# 11i Implement and Use Work in Process

**Student Guide – Volume 2**

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# Preface

## Profile

### Prerequisites

There are no prerequisites for this course.

### How This Course Is Organized

*11i Implement and Use Work in Process* is an instructor-led course featuring lecture and hands-on exercises. Online demonstrations and written practice sessions reinforce the concepts and skills introduced.

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# Related Publications

## Oracle Publications

Additional Publications

System release bulletins

Installation and user's guides

read.me files

Oracle Magazine

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# Typographic Conventions

## Typographic Conventions in Text

| Convention | Element | Example |
|---|---|---|
| Bold italic | Glossary term (if there is a glossary) | The ***algorithm*** inserts the new key. |
| Caps and lowercase | Buttons,<br>check boxes,<br>triggers,<br>windows | Click the Executable button.<br>Select the Can't Delete Card check box.<br>Assign a When-Validate-Item trigger to the ORD block.<br>Open the Master Schedule window. |
| Courier new, case sensitive (default is lowercase) | Code output,<br>directory names,<br>filenames,<br>passwords,<br>pathnames,<br>URLs,<br>user input,<br>usernames | Code output: `debug.set ('I", 300);`<br>Directory: `bin` (DOS), `$FMHOME` (UNIX)<br>Filename: Locate the `init.ora` file.<br>Password: User `tiger` as your password.<br>Pathname: Open `c:\my_docs\projects`<br>URL: Go to `http://www.oracle.com`<br>User input: Enter `300`<br>Username: Log on as `scott` |
| Initial cap | Graphics labels (unless the term is a proper noun) | Customer address (*but* Oracle Payables) |
| Italic | Emphasized words and phrases,<br>titles of books and courses,<br>variables | Do *not* save changes to the database.<br>For further information, see *Oracle7 Server SQL Language Reference Manual.*<br>Enter `user_id@us.oracle.com`, where *user_id* is the name of the user. |
| Quotation marks | Interface elements with long names that have only initial caps;<br>lesson and chapter titles in cross-references | Select "Include a reusable module component" and click Finish.<br><br>This subject is covered in Unit II, Lesson 3, "Working with Objects." |
| Uppercase | SQL column names, commands, functions, schemas, table names | Use the SELECT command to view information stored in the LAST_NAME column of the EMP table. |

| Convention | Element | Example |
|---|---|---|
| Arrow | Menu paths | Select File—> Save. |

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| | | |
|---|---|---|
| Brackets | Key names | Press [Enter]. |
| Commas | Key sequences | Press and release keys one at a time: [Alternate], [F], [D] |
| Plus signs | Key combinations | Press and hold these keys simultaneously: [Ctrl]+[Alt]+[Del] |

## Typographic Conventions in Code

| Convention | Element | Example |
|---|---|---|
| Caps and lowercase | Oracle Forms triggers | `When-Validate-Item` |
| Lowercase | Column names, table names | `SELECT last_name`<br>`FROM s_emp;` |
| | Passwords | `DROP USER scott`<br>`IDENTIFIED BY tiger;` |
| | PL/SQL objects | `OG_ACTIVATE_LAYER`<br>`(OG_GET_LAYER`<br>`('prod_pie_layer'))` |
| Lowercase italic | Syntax variables | `CREATE ROLE` *`role`* |
| Uppercase | SQL commands and functions | `SELECT userid`<br>`FROM emp;` |

## Typographic Conventions in Navigation Paths

This course uses simplified navigation paths, such as the following example, to direct you through Oracle Applications.

(N) Invoice > Entry > Invoice Batches Summary (M) Query > Find (B) Approve

This simplified path translates to the following:

1. (N) From the Navigator window, select Invoice > Entry > Invoice Batches Summary.

2. (M) From the menu, select Query > Find.

3. (B) Click the Approve button.

## Notations :

(N) = Navigator

(M) = Menu

(T) = Tab

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(I) = Icon

(H) = Hyperlink

(B) = Button

### Typographical Conventions in Help System Paths

This course uses a “navigation path” convention to represent actions you perform to find pertinent information in the Oracle Applications Help System.

The following help navigation path, for example—

(Help) General Ledger > Journals > Enter Journals

—represents the following sequence of actions:

1. In the navigation frame of the help system window, expand the General Ledger entry.

2. Under the General Ledger entry, expand Journals.

3. Under Journals, select Enter Journals.

4. Review the Enter Journals topic that appears in the document frame of the help system window.

## Getting Help

Oracle Applications provides you with a complete online help facility.

Whenever you need assistance, simply choose an item from the Help menu to pinpoint the type of information you want.

### To display help for a current window:

1. Choose Window Help from the Help menu, click the Help button on the toolbar, or hold down the Control key and type 'h'.

   A web browser window appears, containing search and navigation frames on the left, and a frame that displays help documents on the right.

   The document frame provides information on the window containing the cursor. The navigation frame displays the top-level topics for your responsibility, arranged in a tree control.

2. If the document frame contains a list of topics associated with the window, click on a topic of interest to display more detailed information.

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3. You can navigate to other topics of interest in the help system, or choose Close from your web browser's File menu to close help.

## Searching for Help

You can perform a search to find the Oracle Applications help information you want. Simply enter your query in the text field located in the top-left frame of the browser window when viewing help, then click the adjacent Find button.

A list of titles, ranked by relevance and linked to the documents in question, is returned from your search in the right-hand document frame. Click on whichever title seems to best answer your needs to display the complete document in this frame. If the document doesn't fully answer your questions, use your browser's Back button to return to the list of titles and try another.

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# Scheduling Repetitive Production

**Chapter 6**

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# Oracle Work in Process Release 11*i*

## Scheduling Repetitive Production

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ORACLE

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## Objectives

After completing this lesson, you should be able to do the following:

- Explain concepts in repetitive line scheduling
- Set up repetitive line scheduling
- Schedule repetitive schedules
- Reschedule repetitive schedules
- Sequence repetitive production

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## Agenda

- Lesson 1: Overview
- Lesson 2: Concepts in repetitive line scheduling
- Lesson 3: Combined assembly and line attributes
- Lesson 4: Production lines in repetitive production
- Lesson 5: Scheduling repetitive schedules
- Lesson 6: Rescheduling repetitive schedules
- Lesson 7: Sequencing a repetitive production
- Lesson 8: Summary

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## Lesson 1: Overview

- **Lesson 1: Overview**
- Lesson 2: Concepts in repetitive line scheduling
- Lesson 3: Combined assembly and line attributes
- Lesson 4: Production lines in repetitive production
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- Lesson 6: Rescheduling repetitive schedules
- Lesson 7: Sequencing a repetitive production
- Lesson 8: Summary

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# Overview

## Overview

**Business needs:**

- **Optimized use of line capacity**
- **Effectively sequenced repetitive production**
- **Time-phase repetitive component demand and assembly availability**

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**Definition**

Repetitive line scheduling is a method of scheduling repetitive production on a line that considers hourly production rate, line start and stop times, assembly lead time, workday calendar, and optionally minimum and maximum line rates.

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## Overview (continued)

**Functionality:**

- You can model your repetitive environment using line attributes, assembly and line attributes, and schedule attributes, all of which are used in repetitive line scheduling.
- The line start and stop times define repetitive resource shifts.
- You can use repetitive line scheduling when you define repetitive schedules manually and when you mass load them based on suggestions from Oracle Planning or other sources.

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# Overview (continued)

## Overview (continued)

- You can reschedule a repetitive schedule by changing quantities or dates in the Repetitive Schedules window.
- You can sequence repetitive production by using the Repetitive Line Report or outside sequencing applications.

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## Lesson 2: Concepts in Repetitive Line Scheduling

- Lesson 1: Overview
- **Lesson 2: Concepts in repetitive line scheduling**
- Lesson 3: Combined assembly and line attributes
- Lesson 4: Production lines in repetitive production
- Lesson 5: Scheduling repetitive schedules
- Lesson 6: Rescheduling repetitive schedules
- Lesson 7: Sequencing a repetitive production
- Lesson 8: Summary

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## Elements of Repetitive Line Scheduling

| Element | Description |
|---|---|
| Minimum rate | The minimum number of completed assemblies a production line can produce per hour. |
| Maximum rate | The maximum number of completed assemblies a production line can produce per hour. |
| Line lead time | The time required to complete the first assembly on a production line - from the first manufacturing operation to completion into inventory. Simply called lead time in this section. |
| Hourly production rate | The rate at which the production line can assemble items. |

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**Concepts in Repetitive Line Scheduling**

- Lead time and hourly production rate are not formally related. The two are independent in the system.
- If you physically speed up your production line, so that it takes less time to produce each assembly, you should lower the line's lead time. If this change in speed also results in more assemblies being completed per hour, you should also increase your hourly production rate.
- Two assemblies on the same line can have the same lead time but different hourly production rates.

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## Repetitive Line Scheduling Elements (continued)

| Element | Description |
|---|---|
| Line start time | The time a production line starts running every day. The line start time is used to schedule repetitive schedules on a line. |
| Line stop time | The time a production line stops running every day. The line stop time is used to schedule repetitive schedules on a line. |
| Daily line capacity | The daily production rate of assemblies on a production line. This is equal to the hourly production rate times the line production hours. |
| Daily rate | The number of completed assemblies a repetitive schedule plans to produce per day. Also known as a production rate. |
| Repetitive processing days | The number of days you plan to work on a repetitive schedule, from the first unit start date to the last unit start date. |

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**Example**

To schedule your repetitive production, you need to put all the elements together. Assume that:

- For a particular assembly on a production line, lead time = 1 hour
- Hourly production rate = 10 assemblies per hour
- Demand is 101 assemblies for that day
- Line start time = 8 a.m.
- Line stop time = 8 p.m.

•Given this information:

1 If work starts at 8 a.m., when will the first assembly be completed?

The first assembly will be completed in 1 hour (lead time)–at 9 a.m.

2 When will the second unit be completed?

The hourly production rate is 10 assemblies per hour; therefore, one assembly is completed every 6 minutes. The second unit will be completed at 9:06 a.m.

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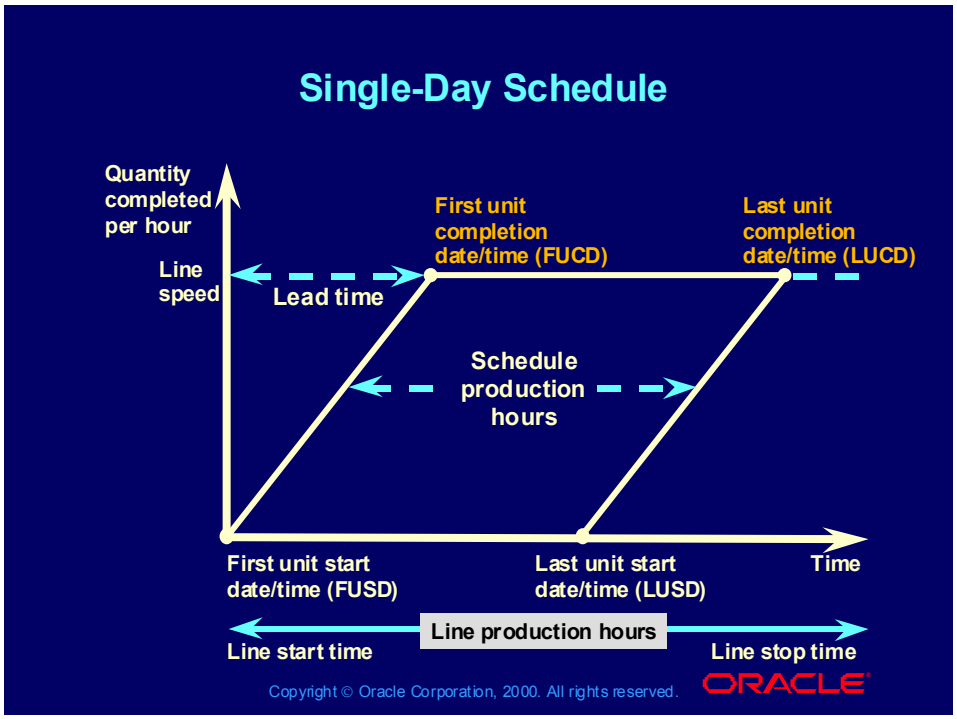
# Single-Day Schedule




**Example (continued)**

3 How long after the first unit is completed will the last (101st) assembly be completed?

   The hourly production rate is 10 assemblies per hour; therefore it takes 10 hours to complete 100 assemblies from the time you completed the first. Your last assembly will be completed at 7 p.m.

4 How long does it take to build 101 assemblies?

   From the first unit start time at 8 a.m. to the last completion unit time at 7 p.m., it takes 11 hours to build 101 assemblies. That is equal to the lead time (1 hour) plus the number of assemblies left to build after the first, divided by the hourly production rate (100/10).

**Note:** The top horizontal line indicates the constant hourly production rate that you defined for the line for this assembly.

In this slide, schedule production hours = quantity per day/hourly production rate.

The faster the hourly production rate, the shorter the schedule. The greater the quantity per day, the longer the schedule.

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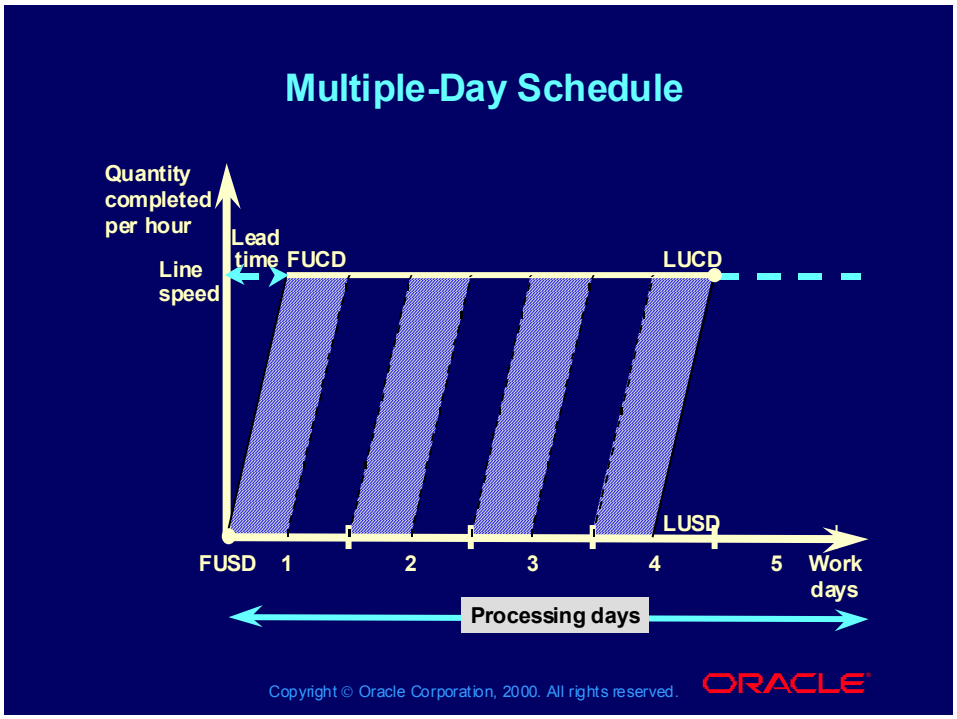
# Multiple-Day Schedule




**Schedule**

You can run a schedule for several days.

Each shaded area represents the quantity produced (the daily rate) in a day. The unshaded area represents idle time for this assembly on this line. Other assemblies may be running on the line at this time, or the line may be truly idle. The total quantity for the schedule is processing days times daily rate–the sum of all the shaded areas.

**Example**

You can run a schedule for several days. Assume that:

- For a particular assembly on a production line, lead time = 1 hour.
- Hourly production rate = 10 assemblies per hour.
- Demand is 100 assemblies for that date.
- Line start time = 8 a.m. and line stop time = 8 p.m.
- You want to run the assembly on the line with these parameters for four days.

Given this information:

- You would run the same schedule for four days.
- With Oracle Work in Process, you can define this as a repetitive schedule, with processing days = 4, daily rate = 100, and total quantity = 400.

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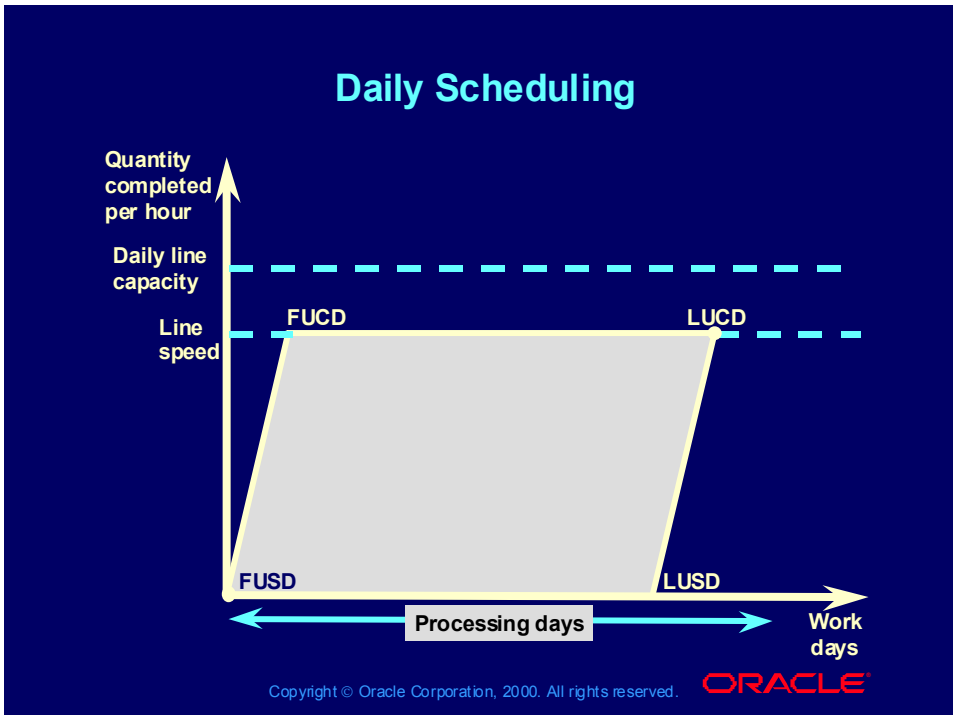


**Graphical Representation**

If you are mostly concerned with daily rate, processing days, and total quantity, rather than hourly rates, production hours, and minute-by-minute line sequencing, you can use a simpler graphical representation.

In this model the total quantity produced is equal to the area of the parallelogram.

Idle time or time producing other assemblies on the line in this model could be represented as the upward continuation of the parallelogram.

Daily line capacity = hourly production rate * line production hours.

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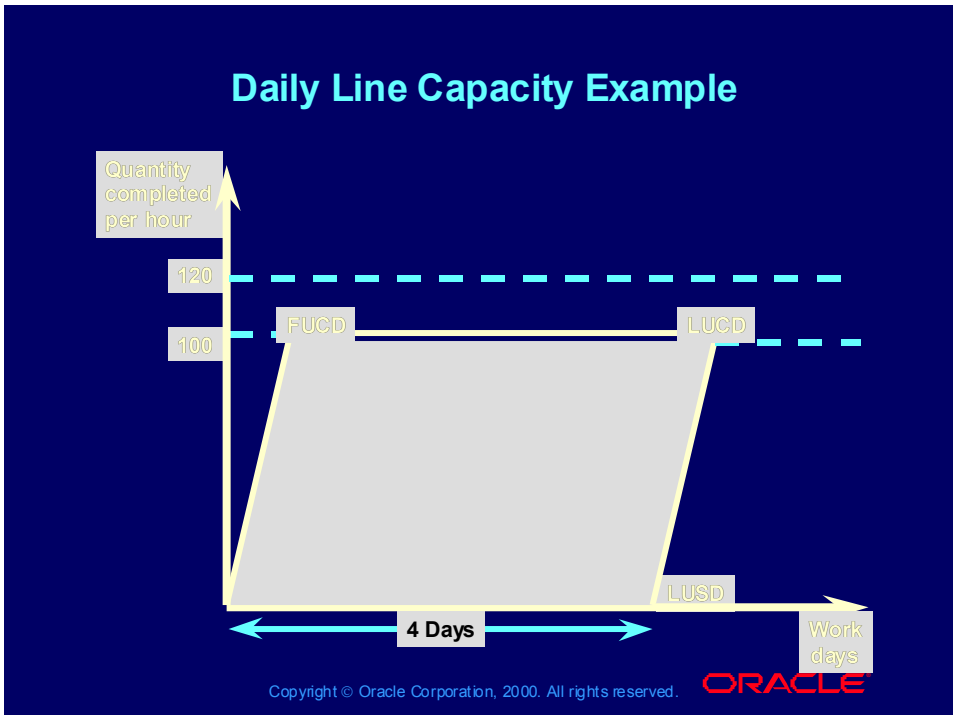
# Daily Line Capacity Example




**Formula**

Daily line capacity = hourly production rate * line production hours.

**Example**

Where hourly production rate = 10, and line production hours = 12 (from 8:00am to 8:00pm), the daily line capacity = 120 (10 * 12).

