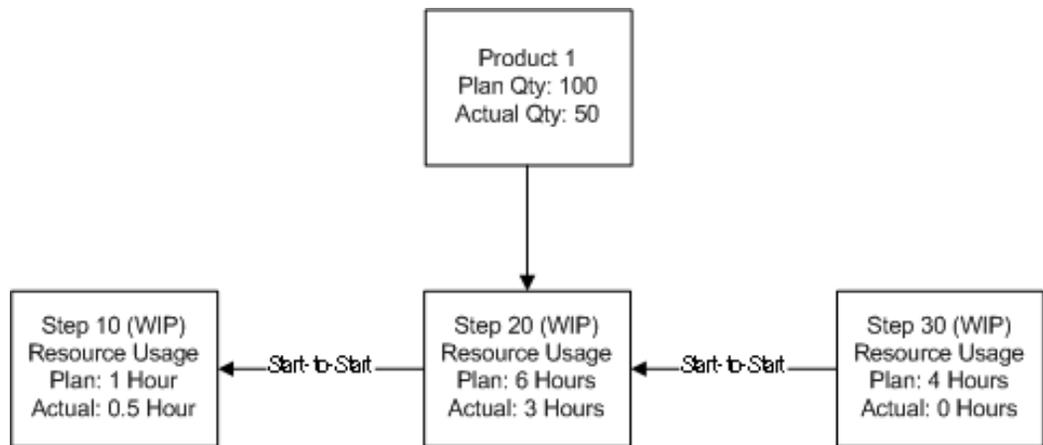
Example 6: Impact of Incremental Backflushing on a Product with Midstream Step Associations

Product 1 is associated to step 20, has a plan quantity of 100, and 50 are produced. Step 30 is dependent on step 20.

Following are steps, statuses, step dependencies, and plan and actual resources:

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 10 WIP	n/a	n/a	1 hour	0.5 hour
Step 20 WIP	Start-to-Start	10	6 hours	3 hours
Step 30 WIP	Start-to-Start	20	4 hours	0 hours

An incremental backflush is performed on Product 1. Usage is not calculated for step 30. Following is an illustration of the previously tabulated step dependencies, plan resource usage, and actual resource usage:



Example 7: Impact of Incremental Backflushing on Fixed, Proportional, and By Charge Scaling

Product 1 is associated to step 20, has a plan quantity of 100, and 25 are produced.

The batch is released.

Step 10 is released:

- Activity 1 has a Plan Activity Factor of 1 and an Actual Activity Factor of 1.
- Activity 2 has a Plan Activity Factor of 2 and an Actual Activity Factor of 2.

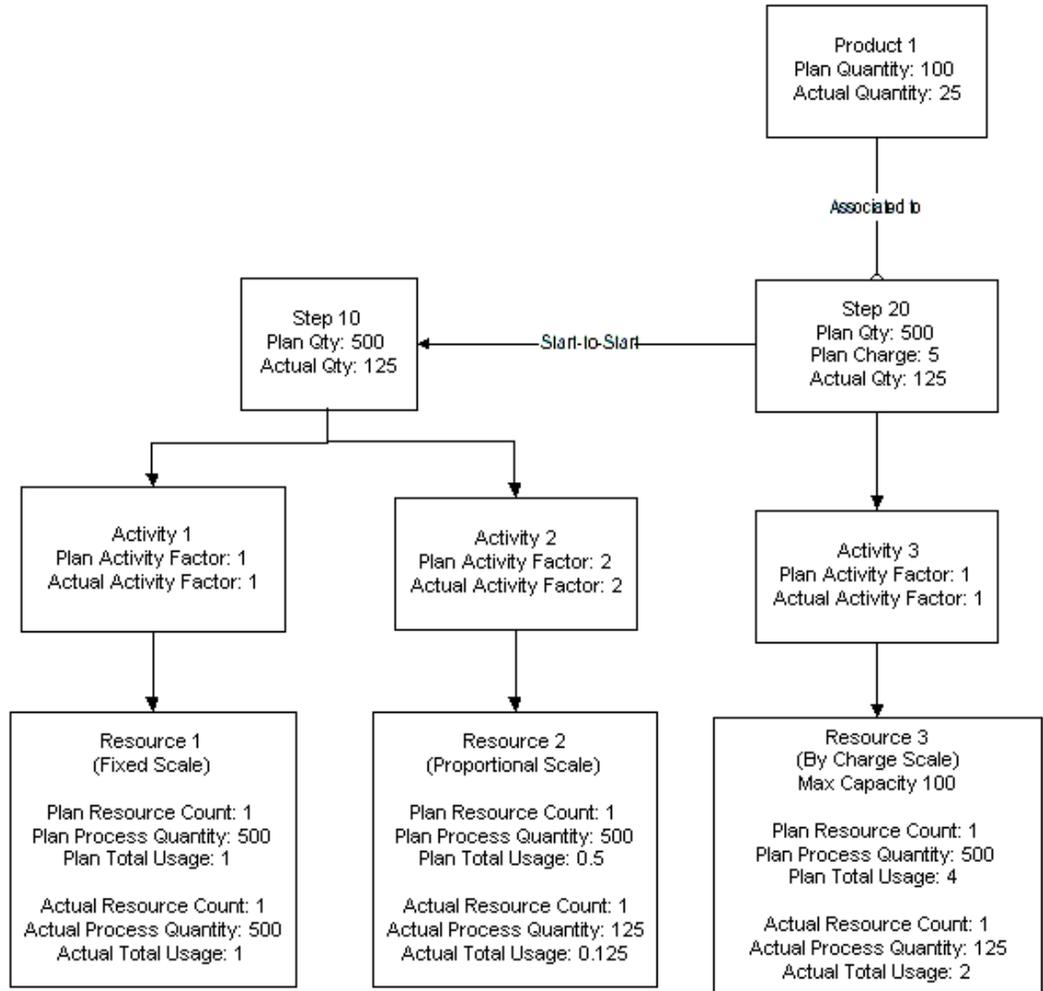
Step 20 is released:

- Activity 3 has a Plan Activity Factor of 1 and an Actual Activity Factor of 1.
- Initiate an incremental backflush on Product 1. Specify a new actual quantity of 25.

Resource	Scale Type	Plan	Actual
1	Fixed	Resource Count: 1 Process Quantity: 500 Total Usage: 1	Resource Count: 1 Process Quantity: 500 Total Usage: 1
2	Proportional	Resource Count: 1 Process Quantity: 500 Total Usage: 0.5	Resource Count: 1 Process Quantity: 125 Total Usage: 0.125
3	By Charge	Resource Count: 1 Process Quantity: 500 Total Usage: 4	Resource Count: 1 Process Quantity: 125 Total Usage: 2

The actual total usage for Resource 3 is based on 2 charges because the step quantity is greater than the quantity for 1 charge. This causes the usage to be rounded up to the next charge of 2.

Following is an illustration of the previously tabulated step dependencies, plan resource usage, and actual resource usage:



Example 8: Impact of Sequential Incremental Backflushing

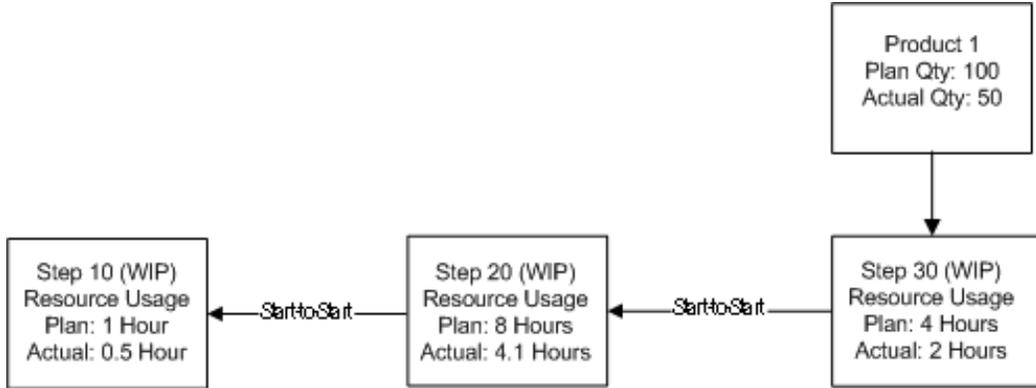
Product 1 has a plan quantity of 100, and 50 are produced. This example shows an initial incremental backflush initiated on Product 1 for 50 percent of plan with a subsequent manual addition of a 0.1 hour resource transaction for step 20.

Following is a table of the step dependencies, plan resource usage, and actual resource usage:

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 10 WIP	n/a	n/a	1 hour	0.5 hour
Step 20 WIP	Start-to-Start	10	8 hours	4.1 hours

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 30 WIP	Start-to-Start	20	4 hours	2 hours

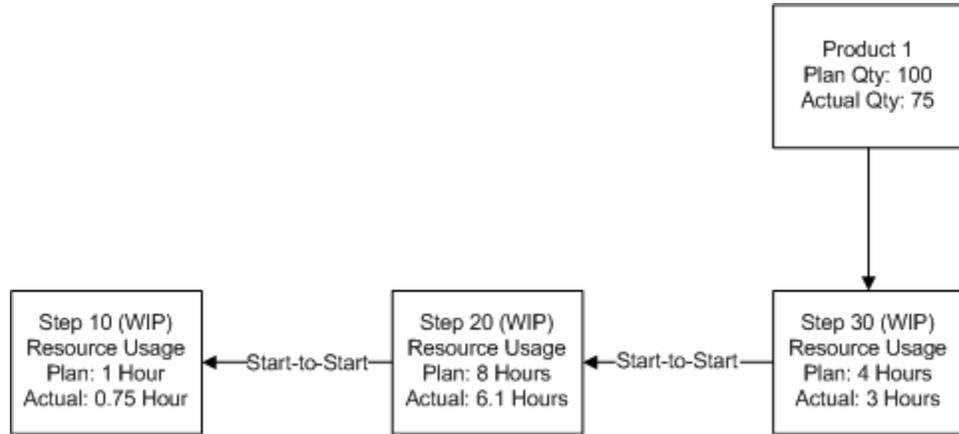
Following is an illustration of the previously tabulated step dependencies, plan resource usage, and actual resource usage:



If an additional incremental backflush of 25 is performed for Product 1, then the actual usage for Step 20 retains the 0.1 hour resource transaction, and the resource usage backflush adds a resource transaction for 25 percent of the plan usage, which is calculated as 2 hours:

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 10 WIP	n/a	n/a	1 hour	0.75 hour
Step 20 WIP	Start-to-Start	10	8 hours	6.1 hours
Step 30 WIP	Start-to-Start	20	4 hours	3 hours

Following is an illustration of the previously tabulated step dependencies, plan resource usage, and actual resource usage:



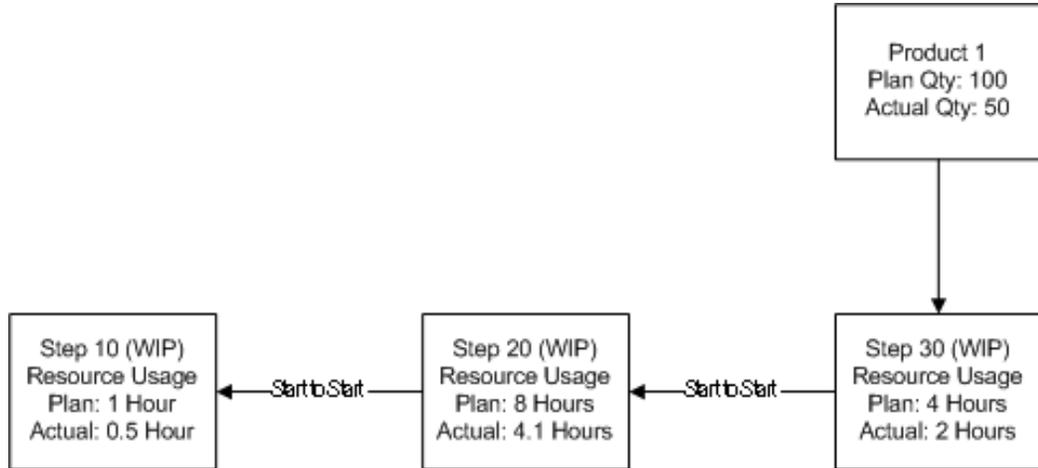
Example 9: Implementing a Negative Incremental Backflush

This example is a continuation of example 8. Product 1 has a plan quantity of 100, and 50 are produced. It shows the result of initiating an incremental backflush of -25 on Product 1. Note that the additional resource transaction on Step 20 is retained, and 25 percent of each of the plan usages is subtracted.

Following are steps, statuses, step dependencies, and plan and actual resources:

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 10	n/a	n/a	1 hour	0.5 hour
Step 20	Start-to-Start	10	8 hours	4.1 hours
Step 30	Start-to-Start	20	4 hours	2 hours

Following is an illustration of the previously tabulated step dependencies, plan resource usage, and actual resource usage:



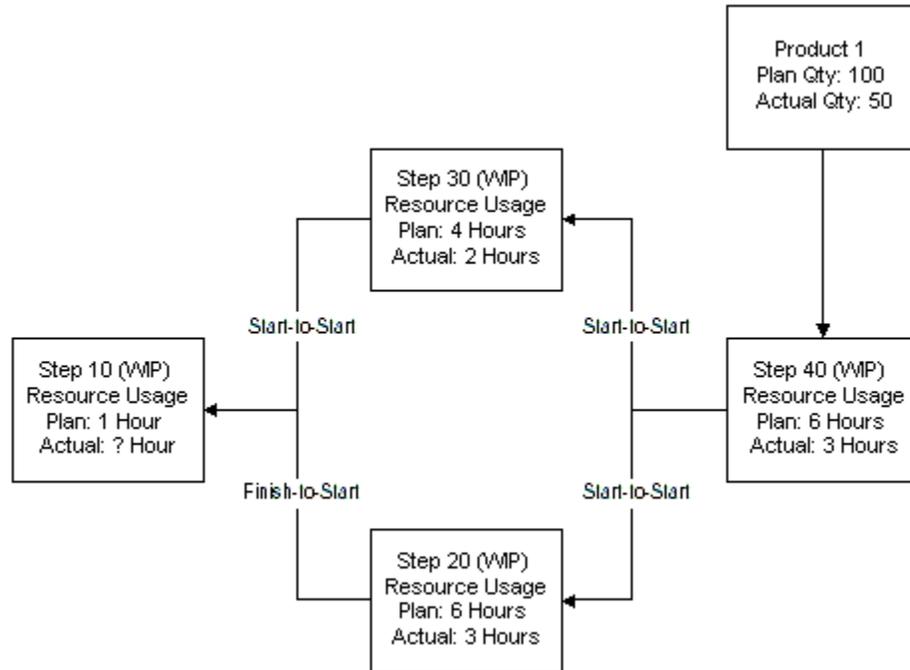
Example 10: Impact of Varying the Initiation of the Backflush Operation

Product 1 has a plan quantity of 100, and 50 are produced. This example shows an initial incremental backflush initiated on Product 1 for 50 percent of plan. Two steps are dependent on step 10. Each step has a different dependency type.

Following is a table of the step dependencies, plan resource usage, and actual resource usage:

Step and Status	Dependency	Dependent on Step	Plan	Actual
Step 10 Completed	n/a	n/a	1 hour	1 hour
Step 20 WIP	Finish-to-Start	10	6 hours	3 hours
Step 30 WIP	Start-to-Start	10	4 hours	2 hours
Step 40 WIP	Start-to-Start	30 and 20	6 hours	3 hours

Following is an illustration of the previously tabulated step dependencies, plan resource usage, and actual resource usage:



The impact on actual usage changes depending on the way you initiate the backflush.

- If the calculation is initiated from the start-to-start path (from step 30), then the actual usage is 0.5 hour.
- If the calculation is initiated from the finish-to-start path (from step 20), then the actual usage is one hour.

This example shows two steps dependent on step 10 with different dependency types. One of these steps is a finish-to-start dependency. It is recommended that Step 10 be completed, and not be work in process (WIP). In that case, the resource usage remains unchanged because it already has a usage calculated on completion. If you have both a start-to-start and a finish-to-start dependency back to the same step, then the earlier step must be completed before backflushing resource usage.

Performing Incremental Backflushing

The Incremental Backflushing window lets you drive incremental backflushing on a work in process or completed batch. Enter an incremental quantity, a new actual quantity, or a new percent of planned quantity for an item.

By default the transaction created for incremental release items are assigned the current system date. You can specify a transaction date for the incremental backflushing to ensure that all the completed transactions of incremental release items have the date you enter rather than the default system date and time.

Prerequisites

- Create a batch.
- Ensure batch status is WIP or Completed.

To incrementally backflush a batch:

1. Navigate to the **Incremental Backflushing** window.
2. **Batch** displays one of the following:
 - If you access this window from the menu, then query the batch Document number. If you query a phantom batch, then a message displays to advise that the batch cannot be found. Phantom batches cannot drive incremental backflushing, as changes made to phantoms do not directly affect the parent batch.
 - If you access this window from the **Batch Details** window, then the window displays all batch header information supplied.
3. The following fields are display only:
 - **Status** displays the status of the batch. For incremental backflushing, the batch must be WIP or Completed.
 - **Product** displays the product code for the first product produced by the batch.
 - **Recipe** displays the code for the recipe used in the batch.
 - **Recipe Version** displays the recipe version.
 - **Formula** displays the formula used to produce the batch.
 - **Formula Version** displays the formula version.
 - **Routing** displays the routing associated with the batch.
 - **Routing Version** displays the routing version.
4. **Item** displays the item code driving incremental backflushing.
 - If you access the **Incremental Backflushing** window from the menu, then enter the Item.
 - If you access the window from the **Batch Details** window, then the Item code,

Description, and Line Type display automatically.

5. The following fields are display only:
 - **Revision** displays the item revision.
 - **Item Description** displays a brief description of the item.
 - **Line Type** displays the type of material as Product, Byproduct, or Ingredient.

6. Enter one of the following:
 - An incremental quantity in the **IncrementalQty** field for the **UOM** displays.
 - A new actual quantity in the **New Actual** field for the **UOM** displays.
 - A new percent of the planned quantity in the **Percent Plan** field. Enter the percent as a whole number. For example, enter five percent as 5.

Based on the field entered, the application calculates the values for the other fields. For example, if you enter a new actual quantity, then the values are calculated for the incremental quantity and percent of planned quantity.

7. To override entry of the default system date and time for the incremental backflushing operation, enter **Transaction Date** as the actual date the incremental backflushing is performed. Leave this field blank to enter the current system date and time.

8. The following fields are display only:
 - **Line** displays the line number of the item in the batch.
 - **UOM** displays the unit of measure for the quantity fields.
 - **Plan Qty** displays the planned quantity for the item displayed.
 - **Old Actual** displays any previous actual quantities completed for the item displayed.

9. Click **OK**. The application performs backflushing by calculating a new actual quantity for all the items in the batch that have a consumption/yield type of Incremental:
 - If you access the window from the menu, then the batch is saved automatically.
 - If you access the window from the **Batch Details** window, then the application redisplay the batch where you choose **Incremental Backflush** from the **Actions** menu. Edit the calculated actual quantities or enter any additional

transactions.

Editing Batch Steps in Production

The Batch Steps window lets you view planned and actual values for start dates, completion dates, step quantities, charges, and due date. The Batch steps window also lets you release, complete, close, or cancel a batch step. In addition, view planned operations, and the status of each batch step. Refer to "Editing Batch Steps" for a complete discussion of the Batch Steps window.

Understanding Charges

A charge is defined as one full load of material accommodated in a single pass through the processing equipment. Charge calculations consider the:

- Volume or mass of material processed
- Processing equipment capacity
- Time required for a single pass through the equipment

For example, a charge requires one hour of mixing time. The size of the mixing vessel, the method of mixing, and the material mixed all contribute to the processing rate limitations. If a batch is planned for 4500 gallons, and the routing step has a tank capacity of 1000 gallons, then five charges, or mini-batches, are required to process the full 4500 gallons. If Proportional scaling is used for this calculation, then 4.5 hours of processing time is required. However, the actual required process time is a full five hours, as in most cases, after producing 4000 gallons, the remaining 500 gallons of material still needs a full hour of processing.

Using Operation Charge Step Dependencies

Apply interoperational dependencies to the charges of an upstream operation in a single routing. In the definition of the batch step dependencies defined initially as routing step dependencies, the Apply to Charge indicator takes the defined dependency and applies it to all charges of the dependent step. The dependency type, standard time offset, and maximum time offset are not applied to the operation, but rather to each charge processed in the dependent step.

Example

For example, step 10 yields a charge in 100 pound increments. Step 20 consumes that material by-charge in the same increment. The yield at the end of the charge determines the timing for the material. Therefore, define a finish-to-start relationship, and select the Apply to Charge indicator. Step 20 starts its first charge at the end of the first charge for

step 10. This functionality applies to users of the Oracle Advanced Supply Chain Planning (ASCP) application. Refer to *Oracle Process Manufacturing process planning user's guides* for additional information.

Calculating Charges for Dependent Steps

The application calculates how much material to process by each batch step, taking into account the step dependencies, and the input and output of material associated with the individual step. This information is used to calculate the number of charges required to satisfy the demand based on the maximum capacity of the selected step.

When you change the planned quantity of a material, the application recalculates all dependent quantities in the recipe. An option is available at the routing level to indicate whether step quantities are manually maintained or automatically calculated by the system. The prerequisites of the step quantity calculation are the creation of step dependencies and the association of material to each appropriate step.

Operation charge details are generated each time a batch is created when an operation contains a resource constrained by capacity. To have charges generated, the application must find a resource with a capacity constraint (or, smallest capacity), and must be scaled by-charge. That resource is associated to the charge detail. The resource is defined in the Oracle Process Manufacturing (OPM) Product Development and OPM Process Planning applications.

You cannot modify charge details. When charge details are communicated to Advanced Planning and Scheduling (APS), they are scheduled and the dates return to the OPM Process Execution application. Also returned are firm planned orders with charge details generated by APS. These generated details are recorded in OPM Process Execution.

Sometimes the charges sent to APS are modified in size. This occurs when the synchronization process is run in APS. Synchronization identifies the upstream and downstream events and ensures that the materials are timed correctly to maximize output and minimize downtime. This APS process can decrease the size of charges in a batch to ensure the consuming batch and the charge are both at the same rate.

The charge number is sequential and begins at one and increase by one for each successive charge. The charge quantity is the maximum capacity for the chargeable resource, except for the final charge that is the remainder of the batch step quantity. Refer to the *Oracle Process Manufacturing process planning user's guides* for additional information.

Following are business rules in effect for recording operation charges:

- Resizing a batch quantity causes various batch step quantities to change for a resource that is chargeable. If this occurs, then the charges are recalculated to accommodate the resizing.
- Rescheduling a batch clears charge detail dates. All customary batch rescheduling

rules apply.

- Deletion or replacement of a chargeable resource causes the charges to be removed. You can delete a chargeable resource or you can substitute a resource for a chargeable resource.

To display charge details:

1. Navigate to the **Batch Steps** window.
2. Query the desired batch number.
3. Choose **Charge Details** from the **Tools** menu.
4. The following fields are display only:
 - **Batch No** is the batch document number.
 - **Resources** display the individual resources for each batch charge.
 - **Step** is the step associated to the resource charge.
 - **Activity Sequence Number** displays the sequence of the activity, to which the chargeable resource belongs.
 - **Charge Number** is the number of charges required to satisfy the demand based on the maximum capacity of the selected process element.
 - **Charge Qty** is the quantity of material for the charge.
 - **Planned Start** is the planned start date and time for the charge.
 - **Planned Completion** is the planned completion date and time for the charge.
5. Close the window.

Understanding Activity Factors

An Activity Factor defines the number of times an activity is performed. For example, if a quality test must be performed at the beginning, middle, and end of a mixing time period, then use an Activity Factor of three. Activity Factors are applied to resource usage when planning and calculating resource usage. Set to zero to exclude a particular activity.

Setting Up Preferred Sequences for Activities

In many cases, setup times depend on the setup type of a previous activity processed by a given resource. Evaluation of these activities generates a firmed sequence to perform them to minimize the sum of changeover times for the entire cycle. After you define and create activity sequences in APS, they are returned to the source Process Manufacturing instance. When you create these sequences, firm the resource to ensure that the scheduling engine does not move the resource usage.

Example

For example, set up a firmed sequence in the activity RUNTIME for resource RES-1 in Batches 1202, 1203, and 1039. The running of that sequence does not change in the plan generated by APS. Once released by APS and returned to APS on a data collection, the values are recorded in OPM Process Execution. There is no visibility to the Firmed Sequence values in OPM Process Execution. Refer to *Oracle Process Manufacturing process planning user's guides* for additional information.

Editing Resource Transactions

The Resource Transactions window lets you enter actual usage for each of the resources used in batch steps. You can only do this for a batch in which Automatic Step Quantity Calculation (ASQC) is not used.

Automatic Step Quantity Calculation

Following is an example of calculating actual resource usage:

The material from step 10 flows into step 20. The quantity of step 10 is 100 kilograms (kg), and 50 kg of material is added in step 20. The quantity in step 20 is calculated as 150 kg. Resource usage is calculated based on the step quantity and the throughput. If a resource used in step 20 can process 100 kg in one hour, and the scale type selected is Linear, then the resource usage is 1.5 hours.