**Note:** Although the daily line capacity is 120, the line is only producing the daily demand of 100.

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# Review Question

## Review Question

**Repetitive processing days: the number of days you plan to work on a repetitive schedule, from the first unit start date to the last unit completion date.**

- **True**
- **False**

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# Answer to Review Question

## Answer to Review Question

**Repetitive processing days: the number of days you plan to work on a repetitive schedule, from the first unit start date to the last unit completion date.**

- True
- **False**

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## Lesson 3: Combined Assembly and Line Attributes

- Lesson 1: Overview
- Lesson 2: Concepts in repetitive line scheduling
- **Lesson 3: Combined assembly and line attributes**
- Lesson 4: Production lines in repetitive production
- Lesson 5: Scheduling repetitive schedules
- Lesson 6: Rescheduling repetitive schedules
- Lesson 7: Sequencing a repetitive production
- Lesson 8: Summary

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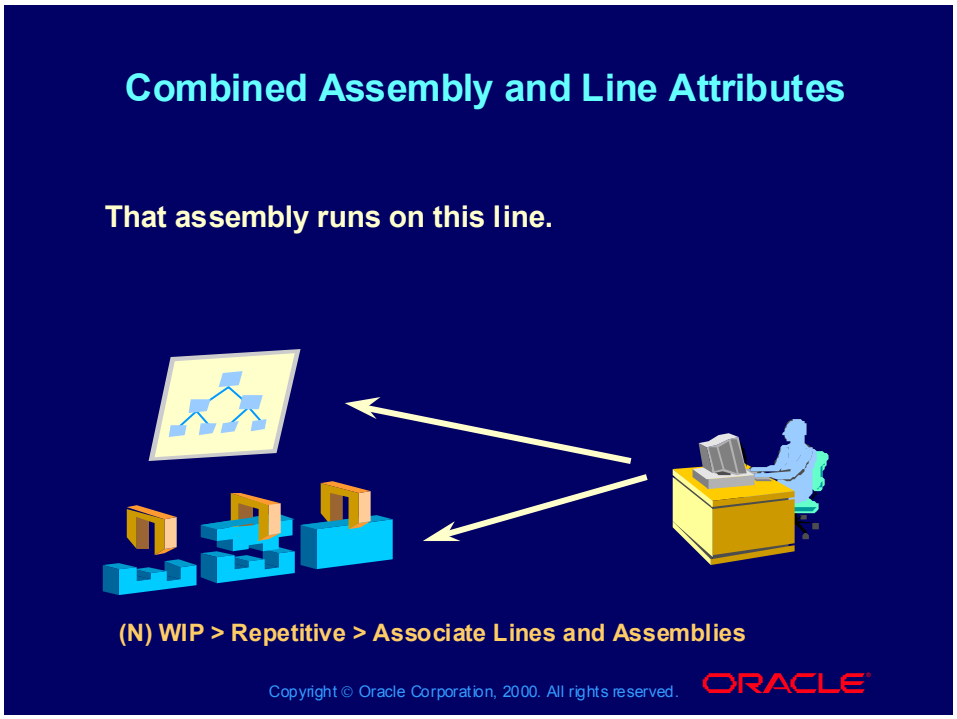
# Combined Assembly and Line Attributes




**Combined Line Attributes and Assembly**

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Repetitive Manufacturing > Associating Lines and Assemblies

You can enter an alternate routing to use for lead-time calculations for routing-based lines.

The hourly production rate determines how fast each line can produce this assembly. The maximum hourly rate that you defined for the line serves as the default and upper limit for the hourly production rate of any assembly running on this line. You can override this rate by entering a new one, but not to exceed the maximum.

**Note:** Oracle Work in Process does not enforce a minimum rate restriction, partly because it does not currently check the line capacity when setting hourly production rate. It is possible that the line is building several assemblies at the same time and that the total production rate for all assemblies does exceed the minimum rate, even if the speed of one individual assembly does not.

**Note:** The maximum rate restriction also restricts only the hourly production rate of each individual assembly on one line. It is possible that the line is building several assemblies and that the hourly production rate for each does not exceed the maximum rate, but the sum of all the hourly production rates on the line does.

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# Review Question

## Review Question

Oracle Work in Process enforces a minimum rate restriction so that it can check the line capacity when setting an hourly production rate.

- True
- False

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# Answer to Review Question

## Answer to Review Question

**Oracle Work in Process enforces a minimum rate restriction so that it can check the line capacity when setting an hourly production rate.**

- True
- **False**

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## Lesson 4: Production Lines in Repetitive Production

- Lesson 1: Overview
- Lesson 2: Concepts in repetitive line scheduling
- Lesson 3: Combined assembly and line attributes
- **Lesson 4: Production lines in repetitive production**
- Lesson 5: Scheduling repetitive schedules
- Lesson 6: Rescheduling repetitive schedules
- Lesson 7: Sequencing a repetitive production
- Lesson 8: Summary

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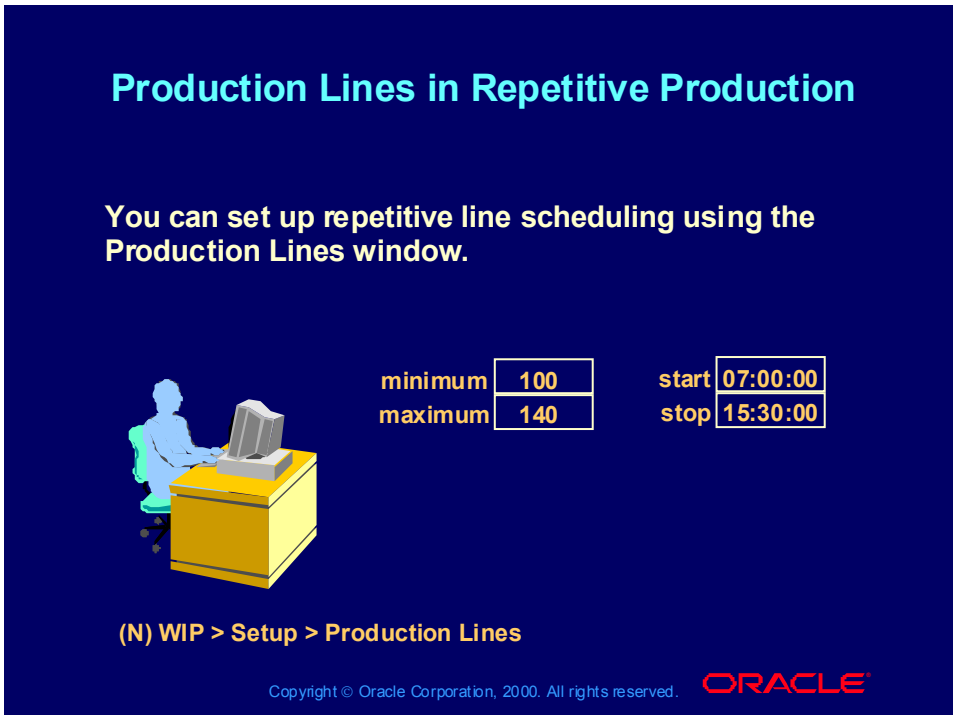


**Production Line Attributes**

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Repetitive Manufacturing > Setting Up

You use the minimum and maximum rates to model your production line's hourly capacity.

You use the line's start and stop time instead of a shift calendar to schedule resources. Resource capacity is assumed to be available while the line is operating. Any shift information, if defined, is ignored.

For fixed lead-time lines, you use the predefined lead time to schedule all production on the line.

For routing-based lead-time lines, you use the detailed scheduling algorithm with a lead-time lot size of 1 to find the lead time based on the routing of the assembly running on the line.

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# Repetitive Schedule Quantities

## Repetitive Schedule Quantities

With repetitive line scheduling, you:

- Use daily quantity to specify how many assemblies per day to build

Note: A warning message is displayed if you try to define a schedule whose rate exceeds the maximum daily rate of the line, but it does not prevent you from defining such a schedule.

- Use days to specify for how many days you want to produce this assembly at the specified rate
- Can use the line minimum and maximum daily rate as a guideline for the daily quantity of schedule

(N) WIP > Repetitive > Repetitive Schedules

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(Help) Oracle Manufacturing Applications > Oracle Work in Process > Repetitive Manufacturing > Creating Repetitive Schedules > Overview of Building Repetitive Schedules

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# Repetitive Schedule Dates and Times

## Repetitive Schedule Dates and Times

You:

- Can specify to the minute the start and completion dates and times of your repetitive schedule
- Can schedule to the minute each day the operations and resources of the schedule.
- Can schedule all the requirements based on operation dates each day of the schedule.
- Must enter either the first unit start date and time and the first unit completion date and time, or the last unit start date and time and the last unit completion date and time, in order to define the lead time for a routingless assembly running on a routing-based line.

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**Note:**

You can use the start and completion dates and times as a guideline for when to produce your schedule.

You can view the operation start and end dates and times and the associated resources of a repetitive schedule in the View Operations window.

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# Repetitive Schedule Routing

## Repetitive Schedule Routing

You can enter a routing revision date to specify which revision of the routing to use for scheduling, or select a valid routing revision from a drop-down list.

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# Review Question

## Review Question

For routing-based lead-time lines, you use the detailed scheduling algorithm with a lot size of:

- 1
- 10
- 100

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# Answer to Review Question

## Answer to Review Question

**For routing-based lead-time lines, you use the detailed scheduling algorithm with a lot size of:**

- **1**
- 10
- 100

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## Lesson 5: Scheduling Repetitive Schedules

- Lesson 1: Overview
- Lesson 2: Concepts in repetitive line scheduling
- Lesson 3: Combined assembly and line attributes
- Lesson 4: Production lines in repetitive production
- **Lesson 5: Scheduling repetitive schedules**
- Lesson 6: Rescheduling repetitive schedules
- Lesson 7: Sequencing a repetitive production
- Lesson 8: Summary

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# Mass Loading Repetitive Schedules

## Mass Loading Repetitive Schedules

You can define repetitive schedules based on suggestions from Oracle Planning or any other planning system.

- You can load repetitive schedules from Oracle Planning using the Planner Workbench.
- Oracle Planning uses lead-time offset to calculate the start date you see in the Planner Workbench.
- Oracle Work in Process uses repetitive line scheduling to calculate the exact start date you see in the Repetitive Schedules window after the load.

(N) Material Planning > MRP or MPS > Workbench

(N) WIP > Repetitive > Repetitive Schedules

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(Help) Oracle Master Scheduling/MRP > Planner Workbench

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Repetitive Manufacturing > Creating Repetitive Schedules > Overview of Building Repetitive Schedules

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# Mass Loading Status

## Mass Loading Status

Schedules are loaded into Oracle Work in Process with a status of Pending—Mass Loaded.

Reasons for this status:

- MRP does not consider existing schedules. Implementing these schedules without looking at existing ones can result in overproduction.
- MRP-suggested schedules may overlap with existing schedules, which is not allowed.

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**Some Rules**

- Repetitive schedules building the same assembly on the same line may not overlap.
- The first unit start date and time of a schedule must never precede the last unit start date and time of the previous schedule.

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## Importing Repetitive Schedules

- You can load repetitive schedules from any outside planning system.
- Oracle Work in Process uses repetitive line scheduling to schedule the repetitive schedules being loaded in.

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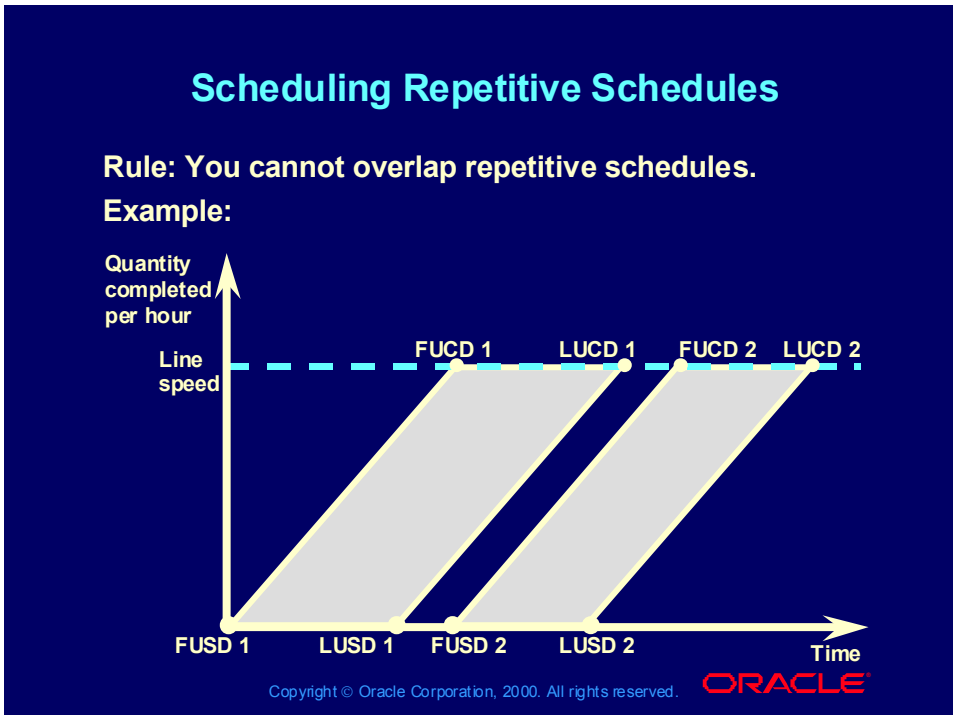


**Example**

The above schedules do not overlap because FUSD2 is greater than LUSD1. This means that even if there is idle time on the line on any given day of the schedule, you cannot define another schedule for the same assembly on this line.

Not allowing overlap enables Oracle Work in Process to perform flow charging for repetitive schedules. (Flow charging is when you charge the repetitive assembly and line rather than a specific job. It is based on FIFO. If more than one schedule is running at the same time, you do not know to which schedule transaction charges need to be allocated.)

**Overlapping**

It is helpful to think of the assembly moving down the production line, so that even though the first unit of the second schedule starts before the first schedule is completed, the units of the first schedule are far enough down the line for the second schedule to begin.

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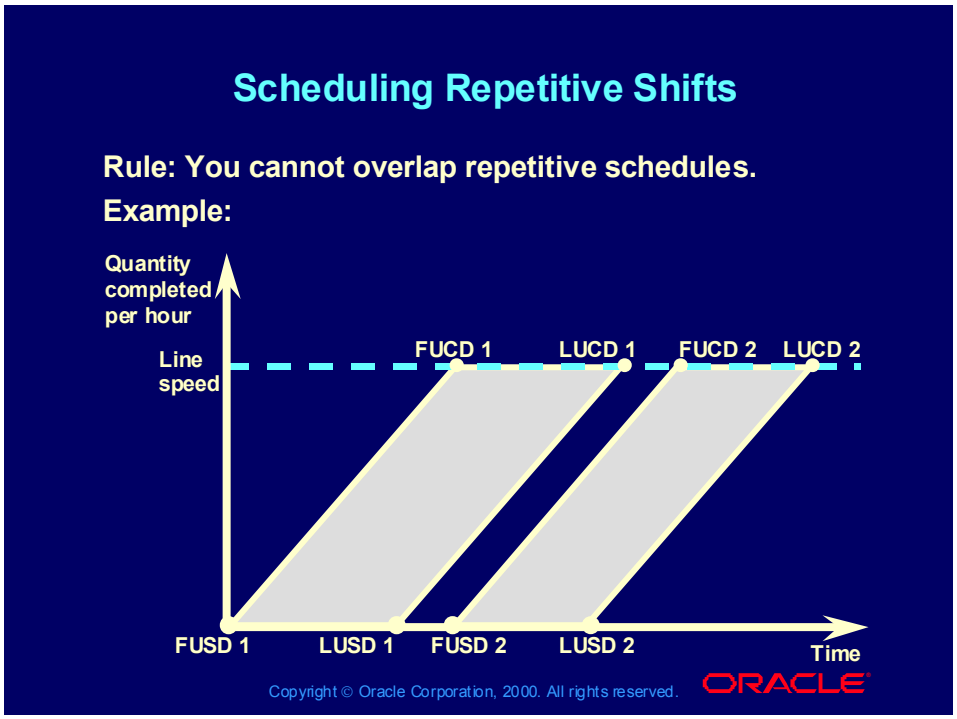


**Consideration**

The overlap restriction means that you cannot schedule repetitive shifts using multiple-day schedules.

For example, you cannot define two schedules to run concurrently for several days, one to represent the day shift, the other to represent the night shift.

If you have a need to separate the schedules in a way that matches the repetitive production shifts, you need to create repetitive schedules that align with, or simulate, these shifts. For instance, you may want to simulate the repetitive shifts if you are building one bill revision during the day and a different bill revision at night.

You may also want to simulate repetitive shifts if you want to keep separate performance data for each shift.

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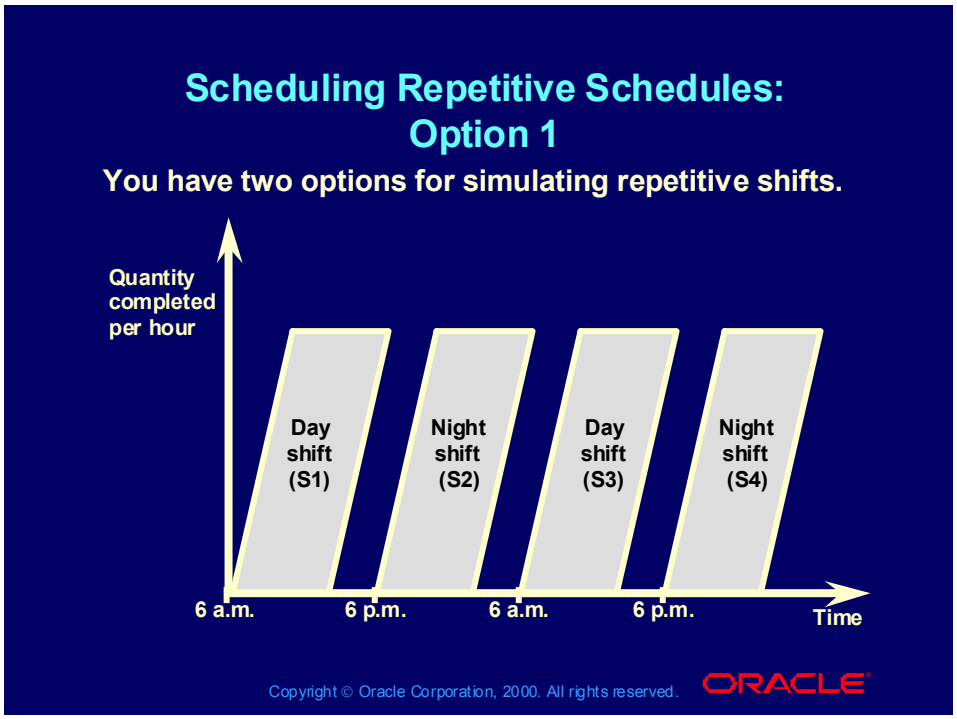
# Scheduling Repetitive Schedules: Option 1




**Option 1**

- Define two or more schedules on the same line for each day of production. S1, S2, S3, and S4 in the diagram are separate repetitive schedules.
- This option uses the same line and assembly for all schedules, so that you can still do flow charging on transactions.
- With this option you have to define as many schedules as you have shifts for each day of production.
- With this option you cannot separate costs, hourly production rates, performance, and so on, across shifts.

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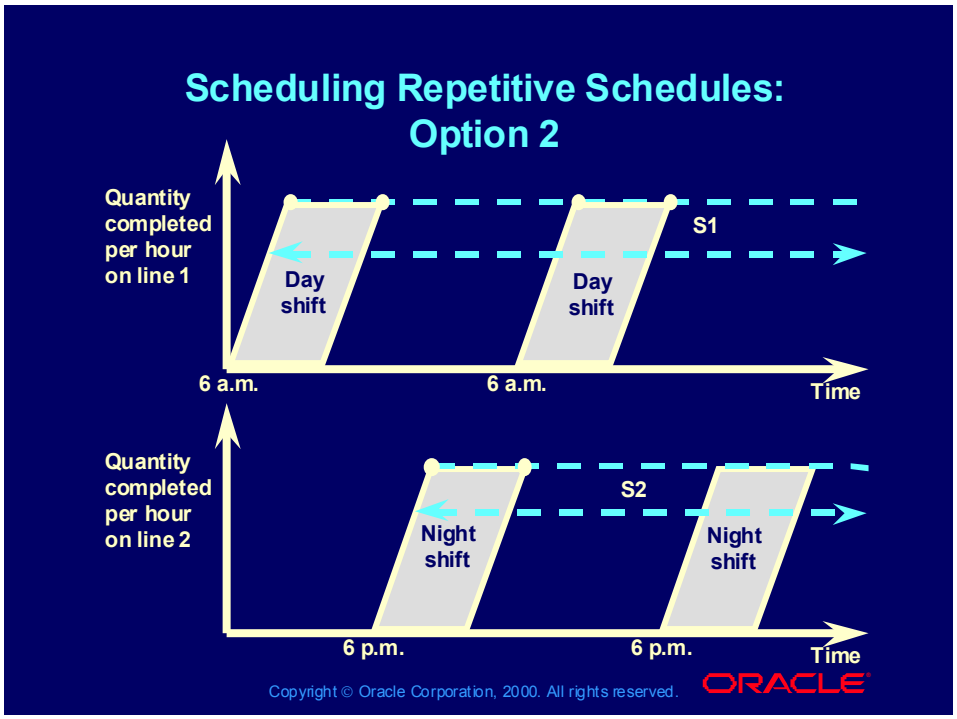
# Scheduling Repetitive Schedules: Option 2




**Option 2**

- Define your production line as two lines in the system and set your line start and stop times equal to the shift start and stop times. Define one schedule on each line to last for several days.

  S1 and S2 are the only two schedules you have to define using this option.
- If you use this option, you cannot do flow charging on transactions, because you are producing on a different line.
- You cannot consolidate your costs across different lines.
- You can support performance evaluations, hourly production rate differences, and cost differences across shifts.

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# Review Question

## Review Question

**If more than one schedule is running at the same time, you can still know to which schedule transaction charges can be allocated.**

- **True**
- **False**

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# Answer to Review Question

## Answer to Review Question

**If more than one schedule is running at the same time, you can still know to which schedule transaction charges can be allocated.**

- True
- **False**

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# Review Question

## Review Question

Option 1 allows you to define two or more schedules on the same line for each day of production.

- True
- False

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## Answer to Review Question

**Option 1 allows you to define two or more schedules on the same line for each day of production.**

- **True**
- False

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# Review Question

## Review Question

Which of the following statements is/are not true?

1 You can load repetitive schedules from a 3rd party system.

2 You should load schedules from MRP in an unreleased status.

3 When importing repetitive schedules, the first unit start date and time must never precede the last unit start date and time of the previous schedule.

4 You should never overlap schedules when building the same assembly on separate lines.

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## Answer to Review Question

**Which of the following statements is/are not true?**

1 You can load repetitive schedules from a 3rd party system.

**2 You should load schedules from MRP in an unreleased status.**

3 When importing repetitive schedules, the first unit start date and time must never precede the last unit start date and time of the previous schedule.