Planned step quantities and resource usage are calculated when a batch is created, and while the batch and step have a status of Pending. These quantities are updated whenever the material planned quantities are updated. After the batch and step are released and have a status of WIP, the actual step quantity is updated whenever the actual material quantities are updated.

Steps can run for a considerable period of time. Update the actual resource usage based on the progress made through a lengthy step. This allows the planning and scheduling applications to identify there is less remaining resource time required than posted at the start of the step. For example, if a step that takes 1.5 hours is halfway completed, then the planning application recognizes that only 0.75 hours of resource usage remain instead of the full 1.5 hr. Without this information the planning application underestimates the capacity available for other batches. Set the Calculate Interim

Resource Usage parameter to YES. With this set, the actual resource usage is updated as the actual step quantity is updated. This decreases the pending resource transactions upon which the Advanced Planning and Scheduling application bases its view of resource availability.

Using the Calculate Interim Resource Usage Parameter

The Calculate Interim Resource Usage parameter functions only with ASQC batches as follows:

- Set to No, it does not update the actual resource usage every time the actual step quantity is updated. Default.
- Set to Yes, it updates the actual resource usage every time the actual step quantity is updated.

Implementation Consideration

If using resources with a scale type of By Charge, then update the actual step quantity in integer multiples of charges to reflect the correct usage.

You can use folders with the Resource Transactions window.

See: *Oracle Applications User's Guide*

Prerequisites

- Create a batch with a routing.

To enter resource transactions:

1. Navigate to the **Resource Transactions** window.
2. The following fields are display only:
 - **Document** displays the batch document number.
 - **Status** is the batch status.
 - **Step** displays the batch step number.
 - **Step Status** displays the status of the step as:
 - **Pending** for a step that is pending.
 - **WIP** for a step that is work in process.

- **Completed** for a step that is completed.
- **Closed** for a step that is closed.
- **Canceled** for a step that is canceled.

- **Operation** displays the code for the operation performed in the step.
- **Operation Description** displays a brief description of the operation.
- **Activity** displays the activity associated to the displayed operation.
- **Activity Description** displays a brief description of the activity.
- **Resource** displays the resource associated with the activity.
- **Resource Description** displays a brief description of the resource.
- **Actual Usage** displays the actual resource usage for the batch step. This is the total resource usage of the completed transactions.
- **Usage UOM** displays the unit of measure for the Actual Usage field.

Transaction Details

3. Enter the **Transaction Date**. The current date and time is the default if you enter a new transaction.
4. Enter **Usage** for the resource transaction.
5. Enter the **Start Date** for the transaction.
6. Enter the **End Date** for the transaction. If the resource usage is not expressed in time units, then this date defaults to the start date.
7. If the step is sequentially dependent on other steps, then **Sequence Dependent** is selected.
8. Enter the **Instance Number** as the specific instance of the resource that performed the transaction.
9. If the resource transaction is completed, then **Completed** is selected.
10. Enter the **Reason** associated with the transaction. For example, LOSS can signify the transaction resulted in an inventory loss associated with the transaction.

Recording Batch Operation Work in Process

The Batch Operation WIP window lets you report material transferred from step to step. This window is a standalone window, however; data entered here is not used anywhere else in the application. It is not used in calculating step quantities. You cannot edit steps on this window.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Enter a save a batch.
- Batch status must be work in process.

To record WIP transferred from step to step:

1. Navigate to the **Batch Operation WIP** window.
2. Query the **Batch** document number and **Batch Step** number to edit work in process transfers.

WIP Received

3. Enter the **Quantity** of material received as a transfer into the Batch Step displayed on this window. Required.
4. Enter the **UOM** for the material quantity transferred to the Batch Step. Required.
5. Enter the **Step Number** of the batch step that is the source of the material transfer. Required.
6. **Operation Description** is a brief description of the operation.
7. Enter the **Transaction Date** and time of the material transfer. This field defaults to the current system date and time.

WIP Sent

8. Enter the **Quantity** of material sent as a transfer from the Batch Step displayed on this window. Required.
9. Enter the **UOM** for the material quantity transferred from this batch step. Required.
10. Enter the **Step Number** of the batch step that is the target of the material transfer.

Required.

11. Enter the **Transaction Date** and time of the material transfer. This field defaults to the current system date and time.

To find a batch operation work in process:

1. Navigate to the **Find Batch Operation WIP** window.
2. Enter any of the following to narrow your search:
 - **Status** as Canceled, Pending, WIP, Completed or Closed.
 - **Batch** as the batch document number.
 - **Batch Step** as the batch step number.
3. Click **Find**.

Batch Completion

This topic provides a basic understanding of batch completion, including how to complete a batch and revert a completed batch to work in process. You are shown how to close and reopen a batch.

This chapter covers the following topics:

- Requirements
- Understanding Batch Completion
- Completing a Batch
- Reverting a Batch to Work in Process
- Closing a Batch
- Reopening a Closed Batch

Requirements

Following are some requirements that customers have for batch completion in Process Execution.

Can a batch be reopened if someone accidentally closes it?

Yes. The Reopen Batch command is available from the Actions menu to reopen a batch that is closed accidentally. If the financial period for a batch is closed, then it cannot be reopened.

Reopen Closed Batches

When a production batch does not require additional processing, it is complete and must be closed to calculate actual production costs. If batches are closed accidentally, then they can be reopened by authorized users.

Understanding Batch Completion

Completing a batch indicates the batch is finished and has yielded all of its products. Prior to batch completion, transactions associated with the product and byproduct lines set for automatic yield have a Pending status. These are pending product lots and not the transactions as in inventory transactions. When you complete the batch, all pending transactions are completed and inventory levels are updated.

When you complete a batch, the Material Exceptions window displays the remaining reservations and pending product lots. If you select the Display unconsumed/Unyielded Material parameter, then the unconsumed/unyielded materials also display. If there are pending move orders, then the Pending Move Orders indicator is selected. After you make the necessary changes to the batch, complete batch deletes all move orders, pending reservations, and entries for the batch in pending product lots. Refer to "Viewing Material Exceptions" in the "Batch Materials" chapter for more information.

Complete batch completes all the batch steps. The quality status of a batch step determines whether a step can be completed. When you attempt to complete a batch, any outstanding issues related to batch completion are analyzed by a set of business rules. Appropriate messages display to manage these issues prior to completing the batch. If the release batch event is e-record and e-signature enabled, then you cannot directly complete a pending batch.

If the Warehouse Management Systems (WMS) application is implemented, then putaway rules are applied using the yield transaction. Otherwise, the default subinventory and locator are assigned to the transaction.

You can change batch status from Completed back to WIP. If a production staff member accidentally completes a batch, then you can revert the status of the batch back to work in process.

Completing a Batch

The Complete a Batch dialog box lets you complete a batch.

Prerequisites

- Verify that the batch status is pending or work in process.

To complete a batch:

1. Navigate to the **Batch Details** window.
2. Query the batch **Document** number to complete.

3. Choose **Complete** from the **Actions** menu.
4. **Actual Start Date** displays the start date entered for the batch. You can edit this field.
5. Enter the **Actual Completion Date** as the date when the batch is completed and it must be greater than the Actual Start Date. If there are outstanding issues, then appropriate messages display.

Reverting a Batch to Work in Process

If a batch is completed accidentally, you can revert the status of the batch to work in process. If you want to scale the batch, then revert a batch to work in process. In **Revert to WIP Batch and Step**, the lot information for lot-controlled products and byproducts with the yield type of Automatic or Automatic By Step and associated to step is stored on the Pending Product Lots window. Refer to "Entering Pending Product Lots" in the "Batch Materials" chapter for more information. When you revert a Batch to WIP, steps are not changed and are left as Closed or Completed.

Prerequisites

- Complete a batch.

To revert a batch to work in process:

1. Navigate to the **Batch Details** window.
2. Query the batch **Document** number to revert to work in process.
3. Choose **Revert to WIP** from the **Actions** menu. If there are outstanding issues, then appropriate messages display. Batch status changes from **Completed** to **WIP**.

Closing a Batch

The Close Batch dialog box lets you close a batch. Only a completed or terminated batch can be closed. All batch steps must have a status of Completed or Closed to close a batch. A terminated batch with canceled, completed, or closed steps can be closed. Closing a batch prevents any further editing of the batch. This must be done after you are confident all the batch information is recorded correctly.

Prerequisites

- Complete a batch.

To close a batch:

1. Navigate to the **Batch Details** window.
2. Query the batch **Document** number to close.
3. Choose **Close** from the **Actions** menu. The Close Batch dialog box displays.
4. Enter the **Batch Close Date**.

Reopening a Closed Batch

You must have the Production Supervisor responsibility to use this function. When a batch is complete and additional changes are not required, it must be closed to become eligible for actual cost calculations. If a batch is closed accidentally, then you can reopen it. Only authorized individuals have access to this function. If a batch is posted to a closed financial period, batch transactions are purged, or the actual cost has been run and the period is frozen, then it cannot be reopened.

Prerequisites

- Complete and close a batch.
- Select the batch to reopen.

To reopen a closed batch:

1. Navigate to the **Batch Details** window.
2. Query the batch **Document** number to reopen.
3. Choose **Reopen Batch** from the **Actions** menu. Batch status changes from **Closed** to **Completed**.

Inquiries

This topic shows you how to run and interpret inquiries for a production schedule, work in process, material variances, batch step variances, resource variances, and resource usage.

This chapter covers the following topics:

- Requirements
- Running a Production Schedule Inquiry
- Interpreting a Production Schedule Inquiry
- Running a Work in Process Inquiry
- Interpreting a Work in Process Inquiry
- Interpreting Work in Process Inquiry Details
- Running a Material Variance Inquiry
- Interpreting a Material Variance Inquiry
- Interpreting a Material Variance - Ingredient Inquiry
- Interpreting a Material Variance - Step Details Inquiry
- Running a Batch Step Variance Inquiry
- Interpreting a Batch Step Variance Inquiry - Summary
- Interpreting Batch Step Variance Inquiry - Details
- Interpreting Batch Step Variance Inquiry - Activities
- Interpreting Batch Step Variance Inquiry - Activity Resources
- Running a Resource Variance Inquiry
- Interpreting Resource Variance Details
- Interpreting Resource Usage
- Interpreting Resource Usage Details

- Viewing Material Details

Requirements

Following are some requirements that customers have for inquiries in Process Execution:

Can a production schedule differentiate between pending and WIP batches?

Yes. The Production Schedule Selection Criteria window lets you select batches by pending or WIP status.

Production Schedule Inquiry Differentiates Pending and WIP Batches

The Production Schedule Selection Criteria dialog box enables the selection of the type and status of a production schedule. Production Supervisors can display firm planned orders and batches scheduled for production. The inquiry allows differentiation by status.

Is it possible to display all current work in process for the plant?

Yes. The Work in Process Inquiry searches for batches with a status of work in process.

Work in Process Inquiry Displays Specified Batches in Production

The Work in Process Inquiry Selection Criteria dialog box enables the search of batches by plant, document number, start date, and formula or routing used. The Work In Process Inquiry Details window displays relevant information about planned and actual dates for each batch step as well as required completion dates, so that the Production Supervisor can gain an overview of all work in process.

Is there an application tool to monitor variances in material production and consumption?

Yes. The Material Variance Inquiry enables the Production Supervisor to monitor processes outside expected production tolerances.

Material Variance Inquiry Shows Discrepancies Between Actual and Planned Batch Quantities

Production Supervisors use the Material Variance Inquiry to monitor material consumption. When a process is outside expected production tolerances, the inquiry assists in the troubleshooting of specific problems in batch production.

Can variances be viewed at the step level?

Yes. The Batch Step Variance Inquiry enables the display of variances at the step level.

Batch Step Variance Inquiry Displays Step Variances

Step Variances are a valuable diagnostic tool used to troubleshoot process flow issues. Failure to close batch steps or the inability to complete them in an allowable time helps Production Supervisors optimize work processes at the batch step level.

Is it possible to view bottlenecks in the production process?

Yes. The Resource Variance Inquiry enables the Production Supervisor to display variances in actual versus planned hours for each resource utilized in the batch.

Resource Variance Inquiry Identifies Resource Consumption Problems

The Production Supervisor runs the Resource Variance Inquiry to identify variations in resource consumption during batch production. By investigating planned versus actual hours used for each resource, it is possible to troubleshoot production bottlenecks and remove contentions for resources in a production run. The Resource Usage window enables management to examine relative efficiencies for a process.

Running a Production Schedule Inquiry

The Production Schedule Selection Criteria dialog box lets you limit the list of production schedules displayed. When you accept the selected criteria entered, the Production Schedule window lists the scheduled batches and firm planned orders that meet those criteria.

Prerequisites

- Enter and save a production schedule.

To run a production schedule inquiry:

1. Navigate to the Production Schedule Selection Criteria dialog box.
2. Enter one or more of the following parameters to specify the Type and Status of the Production Schedule to display:

Type

- Select **Firm Planned Order** to display scheduled firm planned orders.
- Select **Batch** to display scheduled batches.

Status

- Select **Pending** to display pending batches.
- Select **WIP** to display work in process.

Required.

3. Make no entries in the **From** and **To** fields to search all data, or enter a starting **From** and ending **To** value to narrow the range in each of the following:
 - **Start Date** of the Firm Planned Order or Batch.
 - **End Date** of the Firm Planned Order or Batch.
 - **Document** number.
 - **Recipe** code.
 - **Recipe Version**.
 - **Product** code. Required.
 - **Formula** code.
 - **Version** number.
 - **Routing** code.
 - **Routing Version**.
 - **Routing Class**.
4. Click OK.

Interpreting a Production Schedule Inquiry

The Production Schedule Inquiry window displays all firm planned orders and batches that meet the criteria entered on the Production Schedule Selection Criteria window.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Run a production schedule inquiry.

To interpret a production schedule inquiry:

1. Navigate to the **Production Schedule Inquiry** window.
2. The following fields are display only:
 - **Type** displays whether the line entry is for a **Firm Planned Order** or a **Batch**.

- **Document** is the batch or firm planned order number.
- **Product** is the code for the primary product in the batch or firm planned order.
- **Description** is a brief description of the product.
- **Revision** is the revision of the primary product in the batch or firm planned order.
- **Planned Start Date** is the planned start date and time for the batch or firm planned order.
- **Planned Completion Date** is the planned end date and time for the batch or firm planned order.
- **Status** is the status of the batch or firm planned order, and can be **Pending** or **WIP**.
- **Formula** is the code for the formula in the batch or firm planned order.
- **Formula Version** is the formula version number in the batch or firm planned order.
- **Routing** is the routing code for the recipe in the batch or firm planned order.
- **Routing Version** is the routing version number in the batch or firm planned order.
- **Routing Class** is the routing class in the batch or firm planned order.
- **Recipe** is the code for the recipe in the batch or firm planned order.
- **Recipe Version** is the recipe version number in the batch or firm planned order.

Running a Work in Process Inquiry

The Work in Process Inquiry Selection Criteria dialog box lets you generate a Work in Process Inquiry to view detailed information about batches in process. Narrow the inquiry by using selection criteria that limit the data to display.

Prerequisites

- Create batches.

To run a work in process inquiry:

1. Navigate to the Work in Process Inquiry Selection Criteria dialog box.
2. Make no entries in the **From** and **To** fields to search all data, or enter a starting **From** and ending **To** value to narrow the range in each of the following:
 - **Batch** document number.
 - **Start Date** of the batches.
 - **Formula** code.
 - Formula **Version** number.
 - **Routing** code.
 - Routing **Version** number.
 - **Recipe** code.
 - **Recipe Version** number
3. Click **OK**.

Interpreting a Work in Process Inquiry

The Work in Process Inquiry window displays batches that meet the criteria entered for WIP Inquiry Selection Criteria. The Work in Process inquiry provides important information about batches in process including their scheduled completion, number of steps completed, and total steps that remain active. The inquiry is a good indicator of percent batch completion.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Run a work in process inquiry.

To interpret a work in process inquiry:

1. Navigate to the **Work in Process Inquiry** window.
2. The following fields are display only:

- **Batch** is the batch document number.
 - **Planned Completion Date** is the planned date and time of completion for the batches listed.
 - **Routing** is the code for the routing used for each batch.
 - **Version** is the version of the routing for each batch.
 - **Total Steps** is the total number of batch steps in each routing.
 - **Completed Steps** is the number of batch steps completed in the batch.
 - **Active Steps** is the number of batch steps in process.
 - **Recipe** is the code for the recipe for each batch.
 - **Version** is the version of the recipe for each batch.
3. Drill down to the **Work in Process Inquiry Details** window to display additional process details for a specific batch.

Interpreting Work in Process Inquiry Details

The Work In Process Inquiry Details window displays work in process details for a specific batch. Individual steps in each operation display planned start and completion dates, planned step quantities, the actual start and completion dates, and status of each step. The date and time for required completion and closing date for each step give a summary of batch step information.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Run a work in process inquiry.

To interpret work in process inquiry details:

1. Navigate to the **Work In Process Inquiry Details** window.
2. The following fields are display only:
 - **Batch** is the batch document number.

- **Product** is the code for the primary product of the batch.
- **Revision** is the revision of the primary product of the batch.
- **Recipe** is the code for the recipe for the batch.
- **Recipe version** is the version of the recipe for the batch.
- **Routing** is the code for the routing for the batch.
- **Routing Version** is the routing version number for the batch.
- **Routing Quantity** is the planned product quantity made by the combination of the batch, routing, and version.
- **UOM** is the unit of measure for the product quantity.

Batch Steps

3. The following fields are display only:
 - **Step** is the operation step number.
 - **Operation** is the name of the step operation.
 - **Version** is the step operation version.
 - **Planned Start Date** is the step planned start date and time.
 - **Planned Completion Date** is the planned completion date and time for the step.
 - **Actual Start Date** is the step actual start date and time.
 - **Actual Completion Date** is the step actual completion date and time.
 - **Required Completion Date** is the batch due date and time.
 - **Step Closed Date** is the step close date and time.
 - **Planned Step Quantity** is the planned step quantity.
 - **Actual Step Quantity** is the actual step quantity.
 - **Status** is the step status. Status can be Pending, WIP, Canceled, Completed, or Closed.
 - **Operation Description** is the description of the operation used in the step.

To redisplay the Work in Process Inquiry window:

Choose **Work in Process** from the **Actions** menu.

Running a Material Variance Inquiry

The Material Variance Inquiry Selection Criteria dialog box lets you generate a Material Variance Inquiry to view detailed information about variances in batch material production and consumption. Narrow the inquiry by using selection criteria that limit the data displayed.

Prerequisites

- Create batches.
- Consume batch materials.

To run a material variance inquiry:

1. Navigate to the Material Variance Inquiry Selection Criteria dialog box.
2. Make no entries in the **From** and **To** fields to search all data, or enter a starting **From** and ending **To** value to narrow the range in each of the following:
 - **Batch** document number.
 - **Start Date** of the batches.
 - **Formula** code.
 - Formula **Version** number.
 - **Routing** code.
 - Routing **Version** number.
 - **Item** code.
 - **Recipe** code.
 - Recipe **Version** number.
3. Click **OK**.

Interpreting a Material Variance Inquiry

The Material Variance Inquiry window lets you display the variances observed between actual and planned batch quantities. The material variance is expressed as a percentage. Optimize and troubleshoot the production run by monitoring the actual amounts of material produced in batches. Variances also help monitor production costs by signaling a process outside an expected production tolerance.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Run a material variance inquiry.

To interpret a material variance inquiry:

1. Navigate to the **Material Variance Inquiry** window.
2. The following fields are display only:
 - **Batch** is the batch document number.
 - **Actual Start Date** is the batch start date and time.
 - **Product** is the code for the primary product of the batch.
 - **Revision** is the revision of the primary product.
 - **Total Planned** is the expected amount of material to be generated by the batch.
 - **Total Actual** is the actual amount of material generated by the batch.
 - **Variance [%]** is material variance expressed as a percent, as calculated by:
$$(\text{Actual Quantity} - \text{Planned Quantity}) / \text{Planned Quantity} * 100\%$$

For example, a material variance of 25% occurs when the Actual Quantity is 250 and the Planned Quantity is 200, as calculated by:

$$(250 - 200) / 200 * 100\%$$
 - **Formula** is the code of the formula used in the batch.
 - **Formula Version** is the version of the formula used in the batch.
 - **Routing** is the code of the routing used in the batch.

- **Routing Version** is the version of the routing used in the batch.
3. Drill down to the **Material Variance - Ingredient Inquiry** window.

To display the **Material Variance - Ingredient Inquiry** window:

1. Navigate to the **Material Variance Inquiry** window.
2. Select the **Batch** to examine for ingredient material variances.
3. Choose **Ingredients** from the **Actions** menu.

Interpreting a **Material Variance - Ingredient Inquiry**

The **Material Variance - Ingredient Inquiry** window lets you view ingredient details for each line in a batch, including both planned and actual quantities and percent variances for each ingredient. This inquiry lists ingredient consumption detail information.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Perform a material variance inquiry.

To interpret a material variance ingredient Inquiry:

1. Navigate to the **Material Variance - Ingredient Inquiry** window.
2. The following fields are display only:
 - **Batch** is the batch document number.
 - **Product** is the code for the primary product produced by the batch.
 - **Revision** is the revision of the primary product produced by the batch.
 - **Routing** is the code for the routing used in the batch.
 - **Routing Version** is the routing version number for the selected batch.
 - **Planned Start** is the planned start date for the batch.
 - **Formula** is the code for the formula used in the batch.

- **Formula Version** is the formula version number for the selected batch.
- **Planned Completion** is the planned completion date and time for the batch.
- **Recipe** is the code of the recipe used in the batch.
- **Recipe Version** is the version of the recipe used in the batch.
- **Actual Start** is the actual start date for the batch.
- **Total Planned Qty** is the planned quantity of material to be produced by the batch.
- **Total Actual Qty** is the actual amount of material produced by the batch.
- **Actual Completion** is the actual finish date for the batch.

Ingredient Details

3. The following fields are display only:

- **Line** is the formula line number for the ingredient.
- **Ingredient** is the code for the ingredient.
- **Revision** is the revision of the ingredient.
- **Planned Quantity** is the planned quantity of the ingredient in the primary unit of measure.
- **Actual Quantity** is the actual quantity of ingredient in the primary unit of measure.
- **UOM** is the unit of measure used to express the ingredient quantities.
- **Variance [%]** is the ingredient variance expressed as a percent, as calculated by:

$$(\text{Actual Quantity} - \text{Planned Quantity}) / \text{Planned Quantity} * 100\%$$

For example, an ingredient variance of 25% occurs when the Actual Quantity is 125 and the Planned Quantity is 100, as calculated by:

$$(125 - 100) / 100 * 100\%$$

To display the Material Variance - Step Details Inquiry window:

1. Navigate to the **Material Variance - Ingredient Inquiry** window.
2. Select the **Batch** to examine for variances at the step detail level.

3. Choose **Step Details** from the **Actions** menu.

To redisplay the **Material Variance Inquiry** from the **Material Variance - Ingredient Inquiry** window:

1. Navigate to the **Material Variance - Step Details Inquiry** window.
2. Choose **Material Variance** from the **Actions** menu.

To display the **Material Variance - Step Details** window:

1. Navigate to the **Material Variance - Ingredient Inquiry** window.
2. Choose **Step Details** from the **Actions** menu.

Interpreting a **Material Variance - Step Details Inquiry**

The **Material Variance - Step Details** window lets you view variances on each step in the production batch.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Perform a material variance inquiry on ingredients.

To interpret a material variance steps details inquiry:

1. Navigate to the **Material Variance - Step Details** window.
2. The following fields are display only:
 - **Batch** is the batch document number.
 - **Product** is the code for the primary product produced by the batch.
 - **Product Revision** is the revision of the primary product produced by the batch.
 - **Recipe** is the code for the recipe used in the batch.
 - **Recipe Version** is the recipe version number for the batch.
 - **Formula** is the code for formula used in the batch.

- **Formula Version** is the formula version number for the batch.
- **Routing** is the code for the routing used in the batch.
- **Routing Version** is the routing version number for the selected batch.
- **Ingredient** is the ingredient code used in the batch.
- **Ingredient Revision** is the revision of the ingredient used in the batch.
- **Total Planned Qty** is the routing planned quantity of ingredient consumed by the batch.
- **Total Actual Qty** is the actual quantity of ingredient consumed by the batch in the primary unit of measure.
- **UOM** is the unit of measure used to express the ingredient quantities.

Step Details

3. The following fields are display only:

- **Step** is the batch step number.
- **Operation** is the name of the operation for the listed step.
- **Version** is the operation version used for the listed step.
- **Status** is the status of the batch step and can be **Pending, WIP, Completed, or Closed**.
- **Total Planned Quantity** is the planned quantity of material consumed by the step.
- **Total Actual Quantity** is the actual quantity of material consumed by the step.
- **UOM** is the unit of measured used to express ingredient quantities.
- **Variance [%]** is the batch step variance expressed as a percent, as calculated by:

$$(\text{Actual Quantity} - \text{Planned Quantity}) / \text{Planned Quantity} * 100\%$$

For example, a step variance of 25% occurs when the Actual Quantity is 125 and the Planned Quantity is 100, as calculated by:

$$(125 - 100) / 100 * 100\%$$

To display the Material Variance - Ingredient Inquiry window:

1. Navigate to the **Material Variance - Step Details** window.
2. Choose **Ingredients** from the **Actions** menu.

Running a Batch Step Variance Inquiry

The Batch Step Variance Inquiry Selection Criteria dialog box lets you generate a Batch Step Variance Inquiry to view detailed information about variances in batch step material consumption. Narrow the inquiry by using selection criteria that limit the data displayed.

Prerequisites

- Create batches.
- Consume batch materials.

To run a batch step variance inquiry:

1. Navigate to the Batch Step Variance Inquiry Selection Criteria dialog box.
2. Make no entries in the **From** and **To** fields to search all data, or enter a starting **From** and ending **To** value to narrow the range in each of the following:
 - **Batch** document number.
 - **Start Date** of the batches.
 - **Formula** code.
 - **Version** number.
 - **Routing** code.
 - Routing **Version** number.
 - **Item** code.
 - **Operation** code.
 - Operation **Version** number.
 - **Recipe** code.

- Recipe **Version** number.
3. Click **OK**.

Interpreting a Batch Step Variance Inquiry - Summary

The Batch Step Variance Inquiry - Summary window provides detailed information about batch variances. Determine the actual and planned hours for each batch.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Run a batch step variance inquiry.

To interpret a batch step variance inquiry summary:

1. Navigate to the **Batch Step Variance Inquiry - Summary** window.
2. The following fields are display only:
 - **Batch** is the batch document number.
 - **Actual Completion Date** is the actual finish date for the batch.
 - **Routing** is the code for the routing used in the batch.
 - **Version** is the routing version number for the selected batch.
 - **Num of Routing Steps** is the total number of steps in the routing.
 - **Num of Batch Steps** is the total number of steps in the batch.
 - **Planned Hours** is the planned number of hours required to complete the batch step.
 - **Actual Hours** is the actual number of hours required to complete the batch step.
 - **Variance [%]** is the batch step variance expressed as a percent, as calculated by:
$$(\text{Actual Hours} - \text{Planned Hours}) / \text{Planned Hours} * 100\%$$

For example, a step variance of 25% occurs when the Actual Hours are 2.50 and the Planned Hours are 2.00, as calculated by:

$$(2.50 - 2.00) / 2.00 * 100\%$$

3. Drill down to the **Batch Step Variance Inquiry** window.

Interpreting Batch Step Variance Inquiry - Details

The Batch Step Variance Inquiry - Details window provides detailed information about batch steps in a production run. Navigate to the Batch Step Inquiry - Operation Details window from this window.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Run a batch variance inquiry.

To display batch step variance details:

1. Navigate to the **Batch Step Variance Inquiry - Details** window.
2. The following fields are display only:
 - **Batch** is the batch document number.
 - **Product** is the primary product produced by the batch.
 - **Revision** is the revision of the primary product produced by the batch.
 - **Recipe** is the code for the recipe used in the batch.
 - **Recipe Version** is the recipe version number for the selected batch.
 - **Routing** is the code for the routing used in the batch.
 - **Routing Version** is the routing version number for the selected batch.
 - **Planned Start** is the planned start date and time for the batch.
 - **Planned Completion** is the planned completion date and time for the batch.
 - **Actual Start** is the date the batch was actually started.
 - **Actual Completion** is the date the batch was actually completed.

Usage

3. The following fields are display only:

- **Step** is the step number for the displayed batch step.
 - **Operation** is the operation performed in the displayed batch step.
 - **Version** is the version number of the operation performed in the displayed batch step.
 - **Planned Step Qty** is the quantity of the product planned to be produced in the step.
 - **Actual Step Qty** is the quantity of the product produced in the step.
 - **UOM** is the unit of measure to express the quantity of product produced.
 - **Planned Hours** is the planned number of hours to perform the batch step.
 - **Actual Hours** is the actual number of hours to perform the batch step.
 - **Variance [%]** is the variance of planned versus actual hours.
4. Drill down to display the **Batch Variance Inquiry - Operation Activities** window.

Dates

5. The following fields are display only:
- **Step** is the step number for the displayed batch.
 - **Operation** is the operation performed in the displayed batch step.
 - **Version** is the version number of the operation performed in the displayed batch step.
 - **Planned Start** is the planned start date and time for the batch step.
 - **Planned Completion** is the planned completion date and time for the batch step.
 - **Actual Start** is the actual start date and time for the batch step.
 - **Actual Completion** is the actual completion date and time for the batch step.

Interpreting Batch Step Variance Inquiry - Activities

The Batch Step Variance Inquiry - Activities window displays the step activities associated with the batch. Each activity is listed with information about its planned start and completion date and time and actual start and completion date and time. Planned

factors and actual factors are also provided.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Run a batch step variance inquiry.

To display batch step variance inquiry operation activities:

1. Navigate to the **Batch Step Variance Inquiry - Activities** window.
2. The following fields are display only:
 - **Batch** is the batch document number.
 - **Product** is the primary product produced by the batch.
 - **Revision** is the revision of the primary product produced by the batch.
 - **Total Output Qty** is the planned quantity of product produced by the batch.
 - **UOM** is the primary unit of measure used to express quantity per batch.
 - **Step** is the batch step number selected.
 - **Operation** is the operation performed in the displayed batch step.
 - **Version** is the operation version.
 - **Planned Start** is the planned start date and time for the batch.
 - **Planned Completion** is the planned completion date and time for the batch.
 - **Actual Start** is the actual start date and time for the batch.
 - **Actual Completion** is actual completion date and time for the batch.

Activities

3. The following fields are display only:
 - **Activity** is the activity in the operation.
 - **Planned Start Date** is the planned start date and time for the activity.
 - **Planned Completion Date** is the planned completion date and time for the

activity.

- **Actual Start Date** is the actual start date and time for the activity.
- **Actual Completion Date** is the actual completion date and time for the activity.
- **Planned Factor** is the planned number of times the activity is performed.
- **Actual Factor** is the actual number of times the activity is performed.

Interpreting Batch Step Variance Inquiry - Activity Resources

The Batch Step Variance Inquiry - Activity Resources window displays the batch step activity resources associated with the batch and usage details for each resource.

You can use folders with this window.

See: *Oracle Applications User's Guide*

Prerequisites

- Run a batch step variance inquiry.

To display batch step variance activity resource usage details:

1. Navigate to the **Batch Step Variance Inquiry - Activity Resources** window.
2. The following fields are display only:
 - **Batch** is the batch document number.
 - **Product** is the primary product produced by the batch.
 - **Revision** is the revision of the product produced by the batch.
 - **Total Output Qty** is the planned quantity of product produced by the batch.
 - **UOM** is the primary unit of measure used to express quantity per batch.
 - **Batch Step** is the batch step number selected.
 - **Operation** is the operation performed in the displayed batch step.
 - **Version** is the operation version.
 - **Activity** is the activity performed by each listed resource.

- **Planned Start Date** is the planned start date and time for the batch.
- **Planned Completion Date** is the planned completion date and time for the batch.
- **Actual Start Date** is the actual start date and time for the batch.
- **Actual Completion Date** is the actual completion date and time for the batch.

Usage Details

3. The following fields are display only:

- **Resource** is each resource used in the batch step.
- **Planned Start Date** is the planned start date and time for the resource to begin the batch step.
- **Planned Completion Date** is the planned completion date and time for the resource to complete the batch step.
- **Actual Start Date** is the actual date and time the listed resource started the batch step.
- **Actual Completion Date** is the actual date and time the listed resource finished the batch step.
- **Planned Count** is the planned number of resources scheduled to perform the batch step.
- **Actual Count** is the actual number of resources required to perform the batch step.
- **Planned Hours** is the planned number of hours scheduled for each resource to perform the batch step.
- **Actual Hours** is the actual number of hours required to perform the batch step.
- **Variance [%]** is the usage variance between the planned hours and the actual hours as a percentage:

$$(\text{Actual Hours} - \text{Planned Hours}) / \text{Planned Hours} * 100\%$$

For example, a usage variance of 25% occurs when the Actual Hours are 2.5 and the Planned Hours are 2.0, as calculated by:

$$(2.5 - 2.0) / 2.0 * 100\%$$

Running a Resource Variance Inquiry

The Resource Variance Inquiry Selection Criteria dialog box lets you generate a Resource Variance Inquiry to view detailed information about variances in resource consumption during production. Narrow the inquiry by using selection criteria that limit the data to display.

Prerequisites

- Create batches.
- Use resources.

To run a resource variance inquiry:

1. Navigate to the Resource Variance Inquiry Selection Criteria dialog box.
2. Make no entries in the **From** and **To** fields to search all data, or enter a starting **From** and ending **To** value to narrow the range in each of the following:
 - **Resource** code.
 - **Batch** document number.
 - **Start Date** of the batches.
 - **Formula** code.
 - Formula **Version** number.
 - **Routing** code.
 - Routing **Version** number.
 - **Operation** code.
 - Operation **Version** number.
 - **Recipe** code.
 - Recipe **Version** number.
3. Click **OK**.

Interpreting Resource Variance Details

The Resource Variance Details window lets you view information about variances in resource consumption. Resources are the assets such as equipment and labor used to manufacture products. Resources are set up in the Oracle Process Manufacturing process planning applications. View details about the non-material resources used, the date and time specific resources are used, the planned and actual time they are used, and the variances between the planned and actual use.

Prerequisites

- Run a resource variance inquiry.

To interpret resource variance details:

1. Navigate to the **Resource Variance Details** window.
2. The following fields are display only:
 - **Resource** is the code or name of the resource selected in the inquiry.
 - **Last Usage** is the date when the resource was used.
 - **Total Batches** is the total number of batches where the resource was used.
 - **Planned Hours** is the planned number of usage hours scheduled for the resource.
 - **Actual Hours** is the actual number of usage hours used by the resource.
 - **Variance** is the variance between the planned hours and the actual hours as a percentage:

$$(\text{Actual Hours} - \text{Planned Hours}) / \text{Planned Hours} * 100\%$$

For example, a resource variance of 25% occurs when the Actual Hours are 2.5 and the Planned Hours are 2.0, as calculated by:

$$(2.5 - 2.0) / 2.0 * 100\%$$

To display detailed resource usage detailed information:

1. Run a **Resource Variance** inquiry.
2. The methods to display resource usage are as follows:

- Click **Resource Usage**.
- Choose **Resource Usage** from the **Actions** menu.

Interpreting Resource Usage

The Resource Usage window lets you view actual usage and variances between planned and actual hours for each resource. By reviewing this information, you determine the relative efficiencies of the process and troubleshoot bottlenecks and other production utilization problems.

Prerequisites

- Run a resource variance inquiry.

To interpret resource usage:

1. Navigate to the **Resource Usage** window.
2. The following fields are display only:

Usages

- **Resource** is the code used to identify equipment or labor used in the manufacturing process.
- **Routing** is the code for the routing used in the batch.
- **Version** is the version of the routing used in the batch.
- **Batch** is the batch document number.
- **Actual Start Date** is the actual date and time the resource was utilized.
- **Status** is the status of the batch.
- **Planned Hours** is the number of hours scheduled for the resource in the displayed routing.
- **Actual Hours** is the number of hours actually used for the resource displayed in the routing.
- **Variance%** is the difference between the planned hours and actual hours expressed as a percent using the following calculation:
$$(\text{Actual Hours} - \text{Planned Hours}) / \text{Planned Hours} * 100\%$$

For example, a resource variance of 25% occurs when the Actual Hours are 2.5 and the Planned Hours are 2.0, as calculated by:

$$(2.5 - 2.0)/2.0 * 100\%$$

- **Product** is the primary product the batch produces.
- **Revision** is the revision of the product the batch produces.

To redisplay the Resource Variance Details window:

Choose **Resource Variance Details** from the **Actions** menu.

To display the Resource Usage Details window:

Choose **Resource Variance Details** from the **Actions** menu.

Interpreting Resource Usage Details

The Resource Usage Details window lets you view additional details about resource usage not displayed on the Resource Usage window.

Prerequisites

- Run a resource variance inquiry.

To view resource usage details:

1. Navigate to the **Resource Usage Details** window.
 - **Batch** is the batch document number.
 - **Product** is the primary product produced by the batch.
 - **Revision** is the revision of the product produced by the batch.
 - **Recipe** is the code for the recipe used in the batch.
 - **Version** is the recipe version used in the batch.
 - **Formula** is the code for the formula used in the batch.
 - **Version** is the formula version used in the batch.
 - **Routing** is the code for the routing used in the batch.

- **Version** is the routing version.
- **Resource** is the code used to identify equipment or labor used in the manufacturing process.

Usage Details

2. The following fields are display only:

- **Operation** is the name of the operation for the listed routing.
- **Version** is the operation version.
- **Activity** is the action where the operation is performed.
- **Planned Start Date** is the planned start date and time for the resource usage.
- **Planned Completion Date** is the planned completion date for the resource usage.
- **Actual Start Date** is the actual start date for the resource usage.
- **Actual Completion Date** is the actual completion date for the resource usage.
- **Planned Count** is the planned number of resources scheduled to perform the operation.
- **Actual Count** is the actual number of resources used to perform the operation.
- **Planned Hours** is the planned number of usage hours scheduled for the resource.
- **Actual Hours** is the actual number of usage hours used by the resource.
- **Variance%** is the difference between the planned usage and the actual usage of the resource during the operation step as a percent, as calculated by:

$$(\text{Actual Usages} - \text{Planned Usages}) / \text{Planned Usages} * 100\%$$

For example, a usage variance of 25% occurs when the Actual Usage is 250 and the Planned Usage is 200, as calculated by:

$$(250 - 200) / 200 * 100\%$$

Viewing Material Details

The Batch Material Details window lets you display all ingredients, products, and byproducts required for a batch.

Prerequisites

- Create a batch.

To view material details:

1. Navigate to the **Batch Material Details** window.
2. The following fields are display only:
 - **Plant** is the code name of the manufacturing or laboratory organization. This defaults to your current plant.
 - **Document** is the document number for the batch.
 - **Status** displays the status of the batch as:
 - Pending if a batch is created, but not yet released.
 - WIP if a batch is released to work in process.
 - Completed if a batch is completed, but not yet closed.
 - Closed if a batch is closed.
 - Canceled if a batch is canceled.
 - Terminated if the batch was terminated.
 - **Step** is the step number entered for a batch query. Only those materials associated with that step are retrieved. This field is blank if you did not query a specific step, or if you navigated to this window from the Batch window.
 - **Operation** is the name of the operation for the listed step.
 - **Step Status** is the status of the displayed step.
 - **Recipe** is the recipe used in the batch.
 - **Recipe Version** is the version of the recipe used in the batch.
 - **Formula** is the formula used in the batch.
 - **Formula Version** is the version of the formula used in the batch.
 - **Routing** is the routing used in the batch.

- **Routing Version** is the routing version number.

Ingredients

3. The following fields are display only:
 - **Line** is the batch line number for the ingredient.
 - **Item** is the item code for the ingredient.
 - **Description** is a brief description of the ingredient as it appears on the Item Master.
 - **Original Qty** is the initial quantity of each ingredient when the batch was first created. This field is a baseline from the initial creation of the batch, and cannot be changed.
 - **Planned Qty** is the quantity of ingredients planned.
 - **WIP Plan Qty** is the work in process planned quantity of ingredients. This field displays for batches with a status of WIP, Completed, or Closed.
 - **UOM** is the unit of measure for the original and planned quantities.
4. **Actual Qty** is the actual quantity of ingredients used. This field displays on batches with a status of WIP or Completed. You can edit this field for plain controlled items.
5. **Allocated** is selected if the material displayed on the ingredient line is fully allocated.
6. **Consumption Type** displays the type of ingredient consumption as:
 - Automatic when ingredients are consumed automatically when the batch is released.
 - Manual when ingredients are consumed manually.
 - Incremental when ingredients quantities are backflushed by incremental backflushing.
 - Automatic by Step when ingredients are consumed automatically as the step is released.
7. **Contribute to Yield** displays as Yes if the ingredient contributes to yield.
8. The following fields are display only:

- **Scale Type** displays as:
 - Fixed if the ingredient is not scalable.
 - Proportional if the ingredient is scalable.
 - Integer if the ingredient is scalable by multiples.
- **Scale Multiple** is the scaling increment for the ingredient.
- **Scale Rounding Variance** is the percent variance allowable for rounding when the Scale Type is Integer. If the Rounding Variance field is left blank, then rounding occurs without regard to variance.
- **Rounding Direction** displays as:
 - Down if the acceptable rounding direction is down to the nearest multiple.
 - Either if the acceptable rounding direction is up or down to the nearest multiple.
 - Up if the acceptable rounding direction is up to the nearest multiple.
- **Scrap Factor** is the anticipated amount of ingredient lost in the manufacturing process as a percentage. For example, if the Scrap Factor is 10 percent, then an additional 10 percent of material is added to accommodate for this loss.
- **Required Qty** is the sum of the planned quantity and the scrap.
- **Phantom Type** displays as:
 - Not a Phantom indicates the ingredient is not a phantom item.
 - Automatic indicates that the ingredient is a phantom item exploded automatically.
 - Manual indicates that the ingredient is a phantom item that requires manual explosion from the Actions menu.
- **Phantom** displays as Exploded if the phantom ingredient is exploded previously.
- **Contribute to Step Qty** displays as Yes if the ingredient contributes to the step quantity.
- **Step** is the step associated to the ingredient.

Products

9. The following fields are display only:
 - **Line** is the batch line number for the product.
 - **Item** is the item code for the product.
 - **Description** is a brief description of the product as it appears on the Item Master.
 - **Original Qty** is the initial amount of each product when the batch was created. This field is a baseline for the initial creation of the batch.
 - **Planned Qty** is the amount of products planned. The Planned Qty changes when the batch is scaled, and is editable in a batch with a status of Pending.
 - **WIP Plan Qty** is the work in process planned quantity of products.
 - **UOM** is the unit of measure for the original and planned quantities.
 - **Actual Qty** is the actual quantity of products yielded.
10. **Allocated** is selected if the material displayed on the product line is fully allocated.
11. **Yield Type** displays the type of product yield as:
 - Automatic when products are yielded automatically when the batch is completed.
 - Manual when products are yielded manually.
 - Incremental when product yield is calculated by incremental backflushing.
 - Automatic by step when products are yielded automatically as the step is completed.
12. The following fields are display only:
 - **Scale Type** displays as:
 - Fixed if the product is not scalable.
 - Proportional if the product is scalable.
 - **Scale Multiple** is the scale multiple for the product.
 - **Scale Rounding Variance%** is the percent variance allowable for rounding

when the Scale Type is Integer.

- **Rounding Direction** displays:
 - Down if the acceptable rounding direction is down to the nearest multiple.
 - Up if the acceptable rounding direction is down to the nearest multiple.
 - Either if the acceptable rounding direction is up or down to the nearest multiple.
- **Cost Allocation** is the percent cost allocation for the product.
- **Contribute to Step Qty** displays as Yes if the product contributes to the step quantity.
- **Step** is the step associated to the product.

By-Products

13. The following fields are display only:

- **Line** is the batch line number for the byproduct.
- **Item** is the item code for the byproduct.
- **Description** is a brief description of the byproduct as it appears on the Item Master.
- **Original Qty** is the initial amount of each byproduct when the batch was created. This field is a baseline for the initial creation of the batch.
- **Planned Qty** is the amount of byproducts planned. The Planned Qty changes when the batch is scaled, and is editable in a batch with a status of Pending.
- **WIP Plan Qty** is the work in process planned quantity of byproducts. This field displays for batches with a status of WIP, Completed, or Closed.
- **Actual Qty** is the actual quantity of byproducts yielded. This field displays for batches with a status of WIP or Completed.
- **UOM** is the unit of measure for the original and planned quantities.
- **By-Product Type** displays as Rework, Sample, Waste, or Yield depending on the byproduct.

14. **Allocated** is selected if the material displayed on the product line is fully allocated.

15. The following fields are display only:
- **Yield Type** displays the type of product yield as:
 - Automatic when products are yielded automatically when the batch is completed.
 - Manual when products are yielded manually.
 - Incremental when product yield is calculated by incremental backflushing.
 - Automatic by step when products are yielded automatically as the step is completed.
 - **Scale Type** displays as:
 - Fixed if the product is not scalable.
 - Proportional if the product is scalable.
 - **Scale Multiple** is the scaling increment for the ingredient.
 - **Scale Rounding Variance%** is the percent variance allowable for rounding when the Scale Type is Integer.
 - **Rounding Direction** displays as:
 - Down if the acceptable rounding direction is down to the nearest multiple.
 - Up if the acceptable rounding direction is up to the nearest multiple.
 - Either if the acceptable rounding direction is up or down to the nearest multiple.
 - **Contribute to step Qty** displays Yes if the byproduct contributes to step quantity.
 - **Step** is the step associated to the product.

Reports and Concurrent Programs

This topic explains several preformatted reports that assist you in the picking of production batch materials, ticketing of materials to use in production, evaluating scheduled batch and firm planned order production activities, assessing variances in actual and calculated batch yield, and evaluating unusual usage cost variances. The procedures for running the Item Substitution for Batches, Ingredient Picking, and Migration Recreate Open Batches concurrent programs are presented.

This chapter covers the following topics:

- Requirements
- Running the Batch Pick List Report
- Batch Pick List Report Output
- Running the Batch Ticket Report
- Batch Ticket Report Output
- Running the Planned Production Activity Report
- Planned Production Activity Report Output
- Running the Batch Yield Variance Report
- Batch Yield Variance Report Output
- Running the Material Usage and Substitution Variance Report
- Material Usage and Substitution Variance Report Output
- Running the Item Substitution for Batches Concurrent Program
- Item Substitution for Batches Concurrent Program Output
- Running the Ingredient Picking Concurrent Program
- Running the Migration Recreate Open Batches Concurrent Program

Requirements

Following are some requirements that customers have for reports and concurrent programs in Process Execution:

Can materials be picked prior to release of a production batch?

Yes. Ingredients can be picked prior to batch release and is facilitated by the Batch Pick List report. The report identifies lots that must be picked and their individual warehouse locations.

Batch Pick List Report Identifies Lots Picked for Production

The Batch Pick List report helps the Production Operator identify picked materials prior to releasing a batch and serves as a guide to picking materials reserved for use.

Can you pick ingredients for a group of batches at once?

Yes. The Ingredient Picking concurrent program lets you pick ingredients for a group of pending and WIP batches that have open ingredient requirements.

Can you substitute ingredients in a batch with substitute ingredients?

Yes. The Item Substitution for Batches concurrent program lets you substitute ingredients in a batch with substitute ingredients that are effective in a given date range.

Does the application print a batch ticket?

Yes. The Batch Ticket report enables the Production Operator to sort batches by document number or by start date and batch number.

Batch Ticket Report Identifies a Sequenced Item Material List for All Batch Components

The Batch Ticket report lets the Production Operator list batches by document number or by start date and batch number. Each batch component is listed in sequence by item, planned quantity, and UOM. All steps associated with the batch are provided with batch operation and version, step quantity, and UOM.

Can you view production activities by recipe and start date for a specific time period?

Yes. The Planned Production Activity report shows all scheduled batch and firm planned orders activities for a defined interval.

Planned Production Activity Report Displays Batch and Firm Planned Order Activities Scheduled for a Specified Interval

The Planned Production Activity report lets the Production Supervisor review plant utilization by listing all batch and firm planned order activity for a specified time period including document numbers, start dates, end dates, and recipe usage are identified.

Can yield variances be monitored by batch document number?

Yes. The Batch Yield Variance report provides an analysis of accounting value and accounting yield for batches selected by batch document number or start date.

Batch Yield Variance Report Enables Evaluation of Total Value Variance

The Batch Yield Variance report calculates the sum of all value variances in a batch. Value variances are individual differences between the accounting value and actual value of planned or formula costs of product produced by a batch.

Can unusual usage variances be identified for production batches that have undergone material substitution?

Yes. The Material Usage and Substitution Variance report provides a comparison of all batches over a defined interval.

Material Usage and Substitution Variance Report Enables Evaluation of Material Substitution

By comparing total usage variance to total subvariances that result from ingredient substitution you can identify the impact of material substitutions on batch costs. The accounting unit cost must be current for this report to help Production Supervisors evaluate substitutions based on batch size and actual usage of material.

Running the Batch Pick List Report

The Batch Pick List report identifies the material that must be picked for production batches. If you allocate ingredients before releasing batches, then the Batch Pick List report identifies the lots that must be picked and the warehouse locations. Use the Batch Pick List report as a guide to picking material before actual allocation.

See: *Oracle Applications User's Guide*

To submit the Batch Pick List report:

1. Navigate to the **Submit Request** window.
2. Enter **Batch Pick List** in the **Name** field.
3. Enter any of the following fields to narrow the scope of the report:
 - **From Batch No** is the number of the first batch to include on the report.

- **To Batch No** is the number of the last batch to include on the report.
 - **From Subinventory** is the subinventory where the ingredients are picked.
 - **To Subinventory** is the subinventory where the ingredients are transferred.
 - **From Planned Start Date** is the initial starting date in the range to report. Only batches that start on or after this date are included on the report.
 - **To Planned Start Date** is the final starting date in the range to report. Only batches that start on or before this date are included on the report.
4. Select one of the following to indicate how to sort the report:
 - **Batch No** to sort the report by batch document numbers.
 - **Subinventory, Item, Locator** to sort the report by warehouse, item, and location.
 5. Click **OK**.
 6. Complete the fields on the **Submit Request** window.
 7. Click **Submit**.
 8. View or print the report.