**4 You should never overlap schedules when building the same assembly on separate lines.**

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## Lesson 6: Rescheduling Repetitive Schedules

- Lesson 1: Overview
- Lesson 2: Concepts in repetitive line scheduling
- Lesson 3: Combined assembly and line attributes
- Lesson 4: Production lines in repetitive production
- Lesson 5: Scheduling repetitive schedules
- **Lesson 6: Rescheduling repetitive schedules**
- Lesson 7: Sequencing a repetitive production
- Lesson 8: Summary

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# Benefits of Rescheduling

## Benefits of Rescheduling

By rescheduling your repetitive schedules, you can respond quickly to:

- New information
- Temporary increases or decreases in demand
- Changes in priority
- Temporary increases or decreases in capacity
- MRP recommendations

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# Changing Schedule Attributes

## Changing Schedule Attributes

You can change:

- Schedule dates and times to reflect priority changes
- Schedule processing days to lengthen or shorten the schedule
- Schedule daily rate to increase or decrease your daily production
- Schedule total quantity to increase or decrease your total production. This implies a change in processing days and daily rate.

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**Consideration**

To deal with permanent changes in demand or capacity, you should change line or assembly and line attributes.

For example, you could change your line start and stop times or change the hourly production rate for that assembly.

Changes in this type of setup information are not automatically reflected in existing schedules.

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# Changing Dates

## Changing Dates

- You can reschedule your repetitive production using the Repetitive Schedules window.
- You can change any of the four date and time sets to reflect changes in your production schedule, and
  the other dates are calculated automatically.
- To change dates for assemblies without routings on a routing-based line, you must provide either the first unit start date and the first unit completion date or the last unit start date and the last unit completion date.

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**Example**

Suppose you have to meet customer demand by December 15, or sooner if possible.

You originally backward-scheduled your schedule using the December 15 date as your last unit completion date. Your calculated first unit start date was December 1. Today is November 25, and you are ready to start your production on this schedule.

You can update the first unit start date of the schedule to November 25, and inform the customer that the assemblies will be ready on the date that is calculated as the new last unit completion date.

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## Changing Processing Days

- You can change your processing days to reflect a lengthening or shortening of your schedule.
- The total quantity is automatically adjusted to be the daily rate multiplied by the new processing days.
- Repetitive schedule dates are recalculated around whichever date you choose to reflect the change in processing days.

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**Example (continued)**

Assuming the same scenario as in the previous example, suppose the schedule was defined to run for 10 processing days with a daily rate of 1,500 units, for a total quantity of 15,000 units. Now you get another order for 1,500 units of the same assembly, due on December 31.

If the line on which your current schedule has adequate capacity to keep producing the assembly past the completion date of the first schedule, you can increase the processing days on the schedule to 20. The new total quantity is calculated as 20 * 1,500 = 30,000 units, which will meet the total demand.

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# Changing the Daily Rate

## Changing the Daily Rate

- To change the quantity of the assembly produced on your line daily, you can change the daily rate of your schedule.
- A change in the daily rate results in the recalculation of the total quantity of the schedule and the adjustment of the schedule requirements.

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**Example (continued)**

Suppose that instead of the new demand being due two weeks after the original demand, it is due at the same time.

The production line is currently working only on the original schedule, and it is idle for half of its production hours.

You can define the schedule to run at a rate of 3,000 units daily to meet the demand of 30,000 assemblies in 10 processing days.

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# Changing the Total Quantity

## Changing the Total Quantity

- Changing the total schedule quantity results in a change in processing days by default.
- You can change the daily rate directly if you also want to change the quantity produced per day.

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**Note**

Since Oracle Planning does not consider existing schedules in its netting calculations, it does not recommend rescheduling changes for repetitive schedules.

You cannot manually change individual operation dates for repetitive schedules.

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## Review Question

You must provide either the first unit start and completion dates or the last unit start and completion dates when changing dates for assemblies without routings on a routing-based line.

- True
- False

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# Answer to Review Question

## Answer to Review Question

**You must provide either the first unit start and completion dates or the last unit start and completion dates when changing dates for assemblies without routings on a routing-based line.**

- **True**
- False

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## Lesson 7: Sequencing a Repetitive Production

- Lesson 1: Overview
- Lesson 2: Concepts in repetitive line scheduling
- Lesson 3: Combined assembly and line attributes
- Lesson 4: Production lines in repetitive production
- Lesson 5: Scheduling repetitive schedules
- Lesson 6: Rescheduling repetitive schedules
- **Lesson 7: Sequencing a repetitive production**
- Lesson 8: Summary

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# Sequencing Your Production Meaningfully

## Sequencing Your Production Meaningfully

**You can plan your repetitive production to meet your goals.**

- **You can maximize efficiency by sequencing your production to cut down on setup and teardown costs.**
- **You can sequence your production to maintain the right product mix in inventory.**

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**Options**

- You can run several assemblies on the same line.
- You can sequence the schedules for the different assemblies on the line by date and time.

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# Example of Sequencing

## Example of Sequencing

Suppose you want to make vanilla ice cream, chocolate chip ice cream, and chocolate chocolate chip ice cream on the same line at the same speed. The ice cream line runs from 8 a.m. to 5 p.m. every day. You want to maintain equal amounts of each in inventory.

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**Sequencing of Repetitive Production**

- You should define the ice cream flavors as different assemblies and associate them with your ice cream production line.
- Sequence them by date and time from the simplest, vanilla, to the most complex, chocolate chocolate chip.
- Define the vanilla schedule to start at 8 a.m., the chocolate chip schedule to start at 11 a.m., and the chocolate chocolate chip schedule to start at 2 p.m.
- **Consideration**
- The schedules in the example above can run on the same days for several processing days because they produce different assemblies. The overlap rule does not apply in this case.

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# Repetitive Line Report

## Repetitive Line Report

You can use the repetitive line report to prioritize the schedules on a given line. You can view:

- All schedules defined on a line for any assemblies that you build on this line
- The date and quantity information of the schedules and prioritize your production accordingly
- Any mass-loaded schedules that reflect the newest production requirement information here.

(N) WIP > Report > Run WIP Reports (Repetitive Line Report)

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(Help) Oracle Manufacturing Applications > Oracle Work in Process > Reports and Processes > Work in Process Reports > Repetitive Line Report

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# Making Changes

## Making Changes

- You can use the Repetitive Schedules window to make necessary changes, such as moving a schedule start date forward or backward.
- You can use past start dates to signify high priority.

(N) WIP > Repetitive > Repetitive Schedules

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(Help) Oracle Manufacturing Applications > Oracle Work in Process > Repetitive Manufacturing > Creating Repetitive Schedules > Overview of Building Repetitive Schedules

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## Using Other Prioritizing Applications

**You can use the Job and Schedule Interface to load prioritized schedules from a source.**

1. **Load the Job and Interface table from other applications.**
2. **Move the schedules into WIP using Import Jobs and Schedules window.**
3. **Adjust the schedules' statuses in the Repetitive Schedules window.**

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# Lesson 8: Summary

## Lesson 8: Summary

- Lesson 1: Overview
- Lesson 2: Concepts in repetitive line scheduling
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- **Lesson 8: Summary**

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# Summary

## Summary

- You can model your repetitive environment using line attributes, assembly and line attributes, and schedule attributes, all of which are used in repetitive line scheduling.
- The line start and stop times define repetitive resource shifts.
- You can use repetitive line scheduling when you define repetitive schedules manually and when you mass load them based on suggestions from Oracle Planning or other sources.

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## Summary (continued)

- You can reschedule a repetitive schedule by changing quantities or dates in the Repetitive Schedules window.
- You can sequence repetitive production by using the Repetitive Line Report or outside sequencing applications.

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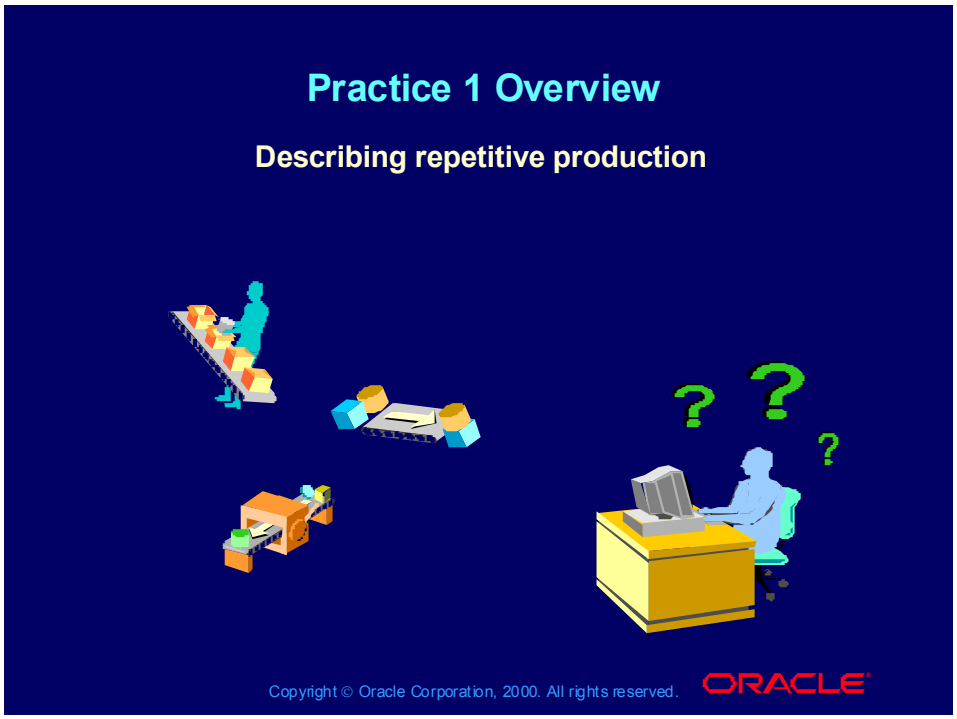
# Practice 1 Overview




**Practice 1**

1. Why are attributes, such as alternate bill and routing, accounting class, hourly production rate, and completion location, determined at the assembly/line level, rather than at the individual schedule level? Also, why is the hourly production rate not determined at the line level?
2. Under what circumstances would you want to use option 1 for simulating repetitive shifts (that is, defining one schedule per shift each day)? Under what circumstances would you want to use option 2 (that is, defining different lines)?

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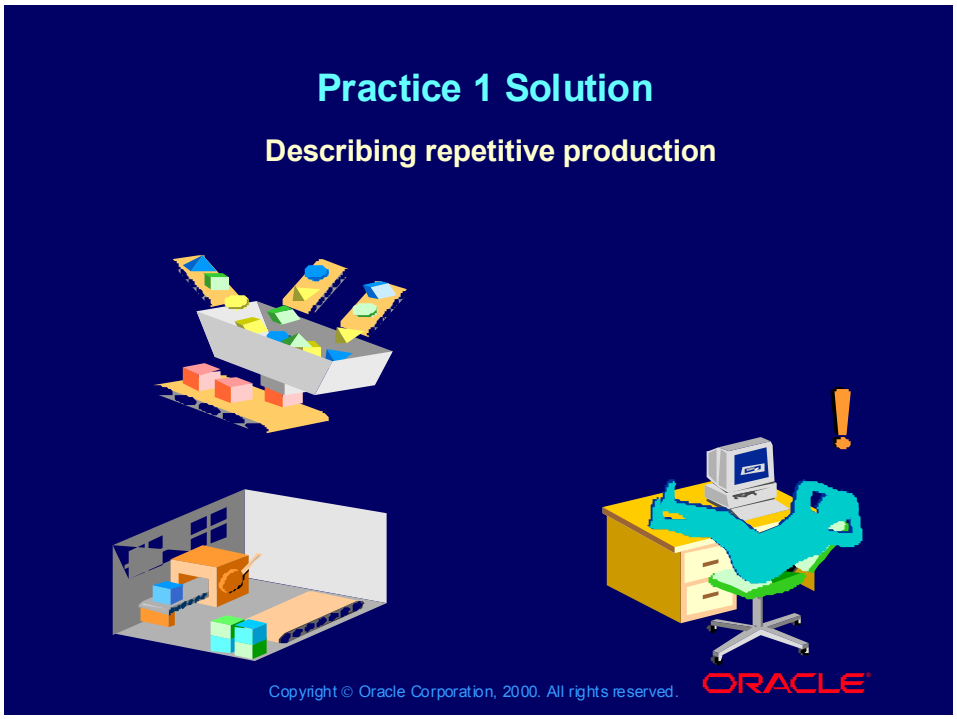
# Practice 1 Solution




**Practice 1**

1. Why are attributes, such as alternate bill and routing, accounting class, hourly production rate, and completion location, determined at the assembly/line level, rather than at the individual schedule level? Also, why is the hourly production rate not determined at the line level?

   **It is characteristic of repetitive manufacturing that these types of attributes are the same for many repetitive schedules. Defining these attributes at the assembly/line level makes defining schedules easier and faster.**

   **Hourly rate is not determined at the line level because different assemblies may run down the same line at different speeds.**

2. Under what circumstances would you want to use option 1 for simulating repetitive shifts (that is, defining one schedule per shift each day)? Under what circumstances would you want to use option 2 (that is, defining different lines)?

   **Option 1 has the disadvantage that you have to define many schedules. If you use the mass load functionality, this would not be a big problem.**

   **You would also want to use option 1 if you have an obvious need to do flow charging - for example, if your first shift is likely to start some assemblies that would be completed by the next shift. In that case, you have to run on the same line in order to complete the assemblies in the second shift.**

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## Practice 1 Solution (continued)

**Option 2 would work only if you do not need to do flow charging - for example, if you can be sure that all transactions pertaining to a particular assembly will be completed before the next shift starts. If you have short lead times and sufficiently long breaks between shifts, this would be a viable option.**

**Option 2 also separates the costing reporting of the shifts, which may or may not be desirable for your business.**

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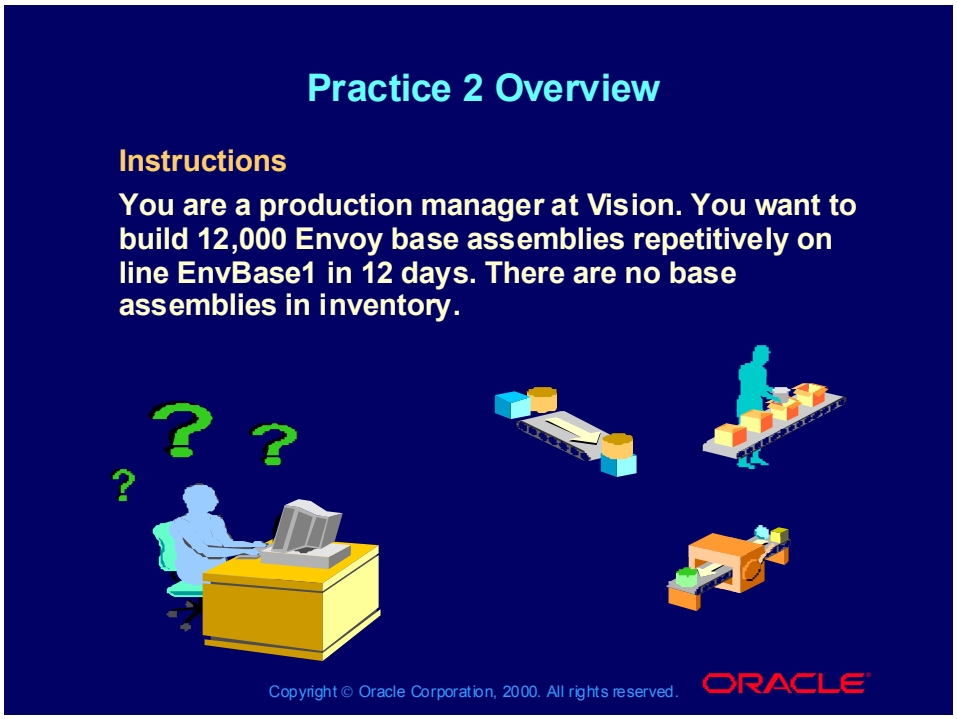
# Practice 2 Overview




**Practice 2**

1. What are the original daily rate, processing days, and total quantity of the schedule?

   Suppose that on your second day of production, your customer inquiries whether it would be possible to move shipment up by two days. You are in your second day of production, so this means that the customer needs the completed assemblies in another 8 days.

   How would you update the schedule to reflect the new requirements?
2. What special considerations are warranted due to the fact that production has started? Under what circumstances would you not be able to meet the new demand?
3. Aside from updating the original schedule, what other possibilities might Vision consider?

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**Practice 2**

1. What are the original daily rate, processing days, and total quantity of the schedule?

   **Daily rate = 1,000; processing days = 12; total quantity = 12,000**

   Suppose that on your second day of production, your customer inquiries whether it would be possible to move shipment up by two days. You are in your second day of production, so this means that the customer needs the completed assemblies in another 8 days.

   How would you update the schedule to reflect the new requirements?

   **The new processing days is 10, since you are in the second day of production and have 8 days left. To deliver 12,000 units in 10 days, update the daily rate to 1,200.**

2. What special considerations are warranted due to the fact that production has started? Under what circumstances would you not be able to meet the new demand?

   **The fact that you started the schedule at a lower rate means that you are behind in your schedule. You have to find a way to catch up to your schedule if you want to make your deadline. In effect, you probably want to run your schedule at a daily rate higher than 1,200 to catch up.**

   **You would not be able to meet the new demand if you were already operating at 100% capacity.**

3. Aside from updating the original schedule, what other possibilities might Vision consider?

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## Practice 2 Solution (continued)

**You could define a schedule to build the same assembly on another line at a rate of 200 a day for 10 days, and shorten your original schedule to 10 days. Your total quantity would add up to 12,000.**

**You could run production day 2 out at the old daily rate of 1,000, shorten the schedule to 2 processing days, and define a new schedule with a rate of 1,250 for the remaining 8 days. This would formalize the need to build more than 1,200 units a day to catch up.**

**Note that 1,000 is your daily line capacity, you would have to increase the line speed or add production hours to be able to produce more assemblies per day.**

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# R11i Work In Process Transactions Issues

**Chapter 7**

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**Work In Process Transactions - Issues Release 11*i***

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# Objectives

## Objectives

After this component, you should be able to:

- Issue components from inventory to work in process
- Issue negative requirements to a job or schedule
- Manage rejected material in inventory
- Manage rejected components in work in process
- Return components to inventory
- Replenish supply subinventories and locators

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# Agenda

## Agenda

- WIP transactions overview
- Issuing and returning material
- Managing rejected material
- Costing overview
- Viewing and reporting

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# Work In Process Transactions Overview

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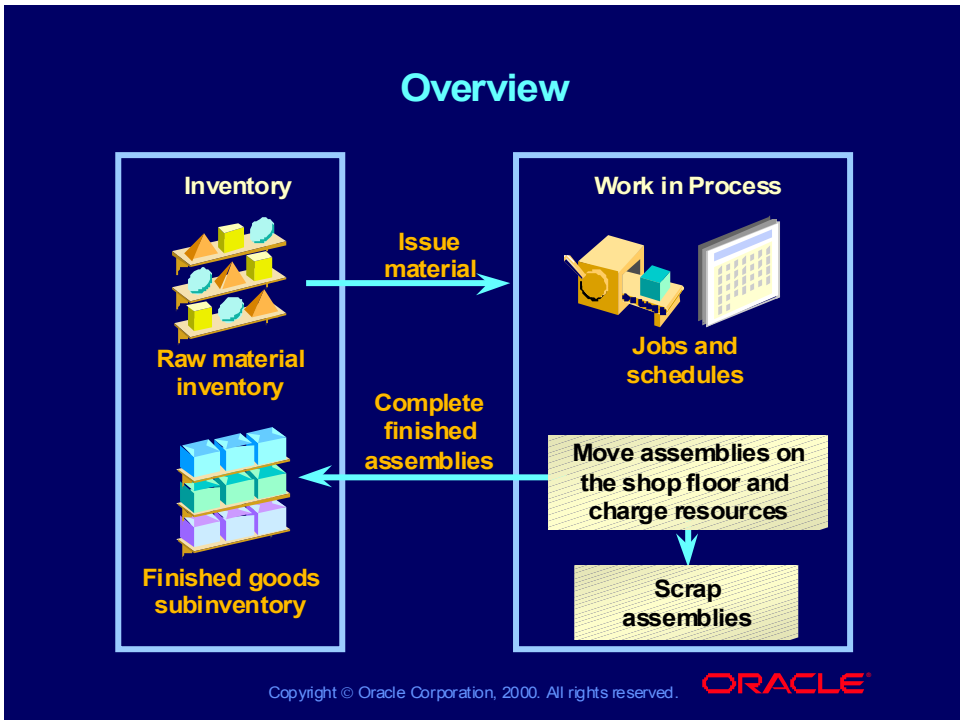
# Overview




With Oracle WIP transactions, you can:

- Track and report your inventory accurately.
- Maintain accurate supply and demand information.
- Track activity costs.
- Value work in process.

Transactions are driven by actions.

**Examples**

- Picking material from a picklist drives a material issue transaction in Oracle Work in Process.
- Completing an assembly at an operation drives a move and possibly a backflush transaction.
- Replenishing your subinventories drives a subinventory transfer transaction.
- Failing a test at an operation drives a scrap transaction.
- Shipping an assembly to an outside vendor drives a move transaction.
- Finishing an assembly drives a completion into inventory and possibly a backflush transaction.

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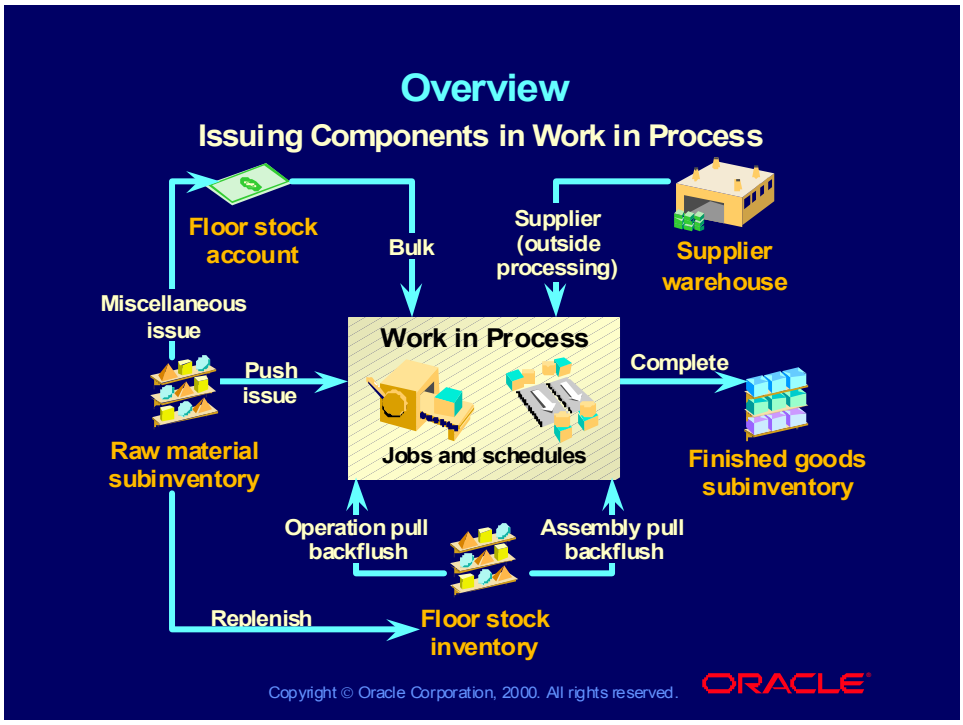
# Overview




## Definitions

- **Issue transaction** is a material transaction to issue component items from inventory to work in process.
- **Replenishment transaction** is a material transaction to stage components in advance of backflushing.
- **Return transaction** is a material transaction to return components from WIP back to inventory. Return transactions increase WIP material requirements, inventory balances, and valuation, and decrease WIP valuation.

## Distinguishing Between Types of Material Transactions

- Material issue transactions fulfill WIP material requirements on jobs or schedules.
- Issue transactions reduce inventory balances and valuation.
- Issue transactions incur WIP costs and increase WIP valuation.
- You can use supply types to control how components are supplied to fulfill material requirements.
- **Push issue transaction** is a material transaction to issue component items from inventory to work in process before you manufacture the assembly.
- **Backflush transaction** is a material transaction that automatically issues component items into work in process from inventory when you move or complete the assembly. A backflush transaction is also known as post–deduct or pull.

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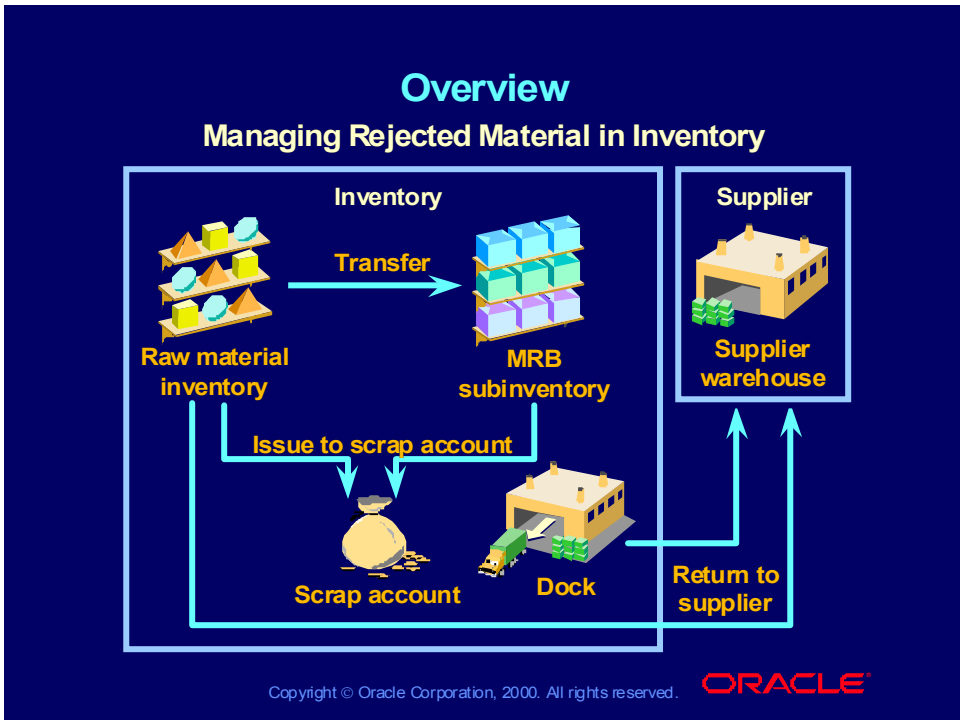
# Overview




## Return to Supplier

Return to supplier is a transaction that allows you to return to the supplier items from a fully or partially received purchase order and receive credit for them.

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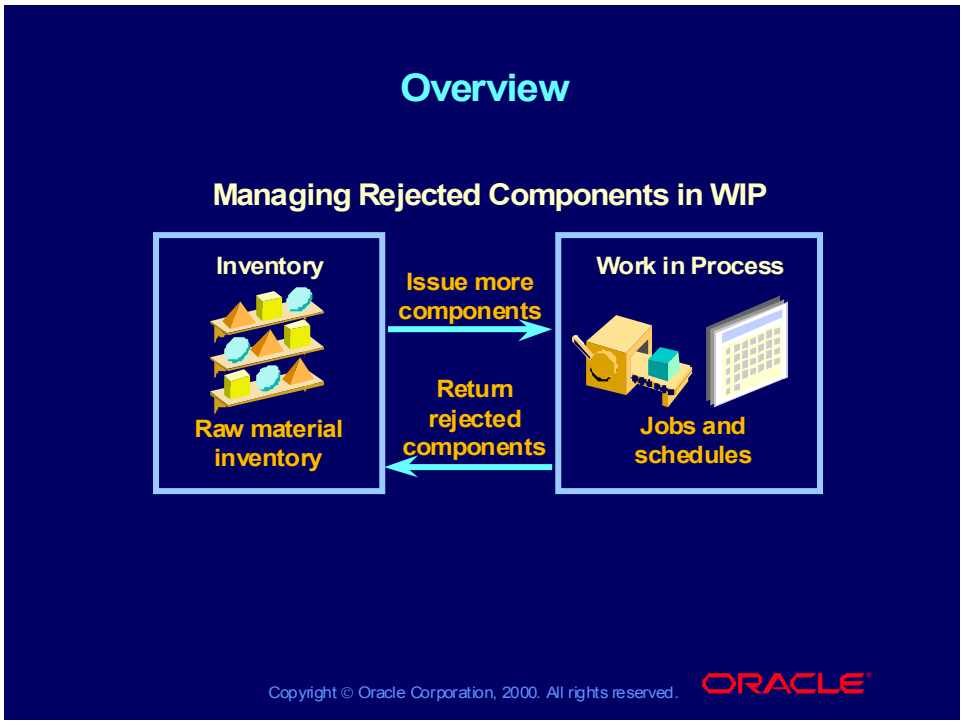
# Overview




## Component Yield

- **Component yield** is the amount of a component you require to build plus the amount of the component you lose or waste while building an assembly.
- A yield factor of 100% indicates no loss in the manufacturing process.
- A yield factor of less than 100% indicates that less than 100% of the components you issue survive the build process. Thus the component usage quantity increases.
- The cost rollup optionally includes the effect of component yield in the assembly costs.

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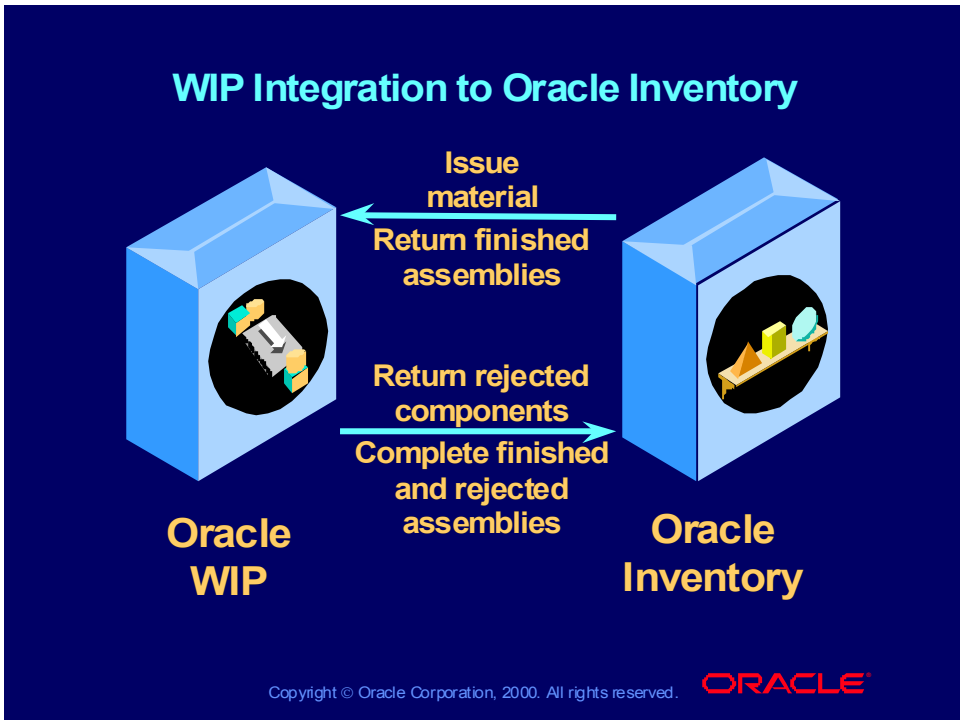
# WIP Integration to Oracle Inventory

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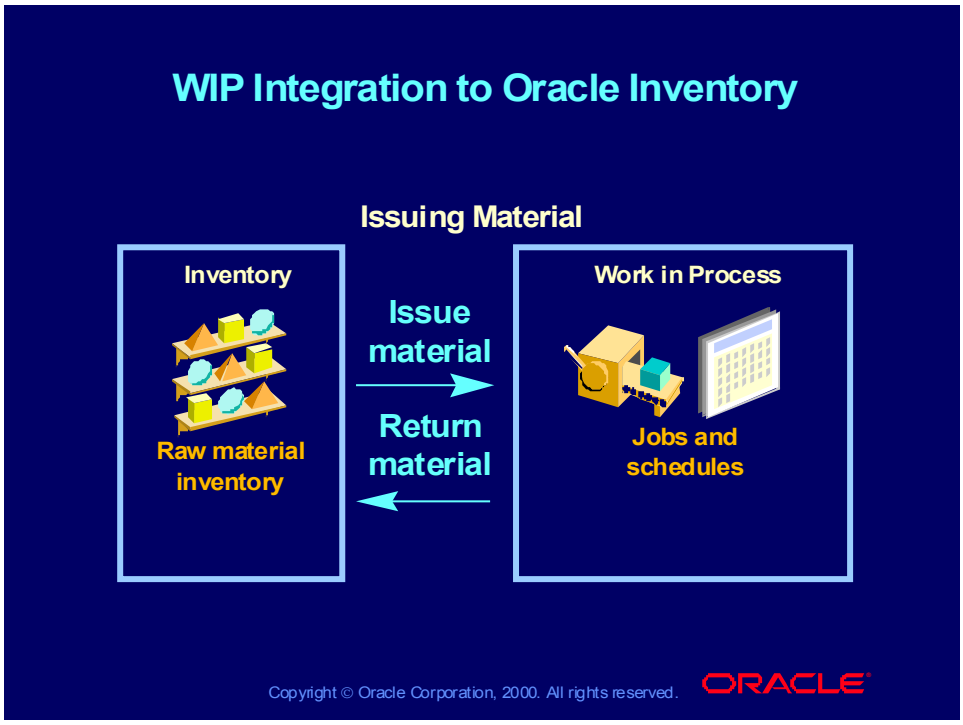


## Issuing Material

An issue transaction is a material transaction to issue component items from inventory to work in process.

- Material issue transactions fulfill WIP material requirements on jobs or schedules.
- Issue transactions reduce inventory balances and valuation.
- Issue transactions incur WIP costs and increase WIP valuation.
- You can use supply types to control how components are supplied to fulfill material requirements.
- A push issue transaction is a material transaction to issue component items from inventory to work in process before you manufacture the assembly.
- A backflush transaction is a material transaction that automatically issues component items into work in process from inventory when you move or complete the assembly. A backflush transaction is also known as post-deduct or pull.

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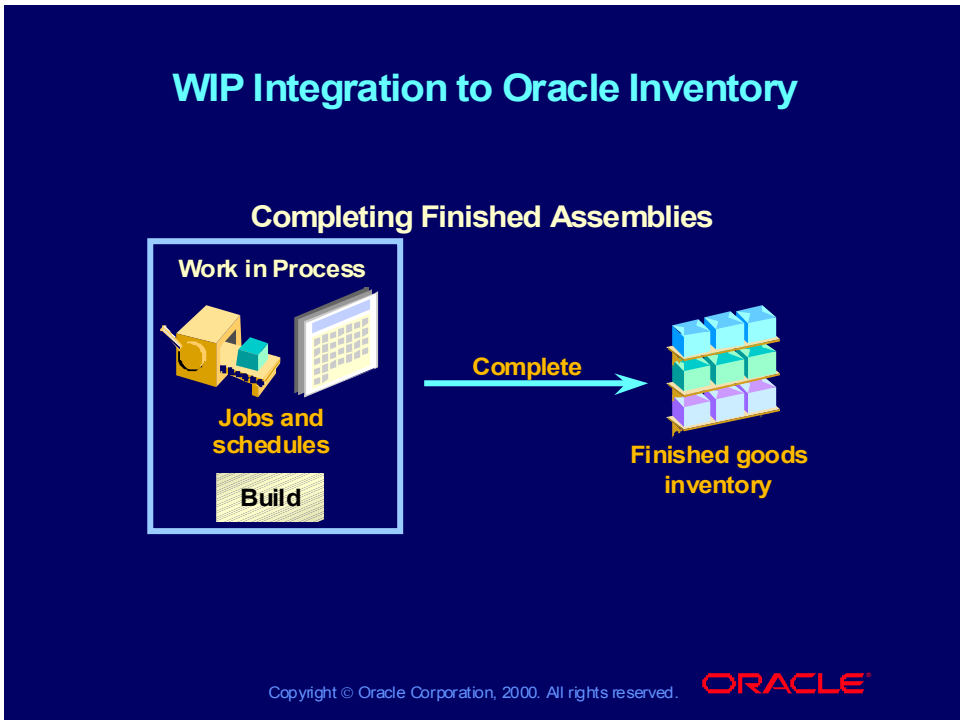


## Completing Finished Assemblies

- Assembly completion transaction is a material transaction in which you receive assemblies into inventory from a job or repetitive assembly/line upon completion of the manufacture of the assembly.
- The finished assemblies are received into inventory, either to be used as subassemblies or to be shipped as finished goods.
- All assembly pull material attached on the bill is backflushed.
- The quantity in the To Move step of the last operation is decreased, if there is a routing.
- The Quantity Complete on the job or repetitive schedule is increased.
- If the quantity completed equals the total quantity for a schedule, and there are other active schedules following it on the assembly/line, the schedule's status is changed to Complete—No Charges. If the schedule is the last active schedule, its status is changed to Complete.
- If the quantity completed equals the start quantity for a discrete job, the job status is changed to Complete.

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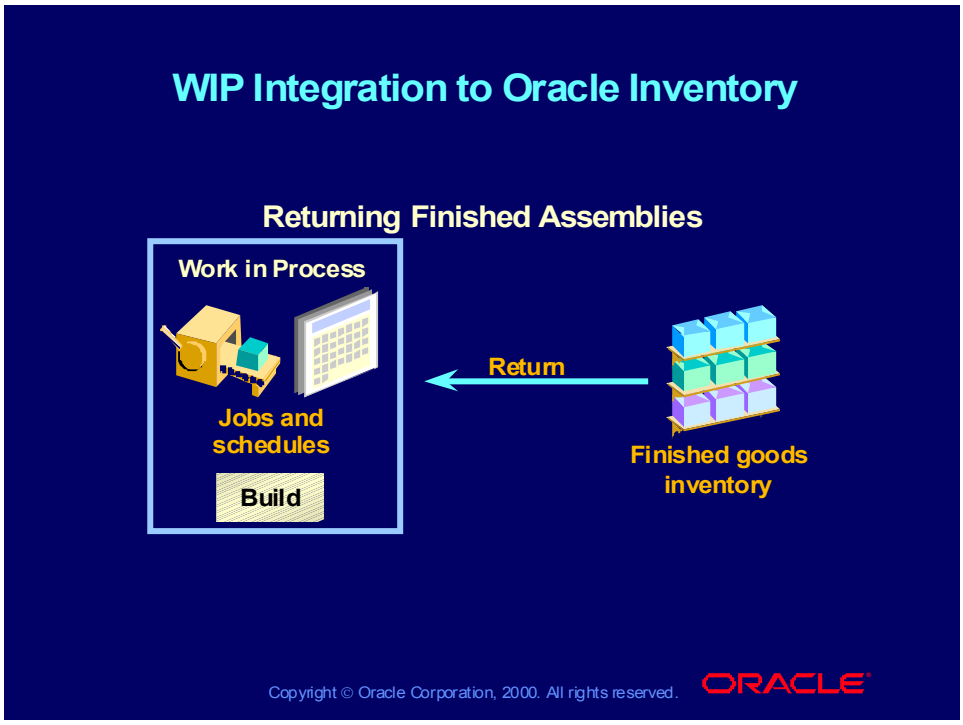


## Returning Finished Assemblies

- Returning assemblies means moving them back from inventory to work in process.
- All backflush transactions that took place during the corresponding completion transaction are reversed.
- The Quantity Complete is reduced.
- The quantity in the To Move step of the last operation in the routing is increased (assuming there is a routing).
- A discrete job's status is changed back to Released.
- Repetitive schedule statuses are only changed back to Released from Complete, never from Complete—No Charges.

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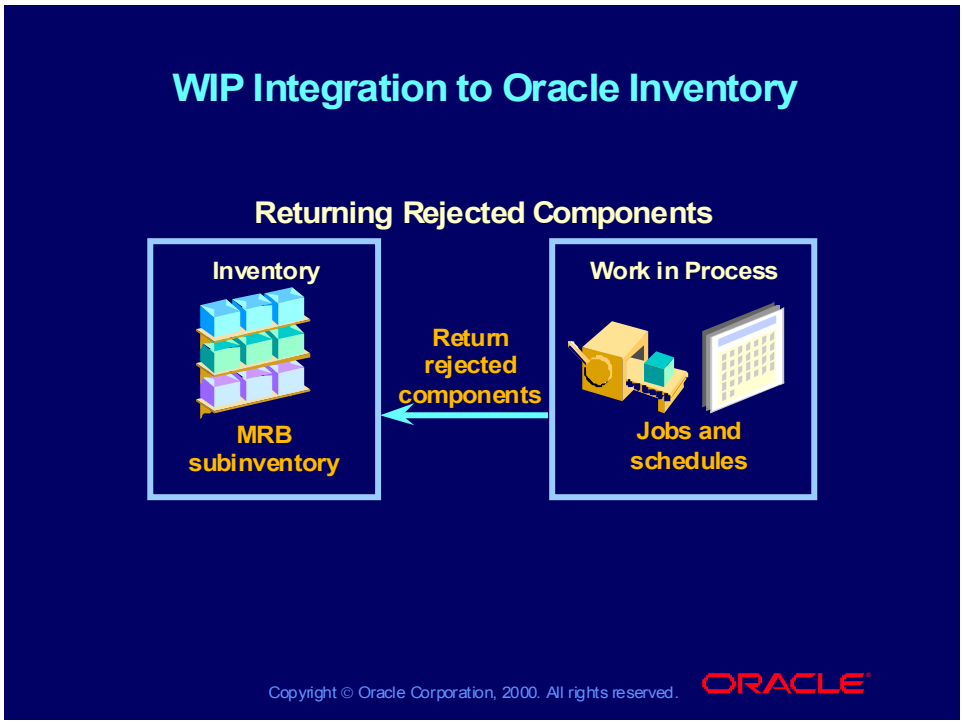


## Returning Rejected Components

- You can return rejected components to a nonnettable MRB subinventory to possibly recover them later.
- You can use the WIP Material Transactions window to return rejected components from WIP to inventory.
- You should make sure the components are returned to a nonnettable subinventory so they are not considered as supply by the planning processes.
- You can evaluate whether the components can be recovered.
- If the raw material subinventory is close to your shop floor, you can directly exchange a rejected component in WIP with a good component in inventory. You should isolate the rejected component in the raw material subinventory and then dispose of it as you would any other rejected component in inventory.
- After returning the components to the MRB subinventory, you can also perform an inventory transaction to issue the failed components to a scrap account.

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# WIP Integration to Oracle Inventory

## WIP Integration to Oracle Inventory

**WIP material transactions use Oracle Inventory controls.**

- **Item attribute**
- **Subinventories and locators**
- **Lot control**
- **Serial number control**
- **Revisions**

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### Item Attribute

The item being transacted must be transactable in Oracle Inventory.

### Subinventories and Locators

You can use the subinventories and locators and any transaction default values defined in Oracle Inventory.

### Lot Control

- Oracle Work in Process supports lot control for all material transactions.
- You can use the same entry window for issues, backflushes, and completions.
- You can enter lot numbers for items under lot control when performing issues, returns, and completions.
- You can use the lot number assigned upon receipt of an item into inventory when issuing that item to work in process.

### Serial Number Control

- Oracle Work in Process supports serial number control for all material transactions.
- You can use the same entry window for issues, backflushes, and completions.
- When performing issues, returns, and completions, you can enter serial numbers for items under serial number control.
- When issuing that item to work in process, you can use the predefined or dynamically created serial numbers assigned upon receipt of an item into inventory.

### Revisions

- You can issue, return, or complete components under revision quantity control.
- Transaction quantities are tracked by revision.