Batch Pick List Report Output

The following fields display on the Batch Pick List report:

- **Subinventory** is the code for the subinventory where the ingredient are picked.
- **Locator** is the locator in the subinventory where the ingredients are picked.
- **Item** is the code and description of the item picked.
- **Batch** is the number of the batch where the item is an ingredient.
- **Line** is the ingredient line number.
- **Recipe** is the recipe code.
- **Planned Qty** is the planned quantity in the primary unit of measure for the batch.
- **Planned Start Date** is the planned start date and time for the batch.

- **Planned Inventory Qty** is the planned quantity in the inventory.
- **Actual Start Date** is the actual start date and time for the batch.
- **Lot** is the lot picked for the batch if the item is lot-controlled.
- **Reserved Qty** is the reserved material quantity for the batch.
- **UOM** is the primary unit of the measure for the item.
- **Secondary Qty** is the reserved material quantity for the batch in the secondary unit of measure, if the item is dual unit of measure controlled.
- **UOM** is the secondary unit of measure for the item.
- **Total Reserved** is the total quantity of material reserved for the batch.

Running the Batch Ticket Report

The Batch Ticket report prints batch tickets that identify the batch document number and include information about the recipe used to produce the batch, planned start date, planned completion date, required completion date, and specific items and item quantities used in manufacturing the batch. Specify the order that batches are sorted and where to print the report.

See: *Oracle Applications User's Guide*

To submit the Batch Ticket report:

1. Navigate to the **Submit Request** window.
2. Enter **Batch Ticket** in the **Name** field.
3. Enter any of the following fields to narrow the scope of the report:
 - **From Batch No** is the number of the first batch to include on the report.
 - **To Batch No** is the number of the last batch to include on the report.
 - **From Planned Start Date** is the initial starting date in the range to report. Only batches that start on or after this date are included on the report.
 - **To Planned Start Date** is the final starting date in the range to report. Only batches that start on or before this date are included on the report.
4. Select one of the following to indicate how to sort the report:

- **Batch No** to sort the report by batch document number.
 - **Start Date** and **Batch No** to sort the report by start date and the batch document number.
5. Click **OK**.
 6. Complete the fields on the **Submit Request** window.
 7. Click **Submit**.
 8. View or print the report.

Batch Ticket Report Output

The following fields display on the Batch Ticket report:

- **Batch** is the organization code where the batch is scheduled for production and the batch document number.
- **Recipe** is the recipe used to produce the batch.
- **Version** is the recipe version number.
- **Formula** is the formula used to produce the batch.
- **Version** is the batch formula version number.
- **Routing** is the routing used to produce the batch.
- **Version** is the routing version number.
- **Planned Start Date** is the planned start date and time for the batch.
- **Planned Completion Date** is the planned completion date and time for the batch.
- **Required Completion Date** is the batch due date.
- **Product** displays the following batch ticket information about the product:
 - **Line Number** is each product line number.
 - **Item** is the code for the product in the batch.
 - **Revision** is the product revision in the batch.
 - **Yield Subinventory** is the subinventory to yield the product.

- **Locator** is the locator in the yield subinventory to yield the product.
- **Planned Qty** is the planned quantity for products in the primary unit of measure for the batch.
- **UOM** is the primary unit of measure for the Planned Qty.

- **Ingredient** displays the following batch ticket information about each ingredient in the product:
 - **Line** is the ingredient line number.
 - **Item** is the code for each ingredient in the batch.
 - **Revision** is the ingredient revision.
 - **Supply Subinventory** is the subinventory where the ingredients are received.
 - **Locator** is the locator in the subinventory where the ingredients are received.
 - **Planned Qty** is the planned quantity for ingredients in the primary unit of measure for the batch.
 - **UOM** is the primary unit of measure for the Planned Qty.

- **Byproduct** displays the following batch ticket information about any byproducts in the product:
 - **Line** is byproduct line number.
 - **Item** is the code for each byproduct in the batch.
 - **Revision** is the item revision for the byproduct in the batch.
 - **Yield Subinventory** is the subinventory to which the byproduct is yielded.
 - **Planned Qty** is the planned quantity for byproducts in the primary unit of measure for the batch.
 - **UOM** is the primary unit of measure for the Planned Qty.

- **Steps** displays all batch steps associated with the listed Batch.
 - **Step** is each batch step number.
 - **Operation** is each batch operation.
 - **Version** is the version number for the operation.

- **Step Quantity** is the quantity of material consumed by the operation.
- **UOM** is the primary unit of measure for the Step Quantity.

Running the Planned Production Activity Report

The Planned Production Activity report shows scheduled batch and firm planned order production activities. Unreleased batches that have a status of Pending are reported. Specify the range of batches or firm planned orders, the date range, the sort order, and where to print the report.

See: *Oracle Applications User's Guide*

To submit the Planned Production Activity report:

1. Navigate to the **Submit Request** window.
2. Enter **Planned Production** in the **Name** field.
3. Enter any of the following fields to narrow the scope of the report:
 - **From Document** is the initial batch to include on the report.
 - **To Document** is the final batch to include on the report.
 - **From Planned Start Date** is the initial starting date in the range to report. Only batches that start on or after this date are included on the report.
 - **To Planned Start Date** is the final starting date in the range to report. Only batches that start on or before this date are included on the report.
4. Select one of the following to indicate how to sort the report:
 - **Recipe, Version, Start Date** to sort the report by batch recipe, version, and batch start date.
 - **Start Date, Recipe, Version** to sort the report by batch start date, recipe, and version.
5. Click **OK**.
6. Complete the fields on the **Submit Request** window.
7. Click **Submit**.
8. View or print the report.

Planned Production Activity Report Output

The following fields display on the Planned Production Activity report:

- **Document From** is the number of the first batch or firm planned order that you specified in the range to report.
- **To** is the last batch or firm planned order number specified in the range to report.
- **Planned Start Date From** is the first start date specified in the range to report.
- **To** is the last start date specified in the range to report.
- **Type** displays the document type as:
 - **PROD** for a batch.
 - **FPO** for a firm planned order.
- **Document** is the document number of the batch or firm planned order.
- **Recipe** is the recipe used to produce the batch or firm planned order.
- **Version** is the recipe version number.
- **Start Date** is the planned start date for the batch or firm planned order.
- **End Date** is the planned end date of the batch or firm planned order.

Running the Batch Yield Variance Report

The Batch Yield Variance report displays the actual and calculated batch yield. The report helps you evaluate differences between specified recipe yield and actual batch yield. Variances are calculated based on the accounting cost for each item used in the batch. You can specify a date range, an item range, and a range of batches, the sort order, and where to print the report.

See: *Oracle Applications User's Guide*

To submit the Batch Yield Variance report:

1. Navigate to the **Submit Request** window.
2. Enter **Batch Yield Variance** in the **Name** field.
3. Enter any of the following fields to narrow the scope of the report:

- **From Item** is the initial item to include on the report.
 - **To Item** is the final item to include on the report.
 - **From Batch No** is the initial batch to include on the report.
 - **To Batch No** is the final batch to include on the report.
 - **From Start Date** is the initial starting date in the range to report. Only batches that start on or after this date are included on the report.
 - **To Start Date** is the final starting date in the range to report. Only batches that start on or before this date are included on the report.
4. Select one of the following to indicate how to sort the report:
 - **Batch No** to sort the report by batch document number.
 - **Start Date and Batch No** to sort the report by start date and the batch document number.
 5. Click **OK**.
 6. Complete the fields on the **Submit Request** window.
 7. Click **Submit**.
 8. View or print the report.

Batch Yield Variance Report Output

The following fields display on the Batch Yield Variance report:

- **Currency** is the currency used in the calculations. For example, USD is United States dollars.
- **Batch** is the batch document number.
- **Recipe** is the recipe used to produce the batch.
- **Version** is the recipe version number.
- **Batch Size** is the planned quantity of the primary product.
- **Item** is the code of the item produced by the batch.
- **Description** is a description of the item.

- **Accounting Value** is the planned or formula cost of the product produced by the batch. This is calculated by multiplying the Unit Cost by the Accounting Yield quantity.
- **Accounting Yield** is the quantity produced by the formula.
- **UOM** is the unit of measure for the item produced by the batch.
- **Actual Value** is the actual cost of the product. This is calculated by multiplying the Unit Cost by the Actual Yield.
- **Actual Yield** is the actual quantity that the batch yields.
- **Quantity Variance** is the difference between the Actual Yield and the Accounting Yield.
- **Value Variance** is the difference between the Accounting Value and the Actual Value.
- **Variance (%)** displays as the $(\text{Quantity Variance} / \text{Accounting Yield}) * 100\%$.
- **Batch Value Variance** is the sum of all value variances.

Running the Material Usage and Substitution Variance Report

The Material Usage and Substitution Variance report displays the actual and calculated batch yield. The report identifies batches with unusual usage costs and provides a cost comparison and variance of actual costs against the standard usage that must be incurred as setup for each formula. Variances are calculated based on the accounting cost for each item used in the batch. Specify a date range, an item range, and a range of batches, the sort order, and where to print the report. Variance is calculated based on the effective item that is the substitute item, as of the planned start date of the batch.

See: *Oracle Applications User's Guide*

To submit the Material Usage and Substitution Variance report:

1. Navigate to the **Submit Request** window.
2. Enter **Material Usage and Substitution Variance** In the **Name** field.
3. Enter any of the following fields to narrow the scope of the report:
 - **From Item** is the initial item to include on the report.
 - **To Item** is the final item to include on the report.

- **From Batch No** is the initial batch to include on the report.
 - **To Batch No** is the final batch to include on the report.
 - **From Start Date** is the initial starting date in the range to report. Only batches that start on or after this date are included on the report.
 - **To Start Date** is the final starting date in the range to report. Only batches that start on or before this date are included on the report.
4. Select one of the following to indicate how to sort the report:
 - **Batch No** to sort the report by batch document number.
 - **Start Date and Batch No** to sort the report by start date and the batch document number.
 5. Click **OK**.
 6. Complete the fields on the **Submit Request** window.
 7. Click **Submit**.
 8. View or print the report.

Material Usage and Substitution Variance Report Output

The following fields display on the Material Usage and Substitution Variance report:

- **Currency** is the currency used in the calculation. For example, USD is United States dollars.
- **Batch** is the batch document number.
- **Recipe** is the recipe used to produce the batch.
- **Version** is the recipe version number.
- **Batch Size** is the planned quantity of the primary product.
- **Item** is the code for the ingredient.
- **Description** is a brief description of the ingredient.
- **Accounting Unit Cost** is the unit cost of the ingredient.
- **Accounting Quantity** is the planned quantity of material in the primary unit of

measure. This quantity is scaled for the batch.

- **UOM** is the primary unit of measure.
- **Actual Usage** is the actual quantity of material used in the primary unit of measure.
- **Quantity Variance** is the difference between Actual Usage and the Accounting Quantity.
- **Variance %** displays as the $(\text{Quantity Variance}/\text{Accounting Quantity}) * 100\%$.
- **Value Variance** is the difference between the value of material actually used and the value of material expected to use.
- **Total Variance** is the total of all Value Variances.
- **Total Usage Variance** is the difference between the Value Variance and Usage Variances.
- **Total Substitution Variance** is the total value of variances that result from ingredient substitution.

Running the Item Substitution for Batches Concurrent Program

Item Substitution for Batches is a concurrent program that substitutes the given items in the pending batches that match the effective date range. The concurrent program substitutes the item and displays the output that lists the updated batches and errors encountered during the substitution.

Prerequisites

- Approve substitutes for items.

To run the Item Substitution for Batches concurrent program:

1. Navigate to the **Parameters** window.
2. Enter **From Batch Number** and **To Batch Number** to update batches within a specific range of batch numbers.
3. Enter the **Ingredient** to only update batches containing a specific ingredient.
4. Enter the **Start Date**. Pending batches with Planned Start Date later than the date entered are updated with the substitute item.
5. **Enter the End Date**. Pending batches with Planned Start Date between Start Date

and End Date are updated after you run the concurrent program. If the End Date is not specified, then all pending batches later than the Start Date are updated.

6. Click **OK**.
7. Click **Submit**. Note the Request ID number.
8. Note the Request ID number.
9. Choose **View** from the menu and select **Requests** to view the status of your request in the concurrent program manager. When your request ID is complete with a Status of Normal, display the results of the item substitution.
10. Click **View Output** on the **Requests** window to view the item substitutions performed in the batches.

Item Substitution for Batches Concurrent Program Output

The following fields display on the Item Substitution for Batches concurrent program output:

- **Organization ID** is the organization name.
- **Old Item** is the item to substitute entered on the Parameters window.
- **Date Range** is the effective date range entered on the Parameters window. All the batches in this date range with matching criteria are substituted.
- **From Batch Number** and **To Batch Number** is the batch number range entered on the Parameters window. All the batches in this range with matching criteria are substituted.

A message displays that the substitutions are successful. If a substitution does not occur for a batch, then an error message displays.

Running the Ingredient Picking Concurrent Program

The Ingredient Picking concurrent program lets you pick ingredients for pending and WIP batches that have open ingredient requirements. The concurrent program picks the ingredients for the batches and displays the output that lists the picked batches and errors encountered during the picking.

To run the Ingredient Picking concurrent program:

1. Navigate to the **Parameters** window.

2. Enter **Batches** as:
 - **All Batches** to include unpicked and backordered batches. Default.
 - **Backordered Batches Only** for batches that have backordered requirements only.
3. Select **Include Pending** as Yes to include pending batches.
4. Select **Include WIP** as Yes to include work in process (WIP) batches.
5. Enter any of the following:
 - **From Batch** number to include batches with batch numbers starting with this number.
 - **To Batch** number to include batches with batch numbers between this batch number and From Batch number.
 - **Operation** to include batches with open ingredient requirements for an operation.
 - **Version** to include batches with open ingredient requirements for a version of the operation.
 - **Product** to include batches that produce a specific product.
 - **Ingredient** to include batches that use a specific ingredient.
 - **Days Forward** as the number of days to consider requirements for the pick release.
 - **From Date** and **To Date** to include batches that have ingredient requirements within a specific date range.
6. Enter the **Pick Slip Grouping Rule** to use for picking.
7. Select **Print Pick Slip** as Yes to print pick slips.
8. Select **Plan Tasks** as Yes to create tasks. This is enabled for Warehouse Management Systems enabled organizations only. If this is selected as Yes, then picking tasks are created but not released. Refer to the *Oracle Warehouse Management User's Guide* and the *Oracle Mobile Supply Chain Application for Oracle Process Manufacturing* for more information.

Running the Migration Recreate Open Batches Concurrent Program

The Migration Recreate Open Batches is a concurrent program that allows you to recreate all the pending batches that were cancelled during the validation.

Important: This concurrent program applies to migration to Release 12.0.

To run the Migration Recreate Open Batches concurrent program:

1. Navigate to the **Submit a New Request** window.
2. Select **Migration Recreate Open Batches**.
3. Click **Submit**.
4. Note the **Request ID** Number.

Process Execution Workbench

The Process Execution Workbench is a navigator that lets you view summary information about batches and firm planned orders by organization, batch, firm planned order, product, and status. There are two tabs located on the navigator - Batches and Firm Planned Orders. Click either tab to access the summary information that you are interested in. The batch and firm planned order summary information windows provide access to batch and firm planned order maintenance windows so that you can review or edit the data. You can also create custom views that provide a convenient method to locate and access a batch or firm planned order.

This chapter covers the following topics:

- Creating a Custom View
- Viewing Batch Summary Information
- Viewing Firm Planned Order Summary Information
- Finding a Firm Planned Order from the Workbench
- Finding a Batch from the Workbench

Creating a Custom View

Use the Find function through the Process Execution Workbench to create either a standard or advanced custom view which is a convenient method to locate and access a batch or firm planned order. Once a view is generated, the criteria or output can be saved in the Personal or Public Shortcuts for future use.

See: *Oracle Applications User's Guide*

Standard Custom View

A standard custom view allows you to query the database for batches or firm planned orders based on organization, document, product, planned start date, and status. The result of the query lists the batch or firm planned order documents sorted by organization and document number. Double-click a document line in the results list to

display the Batches or Firm Planned Order windows. These windows are also accessible by selecting a document line in the results list and clicking Details. If the document is in the context organization, then this option is available. Use the Batch Details and Firm Planned Orders: Details windows to review or edit the data.

The following search criteria are available in the standard custom view. Enter any number or combination of fields:

- Organization

If an organization is entered, then a search is conducted for the organization for which the batch or firm planned order was created. If the organization field is left empty, then a search is conducted for batches or firm planned orders for all organizations you have access to.

- Document

Search for a specific batch or firm planned order by entering the document.

- Product

If a product is entered, then documents are retrieved that produce or yield this product.

- From Planned Start Date and To Planned Start Date

Search for documents scheduled within a specific range of planned start dates

- Status

If a status is selected, then batches or firm planned orders with the indicated status are located.

- Terminated

Select Terminated as Yes to search for terminated batches.

Once a view is generated, the criteria or output can be saved for future use in the Personal or Public Shortcuts.

Advanced Custom View

The advanced custom view lets you perform a complex query to search for batches or firm planned orders based on the criteria entered.

An advanced search on the following items is available:

- Organization
- Document
- Recipe

- Recipe Version
- Formula
- Formula Version
- Routing
- Routing Version
- Planned Start Date
- Planned Completion Date
- Actual Start Date
- Actual Completion Date
- Product
- Ingredient

The following operators are supported:

- Equal
- Like
- Less Than
- Less or Equal
- Greater Than
- Greater or Equal
- Less or Equal to Today +
- Less or Equal to Today -
- Greater or Equal to Today +
- Greater or Equal to Today -
- Today

To create an Advanced Custom View:

1. Select an item.
2. Select an operator from the **Condition** field.
3. Enter a specific value.
4. Once a view is generated, the criteria or output can be saved for future use in the Personal or Public Shortcuts.

Viewing Batch Summary Information

Use the Process Execution Workbench which is a navigator to view summary information about batches by batch, organization, product, and status. There are two tabs located on the navigator - Batches and Firm Planned Orders. Click the Batches tab to access summary information about batches. Use the View By option in the Process Execution Workbench to change the way you view the summary information.

The View By Batch options provides a list of batches ordered by planned start date, plant, or batch number. Only batches associated to the organizations that you have access to are listed in the navigator.

The View By Product options provides a list of batches organized by products. The product list is sorted by product code or product planning class. Only products and coproducts for which batches exist are listed in the navigator.

The View By Status option provides a list of batches organized by status code.

The View By Organization option provides a list of batches for an organization. Only organizations for which batches exist are listed in the navigator. Also, only batches associated to the organizations that you have access to are listed.

Batch Summary Window Features

The following features are available on a summary window:

Some of the summary windows provide a **Number of Documents** field. This is the number of documents on the summary window.

The **Find** option allows you to quickly locate a particular batch. Enter the Document to search for and click Find.

The **Details** button provides access to the Batch Details window for the current batch and is enabled only for documents in the context organization. Use the Batch Details window to review or edit the data.

The **Batch Steps** button provides access to the Batch Steps window for the current batch. Through the Batch Steps window, you can review or edit the data.

Batch Summary Windows Details

Each batch summary is described in this topic. A description of the summary and its associated fields are provided.

Summary of Documents by Organization

The Summary of Documents by Organization window displays all batches grouped by organization. To view this summary, the View By option must indicate Organization and an organization in the navigator must be selected.

The following fields are available in this summary window:

Number of Documents, Document, Status, Terminated Indicator, Product, Revision, Planned Quantity, UOM, Planned Start Date

Details lets you display the Batch Details window for the batch. Use **Find** to search for a specific batch.

Summary of Documents by Status

The Summary by Status window displays all batches grouped by status. Batches can be viewed by Pending, WIP, Completed, Closed, and Canceled. To view this summary, the View By option must indicate Status and a status in the navigator must be selected.

The following fields are available in this summary window:

Number of Documents, Document, Product, Revision, Planned Quantity, UOM, Planned Start Date

Details lets you display the Batch Details window.

Summary of Documents by Product

The Summary by Product window displays all batches grouped by product. To view this summary, the View By option must indicate Product and a product in the navigator must be selected.

The following fields are available in this summary window:

Number of Documents, Document, Status, Terminated indicator, Product, Revision, Planned Quantity, UOM, Planned Start Date

Details lets you display the Batch Details window.

Summary of Document

The Summary of Document window displays all batches grouped by an organization. To view this summary, a batch in the navigator must be selected.

The following fields are available in this summary window:

Document, Status, Terminated indicator, Laboratory Batch indicator , Product, Planned

Quantity, Actual Quantity, UOM, Planned Start Date, Planned Completion Date, Actual Start Date, Actual Completion Date

Details lets you display the Batch Details window. **Batch Steps** lets you display the Batch Steps window.

Summary of Batch Steps

The Summary of Batch Steps window displays all the steps for the selected batch. To view this summary, the Steps node for the batch in the navigator must be selected.

The following fields are available in this summary window:

Batch, Recipe, Version, Description, Step, Operation, Version, Description, Step Status, and Terminated indicator

Details lets you display the Batch Details window and **Batch Steps** lets you display the Batch Steps window for the batch.

Summary of Step

The Summary of Step window displays information about each batch step. To view this summary, select Steps in the navigator.

The following fields are available in this summary window:

Step, Step Status, Operation, Version, Operation Description, Planned Step Quantity, Planned Step Quantity UOM, Terminated indicator, Actual Step Quantity, Actual Step Quantity UOM, Planned Start Date, Actual Start Date, Planned Completion Date, Actual Completion Date

Details lets you display the Batch Details window and **Batch Steps** lets you display the Batch Steps window.

Summary of Products

The Summary of Products window displays all the products for the selected batch. To view this summary, the Products node for the batch in the navigator must be selected.

The following fields are available in this summary window:

Document, Recipe, Version, Description, Line, Item, Revision, Planned Quantity, Actual Quantity, UOM

Details lets you display the Batch Details window.

Summary of Byproducts

The Summary of Byproducts window displays all the byproducts for the selected batch. To view this summary, select the batch Byproducts node in the navigator.

The following fields are available in this summary window:

Document, Recipe, Version, Description, Line, Item, Planned Quantity, Actual Quantity,

UOM.

Details lets you display the Batch Details window.

Summary of Ingredients

The Summary of Ingredients window displays all the ingredients for the selected batch. To view this summary, select the batch Ingredients node in the navigator.

The following fields are available in this summary window:

Document, Recipe, Version, Description, Line, Item, Revision, Planned Quantity, Actual Quantity, UOM

Details lets you display the Batch Details window.

Summary of Ingredient

The Summary of Ingredient window displays information for the selected ingredient. To view this summary, select an ingredient for a batch in the navigator.

The following fields are available in this summary window:

Line, Item, Item Description, Planned Quantity, Actual Quantity, UOM, Consumption Type, Scale Type, Scrap Factor, Phantom Type

Summary of Step Details

The Summary of Step Details window displays the batch step detail. To view this summary, select the step activities node in the navigator. The following fields are available in this summary window:

Step, Operation, Version, Description, Activity, Activity Description, Planned Activity Factor, Actual Activity Factor

Details lets you display the Step Activities window.

Summary of Products By Step

The Summary of Products By Step window displays the products associated to a particular step. To view this summary, open a batch step in the navigator and select a Product.

The following fields are available in this summary window:

Document, Recipe, Version, Step, Line, Item, Revision, Planned Quantity, Actual Quantity, UOM

Details lets you display the Batch Details window.

Summary of Byproducts By Step

The Summary of Byproducts By Step window displays the byproducts associated to a particular step. To view this summary, open a batch step in the navigator and select a

Byproduct.

The following fields are available in this summary window:

Document, Recipe, Version, Step, Line, Item, Revision, Planned Quantity, Actual Quantity, UOM

Details lets you display the Batch Details window.

Summary of Ingredients by Step

The Summary of Ingredients by Step window displays the ingredients associated to a particular step. To view this summary, open a batch step in the navigator and select an Ingredient.

The following fields are available in this summary window:

Document, Recipe, Version, Step, Line, Item, Revision, Planned Quantity, Actual Quantity, UOM

Details lets you display the Batch Details window.

Summary of Product

The Summary of Product window displays information for the selected product. To view this summary, select a batch product in the navigator.

The following fields are available in this summary window:

Line, Item, Item Description, Planned Quantity, Actual Quantity, UOM, Yield Type, Scale Type, Cost Allocation

Summary of Byproduct

The Summary of Byproduct window displays information for the selected byproduct. To view this summary, select a batch byproduct in the navigator.

The following fields are available in this summary window:

Line, Item, Item Description, Planned Quantity, Actual Quantity, UOM, Yield Type, Scale Type

Summary of Step Activity

The Summary of Step Activity window displays information for each step activity. To view this summary, select a step activity in the navigator. The following fields are available in this summary window:

Step, Activity, Activity Description, Planned Start Date, Planned Complete Date, Actual Start Date, Actual Complete Date, Offset Interval, Planned Activity Factor, Actual Activity Factor

Details lets you display the Step Activities window.