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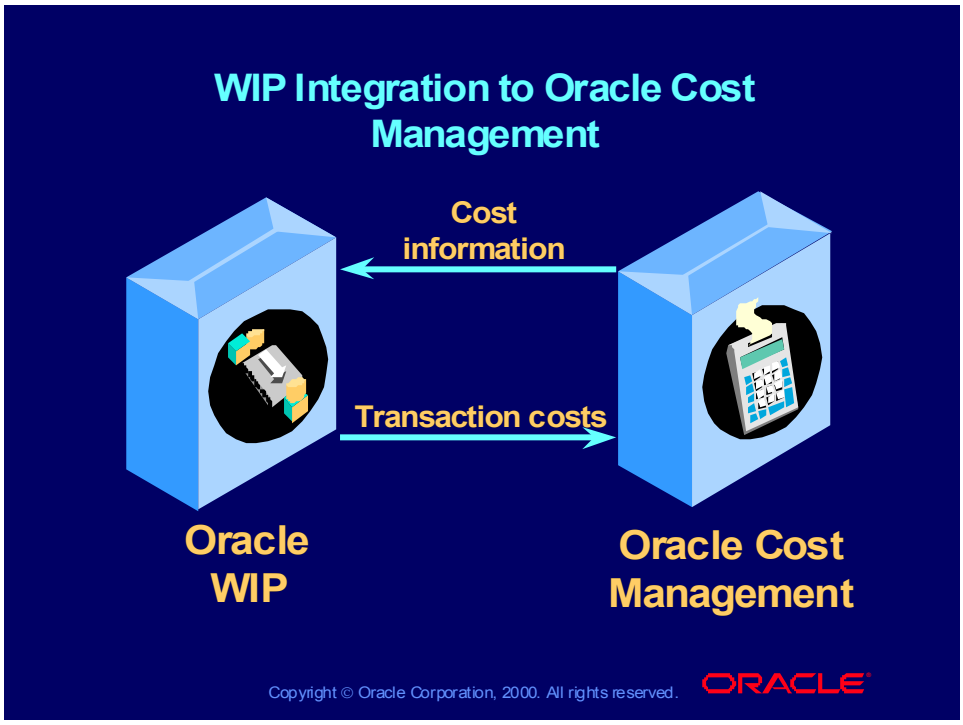
# WIP Integration to Oracle Cost Management




**Costing Transactions**

- Issue and return transactions affect your work in process and inventory valuations.
- Issue transactions increase your work in process valuation and decrease your inventory valuation.
- Return transactions increase your inventory valuation and decrease your work in process valuation.
- Move transactions can automatically launch backflush transactions and charge resources and overheads.
- Backflush material transactions increase your work in process valuation and decrease you inventory valuation.
- Resource charges increase your work in process valuation.
- Overhead charges increase your work in process valuation.
- You can cost resource transactions at either standard or actual.
- Completion transactions affect your work in process and inventory valuations.
- Completion transactions decrease your work in process valuation and increase your inventory valuation.

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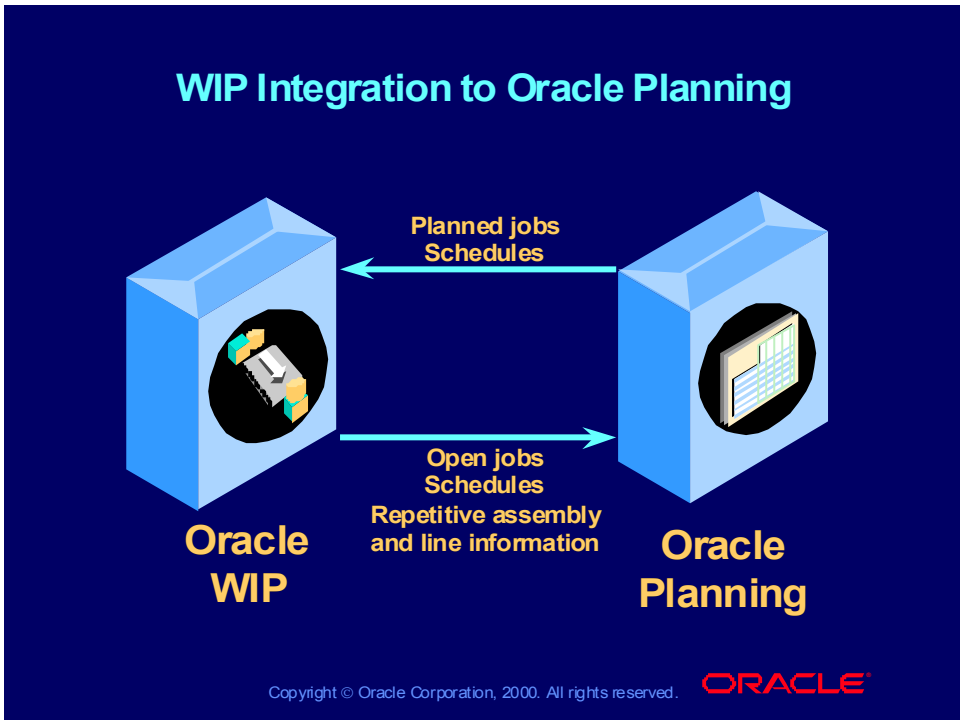
# WIP Integration to Oracle Planning




## Requirements

The planning process inflates the demand for a component with a yield factor of less than 1 to compensate for the expected component rejection in WIP.

**New Component Usage Quantity = Component Usage Quantity / Yield Factor**
The planning process creates additional demand for an item to compensate for the expected assembly shrinkage loss and maintain supply.

**Supply Quantity = (MRP Net Quantity - Quantity Completed - Quantity Scrapped) * (1 - Shrinkage Rate)**

**Net Requirement = Original Demand - Supply Quantity From the Job**

**Shrinkage Demand = Demand * 1 / (1 - Shrinkage Rate)**

**Total Demand = Manual (Original) Demand + Discrete Job Shrinkage + Planned Order Shrinkage**

**Discrete Job Shrinkage = MRP Net Quantity - Supply Quantity from the Job**

**Planned Order Shrinkage = Shrinkage Demand - Net Requirement**

**Total Supply = Discrete Job Quantity + Planned Order Quantity**

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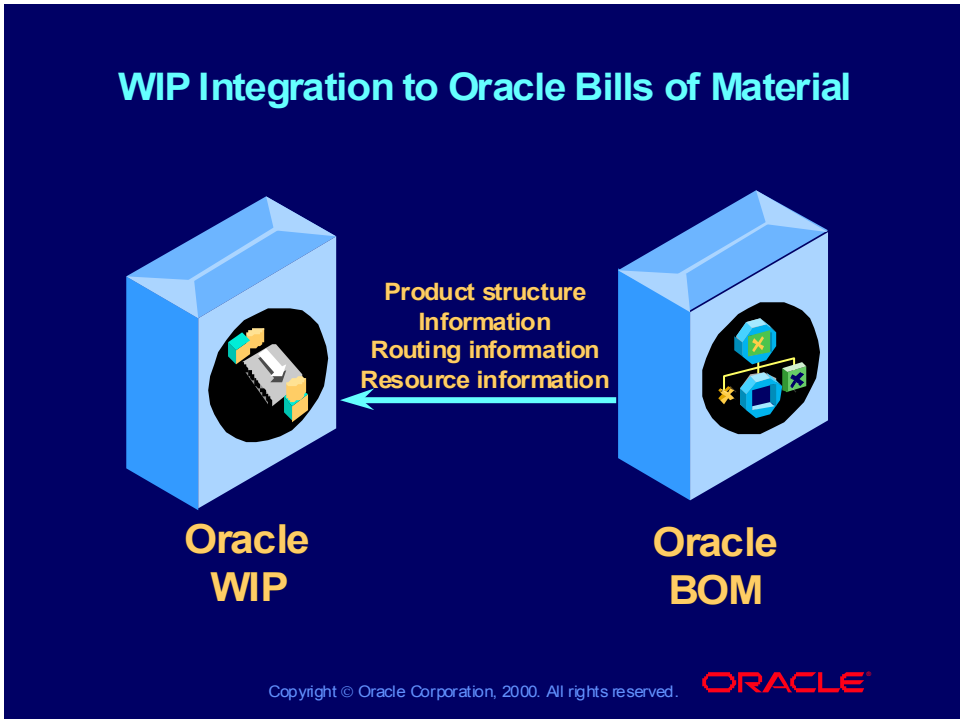
# WIP Integration to Oracle Bills of Material

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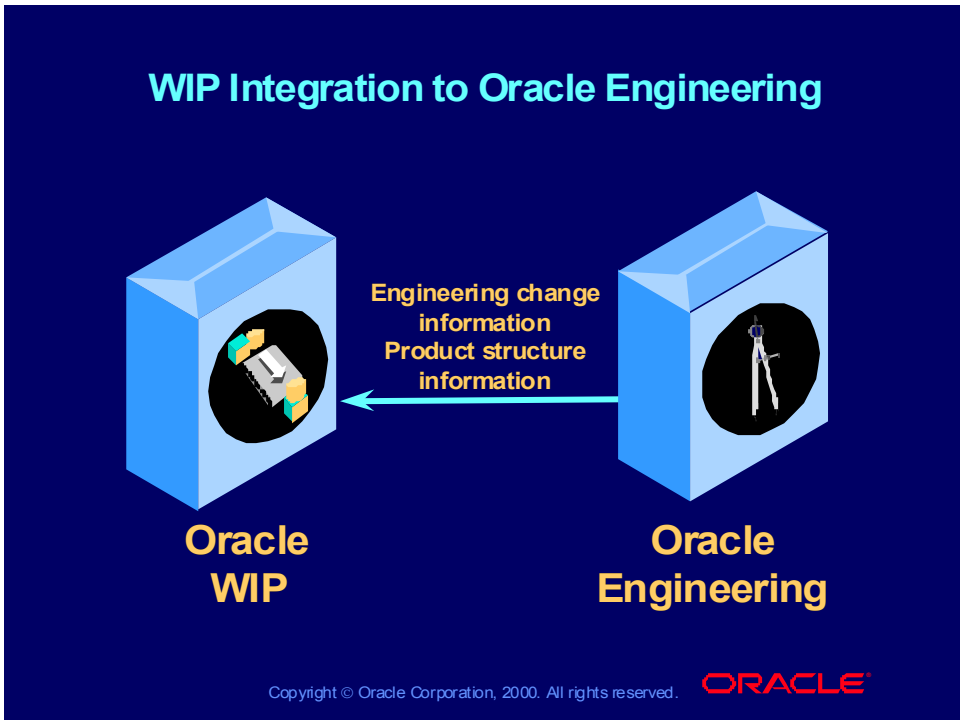
# WIP Integration to Oracle Engineering

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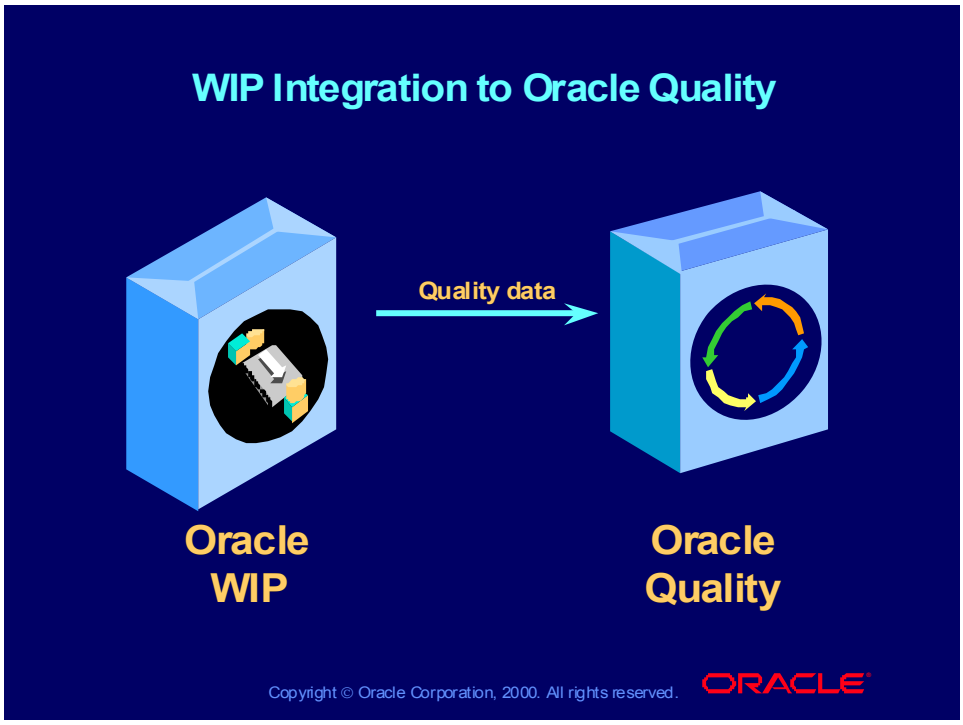
# WIP Integration to Oracle Quality




### WIP Integration to Oracle Quality

- Collecting transactional data when doing move transactions.
- Writing context information for reference collection elements to the quality data repository.

### Collection Elements

Before you can collect data with Oracle Quality, you must first set up your data collection structure. The basic building block of this structure is the collection element, which is used in both the specification and the collection plan.

Collection elements define the characteristics of the product or process for which you are collecting, analyzing, and reporting data. For each collection element, you can specify a list of acceptable values or specification limits, such as target value and upper and lower limits.

### Specifications

Specifications describe the requirements of a product. You can define specification limits for key characteristics of the product that you produce.

### Collection Plans

Collection plans are similar to test or inspection plans. Collection plans specify the collection elements to use in collecting data. Collection plans specify when and how to collect the data as well as the actions to take based on the data collected.

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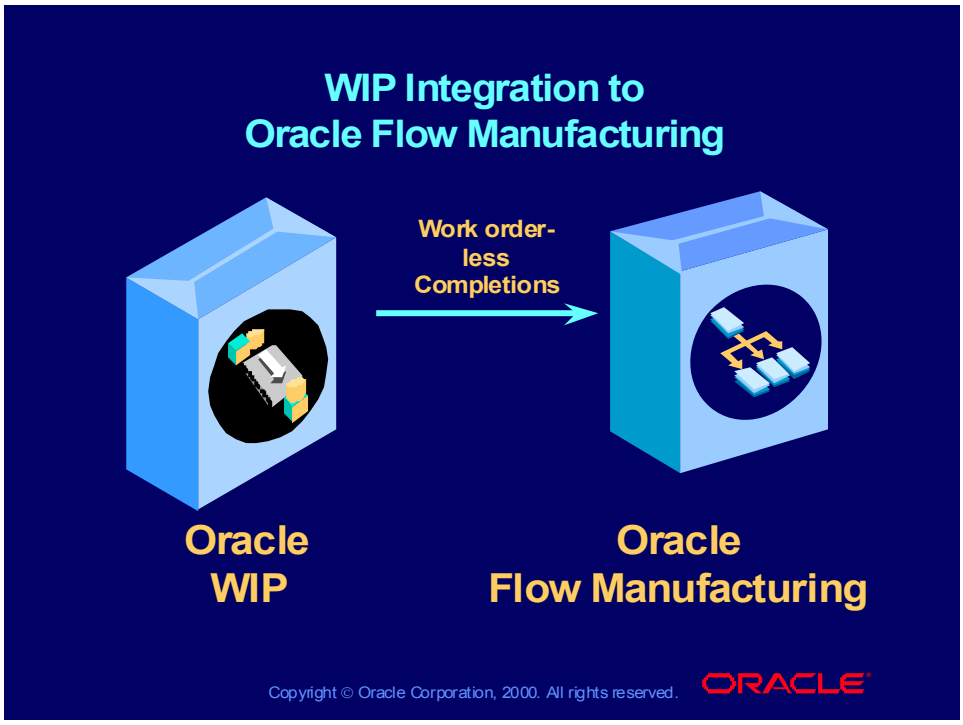
# WIP Integration to Oracle Flow Manufacturing




Flow Manufacturing is a manufacturing approach with the objective of building the highest quality product in the shortest possible time at the lowest cost.

Production is recorded with the Work Order-less Completion transaction against flow schedules created with the Line Scheduling Workbench. Completions can be either unscheduled or scheduled against a flow schedule. The system backflushes all components and performs resource and overhead transactions upon recording completion of the finished product. Additionally, Oracle Flow Manufacturing allows assembly completions to be recorded without having to create work order, a job or repetitive schedule, or a flow schedule.

Work order-less completions do the following:

•Backflush pull and push components

•Charge resources and overhead based on the flow routing

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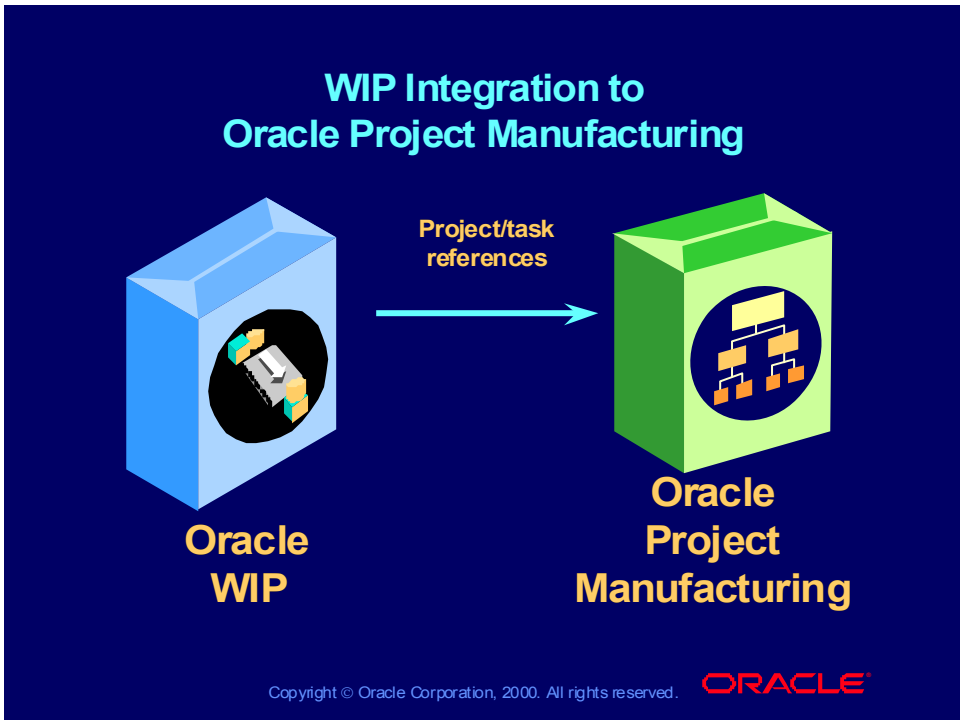
# WIP Integration to Oracle Project Manufacturing




**Project WIP Jobs**

You can create WIP jobs (work orders) with project/task references. Both standard and non-standard WIP jobs are supported. Standard Project WIP jobs can be created automatically and released from the Planner Workbench.

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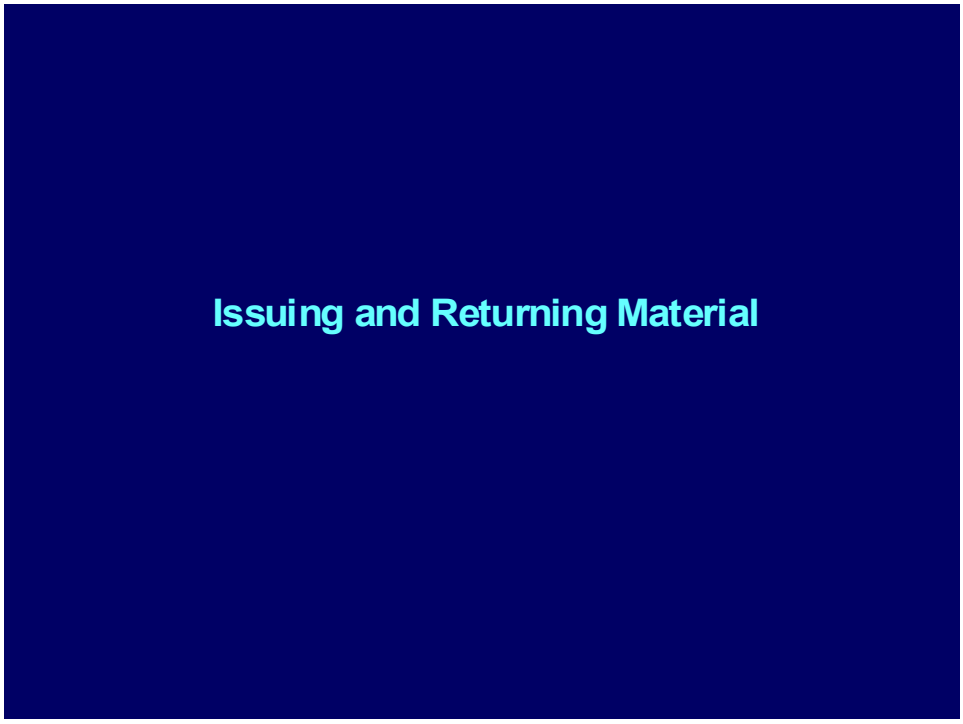
# Issuing and Returning Material

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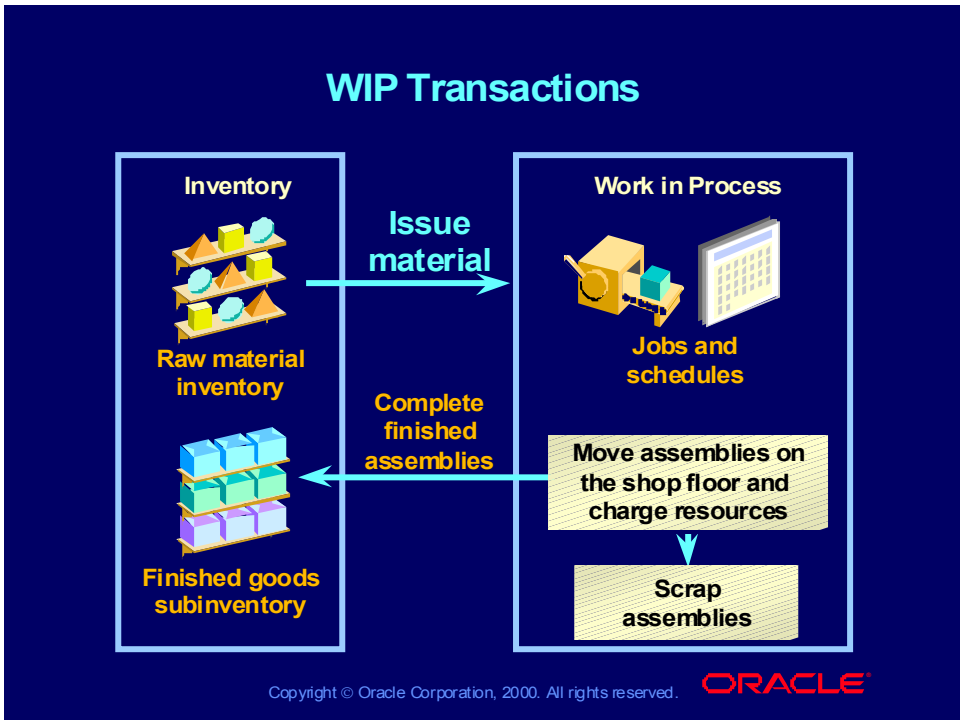
# WIP Transactions




## Definitions

- **Issue transaction** is a material transaction to issue component items from inventory to work in process.
- **Replenishment transaction** is a material transaction to stage components in advance of backflushing.
- **Return transaction** is a material transaction to return components from WIP back to inventory. Return transactions increase WIP material requirements, inventory balances, and valuation, and decrease WIP valuation.