Summary of Step Activity Resource

The Summary of Step Activity Resource window displays information for the selected resource. To view this summary, select a batch step resource in the navigator.

The following fields are available in this summary window:

Resource, Resource Description, Plan Resource Count, Plan Resource Quantity, Planned Resource Usage, Calculate Charges indicator, Actual Resource Count, Actual Resource Quantity, Actual Resource Usage, Planned Start Date, Planned Complete Date, Actual Start Date, Actual Complete Date, Resource Type, Offset Interval, Scale Type

Details lets you display the Step Resources window. **Process Parameters** lets you display the Process Parameters window

Note: The Details, Batch Steps, and Process Parameters buttons are enabled only for the documents in the context organization.

Viewing Firm Planned Order Summary Information

Through the Process Execution Workbench which is a navigator lets you view summary information about firm planned orders by organization, product, firm planned order and status. There are two tabs located on the navigator - Batches and Firm Planned Orders. Click the Firm Planned Orders tab to access summary information about firm planned orders. Use the View By option in the Process Execution Workbench to change the way you view the summary information.

The View By Firm Planned Order options provides a list of firm planned orders ordered by planned start date, organization, or firm planned order number. Only firm planned orders associated to the organizations that you have access to are listed in the navigator.

The View By Product options provides a list of firm planned orders organized by products. The product list is sorted by product code or product planning class. Only products and coproducts for which firm planned orders exist are listed in the navigator.

The View By Status option provides a list of firm planned orders organized by status code.

The View By Organization option provides a list of firm planned orders organized by organization. Only organizations for which firm planned orders exist are listed in the navigator. Also, only firm planned orders associated to the plant that you have access to are listed.

Firm Planned Order Summary Window Features

The following features are available on a summary window:

Some of the summary windows provide a **Number of Documents** field. This is the number of documents on the summary window.

The **Find** option allows you to quickly locate a particular firm planned order. Enter the Document to search for and click Find.

The **Details** button provides access to the Firm Planned Order: Details window for the current firm planned order. Through the Firm Planned Order: Details window, review or edit the data.

Firm Planned Order Summary Windows Details

Each firm planned order summary is described in this topic. A description of the summary and its associated fields are provided.

Summary of Documents by Organization

The Summary of Documents by Organization window displays all firm planned orders grouped by organization. To view this summary, the View By option must indicate organization and an organization in the navigator must be selected.

The following fields display in this summary window:

Number of Documents, Document, Status, Product, Revision, Planned Quantity, UOM, Planned Start Date

Details lets you display the Firm Planned Order: Details window.

Summary of Documents by Status

The Summary of Documents by Status window displays all firm planned orders grouped by status. Firm planned orders can be viewed by Pending, Converted Firm Planned Order, and Canceled. To view this summary, the View By option must indicate Status and a status in the navigator must be selected.

The following fields are available in this summary window:

Number of Documents, Document, Product, Revision, Planned Quantity, UOM, Planned Start Date

Details lets you display the Firm Planned Order: Details window.

Summary of Documents by Product

The Summary of Documents by Product window displays all firm planned orders grouped by product. To view this summary, the View By option must indicate Product and a product in the navigator must be selected.

The following fields are available in this summary window:

Number of Documents, Document, Status, Product, Revision, Planned Quantity, UOM, Planned Start Date

Details lets you display the Firm Planned Order: Details window.

Summary of Document

The Summary of Document window displays all firm planned orders by an organization. To view this summary, select a firm planned order in the navigator.

The following fields are available in this summary window:

Document, Status, Product, Planned Quantity, Actual Quantity, UOM, Planned Start Date, Planned Completion Date, Actual Start Date, Actual Completion Date

Details lets you display the Firm Planned Order: Details window.

Summary of Products

The Summary of Products window displays all the products for the selected firm planned order. To view this summary, select the Products node for the firm planned order in the navigator.

The following fields are available in this summary window:

Document, Recipe, Version, Description, Line, Item, Revision, Planned Quantity, Actual Quantity, UOM

Details lets you display the Firm Planned Order: Details window.

Summary of Byproducts

The Summary of Byproducts window displays all the byproducts for the selected firm planned order. To view this summary, select the Byproducts node for the firm planned order in the navigator.

The following fields are available in this summary window:

Organization, Document, Recipe, Version, Description, Line, Item, Revision, Planned Quantity, Actual Quantity, UOM

Details lets you display the Firm Planned Order: Details window.

Summary of Ingredients

The Summary of Ingredients window displays all the ingredients for the selected firm planned order. To view this summary, select the Ingredients node for the firm planned order in the navigator.

The following fields are available in this summary window:

Organization, Document, Recipe, Version, Description, Line, Item, Revision, Planned Quantity, Actual Quantity, UOM

Details lets you display the Firm Planned Order: Details window.

Summary of Ingredient

The Summary of Ingredient window displays information for the selected ingredient.

To view this summary, select an ingredient for a firm planned order in the navigator.

The following fields are available in this summary window:

Line, Item, Item Description, Planned Quantity, Actual Quantity, UOM, Consumption Type, Scale Type, Scrap Factor, Phantom Type

Summary of Product

The Summary of Product window displays information for the selected product. To view this summary, select a product in a firm planned order in the navigator.

The following fields are available in this summary window:

Line, Item, Item Description, Planned Quantity, Actual Quantity, UOM, Yield Type, Scale Type, Cost Allocation

Summary of Byproduct

The Summary of Byproduct window displays information for the selected byproduct. To view this summary, select a byproduct within a firm planned order in the navigator.

The following fields are available in this summary window:

Line, Item, Item Description, Planned Quantity, Actual Quantity, UOM, Yield Type, Scale Type

Note: The Details button is enabled only for the documents in the context organization.

Finding a Firm Planned Order from the Workbench

The Find Firm Planned Orders dialog box lets you search for and list all firm planned orders that fit the parameters you specify on the Standard and Advanced regions of the window.

Prerequisites

- Enter and save firm planned orders.

To find a firm planned order from the workbench:

1. Navigate to the Find Firm Planned Orders dialog box.
2. Enter as many parameters as needed to complete the search:
 - Enter search parameters in the **Standard** region for: **Organization, Document Product, From Planned Start Date, To Planned Start Date, or Status.**

- Enter search parameters in the **Advanced** region for a specific: **Item, Condition, or Value**.
3. Click **Find**.
 4. Review the results of the search.

To save search criteria to Personal Shortcuts:

1. Click **Save As ...**
2. Select **Search Criteria**.
3. Enter a **New Folder Name** for the search criteria.
4. Click **Save**.

To save selected results of the search to Personal Shortcuts:

1. Click **Save As ...**
2. Select **Only Selected Results**.
3. Enter a **New Folder Name** for the selected results.
4. Click **Save**.

Finding a Batch from the Workbench

The Find Batch dialog box lets you search for and list all batches that fit the parameters you specify on the Standard and Advanced regions of the window.

Prerequisites

- Enter and save batches.

To find a batch from the workbench:

1. Navigate to the Find Batches dialog box.
2. Enter as many parameters as needed to complete the search:
 - Enter search parameters in the **Standard** region for: **Organization, Document, Product, From Planned Start Date, To Planned Start Date, Status, or**

Terminated.

- Enter search parameters in the **Advanced** region for a specific: **Item**, **Condition**, or **Value**.
3. Click **Find**.
 4. Review the results of the search.

To display a selected Document Number:

1. Select the **Document Number** from the search **Results** list.
2. Click **Details**.

To save search criteria to Personal Shortcuts:

1. Click **Save As ...**
2. Select **Search Criteria**.
3. Enter a **New Folder Name** for the search criteria.
4. Click **Save**.

To save selected results of the search to Personal Shortcuts:

1. Click **Save As ...**
2. Select **Only Selected Results**.
3. Enter a **New Folder Name** for the selected results.
4. Click **Save**.

To set date conditions for a search:

1. Select one of the following for **Item**:
 - **Planned Start Date**
 - **Planned Completion Date**
 - **Actual Start Date**

- **Actual Completion Date**
2. Select one of the following for the date **Condition**:
 - **Equal** to generate results that meet the parameters entered for dates equal to the value entered.
 - **Greater Than** to generate results that meet the parameters entered for dates greater than the value entered.
 - **Less Than** to generate results that meet the parameters entered for dates less than the value entered.
 - **Greater or Equal** to generate results that meet the parameters entered for dates greater than or equal to the value entered.
 - **Less or Equal** to generate results that meet the parameters entered for dates less than or equal to the value entered.
 - **Like** to find results similar to the information specified using the wildcard%. For example, select the condition Like, and enter JAN%, you find each target that contains entries with the letters JAN.
 - **Greater or Equal to Today +** to generate results that meet the parameters entered for dates greater than or equal to the current date plus the value entered.
 - **Greater or Equal to today -** to generate results that meet the parameters entered for dates greater than or equal to the current date minus the value entered.
 - **Less or Equal to Today +** to generate results that meet the parameters entered for dates less than or equal to the current date plus the value entered.
 - **Less or Equal to Today -** to generate results that meet the parameters entered for dates less than or equal to the current date minus the value entered.
 - **Today** to generate results that meet the parameters entered for the current date. The **Value** field does not apply to this condition.
- If you save this search to your Personal Shortcuts, then the application uses the current system date when you rerun the saved search.
3. Enter the **Value** for the selected condition.
 4. Click **Find**.

Production Scheduler Workbench

This topic provides a basic understanding of the Production Scheduler Workbench including the bucketed load for a selected set of plant resources, continuous resource load, and a chart of activities to assist in the rescheduling of batches and firm planned orders. The Gantt Chart lets you change plant assignments, adjust bucket sizes, and filter batches and firm planned orders based on selected criteria.

This chapter covers the following topics:

- Understanding the Production Scheduler Workbench
- Using the Production Scheduler Workbench
- Configuring Scheduler Startup Parameters
- Using the Filter
- Displaying the Document Properties
- Displaying the Operation Properties
- Displaying the Activity Properties
- Displaying the Resource Properties
- Rescheduling a Batch or Firm Planned Order
- Rescheduling Batch Steps
- Displaying Composite Resources
- Rescheduling a List of Batches
- Changing or Finding an Organization

Understanding the Production Scheduler Workbench

The Production Scheduler Workbench provides a graphical display of scheduled production activities. Batches and firm planned orders are depicted as horizontal bars. View resource load information such as requirements versus capacity in the following formats:

- Continuous horizon
- Table
- Vertical bar

Use the Production Scheduler Workbench as a reactive scheduling tool to address unanticipated events such as material shortages or unavailable resources. The Production Supervisor responsibility can reschedule batches, firm planned orders, and operations with a drag-and-drop operation.

The Production Scheduler Workbench offers the following capabilities:

- Display scheduled production activities for a specified plant graphically in a Gantt Chart framework.
- Reschedule batches, firm planned orders, and operations using a drag-and-drop operation.
- Gain access to appropriate batch and firm planned order panes for creation and maintenance tasks.

Continuous Resource Load

The Production Supervisor can display the horizon as a continuous resource load graph for a selected set of plant resources.

Bucketed Resource Load

The Production Supervisor can display the bucketed load for a selected set of plant resources, and view resource load information in either a tabular format or a vertical bar format.

Understanding the Gantt Chart in the Production Scheduler

The Gantt Chart is a tool that depicts project tasks with their associated resources in a timeline. Gantt Charts let you track the progress of the project from start to finish.

Project

A project is a set of activities that ends with specific accomplishment, and has nonroutine tasks, distinct start and finish dates, and resource constraints such as time, money, people, and equipment.

Tasks

Tasks are activities that must be completed to achieve the project goal. It is customary to break the project into tasks and subtasks. Tasks have a start date and time, and an end date and time. The Production Scheduler Workbench uses routings as the high-level tasks. The routing subtasks are composed of operations organized into stepwise activities that use human and material resources.

Milestones

Milestones are important checkpoints or interim goals for a project. The production routing start dates and end dates are milestones.

Gantt Chart

The Gantt Chart displays shop activities in a timeline. It provides a means to reschedule batches and firm planned orders graphically using the drag-and-drop operation.

The Gantt Chart provides the following capabilities:

- Display batches, firm planned orders, and their related operations, activities, and resources for a specified plant.
- Change the current plant to another production facility.
- Reschedule batches, firm planned orders, and operations with a drag-and-drop operation.
- Integrate completely with other Process Execution functions.
- Adjust bucket sizes that affects the Gantt Chart and associated resource load versus capacity view.
- Filter out batches and firm planned orders shown on the Gantt Chart and store the user-defined selection criteria in the database.
- Reschedule, create, and maintain batch or firm planned order functions controlled through the Security Function.
- Use of the workday calendar to schedule batches and firm planned orders.

Resource Load versus Capacity

The Resource Load functionality provides the following capabilities:

- Select from a list of resources to display load.
- Display either continuous or bucketed resource load.
- Access the Batch List pane to display firm planned orders and batches that consume the selected resource. Reschedule batches and firm planned orders from this pane.

Production Scheduler Workbench Layout

The Production Scheduler Workbench lets you view all scheduled batches and firm planned orders for a particular plant. Reschedule batches and firm planned orders interactively. Reschedule operations using drag-and-drop operations.

The workbench has four panes:

- Top left pane, the navigator, set as default.
- Top right pane, the Gantt Chart, set as default.
- Bottom left pane, the Selected Resources.
- Bottom right pane, the Resource Load Versus Capacity graph.

The Production Scheduler Workbench view defaults to the hierarchical navigator and the Gantt Chart panes. The Selected Resources and Resource Load Versus Capacity panes appear when you select Show or Hide Resource Load on the tool palette.

Navigator Pane

There are four levels of information or branches in the navigator:

- Document, as a batch or firm planned order with product information
- Operation with version
- Activity
- Resource

The top-level batch or firm planned order is created dynamically as you display the Production Scheduler Workbench. It is based on the filter criteria defined for the default plant. When a node is expanded in the navigator, horizontal bar charts representing each child node also display.

Gantt Chart Pane

The Gantt Chart pane consists of a timeline that appears at the top of the pane, and a horizontal bar chart. The timeline represents a time axis or bucket for the horizontal bar chart. The Gantt Chart mirrors the information presented in the navigator. The color of the horizontal bar chart represents the status of the batch or FPO.

- Batches that are finite scheduled (scheduled by WPS engine of Manufacturing Scheduling) and in pending state display in yellow.
- Batches that are not finite scheduled and in pending state display in blue.
- Batches in WIP state display in green.
- Batches in completed state display in dark green.

The same color representation of status applies to batch steps. The horizontal bar charts show scheduled production activities over time for each:

- Batch
- Firm Planned Order
- Operation
- Activity
- Resource

The left vertical edge of a horizontal bar represents the start date. The right vertical edge of a horizontal bar represents the end date. A vertical line displays below the current date.

The Gantt Chart pane lets you:

- Reschedule batches, firm planned orders, and operations manually using a drag-and-drop operation or through direct access to the Reschedule dialog box. You can only reschedule pending production documents with drag-and-drop. Use the Reschedule dialog box to reschedule work as described in "Rescheduling a Batch or Firm Planned Order."
- View the properties of each object shown in the Gantt Chart such as batch, firm planned order, operation, activity, and resource. Properties displays the information about dates, quantities, and descriptions.

All horizontal bar charts may not be visible, since the start date of the related objects may fall outside of the time interval determined by the window boundaries. To make a particular object visible in the Gantt Chart:

- Move the horizontal scroll bar until the desired object displays.
- Enter a new start date in the date field on the tool palette. The Gantt Chart scrolls to the first batch or firm planned order for which the start date is found to be the closest to the entered date.
- Double-click on the desired object in the navigator to make the timeline scroll to the start date of the selected object in the navigator.
- Use the Adjust Unit Width slider to adjust the minor scale on the workbench.

Selected Resources Pane

The Selected Resources pane displays details regarding resources selected through the Select Resources dialog box. When you click Select Resources, the Select Resources dialog box displays. This lets you select the available resources to display in the Resource Load Versus Capacity pane. Only resources belonging to the current plant are shown.

Resource Load Versus Capacity Pane

This pane displays the Required resource load versus the Available resource capacity for the selected resources that display in the Select Resources pane. This pane shares the same timeline as the Gantt Chart pane.

The Required resource load, Available resource capacity, and Overload resource capacity key indicators display to the right of the graphic menu. The key indicators are:

- Required, the number of units required by the resource for all batches in that time bucket.
- Available, the number of resource capacity units in that time bucket. These may be already assigned.
- Overload, the number of resource units that are required but already committed.

The graphic menu provides the following choices:

- Table displays a tabular format. The top number in the table represents the Required resource load. The bottom number represents the Available resource capacity.
- Continuous displays a continuous graph. Non-bucketed lines representing Required, Available, and Overload resources accurate to the minute.
- Bar displays a bar graph. The number on the left represents the Required resource load. The number on the right represents the Available resource capacity.

When you select:

- Table or Bar, the Required and Available key indicators display.
- Continuous, the Required, Available, and Overload key indicators display.

Identifying Buttons on the Scheduler Workbench

The following discussion and graphic identify and explain each of the tools that display on the Scheduler Workbench tool palette:

1 is the Refresh button. Click it to refresh panes with data retrieved from the database.

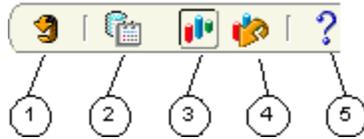
2 is the Enable/Disable Scheduling button. Click it to enable scheduling in the Scheduler Workbench. Click it again to disable scheduling in the Scheduler Workbench.

3 is the Show/Hide Resource Load button. Click it to show the resource load. Click it again to hide the resource load.

4 is the Refresh Resource Load button. Click it to refresh the load for a selected resource.

5 is the Help button. Click it to display online help for the current window or dialog box.

The following is a graphic of the previously described toolbar buttons:



Adjusting Timescale Unit Width on the Workbench

Move the Adjust Unit Width slider to the left to decrease the interval step size of the timescale, or move the slider to the right to increase the interval step size of the timescale.

Adjusting the Minor Scale Interval on the Workbench

The timescale consists of a major scale interval and a minor scale interval in units ranging from 15 minutes to one month:

1. Right-click the minor scale interval on the workbench.
2. Select one of the following to resize the minor time scale interval:
 - **15 minutes**
 - **30 minutes**
 - **Hours**
 - **Days**
 - **Weeks**
 - **Months**

The unit interval adjusts to the scale unit selected.

Rescheduling During Nonworking Time

Planners can schedule the shop floor to accommodate nonworking time. The Gantt chart pane highlights nonworking time by use of a color that contrasts with the background color used to represent work time during the workday.

Rescheduling Without a Defined Shop Day

If a workday calendar exists, but there is no work day defined for the dates that a batch is scheduled, then the application issues a warning:

No work day has been defined on the workday calendar for a day during this batch.
Reschedule batch anyway (Y/N)?

If you click Y (Yes), then the application continues the rescheduling process. If you click

N (No), then you return to the Reschedule window. This does not occur if you reschedule a firm planned order.

Using the Real Calendar to Display the Timeline

If the dates you schedule fall outside the workday calendar date range, or a workday calendar is not assigned to the current organization, then the real calendar displays on the timeline. Weekends then appear as workdays.

The workday calendar does not extend infinitely in either direction of the dates displayed. Therefore, the real calendar displays on either side of its limits.

Yielding a Finite Scheduled Plan

The Advanced Planning and Scheduling (APS) application replaces the Work In Process Planning Scheduler (WPS) finite scheduling process and yields a finite scheduled plan. If the details of a batch or planned order are returned from APS, then it is the same as scheduling a batch in WPS. The Finite Scheduled indicator is selected when the WPS engine reschedules the batch details. Batch details are related to the routing that is returned or scheduled by APS. APS allows either order header planning or order detail planning.

Using the Production Scheduler Workbench

The Production Scheduler Workbench lets you manage shop floor schedules. Refer to the "Understanding the Production Scheduler Workbench" topic for a complete explanation of the tool palette and layout of the window panes.

Prerequisites

- Set up the Display Nonworking Days parameter.
- Create batches and firm planned orders.

To display the Production Scheduler Workbench:

Choose **Production Scheduler** from the Production Supervisor responsibility menu.

Refer to "Configuring Scheduler Startup Parameters" for a complete discussion on the use of this window.

To display the resource load in table, continuous, or bar formats:

1. Click **Show/Hide Resource Load** to display the resource load.
2. Click **Select Resource(s)** to display the Select Resource(s) dialog box.

3. Select one or more resources.
4. Click **OK**.
5. Select one of the following display formats:
 - **Table** to display the resource load with the Required hours in the top cell and the Available hours in the bottom cell.
 - **Continuous** to display the resource load with a three-dimensional overlay of Required hours, Available hours, and Overload hours. This format identifies resource contentions. Each horizontal line represents the scaled number of hours that display in the left pane.
 - **Bar** to display a bar graph of the Required hours on the left and the Available hours on the right.

Extend the vertical lines that separate each format up to the dates listed in the Gantt Chart pane to determine the date.
6. Click **Show/Hide Resource Load** again to hide the resource load.

To go to the current date:

Following are the methods to go to the current date:

- Click **Go To Today**.
- Enter the current date and time.

The graph adjusts to the current date and time, indicated by a vertical line from the top to the bottom of the Gantt Chart pane.

To display the product information tooltip:

1. Position the cursor over a batch or firm planned order on the Gantt chart. The tooltip displays the batch or firm planned order with its status, main product code, planned or actual quantity, and UOM.
2. Move the cursor to hide the tooltip.

To display the operation tooltip:

1. Position the cursor over an operation bar on the Gantt chart. The tooltip displays the operation and its version. The operation version displays to the right of the slash mark (/).

2. Move the cursor to hide the tooltip.

Configuring Scheduler Startup Parameters

The Scheduler Workbench Startup Parameters dialog box lets you configure the Scheduler Workbench view.

Prerequisites

- Create batches and firm planned orders.

To configure startup parameters:

1. Navigate to the Scheduler Workbench Startup Parameters dialog box.
2. Enter the **From Date** as the starting date and time to begin viewing the production schedule for the organization. Use the LOV to display the **Calendar** date-time editor. Required.
3. Enter the **To Date** as the ending date and time to end viewing the production schedule for the organization.
4. Enter **From Document** as the starting document number to include in the scheduler window.
5. Enter **To Document** as the last document number to include in the scheduler window.
6. Select one or both of the following:
 - **Batch** to display the specified batch document or all batches found for the specified parameters.
 - **FPO** to display the specified firm planned order document number or all firm planned orders found for the specified parameters.

Batch Status

7. Select one or more of the following:
 - **Pending** to display pending batches.
 - **WIP** to display work in process batches.
 - **Completed** to display completed batches.

8. Enter the **Product**, **Ingredient**, or **Resource**. Keep the % in each of these fields to display all components found for the specified parameters.

Resource Type

9. Enter the **Resource Type** as:
 - **Auxiliary** to display all auxiliary resources found for the specified parameters.
 - **Primary** to display all primary resources found for the specified parameters.
 - **Secondary** to display all secondary resources found for the specified parameters.
10. Click **Gantt Chart** to display the **Scheduler Workbench** window.

Using the Filter

The Filter dialog box lets you narrow the Scheduler Workbench display of documents, statuses of batches or firm planned orders, product codes, ingredients used, and resource types.

Prerequisites

- Create batches and firm planned orders.

To use the filter:

1. Click **Filter...**
2. Enter one or more of the following fields to narrow the information displayed:
 - Starting date and time in the **From** window.
 - Ending date and time in the **To** window.
 - **From Document** and **To Document** to find batches within a specific range of batch numbers.
 - **Product** code of the primary product produced in the batch.
 - **Ingredient Used** in the product.
 - **Resource** used in the routing.
3. Select **Batches** or **Firm Planned Orders** to filter by document type.

4. Select **Batch Status** as any combination of **Pending**, **WIP**, or **Completed**.
5. Select **Resource Type** as any combination of **Auxiliary**, **Primary**, or **Secondary**.
6. Click **Apply** to view the results of the filtering.
7. Click **OK** to close the dialog box.

Displaying the Document Properties

The Document Properties dialog box lets you display scheduling and status information about batches and firm planned orders.

Prerequisites

- Create batches and firm planned orders.

To display document properties:

1. In the navigator, right-click the batch or firm planned order node and choose **Properties**. The Document Properties dialog box displays.

Batch or FPO

2. The following fields are display only:
 - The document name displays next to **Batch** or **FPO**.
 - **Product** displays the main product with its description.
 - **Planned Start Date** displays the planned start date and time of the batch or FPO.
 - **Planned End Date** indicates the planned completion date and time of the batch or FPO.
 - **Actual Start Date** displays the actual start date and time of the batch or FPO.
 - **Status** is the current status of the batch or FPO.
 - **Planned Quantity** displays the quantity of material to be produced and its UOM.
 - **Actual Quantity** displays the actual quantity of material produced for the first product in the batch or FPO.

Note: This displays only for batches in WIP and completed status.

- **Finite Scheduled** displays if the batch is scheduled by the Manufacturing Scheduling WPS engine.
3. Click **Recipe** to display information about the recipe derived from the recipe validity rule used to create the batch or FPO.

Recipe

4. The following fields are display only:
 - **Recipe** indicates the recipe code.
 - **Version** indicates the recipe version.
 - **Description** indicates the recipe description.
 - **Formula** indicates the formula used in the document type.
 - **Version** indicates the formula version.
 - **Description** indicates the formula description.
 - **Routing** indicates the routing used in the document type.
 - **Version** indicates the routing version.
 - **Description** indicates the routing description.
5. Click **OK** to close the dialog box.