**Distinguishing Between Types of Material Transactions**

- Material issue transactions fulfill WIP material requirements on jobs or schedules.
- Issue transactions reduce inventory balances and valuation.
- Issue transactions incur WIP costs and increase WIP valuation.
- You can use supply types to control how components are supplied to fulfill material requirements.
- **Push issue transaction** is a material transaction to issue component items from inventory to work in process before you manufacture the assembly.
- **Backflush transaction** is a material transaction that automatically issues component items into work in process from inventory when you move or complete the assembly. A backflush transaction is also known as post-deduct or pull.

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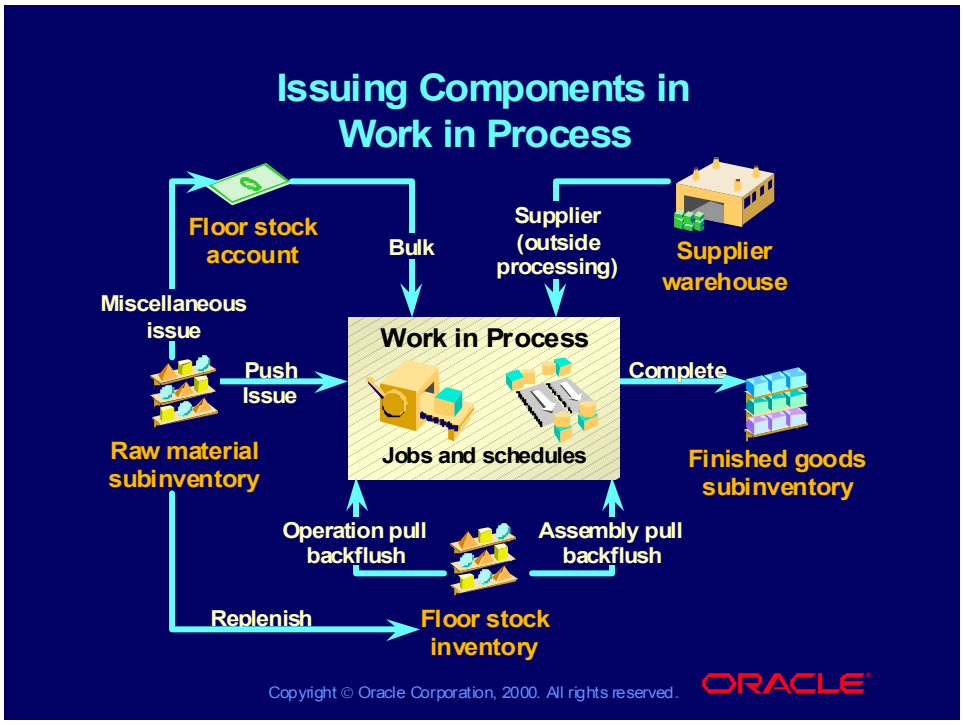
# Issuing Components in Work in Process




## Definitions (continued)

### WIP Material Requirements

WIP material requirements describe the items and quantities needed to build an assembly on a discrete job or repetitive schedule. Requirements in discrete jobs or repetitive schedules come from component items defined on a bill of materials. WIP issue transactions fulfill material requirements.

### Distinguishing Between Types of Material Requirements

- **Open requirements** are WIP material requirements not yet transacted to a discrete job or repetitive schedule. They equate to the component quantity required less any quantity issued.
- **Shortage** is an open requirement with no inventory in the organization to cover the requirement.
- **Negative requirements** are requirements that are supplied rather than consumed by a discrete job or repetitive schedule, i.e. byproducts. You can define negative requirements on your bills of material to support byproducts or other reusable components. Negative material transactions fulfill negative material requirements.
  - You can define negative requirements for a nonstandard job used to disassemble a Sentinel assembly, for example.
  - Oracle Planning sees negative requirements as supply and plans requirements accordingly.

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# Supply Types

## Supply Types

| Name | Description |
|---|---|
| Based on bill | Oracle Work in Process creates component requirements with supply types equal to those on the bill of material. |
| Assembly pull | Oracle Work in Process issues assembly pull components to a job or schedule when you complete assemblies into inventory. |
| Bulk | Oracle Work in Process does not automatically transact bulk components to the job or schedule. |
| Operation pull | Oracle Work in Process issues operation pull components to a job or schedule when you complete the operation in which the components are consumed. |
| Push | You issue push components to a job or schedule using the WIP Material Transactions window in advance of consumption. |
| Supplier | A vendor supplies components directly to work in process. |

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You can control how components are supplied to fulfill material requirements with supply types. You can define component sourcing attributes at the item level and override them in the bill of materials or in Oracle Work in Process.

### Setting the Supply Type in the Item Master or Bill of Materials

- If an item is usually pushed from subinventory Raw Material Inventory, for example, you can set the supply type to Push and the supply subinventory to Raw Material Inventory in the item master.
- However, if an item is staged in subinventory Floor Stock on a production line, and backflushing is done at assembly completion, you can set the supply type to Assembly Pull and the supply subinventory to Floor Stock in the bill of materials for the assemblies being built on that line.
- You can override the item master supply type when you assign the component to a bill of materials.
- You can override the item master and the bill of materials supply type for all components the bill in the Material Requirements window for discrete jobs and repetitive schedules.

### Setting the Supply Subinventory/Locator in the Item Master or Bill of Materials

- You can specify the default WIP supply subinventory and locator in the item master and optionally override those defaults in the bill of materials or in Work in Process.
- You can also specify the Default Pull Supply Subinventory parameter and the Default Pull Supply Locator parameter in the Work in Process Parameters window.

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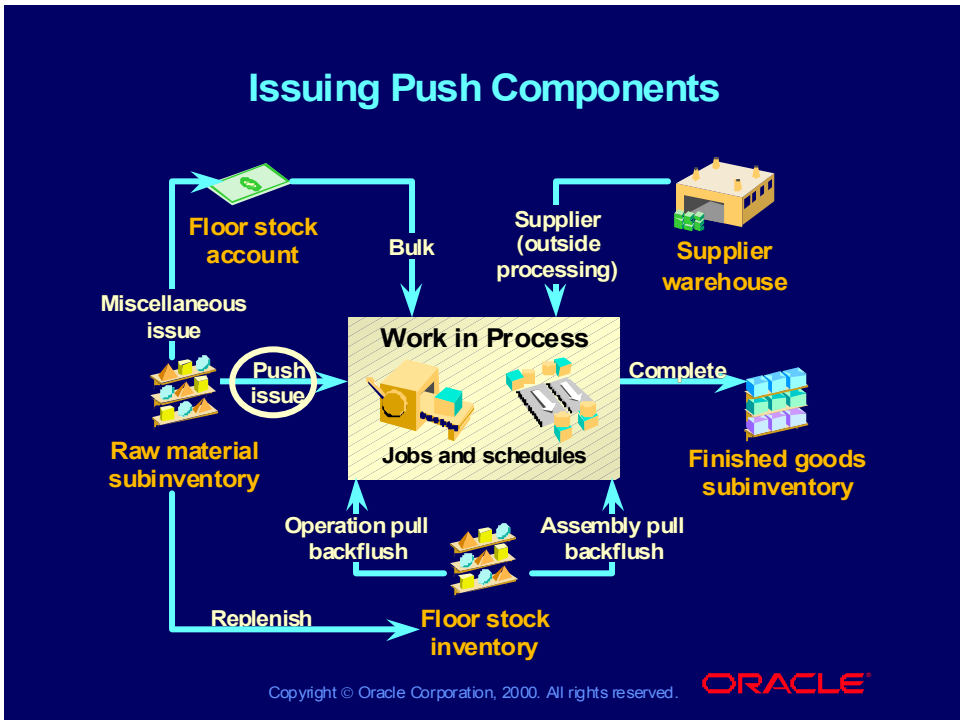
# Issuing Push Components




You should consider how you want to push issue your material.

## Business Needs

You need to be able to do the following things:

- Enter a single transaction to record the picking of all push components for the entire job quantity or for a partial quantity
- Enter a single transaction to record the picking of all push components for a day or several days of production on a repetitive schedule
- Enter a single transaction to record the picking of all push components for a certain location on the shop floor
- Push issue components that are not on the original WIP bill—that is, that do not fulfill a material requirement

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# Issuing Push Components

## Issuing Push Components

| Material Requirements | | | | |
|---|---|---|---|---|
| Op Seq | Dept | Component | Supply Type | Qty |
| 20 | FinAssy | Sentinel Base Assembly | Operation Pull | 100 |
| 20 | FinAssy | PCMCIA modem/fax | Operation Pull | 100 |
| 20 | FinAssy | Motherboard | Operation Pull | 100 |
| 20 | FinAssy | Hard drive—340 MB | Operation Pull | 100 |
| 20 | FinAssy | 3.5" disk drive | Operation Pull | 100 |
| 20 | FinAssy | 5.25" disk drive | Operation Pull | 100 |
| 20 | FinAssy | Video card | Operation Pull | 100 |
| 20 | FinAssy | Keyboard mouse card | Operation Pull | 100 |
| 20 | FinAssy | SIMM—16 MB internal module | Operation Pull | 100 |
| 20 | FinAssy | Power cord | Assembly Pull | 200 |

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### Example

Job Sentinel-F1 is defined to build 100 Sentinel Financial assemblies. The slide shows the WIP bill of materials for the Sentinel Financial. The following two slides show examples of material transactions that can be performed on job Sentinel-F1.

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# Issuing Push Components

## Issuing Push Components

| Material Requirements | | | | |
|---|---|---|---|---|
| Op Seq | Dept | Component | Supply Type | Qty |
| 20 | FinAssy | Sound Board | Operation Pull | 100 |
| 20 | FinAssy | Sentinel cover assembly | Operation Pull | 100 |
| 20 | FinAssy | Standard screws | Operation Pull | 600 |
| 20 | FinAssy | Sentinel documentation | Operation Pull | 100 |
| 20 | FinAssy | Monitor—15" Super VGA | Assembly Pull | 100 |
| 20 | FinAssy | Packing material | Assembly Pull | 100 |
| 20 | FinAssy | External 101-key keyboard | Assembly Pull | 100 |
| 20 | FinAssy | O/S documentation set | Push | 100 |
| 20 | FinAssy | UNIX/Windows 1-user pack | Push | 100 |
| 20 | FinAssy | Motherboard—486DX2 w/PCI | Operation Pull | 100 |

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### Example

Job Sentinel-F1 is defined to build 100 Sentinel Financial assemblies. The slide shows the WIP bill of materials for the Sentinel Financial. The following two slides show examples of material transactions that can be performed on job Sentinel-F1.

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# Issuing Push Components

## Issuing Push Components

| Examples of Material Transactions | | | | | |
|---|---|---|---|---|---|
| All material | N/A | Component | Op Seq | Dept | Quantity |
| | | O/S doc set | 20 | FinAssy | 100 |
| | | UNIX user pack | 20 | FinAssy | 100 |
| Assembly quantity | Quantity = 5 | Component | Op Seq | Dept | Quantity |
| | | O/S doc set | 20 | FinAssy | 5 |
| | | UNIX user pack | 20 | FinAssy | 5 |
| Specific component | Issue 3 power cords at operation 10 | N/A | | | |

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# Issuing Push Components

## Issuing Push Components

| Examples of Material Transactions | | | | | |
|---|---|---|---|---|---|
| Department | Department = FinAssy | Component | Op Seq | Dept | Quantity |
| | | O/S doc set | 20 | FinAssy | 100 |
| | | UNIX user pack | 20 | FinAssy | 100 |
| Operation | Operation = 10 | N/A | | | |
| Operation | Operation = 20 | Component | Op Seq | Dept | Quantity |
| | | O/S doc set | 20 | FinAssy | 100 |
| | | UNIX user pack | 20 | FinAssy | 100 |

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# WIP Material Transactions

## WIP Material Transactions

Use the WIP Material Transactions window to enter:

- Issue components from inventory to jobs and repetitive schedules
- Return issued components from jobs and schedules to inventory
- Replenish to stage components in advance of backflushing

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(N) Material Transactions—>WIP Material Transactions

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Material Control

../ > Component Issues and Returns

../ > Repetitive Component Issues and Returns

../ > WIP Material Transaction Types

../ > Issuing and Returning Specific Components

../ > Issuing and Returning All Push Components

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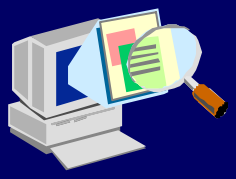
# Demonstration

## Demonstration

This demonstration covers issuing push components.



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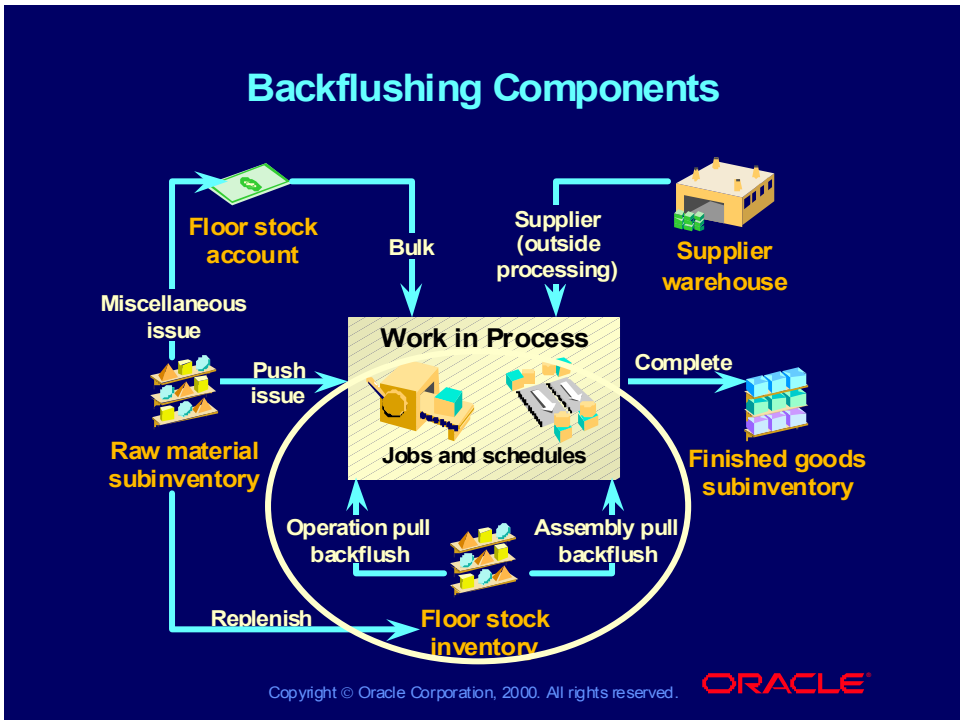
# Backflushing Components




You can initiate a backflush from several sources. You do not need to do an explicit issue transaction if you use backflushing. You can automatically launch backflush transactions when moving or completing assemblies.

### Backflush Sources

- Move Transactions window
- Completion Transactions window
- Enter Receipts window in Oracle Purchasing (for outside processing)
- Oracle Inventory Material Transaction interface
- Open Move Transaction interface

### Operation Pull

- Move transactions that complete an operation backflush all components with a supply type of Operation Pull.
- The backflush occurs only at routing operations with a backflush type of Yes. The backflush transaction backflushes all Operation Pull components at all appropriate previous operations in the routing as well.
- Components with a supply type of Operation Pull defined for an operation with a backflush type of No are backflushed after completing an operation with a backflush type of Yes later in the routing.

### Assembly Pull

WIP completion transactions backflush all components with a supply type of Assembly Pull.

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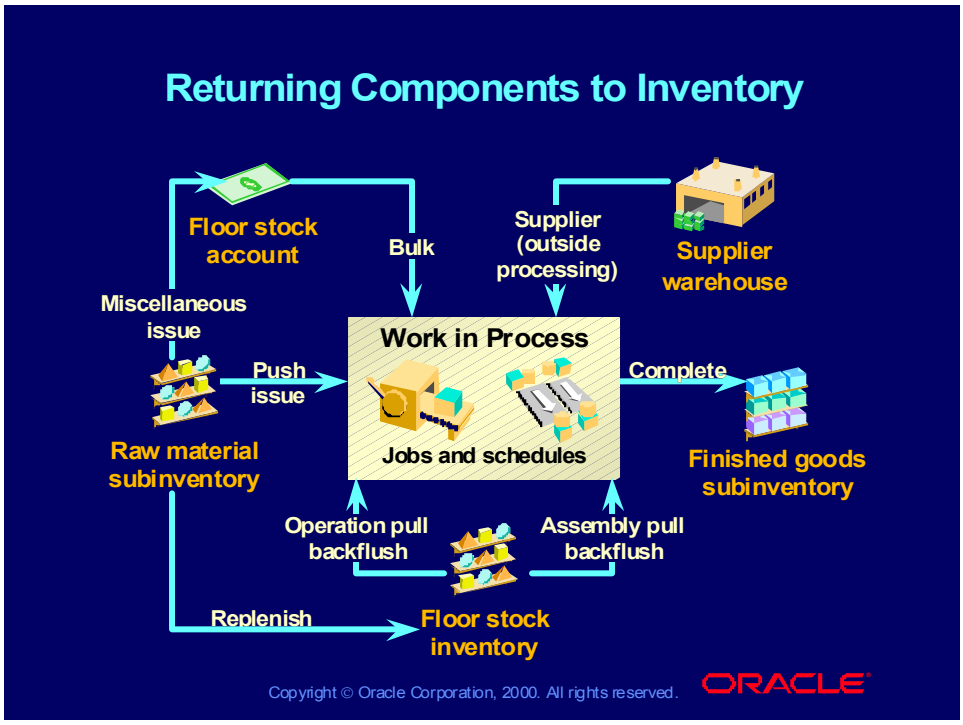
# Returning Components to Inventory




You can return both push and pull components to inventory, as needed. You can return pull components with reverse backflushing.

### Reasons to Return Material to Inventory

- You canceled the discrete job or repetitive schedule.
- You issued excess material that was not needed—for example, if your component yield was better than expected.
- You need to correct issue transactions.
- You need to return a bad component for replacement.

### Return Options

- Return all material.
- Return specific components.
- Return components from a specific department.
- Return an assembly quantity.
- Return components from a specific operation sequence.

### Open Requirements

- Returning components increases the open requirements by reducing the quantity issued to the job or schedule.
- The quantity of the subinventory is increased accordingly.

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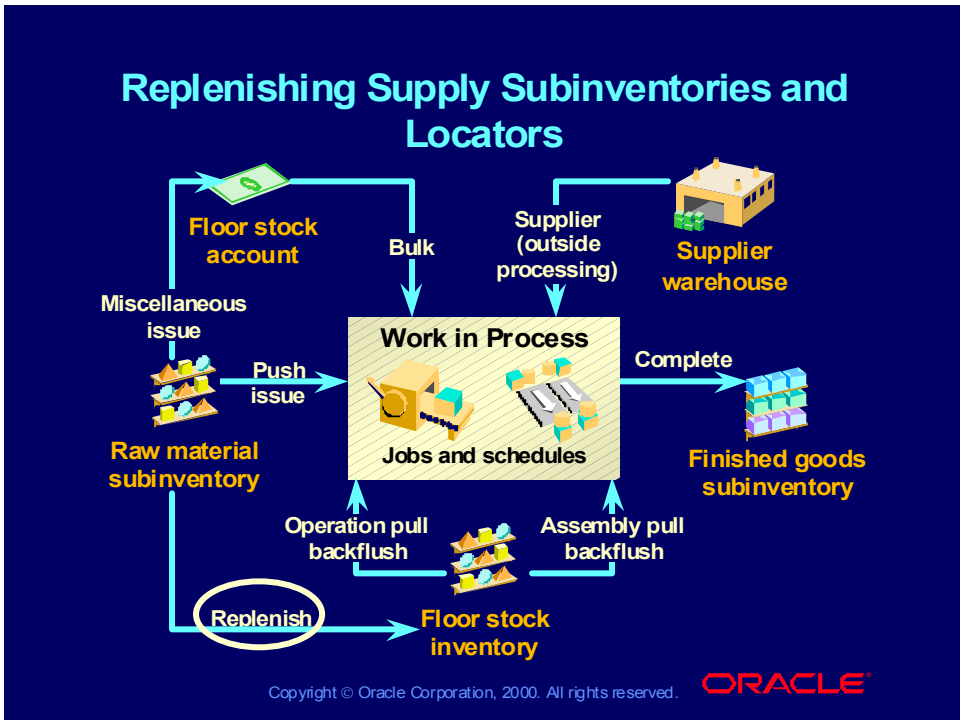
# Replenishing Supply Subinventories and Locators




Oracle Manufacturing supports a variety of replenishment schemes. To decide how to replenish, consider the following:

- The amount of floor space available for floor stock
- Frequency of replenishment
- Method of visual controls/physical Kanbans
- The physical characteristics of your components—for example, size, weight, perishability
- Proximity of feeder lines to consuming lines
- The number of different jobs/repetitive assemblies in production concurrently
- Variability of your production rate
- Variability of your product mix
- Use of the Bulk supply type as an alternative

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Material Control > Supply Subinventory and Locator Replenishment

../ > Supply Subinventory and Locator Replenishment Options

../ > Replenishing Supply Subinventories and Locators

../ > Replenishing Higher Level Supply

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# Review Question

## Review Question

**Why would you need to return material to inventory?**

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## Review Question Solution

**Why would you need to return material to inventory?**

**You might have overissued material, or you might have scrapped assemblies along the way, thereby eliminating the need for the total required quantity of components.**

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# Review Question

## Review Question

Suppose you have a job with a negative requirement on its bill. You included material cost in your cost rollup, but you never returned the component to inventory. How would this affect your costing information for the job?