To display batch details:

In the navigator, right-click the batch or firm planned order node and choose **Details**. Refer to the "Editing a Batch" topic for a detailed description of this window.

Displaying the Operation Properties

The Operation Properties dialog box lets you display information about operations in each of the routing steps in a batch or firm planned order.

Prerequisites

- Create batches and firm planned orders.

To display the operation properties:

1. In the navigator, right-click the operation node and choose **Properties**. The Operation Properties dialog box displays.
2. The following fields are display only:
3. **Operation** displays the operation code. Its version displays to the right of the slash mark (/), and its description displays on the next row.
 - **Step** displays the step number.
 - **Planned Start Date** displays the planned start date and time of the step.
 - **Planned End Date** displays the planned completion date and time of the step.
 - **Status** displays the status of the step.
 - **Planned Quantity** displays the planned step quantity.

Displaying the Activity Properties

The Activity Properties dialog box lets you display information about activities in each of the operations in a batch or firm planned order.

Prerequisites

- Create batches and firm planned orders.

To display the activity properties:

1. In the navigator, right-click the activity node and choose **Properties**. The Activity Properties dialog box displays.
2. The following fields are display only:
 - **Activity** displays the activity code and description.
 - **Start Date** displays the start date and time of the activity.

- **End Date** displays the completion date and time of the activity.
- **Cost Analysis Code** displays the cost analysis code and description.

Displaying the Resource Properties

The Resource Properties dialog box lets you display information about each of the resources assigned to activities in a batch or firm planned order.

Prerequisites

- Create batches and firm planned orders.

To display the resource properties:

1. In the navigator, right-click the resource node and choose **Properties**. The Resource Properties dialog box displays.
2. The following fields are display only:
 - **Resource** displays the resource code and description.
 - **Plan Count** displays how many resources are needed for the activity.
 - **Plan Quantity** displays how much material is planned for the activity and the UOM for this material.
 - **Plan Usage** displays how long the resource runs and the usage UOM, which is usually in hours.
 - **Offset Interval** displays the time offset from the start of the activity to when the resource is actually used.
 - **Planned Start Date** displays the planned start date and time for the resource.
 - **Planned End Date** displays the planned completion date and time for the resource.
 - **Resource Type** indicates if the resource is Primary, Secondary, or Auxiliary.
 - **Charge** indicates the charge number.
 - **Scale Type** indicates the scale type used to scale the resource. Options are Fixed, Scalable, and By Charge.

Rescheduling a Batch or Firm Planned Order

The Reschedule dialog box lets you reschedule a batch or firm planned order. You can use drag-and-drop or the resize option to reschedule pending documents.

Prerequisites

- Create batches and firm planned orders.

To reschedule a batch or firm planned order using the navigator:

1. In the navigator, right-click the batch or firm planned order node and choose **Reschedule**.
2. **Batch** or **Firm Planned Order** displays the document number.
3. Enter a new **Start Date** and time.
4. Enter a new **End Date** and time.
5. Select **Use Workday Calendar** to use the workday calendar to reschedule the batch or firm planned order.
6. Click **Reschedule**.
7. If the batch is finite scheduled, then the following message displays:
This batch was previously scheduled by Manufacturing Scheduler, continue (Y/N)?
Click **Yes** to reschedule. This action resets the Finite Scheduled indicator on the Batch Details window.

To reschedule a batch or firm planned order using the resize option:

1. In the Gantt Chart pane, click the graph line next to the batch or firm planned order to reschedule. A small hand appears to indicate that you can reschedule it. Two handles appear on the line. The left handle adjusts the **Start Date**. The right handle adjusts the **End Date**.
2. Reschedule the batch or firm planned order using one of these methods:
 - Drag the left handle to the left to decrease the **Start Date**.
 - Drag the right handle to the right to increase the **End Date**.The Reschedule dialog box appears with the selected Start Date and End Date

and the option to use the workday calendar. You can edit these entries.

3. Click **Reschedule**.
4. If the batch is finite scheduled, then the following message displays:
This batch was previously scheduled by Manufacturing Scheduler, continue (Y/N)?
Click **Yes** to reschedule. This action resets the Finite Scheduled indicator on the Batch Details window.

To reschedule a batch or firm planned order using the drag-and-drop option:

1. In the Gantt Chart pane, click the batch or firm planned order you want to reschedule.
2. Drag the batch or firm planned order to its new location on the schedule and drop it. The Reschedule dialog box appears with the selected Start Date and End Date.
3. You can edit the **Start Date** and the **End Date**.
4. Select **Use Workday Calendar** to reschedule the batch or firm planned order using the workday calendar.
5. Click **Reschedule**.
6. If the batch is finite scheduled, then the following message displays:
This batch was previously scheduled by Manufacturing Scheduler, continue (Y/N)?
Click **Yes** to reschedule. This action resets the Finite Scheduled indicator on the Batch Details window.

To display batch or firm planned order details:

In the navigator, right-click the batch or firm planned order node and choose **Details**.

Rescheduling Batch Steps

The Reschedule dialog box lets you reschedule batch steps.

Prerequisites

- Create batches and firm planned orders.

To reschedule batch steps using the navigator:

1. In the navigator, right-click the batch step node and choose **Reschedule**.
2. **Step** displays the step number and code.
3. Enter a new **Start Date** and time.
4. Enter a new **End Date** and time.
5. Select **Reschedule Preceding Steps** to reschedule the steps preceding **Step**.
6. Select **Reschedule Succeeding Steps** to reschedule the steps succeeding **Step**.
7. Select **Use Workday Calendar** to use the workday calendar to reschedule the batch steps.
8. Click **Reschedule**.
9. If the batch is finite scheduled, then the following message displays:

This batch step was previously scheduled by Manufacturing Scheduler, continue (Y/N)?

Click **Yes** to reschedule. This action resets the Finite Scheduled indicator on the Batch Details window.

To reschedule batch steps using the resize option:

1. In the Gantt Chart pane, click the graph line next to the batch step you want to reschedule. A small hand appears to indicate that you can reschedule the step. Two handles appear on the line. The left handle adjusts the **Start Date**. The right handle adjusts the **End Date**.
2. Reschedule the step using one of these methods:
 - Drag the left handle to the left to decrease the **Start Date**.
 - Drag the right handle to the right to increase the **End Date**.
3. The Reschedule dialog box appears with the selected Start Date and End Date and the option to use the workday calendar. You can edit these entries.
4. Click **Reschedule**.
5. If the batch is finite scheduled, then the following message displays:

This batch step was previously scheduled by Manufacturing Scheduler, continue

(Y/N)?

Click **Yes** to reschedule. This action resets the Finite Scheduled indicator on the Batch Details window.

To reschedule batch steps using the drag-and-drop option:

1. In the Gantt Chart pane, click the batch step you want to reschedule.
2. Drag the step to its new location on the schedule and drop it. The Reschedule dialog box appears with the selected Start Date and End Date and the option to use the workday calendar. You can edit the **Start Date** and the **End Date**.
3. Click **Reschedule**.
4. If the batch is finite scheduled, then the following message displays:

This batch step was previously scheduled by Manufacturing Scheduler, continue (Y/N)?

Click **Yes** to reschedule. This action resets the Finite Scheduled indicator on the Batch Details window.

Displaying Composite Resources

The resource composite view lets the production planner display the load versus capacity graph of a selected set of resources. From this graph, you can request all batches and firm planned orders that consume a selected resource within a selected time bucket.

Prerequisites

- Create batches and firm planned orders.

To select resources for a composite resource view:

1. Use one of these methods to display the resource load pane:
 - Click **Show/Hide Resource Load**.
 - From the **Actions** menu, choose **Show/Hide Resource Load**.
2. Click **Select Resource(s)...** to display the Select Resource(s) dialog box.
3. Select one of these methods to move resources:

- Click the desired resource in **Available Resources**, then click the single right-arrow button to move it to the **Selected Resources**.
- Click the double right-arrow button to move all items in **Available Resources** to the **Selected Resources**.

To remove resources from the composite resource view:

1. Click **Select Resource(s)...** to display the Select Resource(s) dialog box.
2. Select one of these methods to move resources:
 - Click the desired resource in **Selected Resources**, then click the single left-arrow button to move it to the **Available Resources**.
 - Click the double right-arrow button to move all items in the **Selected Resources** to the **Available Resources**.

Rescheduling a List of Batches

The Reschedule dialog box lets you reschedule one or several batches that are consuming a particular resource for a given period of time. You cannot change the start date for a WIP batch. If you want to reschedule a particular WIP batch, then override the plan completion date. The application reschedules batches that have changed the planned start or completion dates. If the Gantt chart is in view mode, then you cannot reschedule a batch. Click on the Enable/Disable Scheduling icon on the toolbar to switch from view mode to the scheduling mode.

Prerequisites

- Create batches and firm planned orders.

To reschedule a list of batches or firm planned orders:

1. Use one of these methods to display the resource load pane:
 - Click **Show/Hide Resource Load**.
 - From the **Actions** menu, choose **Show/Hide Resource Load**.
2. Type the scheduled date and time in the **Go To** field and press **Enter**. The Gantt chart displays the scheduled start date entered.
3. Click **Select Resource(s)** to display the Select Resource(s) dialog box.

4. Use one of these methods to move resources:
 - Click the desired resource in **Available Resources**, then click the single right-arrow button to move it to the **Selected Resources**.
 - Click the double right-arrow button to move all items in **Available Resources** to the **Selected Resources**.
5. Click **OK**.
6. Double-click the desired time bucket in the **Resource Load** graph. The Reschedule dialog box displays. All documents consuming the selected resource within the selected time bucket are displayed in the Reschedule dialog box.
7. Determine if you want to use the workday calendar in the rescheduling. Select **Use Workday Calendar** to use the workday calendar.
8. **Document** displays the document number.
9. **Start Date** displays the batch start date and time. You can edit this field if the batch is not released.
10. **End Date** displays the batch completion date and time. You can edit this field to redistribute the scheduled workload.
11. **Duration** displays the time until the scheduled End Date in hours and minutes.
12. **Document Type** displays the Batch or Firm Planned Order document type.
13. **Status** displays the current status of the listed document type.
14. Click **Reschedule** to reschedule the batches, or click **Cancel** to cancel the action. All edited batches are rescheduled.

Changing or Finding an Organization

The Change Organization dialog box lets you change or find an organization.

Prerequisites

- Create batches and firm planned orders.

To change an organization:

1. From the **Actions** menu, choose **Change Organization**. The Change Organization dialog box displays.

2. Select the **Organization**.

To find an organization:

1. From the **Actions** menu, choose **Change Organization**. The Change Organization dialog box displays.
2. Enter the desired organization in the **Find** field.

Process Execution Navigator Paths

Process Execution 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 window. These tables provide the most typical default path.

Window	Path
Activity Properties	Production Supervisor:Production Scheduler:Scheduler Workbench Startup Parameters:Gantt Chart:Scheduler Workbench:expand batch or firm planned order node:right-click activity node:choose Properties
Batch Details	Production Supervisor:Batch Details:Find Batches:Batch Details
Batch List	Production Supervisor:Ingredient Picking:Find Batches:enter search criteria:click Find:click Requirements:Ingredient Picking:select Batch
Batch Operation WIP	Production Supervisor:Batch Operation WIP
Batch Pick List Report	Production Supervisor:Reports:Run

Window	Path
Batch Summary	Production Supervisor:Ingredient Picking:Find Batches:enter search criteria:click Find:click Requirements:Ingredient Picking:select Batch:select a batch from the batch node
Batch Step Variance Inquiry - Activities	Production Supervisor:Production Supervisor:Inquiries:Batch Step Variance:Batch Step Variance Inquiry Selection Criteria:Batch Step Variance Inquiry - Summary:Batch Step Variance Inquiry - Details:drill down on a batch step:Actions:Activity Details
Batch Step Variance Inquiry - Activity Resources	Production Supervisor:Inquiries:Batch Step Variance:Batch Step Variance Inquiry Selection Criteria:Batch Step Variance Inquiry - Summary:Batch Step Variance Inquiry - Details:Batch Step Variance Inquiry - Activities:drill down on a batch step: Actions:Activites:Actions:Resource Details
Batch Step Variance Inquiry - Details	Production Supervisor:Production Supervisor:Inquiries:Batch Step Variance:Batch Step Variance Inquiry Selection Criteria:Batch Step Variance Inquiry - Summary:drill down on a batch step
Batch Step Variance Inquiry - Summary	Production Supervisor:Inquiries:Batch Step Variance:Batch Step Variance Inquiry Selection Criteria:drill down on a batch
Batch Step Variance Inquiry Selection Criteria	Production Supervisor:Inquiries:Batch Step Variance
Batch Steps	Production Supervisor:Batch Steps
Batch Ticket Report	Production Supervisor:Reports:Run
Batch Yield Variance Report	Production Supervisor:Reports:Run
Calculate Theoretical Yield	Production Supervisor:Batch Details:Find Batches:Batch Details:Tools:Theoretical Yield

Window	Path
Change Organization	Production Supervisor:Setup:Change Organization
Charge Details	Production Supervisor:Batch Steps:Find Batch Steps:Batch Steps:Charges
Complete Batch	Production Supervisor:Batch Details:Find Batches:Batch Details:Actions:Complete
Composite Resources	Production Supervisor:Production Scheduler:Schedular Workbench Startup Parameters:Schedular Workbench:Actions:Show/Hide Resource Load>Select Resources:Selected Resources:select the resource:click Ok
Convert Firm Planned Order to Batch	Production Supervisor:Firm Planned Order Details:Find Firm Planned Orders:Firm Planned Order Details:Actions:Convert to Batch
Correct Material Transactions	Production Supervisor:Batch Details:Find Batches:Batch Details:Inventory:Correct Material Transactions
Create Batch/Firm Planned Order	Production Supervisor:Create Document
Document Properties	Production Supervisor:Production Scheduler:Schedular Workbench Startup Parameters:Gantt Chart:Schedular Workbench:right-click batch or firm planned order node:choose Properties
Filter	Production Supervisor:Production Scheduler:Schedular Workbench Startup Parameters:Gantt Chart:Schedular Workbench:click Filter
Find Batch Operation WIP	Production Supervisor:Batch Operation WIP:View:Find...
Find Batchstep	Production Supervisor:Batch Steps:View:Find...

Window	Path
Find Batches	Production Supervisor:Batch Details:Find Batches...
Find Batches (from the Workbench)	Production Supervisor:Workbench:click Batch tab:View:Find...
Find Firm Planned Orders	Production Supervisor:Firm Planned Order Details:Find Firm Planned Orders
Find Firm Planned Orders (from the Workbench)	Production Supervisor:Workbench:click Firm Planned Order tab:View:Find...
Find Move Orders	Production Supervisor:Batch Details:Inventory:View Move Order:Move Order:View:Find Move Orders
Find Reservations	Production Supervisor:Batch Details:Find Batches:Batch Details:Inventory:Maintain Reservations:Find Reservations
Firm Planned Order	Production Supervisor:Firm Planned Order Details
Incremental Backflushing	Production Supervisor:Incremental Backflush
Ingredient Picking Workbench	Production Supervisor:Ingredient Picking:Find Batches:enter criteria:click Find:select a batch:click Requirements
Ingredient Picking Concurrent Program	Production Supervisor:Concurrent Programs:Run
Inventory Shortages	Production Supervisor:Batch Details:Find Batches: Batch Details:Inventory:View Org Level Shortages:Inventory Shortages Production Supervisor:Batch Details:Find Batches:Batch Details:Inventory:View Subinventory Level Shortages:Inventory Shortages

Window	Path
Items Over Allocated - Scale Batch	Production Supervisor:Batches:Batch Material Details:Scale Batch:enter negative Percent or Item Quantity below Planned Qty:OK
Item Reservations	Production Supervisor:Batch Details:Find Batches:Batch Details:Inventory:Maintain Reservations:Find Reservations:Item Reservations
Item Substitution Concurrent Program	Production Supervisor:Concurrent Programs:Run
Material Exceptions	Production Supervisor:Batch Details:Find Batches:Batch Details:Actions:Complete
Material Transactions	Production Supervisor:Batch Details:Find Batches:Batch Details:Inventory:Transact Material
Material Usage and Substitution Variance Report	Production Supervisor:Reports:Run
Material Variance - Ingredient Inquiry	Production Supervisor:Inquiries:Material Variance:Material Variance Inquiry Selection Criteria:enter criteria:click OK:Material Variance Inquiry:drill down on the desired batch
Material Variance - Step Details	Production Supervisor:Inquiries:Material Variance:Material Variance Inquiry Selection Criteria:enter criteria:click OK:drill down on the desired batch:Material Variance - Ingredient Inquiry:drill down on the desired Line
Material Variance Inquiry	Production Supervisor:Inquiries:Material Variance:Material Variance Inquiry Selection Criteria:enter criteria:click OK
Material Variance Inquiry Selection Criteria	Production Supervisor:Inquiries:Material Variance

Window	Path
Material Workbench	Production Supervisor:Batch Details:Find Batches:Batch Details:Inventory:Material Summary
Migration Recreate Open Batches	Production Supervisor:Concurrent Programs:Run
Move Order	Production Supervisor:Batch Details:Find Batches:Batch Details:Inventory:View Move Order
Navigator	Production Supervisor:Workbench
Operation Properties	Production Supervisor:Production Scheduler:Scheduler Workbench Startup Parameters:Scheduler Workbench:expand batch or firm planned order:click operations node:right-click on an operation:choose Properties
Parameters	Production Supervisor:Setup:Parameters
Parameters	Production Supervisor:Concurrent Programs:Run:Item Substitution:Parameters
Parameters	Production Supervisor:Concurrent Programs:Run:Ingredient Picking:Parameters
Process Instructions	Production Supervisor:Batch Details:Find Batches:Batch Details:Tools:Process Instructions (also available from these windows: Firm Planned Order:Details and Batch Steps)
Production Activity Report	Production Supervisor:Reports:Run
Production Schedule Inquiry	Production Supervisor:Inquiries:Production Schedule:Production Schedule Selection Criteria:enter selection criteria:click OK
Production Schedule Selection Criteria	Production Supervisor:Inquiries:Production Schedule

Window	Path
Recipe: Validity Rule Details	Production Supervisor:Batch Details:Find Batches:Batch DetailsTools:View Validity Rule
Recipe Validity Rules	Production Supervisor:Batch Details:Find Batches:Batch Details:Actions:Reroute Production Supervisor:Firm Planned Order Details:Find Firm Planned Orders:Firm Planned Order Details:Actions:Reroute
Reschedule	Production Supervisor: Batch Details:Find Batches:Batch Details:Actions:Reschedule Production Supervisor:Firm Planned Order:Find Firm Planned Orders:Firm Planned Order Details:Actions:Reschedule
Resource Process Parameters	Production Supervisor:Batch Steps:Find Batch Steps:Batch Steps:select a step:Activities:select an activity:Resources:Step Resources:select a resource:Process Parameters
Resource Properties	Production Supervisor:Production Scheduler:Scheduler Workbench Startup Parameters:Scheduler Workbench:expand batch or firm planned order node:right-click resource node:choose Properties
Resource Transactions	Production Supervisor:Batch Steps:Find Batch Steps:Batch Steps:select a step:Step Activities:select an activity:Step Resources:Actions:Transactions:Resource Transactions
Resource Usage	Production Supervisor:Inquiries:Resource Variance:Resource Variance Inquiry Selection Criteria:Resource Usage
Resource Usage Details	Production Supervisor:Inquiries:Resource Inquiries:Resource Variance:Resource Variance Inquiry Selection Criteria:Resource Usage:Resource Usage Details

Window	Path
Resource Variance Details	Production Supervisor:Inquiries:Resource Inquiries:Resource Variance:Resource Variance Inquiry Selection Criteria
Resource Variance Inquiry Selection Criteria	Production Supervisor:Inquiries:Resource Variance
Scale Batch	Production Supervisor:Batch Details:Find Batches:Batch Details:select a product line: Tools:Scale Batch Production Supervisor:Firm Planned Order:Find Firm Planned Orders:Firm Planned Order Details:Tools:Scale Firm Planned Order
Scheduler Workbench	Production Supervisor:Production Scheduler:Scheduler Workbench Startup Parameters:click Gantt Chart
Scheduler Workbench Startup Parameters	Production Supervisor:Production Scheduler
Select Available Inventory	Production Supervisor:Batch Details:Find Batches:Batch Details:Inventory:Maintain Reservations:Item Reservations:Tools:Select Available Inventory
Select Resources	Production Supervisor:Production Scheduler:Scheduler Workbench Startup Parameters:enter startup parameters:click Gantt Chart:select batch or firm planned order:click Select Resources
Simulator	Production Supervisor:Simulator
Step Activities	Production Supervisor:Batch Steps:Find Batch Steps:Batch Steps:Actions:Activity Details
Step Dependencies	Production Supervisor:Batch Steps:Find Batches:Batch Steps:Actions:Batch Step Dependencies

Window	Path
Step Resources	Production Supervisor:Batch Steps:Find Batch Steps:Batch Steps:Actions:Resource Details
Step Material Association	Production Supervisor:Batches:Find Batches:Batch Details:click Steps: Batch Steps: Actions:Item-Step Association
Submit a New Request	Production Supervisor:Reports:Run:click OK
Submit a New Request	Production Supervisor:Concurrent Programs:Run
Summary of Document by Organization	Production Supervisor:Workbench:Batch:View By Organization:select an organization in the navigator
Summary of Document by Product	Production Supervisor:Workbench:Batch:View By Product:select a product in the navigator Production Supervisor:Workbench:Firm Planned Orders:View By Product:select a product in the navigator
Summary of Document by Status	Production Supervisor:Workbench:Batch:View By Status:select a status in the navigator Production Supervisor:Workbench:Firm Planned Orders:View By Status:select a status in the navigator
Summary of Batch Steps	Production Supervisor:Workbench:Batch:select the Steps node for the batch in the navigator
Summary of Byproduct	Production Supervisor:Workbench:Batch:select a byproduct within a batch in the navigator Production Supervisor:Workbench:Firm Planned Orders:select a byproduct in the navigator

Window	Path
Summary of Byproducts	Production Supervisor:Workbench:Firm Planned Orders:select the Byproducts node in the navigator Production Supervisor:Workbench:Batch:select the Byproducts node for the batch in the navigator
Summary of Byproducts By Step	Production Supervisor:Workbench:Batch:for a batch in the navigator open a batch step and select a Byproduct
Summary of Document	Production Supervisor:Workbench:Batch:select a batch in the navigator Production Supervisor:Workbench:Firm Planned Orders:select a firm planned order in the navigator
Summary of Ingredient	Production Supervisor:Workbench:Batch:select an ingredient within a step within a batch in the navigator Production Supervisor:Workbench:Firm Planned Orders:select an ingredient in the navigator
Summary of Ingredients	Production Supervisor:Workbench:Batch:select the Ingredients node for the batch in the navigator Production Supervisor:Workbench:Firm Planned Orders:select the Ingredients node in the navigator
Summary of Ingredients by Step	Production Supervisor:Workbench:Batch:for a batch step in the navigator open a batch step and select an Ingredient

Window	Path
Summary of Product	Production Supervisor:Workbench:Batch:select a product within a batch in the navigator Production Supervisor:Workbench:Firm Planned Orders:select a product in the navigator
Summary of Products	Production Supervisor:Workbench:Batch:select the Products node for the batch in the navigator Production Supervisor:Workbench:Firm Planned Orders:select the Products node in the navigator
Summary of Products By Step	Production Supervisor:Workbench:Batch:for a batch in the navigator open a batch step and select a Product
Summary of Step	Production Supervisor:Workbench:Batch:select a batch step in the navigator
Summary of Step Activity Resource	Production Supervisor:Workbench:Batch:select a batch resource in the navigator
Summary of Step Details	Production Supervisor:Workbench:Batch:select a step detail for a batch in the navigator Production Supervisor:Workbench:Batch:select a step within a step detail for a step within a batch
View Material Transactions	Production Supervisor:Batch Details:Find Batches:Batch Details:Inventory:View Material Transactions
Work in Process Inquiry	Production Supervisor:Inquiries:Work In Process Inquiry Selection Criteria:enter selection criteria:click OK

Window	Path
Work in Process Inquiry Details	Production Supervisor:Inquiries:Work In Process Inquiry Selection Criteria:enter selection criteria:click OK:Work In Process Inquiry:drill down on the desired Batch
Work in Process Inquiry Selection Criteria	Production Supervisor:Inquiries:Work In Process

Setting Up Process Execution Responsibilities and Menu Access

Setting Up Process Execution Responsibilities and Menu Access

Set up responsibilities and assign one or more of them to each user. Following are menu and submenu selections and limitations in the Process Execution responsibilities:

Production Supervisor

- Workbench
- Create Document
- Batch Details
- Firm Planned Orders
- Batch Steps
- Incremental Backflush
- Production Scheduler
- Simulator
- Ingredient Picking
- Batch Operation WIP
- Inquiries
 - Production Schedule

- Batch Step Variance
- Material Variance
- Resource Variance
- Work In Process
- View Material Details