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## Review Question Solution

Suppose you have a job with a negative requirement on its bill. You included material cost in your cost rollup, but you never returned the component to inventory. How would this affect your costing information for the job?

Your job would show a negative variance.

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# Practice 1-1 Overview

## Practice 1-1 Overview

This practice covers issuing material to a job.

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## Practice 1-1

You must manually define a discrete job in the Seattle organization to build 200 Sentinel Deluxe assemblies recently ordered by a customer. After releasing the job, you must ensure that the material needed resides in inventory, and if it does, issue it to the job.

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### Practice 1-1

You must manually define a discrete job in the Seattle organization to build 200 Sentinel Deluxe assemblies recently ordered by a customer. After releasing the job, you must ensure that the material needed resides in inventory, and if it does, issue it to the job. You will also view your manufacturing activity using the Discrete Workstation.

1. Define a discrete job to satisfy the requirements described above. Assume that the job must start today. Use the Discrete Jobs window to define the job.
   - Assembly: Sentinel Deluxe AS18947
   - Status: Released
   - Quantity: 200
   - Class: Discrete
   - Start Date: Today's date
2. Determine whether the required material is available in inventory. You can run a pick list report or shortage report.
3. Issue all push material to the job. Use the WIP Material Transactions window to issue push components to the job.
   - Transaction Type: WIP Component Issue
   - Transact: All Material
4. Ten of the power cords that you issued are defective. What should you do? You should issue 10 more power cords. Use the WIP Material Transactions window.
   - Transact: Specific Component
5. Go to the Discrete Workstation or Discrete Job form and view your job.

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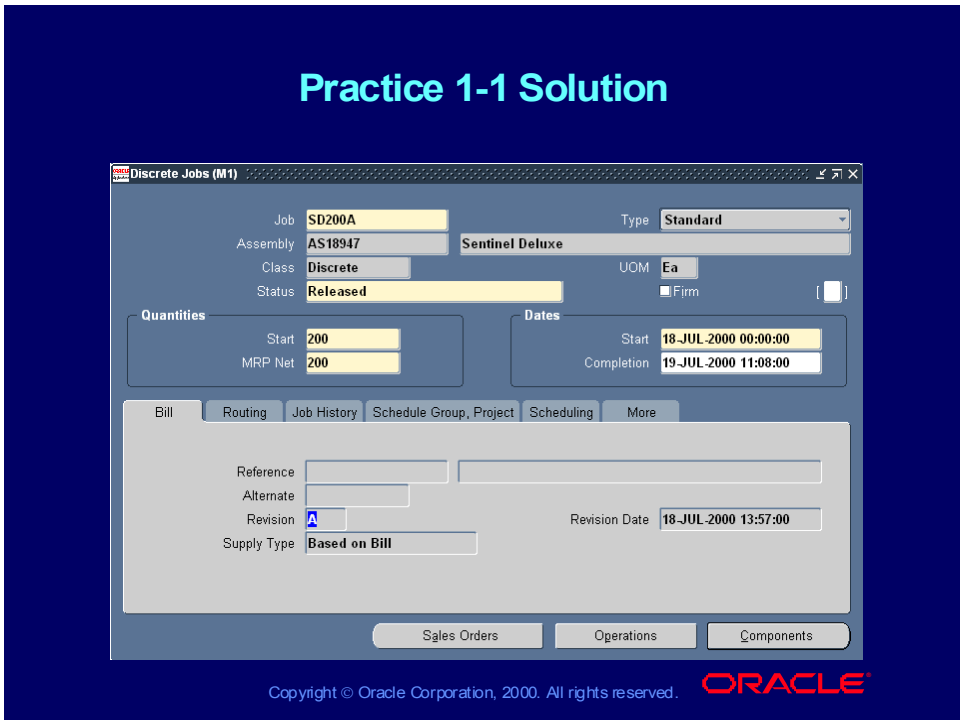


## Practice 1-1 Solution

### Define a Discrete Job

Oracle WIP (N) Discrete—>Discrete Jobs

1. Navigate to the Discrete Jobs window and define a job using the following information:
   - Assembly: Sentinel Deluxe AS18947
   - Status: Released
   - Start Quantity: 200
     - Standard discrete jobs must have a start quantity greater than zero. When you enter a start quantity for jobs with bills and routings, the component material requirements, department schedules, resource load, and job start and end dates are all determined automatically.
     - For nonstandard jobs, if you enter a start quantity of 0 and specify a bill of material reference, the corresponding bill is exploded but material requirements equal to zero are created. To perform move and completion transactions for a nonstandard job, the start quantity must be greater than zero.
   - Class: Discrete
   - Start Date: Today's date
2. Enter the MRP net quantity.
   - The MRP net quantity is the number of assemblies that MRP considers as supply on the scheduled completion date. For standard and nonstandard discrete jobs with assemblies, the MRP net quantity is derived from the job start quantity. For nonstandard discrete jobs without assemblies, the default is zero.
3. Save your work.

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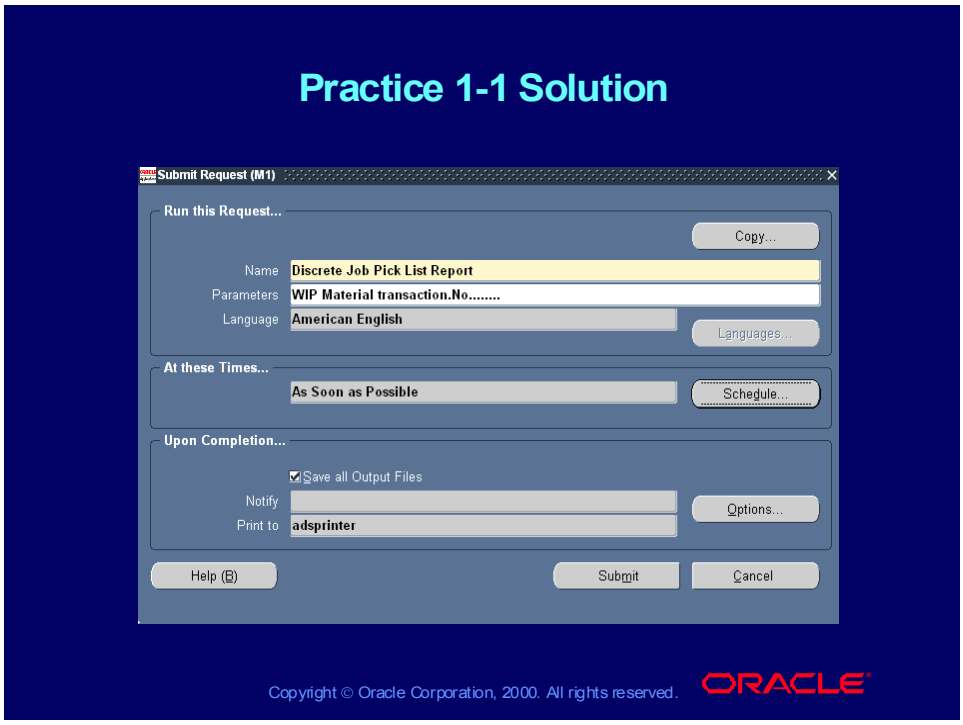
# Practice 1-1 Solution




## Practice 1-1 Solution (continued)

### Determining Availability of Required Material

Oracle WIP (N) Report—>Discrete Job Pick List Report

You can run the Discrete Job Pick List Report or the Discrete Job Shortage Report to determine whether the required material is available in inventory.

- The Discrete Job Pick List Report lists open component requirements for jobs with statuses of Unreleased, Released, Complete, and On Hold. You can use this report when you pick material from stock to issue to discrete jobs. This report lists component requirements in supply type order: push components first followed by pull, bulk, and then vendor components. This report can be sorted by component, date required, supply subinventory/locator, or WIP material transaction.
- If the report is sorted by component, requirements that are common across jobs are consolidated. This can be particularly useful if you are replenishing backflush subinventories that supply several jobs.

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# Practice 1-1 Solution

**Report Submission - Discrete Job Pick List Report**

1. In the Submit Requests window, select Discrete Job Pick List Report in the Name field.

Report Parameters

•Sort By (choose one of the following options):

- Component: Sort by component. Requirements are consolidated across jobs. Use this option to help you replenish backflush subinventories that supply multiple jobs. You can use the Subinventory Transfer form in Oracle Inventory to transfer the consolidated quantity of each requirement from your warehouse to the backflush subinventories that supply your jobs.
- Date required: Sort by requirement date.
- Supply subinventory, locator: Sort by supply subinventory and locator.
- WIP material transaction: Sort component requirements in WIP Material Transaction order. The system lists components in the order presented in the WIP Material Transactions window. This assists data entry when you use the pick list as hard copy for issuing the components.

•Transactable Only: Select Yes or No to indicate whether to exclude discrete jobs with statuses of Unreleased or On Hold.

•Jobs From/To: To restrict the report to a range of jobs, select a beginning and an ending job.

•Start Dates From/To: To restrict the report to a date range, select a starting and an ending date.

•Schedule Groups From/To: To restrict the report to a range of schedule groups, select a beginning and an ending schedule group.

•Supply Type: Choose a supply type. The available options are Push, Pull, Bulk, and Vendor.

•Supply Subinventory: Select the supply subinventory to include as available material in the Discrete Job Pick List. If you do not enter a value, the system lists requirements of any supply subinventory.

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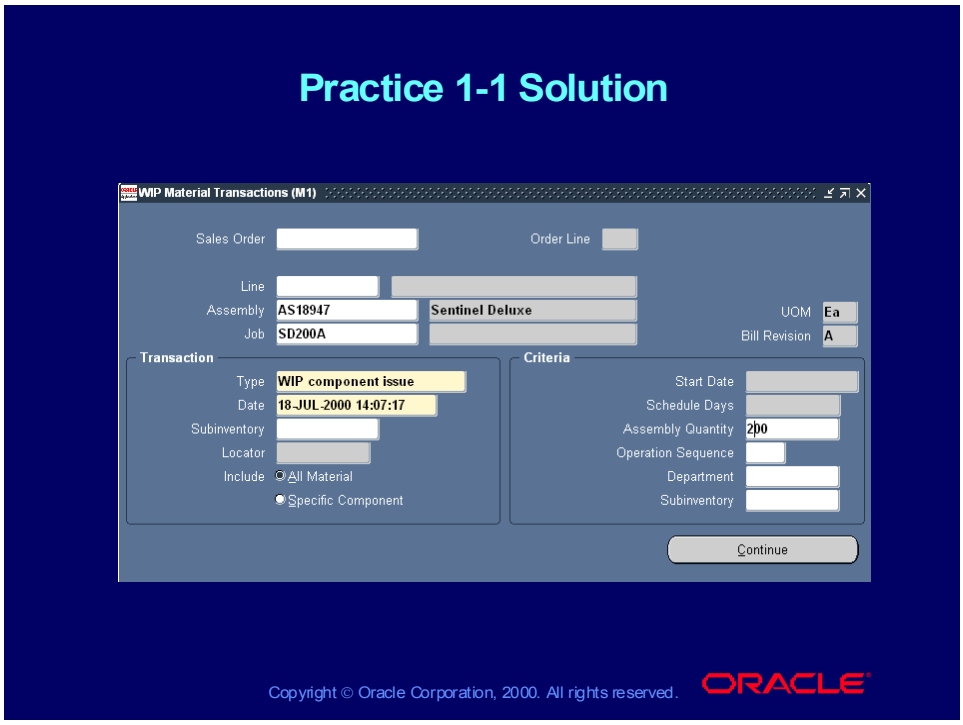


## Practice 1-1 Solution (continued)

### Issuing Push Components

Oracle WIP (N) Material Transactions—>WIP Material Transactions

1. Use the WIP Material Transactions window to issue push components to the job.
   - Transaction Type: WIP Component Issue
   - Transact: All Material

   Note: You may receive a Caution window with the message Quantity will drive inventory negative, click OK.

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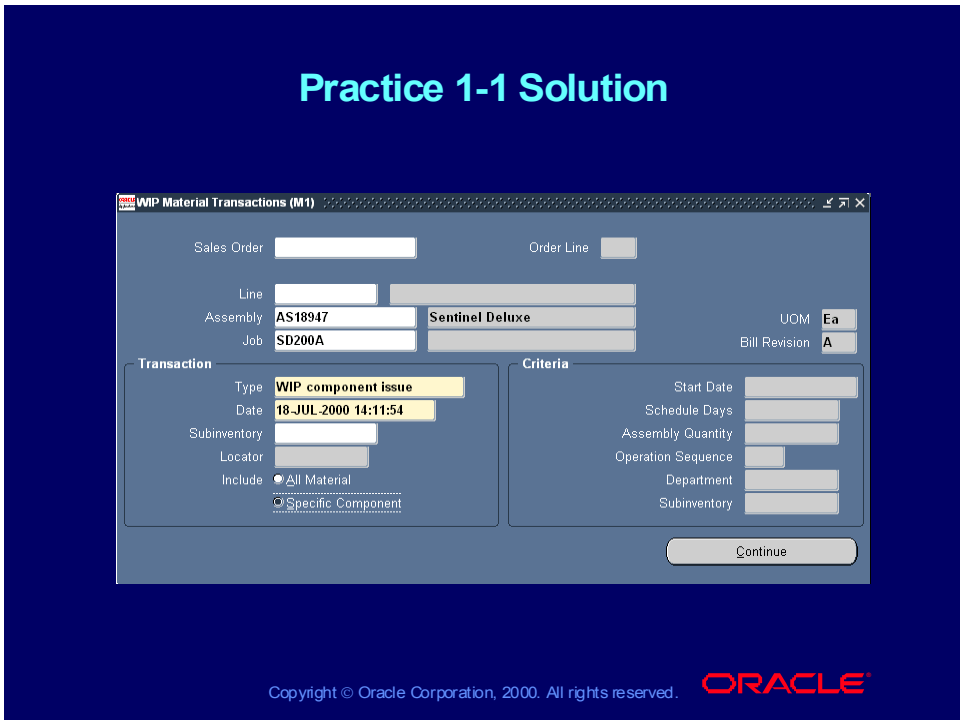


## Practice 1-1 Solution (continued)

### Issuing Documentation Sets

Oracle WIP (N) Material Transactions—>WIP Material Transactions

1. You should issue 10 more power cords, CM42047, using the WIP Material Transactions window.

- Transact: Specific Component

Note: You may receive a Caution window with the message Quantity will drive inventory negative, click OK.

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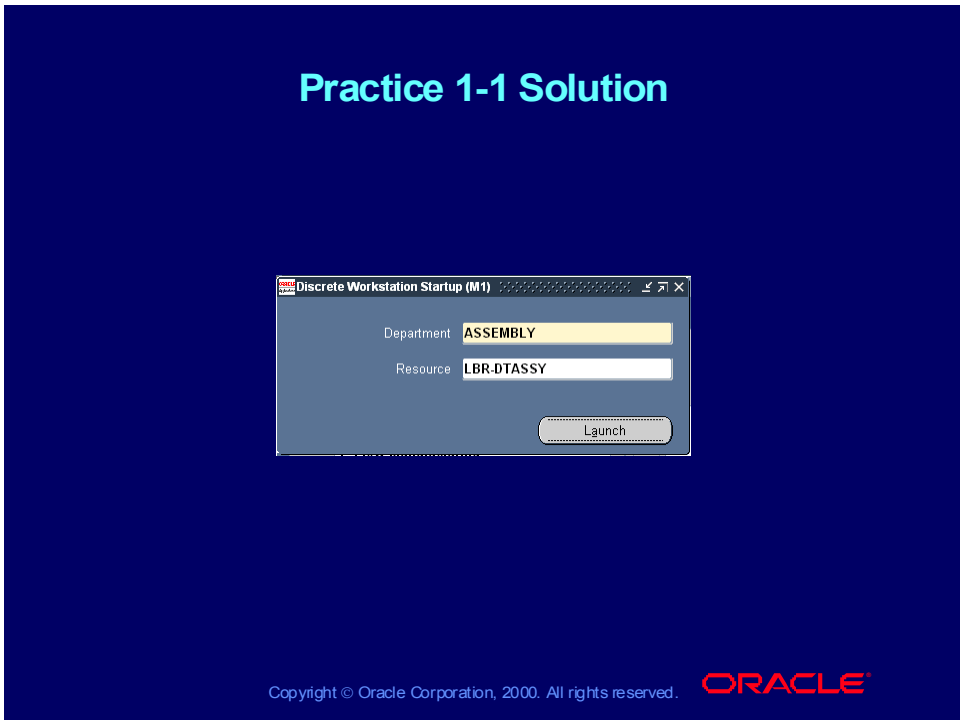
# Practice 1-1 Solution




**Practice 1-1 Solution (continued)**

**Discrete Workstation**

Oracle WIP (N) Discrete—>Discrete Workstation (B) Launch

1. Navigate to the Discrete Workstation Startup window and select Department: ASSEMBLY and Resource: LBR-DTASSY.
2. Note your job in the immediate dispatch list.

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# Managing Rejected Material

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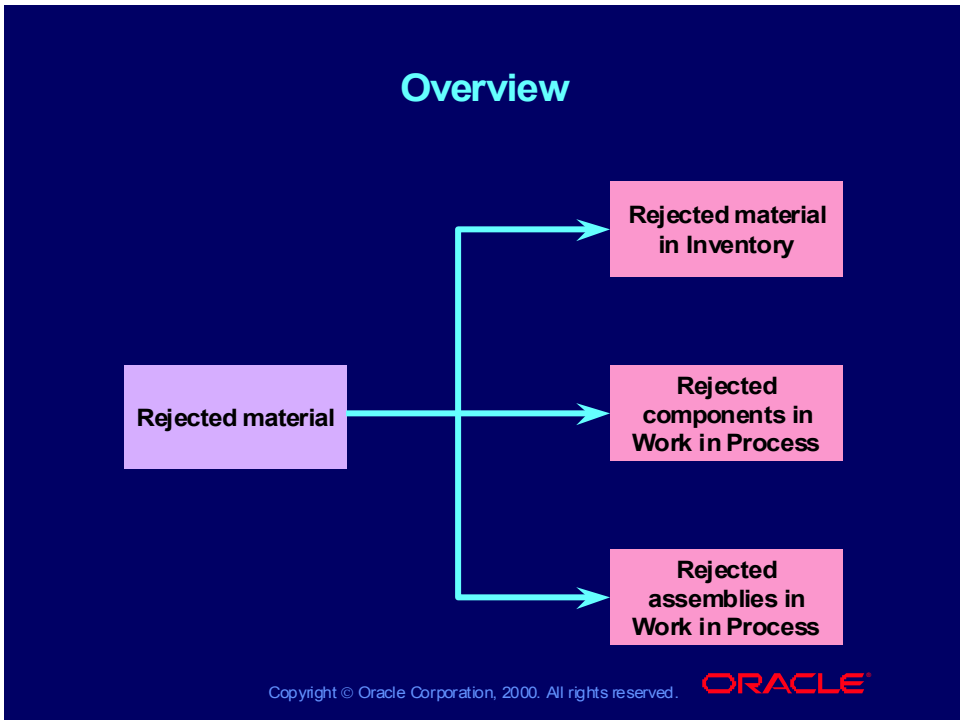
# Overview




You should review the following business considerations before you decide how to implement Oracle Manufacturing to manage your rejected material.

**Material Flow**

- Keeping the good assemblies moving on the shop floor
- Recovering rejected material if possible

**Anticipated Yield Loss**

- Planning material loss
- Determining actual loss

**Traceability**

- Determining the causes for rejection
- Identifying responsibility

**Transaction Volume**

- A small number of rejections is handled differently than a large number of rejections.

**Cost Management**

- High scrap costs represent opportunity for cost improvements.
- High-value items may need to be handled differently.

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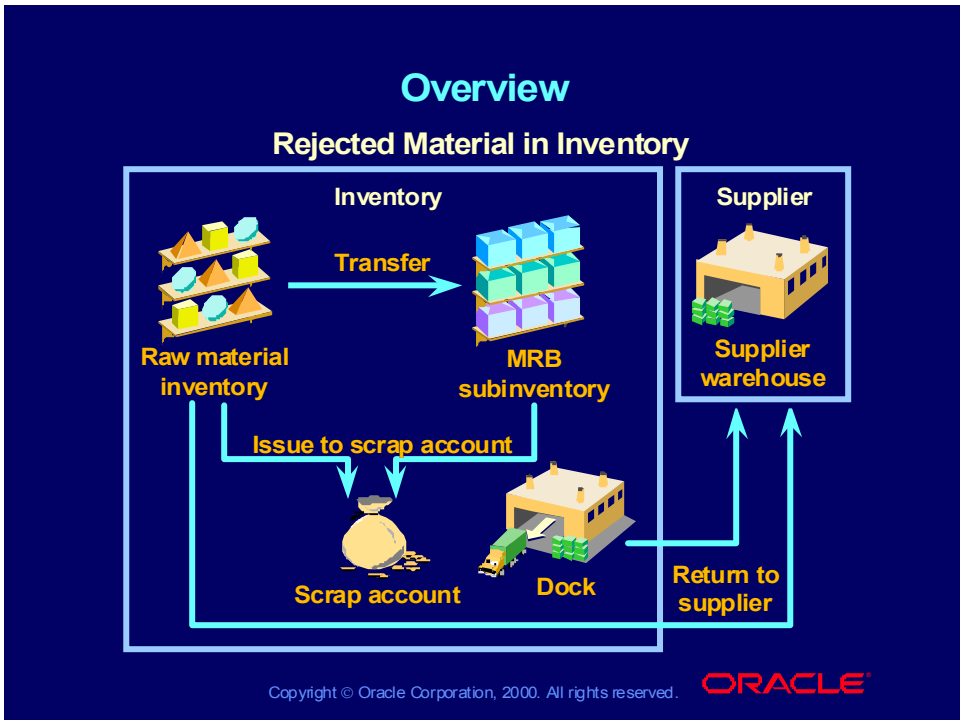
# Overview




## Account Alias

**Account alias** is an easily recognized name or label representing an account charged on miscellaneous transactions. Optionally you can view, report, and reserve against an account alias.