- Reports
 - Batch Pick List
 - Batch Ticket
 - Batch Yield Variance
 - Material Usage and Substitution Variance
 - Planned Production

- Concurrent Programs
 - Item Substitution for Batches
 - Ingredient Picking
 - Migration Recreate Open Batches

Production Operator

- Workbench, with limited access to window functionality as listed below.
- Batch Details, limited to Edit Phantom, Edit Parent, Edit Text, Material Summary, Incremental Backflush, Inventory Shortage, Specifications, Samples
- Firm Planned Order: Details, limited to Edit Text, Edit Phantom, Inventory Summary, Specifications, Samples
- Batch Steps, limited to Edit Text, Release, Complete
- Incremental Backflush
- Batch Operation WIP
- Inquiries

- Production Schedule
- Batch Step Variance
- Material Variance
- Resource Variance
- Work In Process
- View Material Details

- Reports
 - Batch Pick List
 - Batch Ticket
 - Batch Yield Variance
 - Material Usage and Substitution Variance
 - Planned Production

- Concurrent Programs
 - Item Substitution for Batches
 - Ingredient Picking
 - Migration Recreate Open Batches

Oracle E-Records Events in Process Execution

Oracle E-Records Events in Process Execution

Oracle Process Manufacturing (OPM) Process Execution supports the acquisition of electronic signatures on electronic records. Electronic documentation replaces paper with a seamless interface of business activities that improves manufacturing throughput and enhances the overall quality of operations in the enterprise. Seed data for each event such as event keys, subscriptions, transaction types, and generic query attributes is provided for e-records enabled in the OPM Process Execution application. Refer to the *Oracle E-Records Implementation Guide* for details on mandatory attributes and setting up the events and approvals. The following batch events are online events and Oracle e-record and e-signature (ERES) enabled:

- Batch Release
- Batch Complete
- Batch Close
- Batch Reopen
- Batch Revert to WIP
- Batch Unrelease
- Batch Terminate
- Batch Step Release
- Batch Step Complete
- Batch Step Close

- Batch Step Reopen
- Batch Step Return to WIP
- Batch Step Unrelease
- Cancel batch
- Update Batch
- Reschedule Batch
- Reroute Batch
- Scale Batch
- Add Step
- Delete Step
- Update Step
- Add Material
- Delete Material
- Update Material
- Add Activity
- Delete Activity
- Update Activity
- Add Resource
- Delete Resource
- Update Resource
- Add Process Parameter
- Add Resource Transaction
- Batch E-Records
- Batch Transact

Events

The following tables provide the batch events and detail the seed data for the ERES-enabled batch events in Oracle Process Manufacturing Process Execution:

Batch Events

Events

Name	Display Name	Description	Status	Owner Name	Owner Tag
oracle.apps.gme.batch.release	GME ERES Batch Release	Batch Release event	Enabled	Process Execution	GME
oracle.apps.gme.batch.complete	GME ERES Batch Complete	This event is raised when a process batch is completed.	Enabled	Process Execution	GME
oracle.apps.gme.batch.close	GME ERES Batch Close	Batch Close event	Enabled	Process Execution	GME
oracle.apps.gme.batch.reopen	GME ERES Batch Reopen	Batch Reopen event	Enabled	Process Execution	GME
oracle.apps.gme.batch.uncertify	GME ERES Batch Revert to WIP	Revert to WIP event	Enabled	Process Execution	GME
oracle.apps.gme.batch.unrelease	GME ERES Batch Unrelease	Batch Unrelease event	Enabled	Process Execution	GME
oracle.apps.gme.batch.terminate	GME ERES Batch Terminate	This event is raised when a process batch is terminated.	Enabled	Process Execution	GME
oracle.apps.gme.batchstep.release	GME ERES Batch Step Release	Batch Step Release Event.	Enabled	Process Execution	GME

Name	Display Name	Description	Status	Owner Name	Owner Tag
oracle.apps.gme.batchstep.complete	GME ERES Batch Step Complete	This event is raised when a process batch step is completed.	Enabled	Process Execution	GME
oracle.apps.gme.batchstep.close	GME ERES Batch Step Close	Batch Step Close Event	Enabled	Process Execution	GME
oracle.apps.gme.batchstep.reopen	GME ERES Batch Step Reopen	Reopen Process Batchstep	Enabled	Process Execution	GME
oracle.apps.gme.batchstep.uncertify	GME ERES Batchstep Revert to WIP	Process Batchstep Revert to WIP	Enabled	Process Execution	GME
oracle.apps.gme.batchstep.unrelease	GME ERES Batchstep Unrelease	OPM Process Execution Batchstep Unrelease	Enabled	Process Execution	GME
oracle.apps.gme.batch.cancel	GME ERES Batch Cancel	Batch Canceled	Enabled	OPM Process Execution	GME
oracle.apps.gme.batch.update	GME ERES Batch Update	Batch Updated	Enabled	OPM Process Execution	GME
oracle.apps.gme.batch.reschedule	GME ERES Batch Reschedule	Batch Rescheduled	Enabled	OPM Process Execution	GME
oracle.apps.gme.batch.reroute	GME ERES Batch Reroute	Batch Rerouted	Enabled	OPM Process Execution	GME

Name	Display Name	Description	Status	Owner Name	Owner Tag
oracle.apps.gme.batch.scale	GME ERES Batch Scale	Batch Scaled	Enabled	OPM Process Execution	GME
oracle.apps.gme.batchstep.add	GME ERES Batch Step Add	Batch Step Added	Enabled	OPM Process Execution	GME
oracle.apps.gme.batchstep.remove	GME ERES Batch Step Remove	Batch Step Removed	Enabled	OPM Process Execution	GME
oracle.apps.gme.batchstep.update	GME ERES Batch Step Update	Batch Step Updated	Enabled	OPM Process Execution	GME
oracle.apps.gme.batchmtl.add	GME ERES Batch Material Add	Batch Material Added	Enabled	OPM Process Execution	GME
oracle.apps.gme.batchmtl.remove	GME ERES Batch Material Remove	Batch Material Removed	Enabled	OPM Process Execution	GME
oracle.apps.gme.batchmatl.update	GME ERES Batch Material Update	Batch Material Updated	Enabled	OPM Process Execution	GME
oracle.apps.gme.activity.add	GME ERES Batch Step Activity Add	Batch Step Activity Added	Enabled	OPM Process Execution	GME

Name	Display Name	Description	Status	Owner Name	Owner Tag
oracle.apps.gme.activity.remove	GME ERES Batch Step Activity Remove	Batch Step Activity Removed	Enabled	OPM Process Execution	GME
oracle.apps.gme.activity.update	GME ERES Batch Step Activity Update	Batch Step Activity Updated	Enabled	OPM Process Execution	GME
oracle.apps.gme.resource.add	GME ERES Batch Step Activity Resource Add	Batch Step Activity Resource Added	Enabled	OPM Process Execution	GME
oracle.apps.gme.resource.remove	GME Batch Step Activity Resource Remove	Batch Step Activity Resource Removed	Enabled	OPM Process Execution	GME
oracle.apps.gme.resource.update	GME ERES Batch Step Activity Resource Update	Batch Step Activity Resource Updated	Enabled	OPM Process Execution	GME
oracle.apps.gme.batch.pparam	GME ERES Batch Step Activity Resource Process Parameters	Batch Step Activity Resource Process Parameters.	Enabled	OPM Process Execution	GME
oracle.apps.gme.batch.rsrc.trxs	GME ERES Resource Transactions	GME ERES Resource Transactions	Enabled	OPM Process Execution	GME
oracle.apps.gme.batch.erecords	GME ERES Batch Created	GME ERES Batch E-Records.	Enabled	OPM Process Execution	GME

Name	Display Name	Description	Status	Owner Name	Owner Tag
oracle.apps.gme.batch.transaction	GME ERES Batch Transact	This event is raised from transactions form for the process batch.	Enabled	OPM Process Executio n	GME

Event Keys

Event Name	Event Key	User Event key
oracle.apps.gme.batch.release	GME_BATCH_HEADER.BATCH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NUMBER
oracle.apps.gme.batch.complete	GME_BATCH_HEADER.BATCH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NUMBER
oracle.apps.gme.batch.close	GME_BATCH_HEADER.BATCH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NUMBER
oracle.apps.gme.batch.reopen	GME_BATCH_HEADER.BATCH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NUMBER

Event Name	Event Key	User Event key
oracle.apps.gme.batch.uncertainty	GME_BATCH_HEADER.BATCH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NO
oracle.apps.gme.batch.unrelease	GME_BATCH_HEADER.BATCH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NO
oracle.apps.gme.batch.terminate	GME_BATCH_HEADER.BATCH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NO
oracle.apps.gme.batchstep.release	GME_BATCH_STEPS.BATCHSTEP_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NO ' ' GME_BATCHSTEPS. B ATCHSTEP_NO ' ' GMD_ OPERATIONS.OPRN_NO
oracle.apps.gme.batchstep.complete	GME_BATCH_STEPS.BATCHSTEP_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NO ' ' GME_BATCHSTEPS. B ATCHSTEP_NO ' ' GMD_ OPERATIONS.OPRN_NO

Event Name	Event Key	User Event key
oracle.apps.gme.batchstep.close	GME_BATCH_STEPS.BATCHSTEP_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NO ' ' GME_BATCHSTEPS. B ATCHSTEP_NO ' ' GMD_ OPERATIONS.OPRN_NO
oracle.apps.gme.batchstep reopen	GME_BATCH_STEPS.BATCHSTEP_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NO ' ' GME_BATCHSTEPS. B ATCHSTEP_NO ' ' GMD_ OPERATIONS.OPRN_NO
oracle.apps.gme.batchstep.uncertify	GME_BATCH_STEPS.BATCHSTEP_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NO ' ' GME_BATCHSTEPS. B ATCHSTEP_NO ' ' GMD_ OPERATIONS.OPRN_NO
oracle.apps.gme.batchstep.release	GME_BATCH_STEPS.BATCHSTEP_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_NO ' ' GME_BATCHSTEPS. B ATCHSTEP_NO ' ' GMD_ OPERATIONS.OPRN_NO

Event Name	Event Key	User Event key
oracle.apps.gme.batch.cancel	GME_BATCH_HEADER.BAT CH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_N O
oracle.apps.gme.batch.update	GME_BATCH_HEADER.BAT CH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_N O
oracle.apps.gme.batch.resche dule	GME_BATCH_HEADER.BAT CH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_N O
oracle.apps.gme.batch.reroute	GME_BATCH_HEADER.BAT CH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_N O
oracle.apps.gme.batch.scale	GME_BATCH_HEADER.BAT CH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_N O
oracle.apps.gme.batchstep.ad ded	P_BATCH_STEP_REC.BATC H_ID ' ' P_BATCH_STEP_ REC.BATCHSTEP_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE ' ' BATCH_HEADER.BATCH_N O ' ' GME_BATCHSTEPS. B ATCHSTEP_NO ' ' GMD_ OPERATIONS.OPRN_NO

Event Name	Event Key	User Event key
oracle.apps.gme.batchstep.re moved	P_BATCH_STEP_REC.BATC H_ID '-' P_BATCH_STEP_ R EC.BATCHSTEP_ID	GME_BATCH_HEADER_VW .ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_N O '-' GME_BATCHSTEPS. B ATCHSTEP_NO '-' GMD_ OPERATIONS.OPRN_NO
oracle.apps.gme.batchstep.up date	P_BATCH_STEP_REC.BATC H_ID '-' P_BATCH_STEP_ R EC.BATCHSTEP_ID	GME_BATCH_HEADER_VW .ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_N O '-' GME_BATCHSTEPS. B ATCHSTEP_NO '-' GMD_ OPERATIONS.OPRN_NO
oracle.apps.gme.batchmtl.add ed	X_MATERIAL_DETAIL_REC _BATCH_ID '-' X_MATER IA L_DETAIL_REC.MATERIAL_ DETAIL_ID	GME_BATCH_HEADER_VW .ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_N O '-' GME_MATERIAL_D ET AILS.LINE_NO '-' MTL_S YS TEM_ITEMS_VL.CONCATE NATED_SEGMENTS
oracle.apps.gme.batchmtl.rem oved	X_MATERIAL_DETAIL_REC _BATCH_ID '-' X_MATER IA L_DETAIL_REC.MATERIAL_ DETAIL_ID	GME_BATCH_HEADER_VW .ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_N O '-' GME_MATERIAL_D ET AILS.LINE_NO '-' MTL_S YS TEM_ITEMS_VL.CONCATE NATED_SEGMENTS

Event Name	Event Key	User Event key
oracle.apps.gme.batchmtl.updated	X_MATERIAL_DETAIL_REC_BATCH_ID '-' X_MATERIAL_DETAIL_REC.MATERIAL_DETAIL_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_NO '-' GME_MATERIAL_DETAIL.AILS.LINE_NO '-' MTL_SYSTEM_ITEMS_VL.CONCATENATED_SEGMENTS
oracle.apps.gme.activity.added	GME_ACTIVITIES.BATCH_ID '-' GME_ACTIVITIES.BATCHSTEP_ID '-' GME_ACTIVITIES.BATCHSTEP_ACTIVITY_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_NO '-' GME_BATCHSTEPS.BATCHSTEP_NO '-' GME_BATCH_ACTIVITIES.ACTIVITY
oracle.apps.gme.activity.removed	GME_ACTIVITIES.BATCH_ID '-' GME_ACTIVITIES.BATCHSTEP_ID '-' GME_ACTIVITIES.BATCHSTEP_ACTIVITY_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_NO '-' GME_BATCHSTEPS.BATCHSTEP_NO '-' GME_BATCH_ACTIVITIES.ACTIVITY
oracle.apps.gme.activity.updated	GME_ACTIVITIES.BATCH_ID '-' GME_ACTIVITIES.BATCHSTEP_ID '-' GME_ACTIVITIES.BATCHSTEP_ACTIVITY_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_NO '-' GME_BATCHSTEPS.BATCHSTEP_NO '-' GME_BATCH_ACTIVITIES.ACTIVITY

Event Name	Event Key	User Event key
oracle.apps.gme.resource.add ed	GME_STEP_RESOURCES.B ATCH_ID '-' GME_STEP_ RE SOURCES.BATCHSTEP_ID GME_STEP_RESOURCES.B ATCHSTEP_ACTIVITY_ID '- ' GME_STEP_RESOURCES.B ATCHSTEP_RESOURCE_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_N O '-' GME_BATCHSTEPS. B ATCHSTEP_NO '-' GME_ BATCH_ACTIVITIES.ACTVI TY '-' GME_BATCH_STEP _RESOURCES.RESOURCES
oracle.apps.gme.resource.rem oved	GME_STEP_RESOURCES.B ATCH_ID '-' GME_STEP_ RE SOURCES.BATCHSTEP_ID GME_STEP_RESOURCES.B ATCHSTEP_ACTIVITY_ID '- ' GME_STEP_RESOURCES.B ATCHSTEP_RESOURCE_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_N O '-' GME_BATCHSTEPS. B ATCHSTEP_NO '-' GME_ BATCH_ACTIVITIES.ACTVI TY '-' GME_BATCH_STEP _RESOURCES.RESOURCES
oracle.apps.gme.resource.upd ate	GME_STEP_RESOURCES.B ATCH_ID '-' GME_STEP_ RE SOURCES.BATCHSTEP_ID GME_STEP_RESOURCES.B ATCHSTEP_ACTIVITY_ID '- ' GME_STEP_RESOURCES.B ATCHSTEP_RESOURCE_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_N O '-' GME_BATCHSTEPS. B ATCHSTEP_NO '-' GME_ BATCH_ACTIVITIES.ACTVI TY '-' GME_BATCH_STEP _RESOURCES.RESOURCES

Event Name	Event Key	User Event key
oracle.apps.gme.batch.pparam	GME_PROCESS_PARAMETERS.BATCH_ID '-' GME_PROCESS_PARAMETERS.BATCHSTEP_RESOURCE_ID '-' GME_PROCESS_PARAMETERS.PROCESS_PARAM_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_NO '-' GME_BATCHSTEPS.BATCHSTEP_NO '-' GME_BATCH_ACTIVITIES.ACTIVITY '-' GME_BATCH_STEP_RESOURCES.RESOURCES
oracle.apps.gme.batch.rsrc.trx	GME_BATCH_HEADER.BATCH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_NO
oracle.apps.gme.batch.erecords	GME_BATCH_HEADER.BATCH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_NO
oracle.apps.gme.batch.transaction	GME_BATCH_HEADER.BATCH_ID	GME_BATCH_HEADER_VW . ORGANIZATION_CODE '-' BATCH_HEADER.BATCH_NO

Subscriptions

Syst em	Sour ce Type	Event Filter	Phase	Status	Rule Data	Rule Function	Parameters	Priority
LM001	Local	oracle.ap ps.gme.batch.release	0	Disabled	Key	EDR_PSIG_ RULE.PSIG_ _RULE	FORCE_ERECORD=Y EDR_XML_MAP_CODE=oracle.a pps.gme.cbr.btch .rel	Normal
LM001	Local	oracle.ap ps.gme.batch.complete	0	Disabled	Key	EDR_PSIG_ RULE.PSIG_ _RULE	EDR_XML_MAP_CODE=oracle.a pps.gme.batch oracle.apps.inv.l otCreate=IGNORE _SIGNATURE	Normal
LM001	Local	oracle.ap ps.gme.batch.close	0	Disabled	Key	EDR_PSIG_ RULE.PSIG_ _RULE	FORCE_ERECORD=Y EDR_XML_MAP_CODE=oracle.a pps.gme.cbr.btch .crp	Normal
LM001	Local	oracle.ap ps.gme.batch.reopen	0	Disabled	Key	EDR_PSIG_ RULE.PSIG_ _RULE	FORCE_ERECORD=Y EDR_XML_MAP_CODE=oracle.a pps.gme.cbr.btch .crp	Normal
LM001	Local	oracle.ap ps.gme.batch.uncertify	0	Disabled	Key	EDR_PSIG_ RULE.PSIG_ _RULE	FORCE_ERECORD=Y EDR_XML_MAP_CODE=oracle.a pps.gme.cbr.btch .actn	Normal
LM001	Local	oracle.ap ps.gme.batch.unrelease	0	Disabled	Key	EDR_PSIG_ RULE.PSIG_ _RULE	EDR_XML_MAP_CODE=oracle.a pps.gme.batch	

Syst em	Sour ce Type	Event Filter	Phas e	Statu s	Rul e Dat a	Rule Function	Parameters	Priorit y
LM00 1	Local	oracle.ap ps.gme.b atch.term inate	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG_ _RULE	FORCE_ERECO RD=Y EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.btch .term	Normal
LM00 1	Local	oracle.ap ps.gme.b atchstep.r elease	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG_ _RULE	EDR_XML_MAP _CODE=oracle.a pps.gme.batchste p oracle.apps.inv.l otCreate=IGNOR E_SIGNATURE	Normal
LM00 1	Local	oracle.ap ps.gme.b atchstep. complete	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG_ _RULE	EDR_XML_MAP _CODE=oracle.a pps.gme.batchste p oracle.apps.inv.l otCreate=IGNOR E_SIGNATURE	Normal
LM00 1	Local	oracle.ap ps.gme.b atchstep. close	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG_ _RULE	FORCE_ERECO RD=Y EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.bste p.crp	Normal
LM00 1	Local	oracle.ap ps.gme.b atchstep.r eopen	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG_ _RULE	FORCE_ERECO RD=Y EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.bste p.crp	Normal
LM00 1	Local	oracle.ap ps.gme.b atchstep. uncertify	0	Disabl ed	Key	GMO_CBR_ GRP.PROC ESS_EVENT	EDR_XML_MAP _CODE=oracle.a pps.gme.batchste p	Normal

Syst em	Sour ce Type	Event Filter	Phase	Status	Rule Data	Rule Function	Parameters	Priorit y
LM001	Local	oracle.ap ps.gme.b atchstep. unrelease	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	EDR_XML_MAP _CODE=oracle.a pps.gme.batchste p	Normal
LM001	Local	oracle.ap ps.gme.b atch.canc el	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	FORCE_ERECO RD=Y EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.btch .actn	Normal
LM001	Local	oracle.ap ps.gme.b atch.upd ate	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	EDR_AME_TRA NSACTION_TY PE=oracle.apps.g me.batch.update EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.bat ch.upd	Normal
LM001	Local	oracle.ap ps.gme.b atch.resc hedule	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.btch .actn	Normal
LM001	Local	oracle.ap ps.gme.b atch.rero ute	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	FORCE_ERECO RD=Y EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.btch .actn	Normal
LM001	Local	oracle.ap ps.gme.b atch.scale	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.btch .actn	Normal

Syst em	Sour ce Type	Event Filter	Phas e	Statu s	Rul e Dat a	Rule Function	Parameters	Priorit y
LM00 1	Local	oracle.ap ps.gme.b atchstep. added	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	FORCE_ERECO RD=Y EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.bste P	Normal
LM00 1	Local	oracle.ap ps.gme.b atchstep.r emoved	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	FORCE_ERECO RD=Y EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.bste P	Normal
LM00 1	Local	oracle.ap ps.gme.b atchstep. update	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.bste P	Normal
LM00 1	Local	oracle.ap ps.gme.b atchmtl.a dded	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	EDR_AME_TRA NSACTION_TY PE=oracle.apps.g me.batchmtl.add ed EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.bhm tl	Normal
LM00 1	Local	oracle.ap ps.gme.b atchmtl.r emoved	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.bhm tl EDR_AME_TRA NSACTION_TY PE=oracle.apps.g me.batchmtl.rem oved	Normal

Syst em	Sour ce Type	Event Filter	Phase	Status	Rule Data	Rule Function	Parameters	Priorit y
LM001	Local	oracle.apps.gme.batchmtl.updated	0	Disabled	Key	EDR_PSIG_RULE.PSIG_RULE	FORCE_ERECORD=Y EDR_AME_TRANSACTION_TYPE=oracle.apps.gme.batchmtl.update EDR_XML_MAP_CODE=oracle.apps.gme.cbr.bhtml	Normal
LM001	Local	oracle.apps.gme.activity.added	0	Disabled	Key	EDR_PSIG_RULE.PSIG_RULE	EDR_AME_TRANSACTION_TYPE=oracle.apps.gme.activity.added EDR_XML_MAP_CODE=oracle.apps.gme.cbr.bact FORCE_ERECORD=Y	Normal
LM001	Local	oracle.apps.gme.activity.removed	0	Disabled	Key	EDR_PSIG_RULE.PSIG_RULE	EDR_XML_MAP_CODE=oracle.apps.gme.cbr.bact EDR_AME_TRANSACTION_TYPE=oracle.apps.gme.activity.removed FORCE_ERECORD=Y	Normal

Syst em	Sour ce Type	Event Filter	Phase	Status	Rule Data	Rule Function	Parameters	Priorit y
LM00 1	Local	oracle.ap ps.gme.a ctivity.up date	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	FORCE_ERECO RD=Y EDR_AME_TRA NSACTION_TY PE=oracle.apps.g me.activity.upda ted EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.bact. upd	Normal
LM00 1	Local	oracle.ap ps.gme.re source.ad ded	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	EDR_AME_TRA NSACTION_TY PE=oracle.apps.g me.resource.add ed EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.brsrc FORCE_ERECO RD=Y	Normal
LM00 1	Local	oracle.ap ps.gme.re source.re moved	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	EDR_AME_TRA NSACTION_TY PE=oracle.apps.g me.resource.rem oved EDR_XML_MAP _CODE=oracle.a pps.gme.cbr.brsrc	Normal

Syst em	Sour ce Type	Event Filter	Phase	Status	Rule Data	Rule Function	Parameters	Priorit y
LM001	Local	oracle.apps.gme.resource.update	0	Disabled	Key	EDR_PSIG_RULE.PSIG_RULE	EDR_AME_TRANSACTION_TYPE=oracle.apps.gme.resource.update EDR_XML_MAP_CODE=oracle.apps.gme.cbr.brsr.c.upd FORCE_ERECORD=Y	Normal
LM001	Local	oracle.apps.gme.batch.pparam	0	Disabled	Key	EDR_PSIG_RULE.PSIG_RULE	EDR_XML_MAP_CODE=oracle.apps.gme.cbr.bpparam EDR_AME_TRANSACTION_TYPE=oracle.apps.gme.batch.pparam FORCE_ERECORD=Y	Normal
LM001	Local	oracle.apps.gme.batch.rsrc.tx	0	Disabled	Key	EDR_PSIG_RULE.PSIG_RULE	FORCE_ERECORD=Y EDR_XML_MAP_CODE=oracle.apps.gme.batch.rsrc.tx	Normal

Syst em	Sour ce Type	Event Filter	Phase	Status	Rule Data	Rule Function	Parameters	Priorit y
LM001	Local	oracle.apps.gme.batch.erecords	0	Disabled	Key	EDR_PSIG_RULE.PSIG_RULE	EDR_XML_MAP_CODE=oracle.apps.gme.batch.erecords EDR_AME_TRANSACTION_TYPE=oracle.apps.gme.batch.erecords oracle.apps.gme.batch.reopen=EVALUATE_NORMAL oracle.apps.gme.batch.uncertify=EVALUATE_NORMAL oracle.apps.gme.batch.unrelease=EVALUATE_NORMAL oracle.apps.gme.batchstep.reopen=EVALUATE_NORMAL oracle.apps.gme.batchstep.uncertify=EVALUATE_NORMAL oracle.apps.gme.batchstep.unrelease=EVALUATE_NORMAL oracle.apps.gme.batchstep.complete=EVALUATE_NORMAL oracle.apps.gme.batch.terminate=EVALUATE_NORMAL oracle.apps.gme.batchstep.release=EVALUATE_NORMAL	Normal

Syst em	Sour ce Type	Event Filter	Phas e	Statu s	Rul e Dat a	Rule Function	Parameters	Priorit y
							oracle.apps.gme. batch.close=EVA LUATE_NORM AL oracle.apps.gme. batchstep.close=E VALUATE_NOR MAL oracle.apps.gme. batch.release=EV ALUATE_NOR MAL oracle.apps.gme. batch.transact=E VALUATE_NOR MAL oracle.apps.gme. batch.complete= EVALUATE_NO RMAL	
LM00 1	Local	oracle.ap ps.gme.b atch.trans act	0	Disabl ed	Key	EDR_PSIG_ RULE.PSIG _RULE	EDR_XML_MAP _CODE=oracle.a pps.gme.batch.tr ansact oracle.apps.inv.l otCreate=IGNOR E_SIGNATURE	Normal

Transaction Types

Oracle Application	Transaction Type ID	Transaction Type Description
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.release	GME ERES Batch Release

Oracle Application	Transaction Type ID	Transaction Type Description
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.complete	GME ERES Batch Complete
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.close	GME ERES Batch Close
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.reopen	GME ERES Batch Reopen
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.uncertify	GME ERES Batch Revert to WIP
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.unrelease	GME ERES Batch Unrelease
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.terminate	GME ERES Batch Terminate
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchstep.release	GME ERES Batch Step Release
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchstep.complete	GME ERES Batch Step Complete
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchstep.close	GME ERES Batch Step Close
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchstep.reopen	GME ERES Batch Step reopen

Oracle Application	Transaction Type ID	Transaction Type Description
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchstep.un certify	GME ERES Batch Step Revert to WIP
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchstep.un release	GME ERES Batch Step Unrelease
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.cancel	GME ERES Batch Cancel
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.update	GME ERES Batch Update
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.resche dule	GME ERES Batch Reschedule
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.reroute	GME ERES Batch Reroute
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.scale	GME ERES Batch Scaled
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchstep.ad ded	GME ERES Batch Step Added
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchstep.re moved	GME ERES Batch Step Removed
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchstep.up date	GME ERES Batch Step Updated

Oracle Application	Transaction Type ID	Transaction Type Description
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchmtl.add ed	GME ERES Batch Material Added
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchmtl.rem oved	GME ERES Batch Material Removed
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batchmatl.up date	GME ERES Batch Material Updated
Oracle Process Manufacturing Process Execution	oracle.apps.gme.activity.adde d	GME ERES Batch Step Activity Added
Oracle Process Manufacturing Process Execution	oracle.apps.gme.activity.remov ed	GME ERES Batch Step Activity Removed
Oracle Process Manufacturing Process Execution	oracle.apps.gme.activity.upda ted	GME ERES Batch Step Activity Updated
Oracle Process Manufacturing Process Execution	oracle.apps.gme.resource.add ed	GME ERES Batch Step Activity Resource Added
Oracle Process Manufacturing Process Execution	oracle.apps.gme.resource.rem oved	GME Batch Step Activity Resource Removed
Oracle Process Manufacturing Process Execution	oracle.apps.gme.resource.upd ate	GME ERES Batch Step Activity Resource Updated
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.ppara m	GME ERES Batch Step Activity Resource Process Parameters

Oracle Application	Transaction Type ID	Transaction Type Description
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.rsrc.trx	GME ERES Resource Transactions
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.erecor ds	GME ERES Batch E-Records
Oracle Process Manufacturing Process Execution	oracle.apps.gme.batch.transac t	GME ERES Batch Transact

Generic Query Attributes

XML Element Tag	Display Name	Query Element Type
ORGANIZATION_CODE	Organization Code	Generic
BATCH_NO	Batch	Generic
BATCHSTEP_NO	Batch Step	Generic
LINE_NO	Line	Generic
ITEM_NO	Item	Generic
ACTIVITY	Activity	Generic
OPERATION_NO	Operation	Generic
PROCESS PARAMETER_NAME	Process Parameter	Generic

Enabling Batch Events

Enable the batch events using the following steps:

1. Enable the batch events and subscriptions. Refer to "Enabling the Event" and

"Enabling the Subscription" in the *Oracle E-Records Implementation Guide* for more information.

2. Upload the RTF templates. Refer to "Uploading Documents into the Evidence Store" in the *Oracle E-Records Implementation Guide* for more information.
3. Set up the configuration variables for each event.
4. Update the transaction variables for each event. The following are provided as seed data variables:
 - EREC_REQUIRED
 - EREC_STYLE_SHEET
 - EREC_STYLE_SHEET_VER
 - ESIG_REQUIRED

Add other variables depending on your organizational requirements. Refer to "Setting Up the Configuration Variables" in the *Oracle E-Records Implementation Guide* for more information on setting up configuration variables and adding and updating transaction variables.

5. Update the Default Value of the EREC_STYLE_SHEET.
6. Enter a unique version number for the EREC_STYLE_SHEET_VER.

Finding Additional Oracle E-Records Information

Find additional information in the *Oracle E-Records Implementation Guide*. From the XML Gateway, using the existing Event and Event Key, you can derive the XML Map, Subscription Data, and Metadata.

Function Security

Function Security

Use function security to control user access to Oracle Process Manufacturing Process Execution functions. By default, access to Oracle Process Manufacturing Process Execution functionality is NOT restricted; ask your system administrator to customize your responsibilities to restrict access. Your system administrator customizes each responsibility at your site by including or excluding registered functions and menus of functions for a responsibility in the Responsibilities window.

The following examples are common results that enforcing function security can produce:

- Form or menu does not appear in the Navigator window

Note: Some forms and menus, when excluded from a responsibility, may affect more than one window or function.

- Button is hidden

Note: Some buttons access more than one window or function.

- Field is not updatable

Use function security to control any of the Oracle Process Manufacturing Process Execution functions included in the table below:

Function Name	User Function Name	Comments
GMEMATED_BYPROD_VIE W_F	Material Details Byproducts View Function	View Byproduct
GMEMATED_INGRED_VIE W_F	Material Details Ingredients View Function	View Ingredient
GMEMATED_PROD_VIEW_ F	Material Details Products View Function	View Product
GMEBDTED_BYPROD_UPD ATE_F	Batch Details: Byproducts Update	Update Byproduct
GMEBDTED_BYPROD_VIE W_F	Batch Details: Byproducts View	View Byproduct
GMEBDTED_INGRED_UPD ATE_F	Batch Details: Ingredients Update	Update Ingredient
GMEBDTED_INGRED_VIEW _F	Batch Details: Ingredients View	View Ingredient
GMEBDTED_PROD_UPDAT E_F	Batch Details: Products Update	Update Product
GMEBDTED_PROD_VIEW_F	Batch Details: Products View	View Product
GMESTPED_CLOSE_F	Batch Steps: Close	Close Step
GMESTPED_COMPLETE_F	Batch Steps: Complete	Complete Step
GMESTPED_RELEASE_F	Batch Steps: Release	Release Step
GME_BATCH_ERECORDS_S UB_F	Batch E-Records	View Batch E-records
GMO_LABEL_PRINT_HISTO RY_F	GMO Label Print History	Print Label History
GMEBDTED_AUTO_DETAIL _BATCH_F	Batch Details: Auto Reserve Batch	Autoreserve Batch

Function Name	User Function Name	Comments
GMEBDTED_AUTO_DETAIL_LINE_F	Batch Details: Auto Reserve Line	Autoreserve Line
GMEBDTED_BYPROD_DELETE_F	Batch Details: Byproducts Delete	Delete Byproduct
GMEBDTED_BYPROD_INSERT_F	Batch Details: Byproducts Insert	Insert Byproduct
GMEBDTED_BYPROD_UPDATE_F	Batch Details: Byproducts Update	Update Byproduct
GMEBDTED_BYPROD_VIEW_F	Batch Details: Byproducts View	View Byproduct
GMEBDTED_CANCEL_F	Batch Details: Cancel	Cancel Batch
GMEBDTED_CLOSE_F	Batch Details: Close	Close Batch
GMEBDTED_COMPLETE_F	Batch Details: Complete	Complete Batch
GMEBDTED_CORRECTION_S_F	Batch Details: Corrections	Material Transaction Corrections
GMEBDTED_CREATE_PHANTOM_F	Batch Details: Create Phantom	Create Phantom
GMEBDTED_FPO_TO_BATCH_F	Batch Details: Convert FPO to Batch	Convert FPO to Batch
GMEBDTED_INGREDIENT_DELETE_F	Batch Details: Ingredients Delete	Delete Ingredient
GMEBDTED_INGREDIENT_INSERT_F	Batch Details: Ingredients Insert	Insert Ingredient
GMEBDTED_INGREDIENT_UPDATE_F	Batch Details: Ingredients Update	Update Ingredient
GMEBDTED_INGREDIENT_VIEW_F	Batch Details: Ingredients View	View Ingredient

Function Name	User Function Name	Comments
GMEBDTED_PROD_DELETE_F	Batch Details: Products Delete	Delete Product
GMEBDTED_PROD_INSERT_F	Batch Details: Products Insert	Insert Product
GMEBDTED_PROD_UPDATE_F	Batch Details: Products Update	Update Product
GMEBDTED_PROD_VIEW_F	Batch Details: Products View	View Product
GMEBDTED_RELEASE_F	Batch Details: Release	Release Batch
GMEBDTED_REOPEN_F	Batch Details: Reopen	Reopen Batch
GMEBDTED_REROUTE_F	Batch Details: Reroute	Reroute Batch
GMEBDTED_RESCHEDULE_F	Batch Details: Reschedule	Reschedule Batch
GMEBDTED_RESERVE_BATCH_F	Batch Details: Reserve Batch	Reserve Batch
GMEBDTED_RESERVE_LINE_F	Batch Details: Reserve Line	Reserve Line
GMEBDTED_REVERT_TO_WIP_F	Batch Details: Revert To WIP	Revert to WIP
GMEBDTED_SCALE_F	Batch Details: Scale	Scale Batch
GMEBDTED_TERMINATE_F	Batch Details: Terminate	Terminate Batch
GMEBDTED_THEORETICAL_F	Batch Details: Theoretical Yield	Perform Theoretical Yield
GMEBDTED_UNRELEASE_F	Batch Details: Unrelease	Unrelease Batch
GMEBDTED_UPDATE_F	Batch Details: Header Update	Update Batch Header

Function Name	User Function Name	Comments
GMEPRMED_DOC_NUMBERING_F	Parameters: Document Numbering	Create Document Number
GMEPRMED_UPDATE_F	Parameters: Update	Update Parameters
GMEPWBSB_RESCHEDULE_F	Production Scheduler: Reschedule	Production Scheduler Reschedule
GMESTPED_ASSOCIATION_F	Batch Steps: Item Step Association	Item Step Association
GMESTPED_CLOSE_F	Batch Steps: Close	Close Step
GMESTPED_COMPLETE_F	Batch Steps: Complete	Complete Step
GMESTPED_COMPLETE_WITHOUT_QC_F	Batch Steps: Complete without QC	Complete without Quality Results
GMESTPED_DELETE_F	Batch Steps: Delete	Delete Step
GMESTPED_DEPENDENCIES_F	Batch Steps: Step Dependencies	Step Dependencies
GMESTPED_INSERT_F	Batch Steps: Insert	Insert Step
GMESTPED_RELEASE_F	Batch Steps: Release	Release Step
GMESTPED_REOPEN_F	Batch Steps: Reopen	Reopen Step
GMESTPED_RESCHEDULE_F	Batch Steps: Reschedule	Reschedule Step
GMESTPED_REVERT_TO_WIP_F	Batch Steps: Revert To WIP	Revert to WIP
GMESTPED_UNRELEASE_F	Batch Steps: Unrelease	Unrelease Step
GMESTPED_UPDATE_F	Batch Steps: Update	Update Step
GME_PRINT_LABEL_F	Batch Details: Print Label	Print Label

Function Name	User Function Name	Comments
GME_BATCH_PROGRESSIO N_F	Batch Details: Batch Progression	View Batch Progression
GMEBDTED_VIEW_TRANS ACTIONS_F	Batch Details: View Transactions	View Transactions
GMEBDTED_EDIT_PARENT _F	Batch Details: Edit Parent	Edit Parent
GMEBDTED_EDIT_PHANT OM_F	Batch Details: Edit Phantom	Edit Phantom
GMESTPED_ACTIVITIES_F	Batch Steps: Activity Details	View Activity Details
GMESTPED_RESOURCES_F	Batch Steps: Resource Details	View Resource Details
GMESTPED_TRANSACTION S_F	Batch Steps: Transactions	View Transactions

Glossary

Activity

Action performed during the manufacturing process, such as mixing or heating.

Activity Factor

The number of times an activity is performed. For example, a quality test must be performed at the beginning, middle, and end of a mixing time period. Rather than defining the activity and associated resources three times, use an activity factor or multiplier to indicate three iterations of the same activity.

Allocation

For ingredients, the process of specifying lots of material in or scheduled for a specific batch. For products, the process of specifying lots yielded by a batch and locations of product yielded. As a result, only lot or location-controlled materials can be allocated.

ASQC

Automatic Step Quantity Calculation. A feature that enables a Process Engineer to calculate step quantities based on the routing step definitions and ingredient usage per step.

Autoallocation

See Automatic Allocation.

Automatic Allocation

A type of allocation where ingredients are allocated when a batch is saved for the first time, based on a specified set of business rules.

Autoreservation

A type of reservation where ingredients are reserved when a batch is saved for the first time, based on a specified set of parameters.

Backflushing

Calculation of ingredient consumption from the entry of product yield, or to calculate

product yield from the entry of ingredient consumption.

Batch

A standard run or lot size determined by vessel size, convention, line rates, or standard run length.

Batch Record

A document used to plan and record a manufacturing event. The document shows the consumption of ingredients and the yielding of products, coproducts, and byproducts.

Byproduct

An item produced by a formula in addition to the product. Byproducts differ from products in that you do not plan your production to make byproducts. Byproducts can have monetary value, but generally have less monetary value than products, and cannot have costs assigned. In some instances, there can be a cost associated with disposing of a byproduct. See Coproduct.

CFR Part 11

A regulation in the Code of Federal Regulations that provides a uniform, enforceable, baseline standard for accepting electronic signatures and records and provides a level of confidence that records maintained in accordance with the rule of high integrity.

Charge

A charge is defined as one full load that can be accommodated in a single pass through the equipment. In a process manufacturing plant, the capacity of a step can be predetermined by the capacity of the equipment used in that step. For example, a mixing tank that has a maximum capacity of 1000 gallons overflows if more is added. The maximum capacity determines the total number of charges required to process the ingredients required for a batch. A batch size of 5000 gallons requires five charges at 1000 gallons each when the maximum capacity of the mixing tank is 1000 gallons.

Child Lot

Child lot is a subplot with the relationship to its parent lot. Child lot is just another lot for all the transactions purposes.

Closing a Batch

The action taken to change the status of a batch from Completed to Closed.

Closing a Batch Step

The action taken to change the status of a batch step from Completed to Closed.

Completing a Batch

The process of indicating that all product quantities are yielded, and the batch is

complete. When you complete a batch, the pending transactions associated with automatic completion product lines are deleted and replaced with completed transactions.

Completing a Batch Step

The process of indicating that all step quantities are yielded, and the batch step is complete.

Consumption Type

For batch ingredients, denotes the type of ingredient consumption as: Automatic when ingredients are consumed automatically, Manual when ingredients are consumed manually, Incremental when ingredients are consumed in increments to keep inventory current, and Automatic by Step when ingredients are consumed automatically as the step is completed.

Coproduct

One of several products produced by a formula or batch. The term is used when a formula or batch produces more than one product. The application does not distinguish between products and coproducts. See Byproduct.

Context Organization

The inventory organization that serves as the framework for the data entered or displayed.

Cross Docking

A process where material is received in a facility and shipped at the earliest opportunity without going into long-term storage.

Delay

The number of hours from the end of the preceding batch step to the start of the current batch step. Delay calculations are needed to calculate operation start times.

Detailed Level Reservations

Reservation of inventory at a more detailed level of inventory control specifying the revision, lot, subinventory, or locator level.

Cost Analysis Code

A code that specifies whether an activity is value added or nonvalue added. For example, VAL for Value Added, or NVAL for Nonvalue Added.

FEFO

First Expired, First Out. Refers to use of materials closest to expiration first. Also, one method of automatic allocation based on the earliest expiring available lot. See also,

FIFO. Physically, a material control technique of rotating inventory stock used primarily where expiration date is a concern so that materials closest to expiration are consumed first.

FIFO

First In, First Out. Refers to use of the oldest materials first. Also, one method of automatic allocation based on the earliest created available lot. See also FEFO. Physically, a material control technique of rotating inventory stock used primarily where shelf life is a concern so that the oldest ingredients are consumed first.

Firm Planned Order

Also FPO. A document that represents a plan to manufacture a product. This differs from a batch in that you cannot execute against an FPO. The FPO does not commit inventory and you cannot allocate lots to it.

Fixed Scale

Termed Fixed Quantity in previous OPM applications. Scaling that requires ingredients to be scaled by an amount necessary to produce the new product quantity, and not by the percent entered as scale factor. If all items are set to fixed quantity or the formula is marked as not scalable at the header level, then quantities in the formula are not changed. Fixed scale ingredients may or may not contribute to yield.

Flexfield

A field made up of subfields or segments. There are two types of flexfields: key flexfields and descriptive flexfields. A key flexfield appears on a window as a normal text field with an appropriate prompt. A descriptive flexfield appears on a window as a two-character wide text field with square brackets [].

Formula

A statement of ingredient requirements and planned product yield. A formula can also include processing instructions and ingredient sequencing directions. The formula specifies quantities of each item.

FPO

See Firm Planned Order.

High Level Reservation

Reservation of inventory against an item and inventory organization.

Incremental Backflushing

Completing less than the full quantity of a product. This is often done with batches that run a long time and yield product in increments, and involves the calculation of ingredient consumption from the entry of product yield, and product yield from the

entry of ingredient consumption.

Ingredient

An item consumed by a batch to yield a product. Specifically, a required material for the manufacture of a product.

Integer Scaling

A scaling approach that allows materials to be scaled in integer quantities. Support is provided for rounding up or down to a full material increment within a user-defined tolerance percentage.

Item Revision

A particular version of an item.

Inventory Organization

A plant where batches are produced. Also, the organization that holds the inventory at specified locations.

Intermediate

A semiprocessed state of materials usually not available for sale to customers. Comparable to a subassembly in discrete manufacturing.

Linear Scaling

See Proportional Scaling.

Locator

A specific physical area within a subinventory such as a row, aisle, bin, or shelf where the item is stored.

Lot

A quantity of material produced together that shares the same resultant specifications and production costs.

LPN

License Plate Number.

Manual Completion

Completing a product separately from completing the batch.

Manual Release

Releasing an ingredient separately from releasing the batch that consumes it.

Move Order

A request for the movement of material within an organization.

Multiple Scaling

See Integer Scaling.

Offset Interval

The time delay from the start of the activity to the point where the resource is actually required.

Offset Type

A multiple batch scheduling method that is specified as start-to-start or end-to-start.

Operation

A combination of activities and the resources used to perform those activities. For example, the combination of mixing activity and the mixer (resource) defines the mixing operation.

Parent Lot

A quantity of an item that shares the same specifications or contains receipts from the same vendor. Genealogically, each parent lot can be divided into child lots, previously sublots, which reflect the characteristics selected for the items within the parent lot.

Pending Batch

A batch that is scheduled, but not yet released to production.

Pending Transaction

A record representing an anticipated or future change to inventory.

Phantoms

Intermediate items that are produced only in the process of making finished goods they go into. Phantoms are only tracked in inventory by the ingredients they consume.

Picking

The process of moving materials from one or more source locations and issuing them to staging subinventory.

Picking Rules

Rules that direct operators to pick material from specific locations.

Process

The manufacturing procedure.

Process Parameter

Processing parameters are used to provide operators with information needed for managing equipment used during the preparation of a product or to drive a production decision, such as the type of filter to use, or the quantity of product required to fill a container. There is no direct link between a process parameter and the equipment it describes.

Process Steps

The operations or stages in the manufacturing cycle required to transform ingredients into intermediates or finished goods.

Product

An item produced by a batch. Compare with byproduct.

Production Enabled

An indication that an item can be used in a production batch as product, byproduct, or an ingredient.

Proportional Scaling

Proportional scaling is the simplest type of batch scaling since both specified and calculated factors are applied to the scalable items proportionally. For example, proportional scaling of 100 grams of an ingredient by 200 percent means that you multiply the ingredient by a factor of two.

Putaway Rules

Rules that direct operators to put newly received material into the most appropriate location.

Raw Material

See Ingredient.

Recipe

The minimum set of information that uniquely defines the manufacturing requirements for a specific product. Recipes provide a way to describe products and include the sequencing of ingredients and processing instructions.

Release a Batch

Indicates that a batch is started. Indicates that ingredient quantities can be consumed. When you release a batch, the pending transactions associated with automatic release

ingredient lines are deleted and replaced with completed transactions.

Reopening a Batch

The action taken to change the status of a batch from Closed to Completed. The batch close date is removed from the batch header.

Reopening a Batch Step

The action taken to change the status of a batch step from Closed to Completed. The batch step close date is removed.

Reservation

A reservation is an association between a demand source and a supply source. A reservation creates a permanent data link between supply and demand and represents a guaranteed allotment of material to a specified demand or supply source.

Resource

Equipment or labor used in production.

Resource Usage

Calculated as the Count multiplied by Usage multiplied by Charges.

Revert to WIP

The action taken to change the status of a batch or a batch step from Completed to Work in Process.

Routing

A sequenced set of operations to perform to complete a production batch. See Process Steps.

Routing Process Loss

Accounting for material lost during the production process at the routing level. This loss can vary depending on the routing and quantity processed by the routing. A loss factor is defined at the routing level based on a range of quantities.

Scaling

The proportional or disproportional increase or decrease of product, byproduct, or ingredient quantities in a formula or batch. Scaling types are fixed, proportional, and integer. Integer scaling is sometimes called multiple scaling.

Scrap Factor

Material that is lost before making it into product. This material is an anticipated loss and does not contribute to yield.

Single-step Function

A function that only impacts a single step in a batch, and the batch lines associated with that step. Examples of single step functions are releasing, completing, and rescheduling steps.

Subinventory

A subdivision of an inventory organization that represents either a physical area or a logical grouping of items, such as a storeroom or damaged inventory.

Supply Locator

A specific physical area within a subinventory such as a row, aisle, bin, or shelf, where items for production are stored.

Supply Subinventory

A subinventory where items required for batch production are stored.

Theoretical Process Loss

Accounting for the material lost during the production process at the routing level. This loss can vary depending on the routing or the individual quantity processed by the routing. This loss is defined at the routing class level and is based on a minimum and maximum range of quantities.

Theoretical Yield Calculation

The predicted output of product quantities from a formula or batch based on ingredient quantities and a specified yield percentage.

Total Input

The total quantity of materials used to produce a batch.

Total Output

The total quantity of product, coproduct, and byproduct produced by a batch.

Unrelease a Batch

The action taken to change the status of a whole batch from WIP to Pending.

Unrelease a Batch Step

The action taken to change the status of a batch step from WIP to Pending. Only batch steps with a status of WIP can be unreleased.

User-Initiated Automatic Allocation

A type of allocation in which ingredients are automatically allocated when the user requests allocation, based on specified rules. This contrasts with automatic allocation in

that user-initiated automatic allocation is performed only when the user requests it, not automatically upon saving a batch.

Validity Rule

Formerly effectivity. The rules that specify under which circumstances a recipe can be used. The combination of a range of material quantities and a range of effective dates used by production, planning, costing, or MSDS in one or more specified organizations.

Variance

The difference between planned and actual quantities expressed as a percent. For example, if a planned value is 100 and the actual value is 125, the variance is 25 percent above plan.

Version

A number identifying a variant of a formula, operation, routing, or recipe.

Warehouse

A physical location for the storage of materials. A logical grouping of locations of specific materials can be within a production facility. Warehouses can supply one production facility.

Whole Batch Function

A function that impacts the entire batch. Whole batch functions include releasing, completing, rescheduling, incrementally backflushing, and closing batches. Similarly, whole batch functions also include unreleasing, reverting to WIP, and reopening batches.

WIP

Work in Process.

Work in Process

Batches released to production are work in process.

WMS

Warehouse Management Systems.

WMS Picking Rules

Picking rules defined by Warehouse Management Systems.

Yield

As related to quantity, the planned or actual output of a process. Yield includes either a loss, an increase, or no change in the planned or actual output quantity.

Yield Subinventory

A subinventory where the produced items are stored.

Yield Locator

A specific physical area within the yield subinventory where the produced item is stored.

Yield Type

For batch products, denotes the type of product yield as: Automatic, when products are yielded automatically, Manual when products are yielded manually, Incremental, when products are yielded in increments to keep inventory current, and Automatic by Step when products are yielded automatically as a step is completed.

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