## Return to Supplier

**Return to supplier** is a transaction that allows you to return to the supplier items from a fully or partially received purchase order and receive credit for them.

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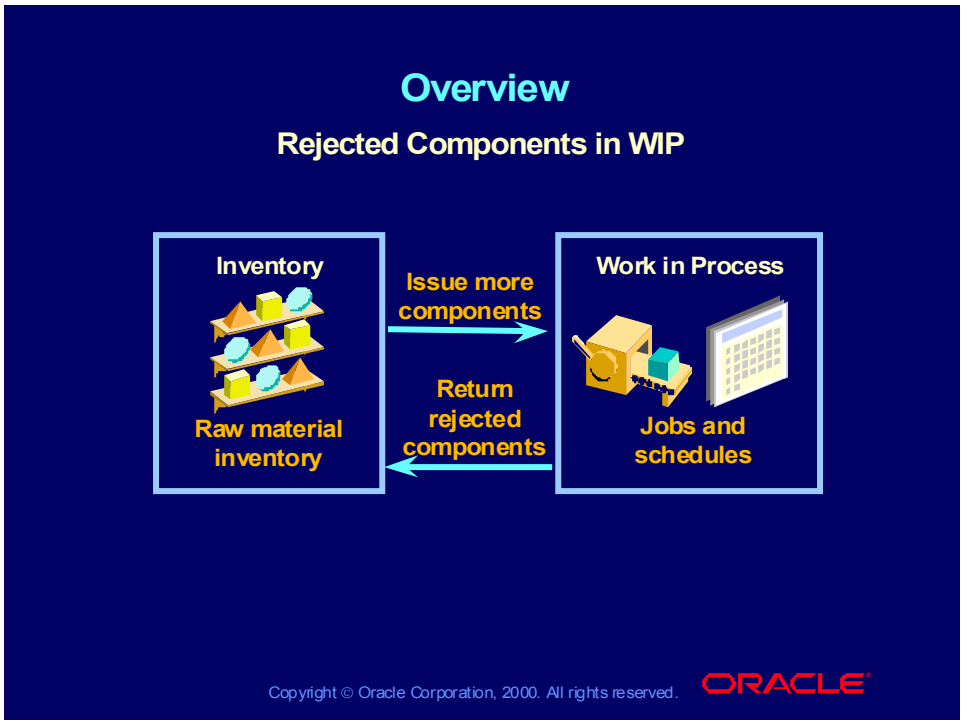
# Overview




## Component Yield

- **Component yield** is the amount of a component you require to build plus the amount of the component you lose or waste while building an assembly.
- A yield factor of 100% indicates no loss in the manufacturing process.
- A yield factor of less than 100% indicates that less than 100% of the components you issue survive the build process. Thus, the component usage quantity increases.
- The cost rollup optionally includes the effect of component yield in the assembly costs.

## Account Alias

- Account alias is an easily recognized name or label representing an account charged on miscellaneous transactions.
- Optionally you can view, report, and reserve against an account alias.

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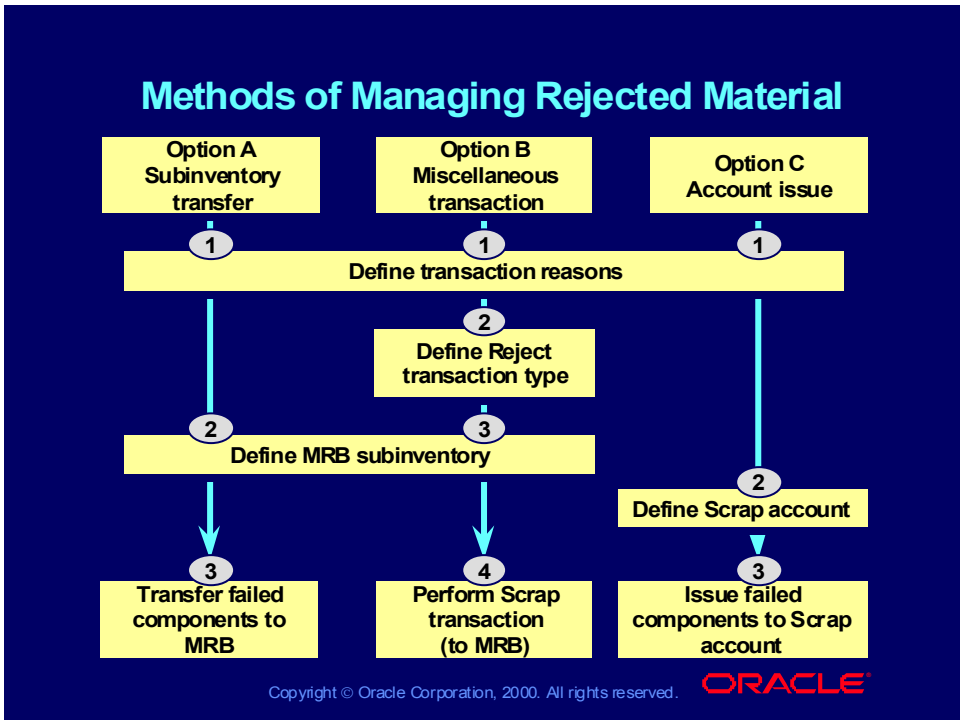
# Methods of Managing Rejected Material




You can manage rejected material in inventory in several ways:

- Subinventory transfer
- Miscellaneous transaction
- Account issue
- Perform account alias issue
- Return to vendor

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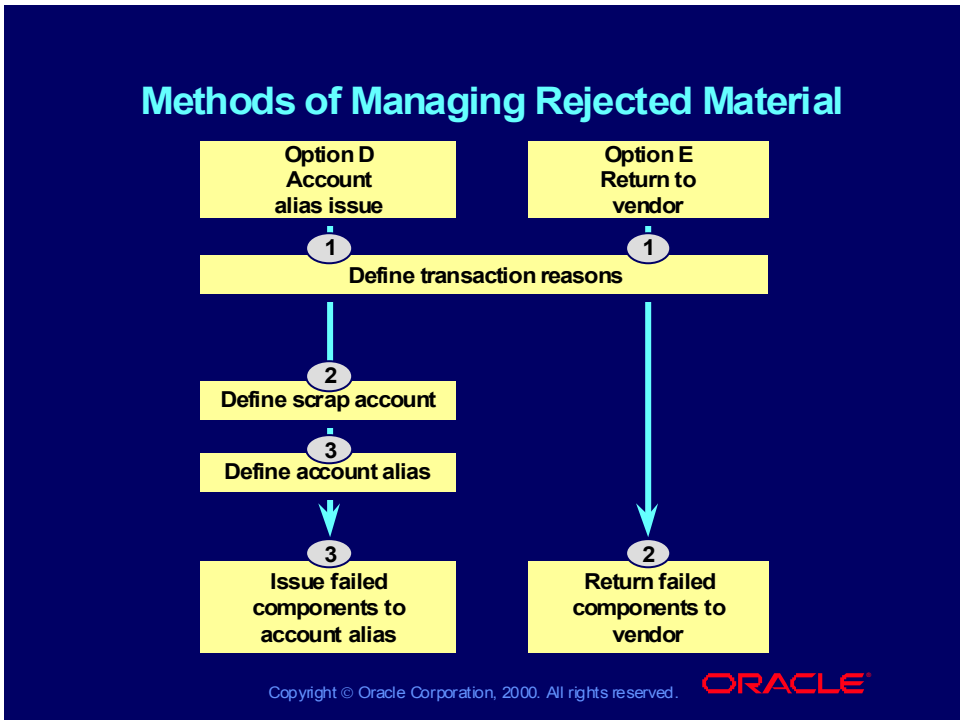
# Methods of Managing Rejected Material

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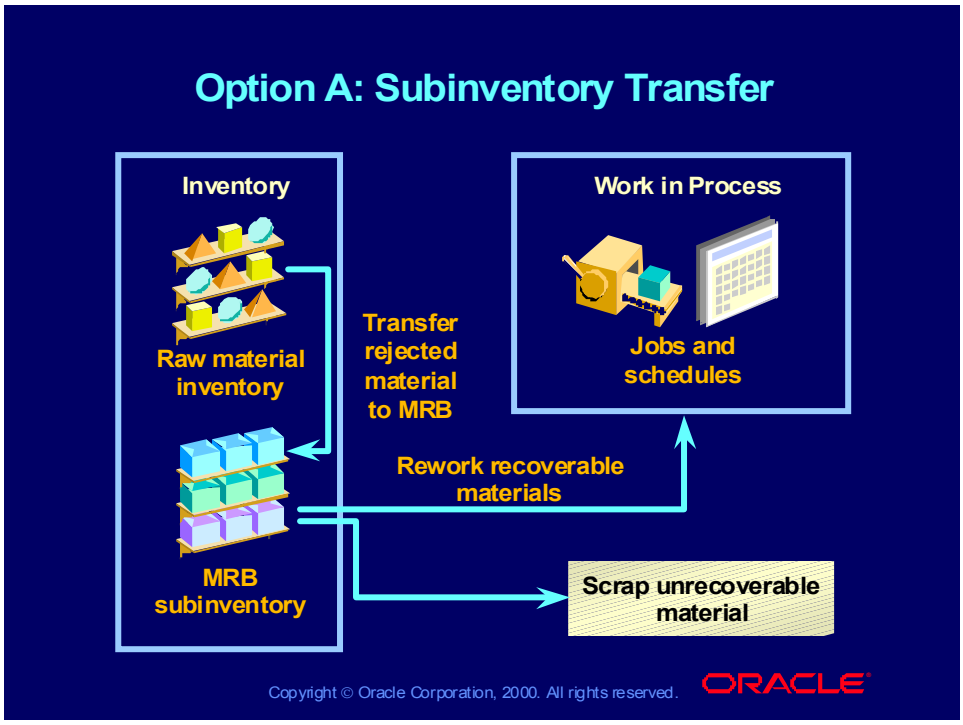
# Option A: Subinventory Transfer




You can transfer rejected material to a nonnettable Material Review Board (MBR) subinventory to possibly recover it later.

### Performing a Transfer Between Subinventories

- After creating a nonnettable subinventory using the Subinventories window, you can transfer the rejected material from the current subinventory to the MRB subinventory.
- You can evaluate whether the rejected material can be recovered or whether it should be scrapped.

### Benefits of Option A

- Isolates questionable material
- Leaves the option to recover the material

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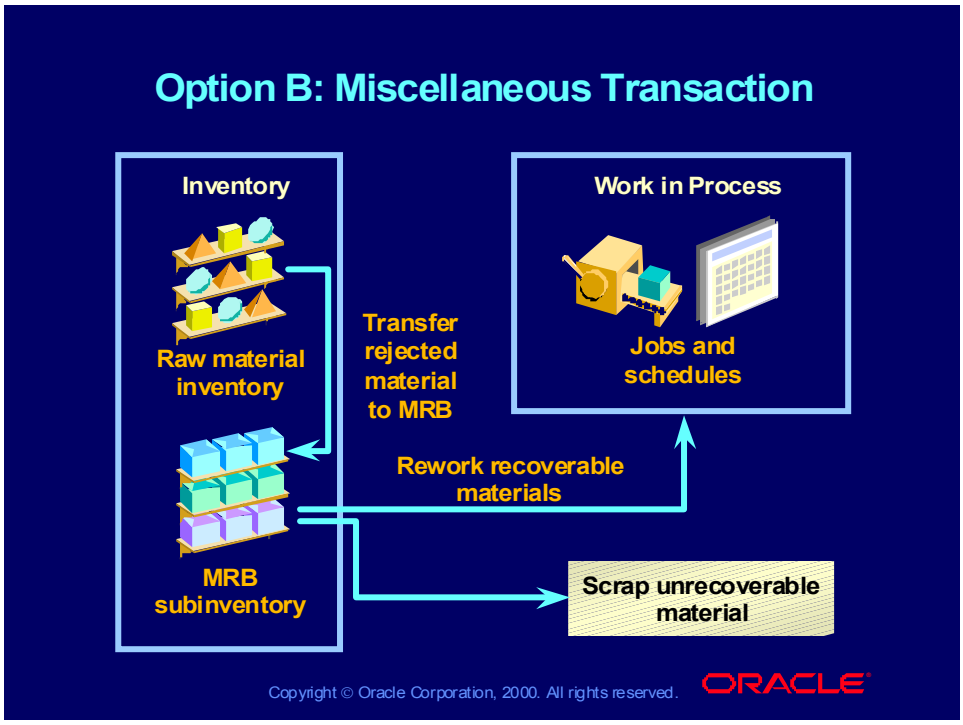
# Option B: Miscellaneous Transaction




You can perform a user-defined reject transaction to transfer rejected material to a nonnettable Material Review Board subinventory.

### Performing a Miscellaneous Transaction

- You can define a Reject transaction type as a transfer between subinventories transaction.
- Instead of using the Subinventory Transfer window, you can use the Miscellaneous Transaction window to perform a user-defined transaction.
- You can evaluate whether the rejected material can be recovered or whether it should be thrown away.

### Benefits of Option B

- Isolates questionable material
- Leaves the option to recover the material
- Identifies transactions using the appropriate terminology

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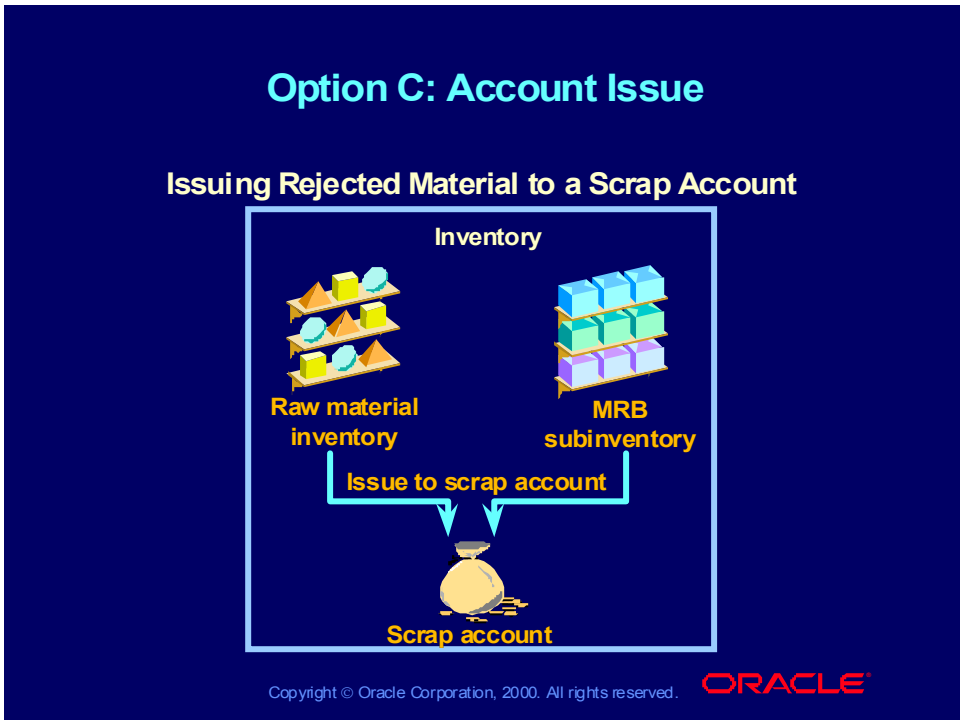
# Option C: Account Issue




**Performing a Miscellaneous Transaction**

- You can define Scrap accounts to which to issue rejected material.
- You can issue the rejected material from the MRB subinventory or from stores after determining it was not recoverable.

**Benefits of Option C**

- Charges scrap costs to appropriate accounts
- Reduces inventory valuation and balances

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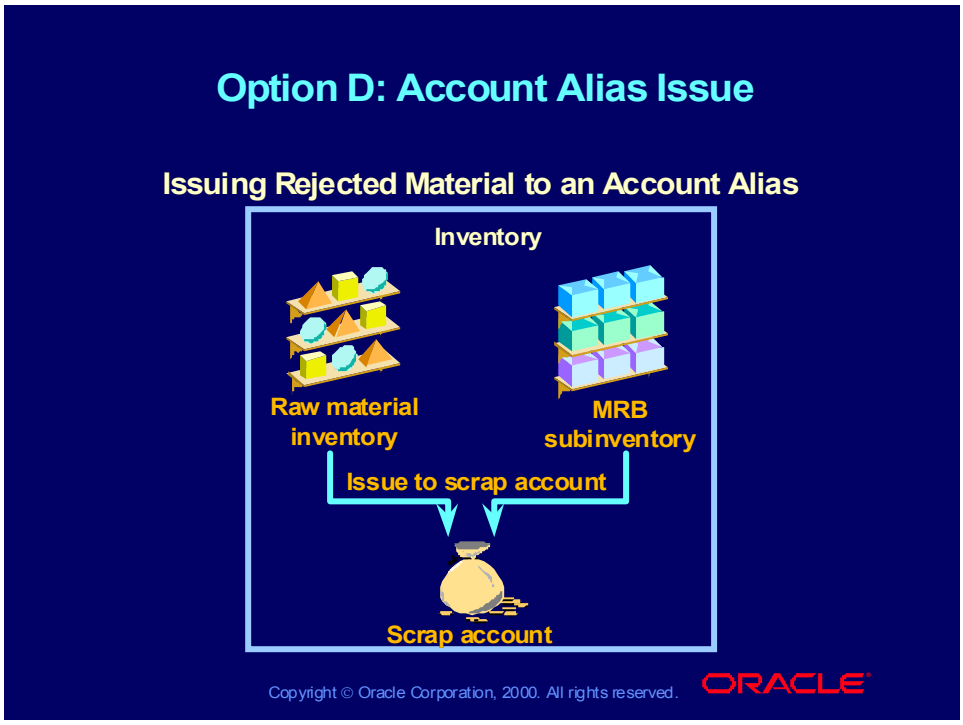
# Option D: Account Alias Issue




**Performing a Miscellaneous Transaction**

- You can define account aliases to which to issue rejected material.
- You can issue the rejected material from the MRB subinventory or from raw material inventory after determining it was not recoverable.

**Benefits of Option D**

- Charges scrap costs to appropriate accounts
- Reduces inventory valuation and balances
- No need to remember an account number to perform the transaction
- Runs cost reports by account alias

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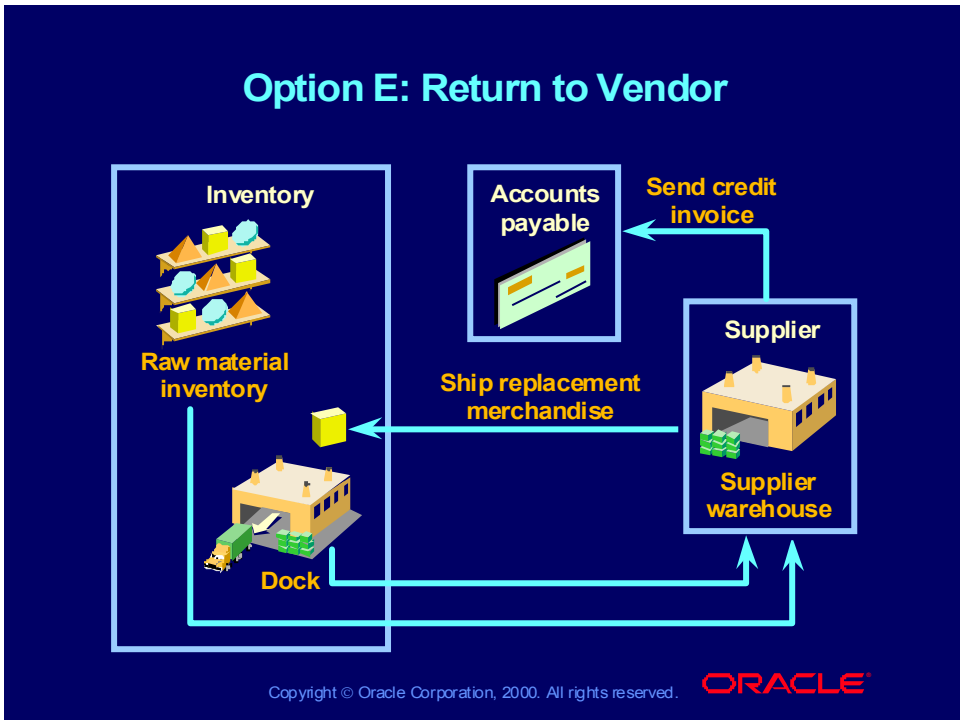
# Option E: Return to Vendor




### Performing a Return to Supplier Transaction

- You can use the Receiving Returns window to return any rejected material to the appropriate supplier.
- The supplier may send a credit invoice or ship some replacement material.

### Benefits of Option E

- There is no loss of material if the vendor provides replacement merchandise.
- There is no need to recover the material in-house.
- Credit may be issued by the vendor.

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# Planning Component Demand

## Planning Component Demand

- The planning process inflates the demand for a component with a yield factor less than 1.
- New component usage quantity = Component usage quantity / Yield factor
- Example:
  Component usage quantity = 10
  Yield factor = 0.9
  New component usage quantity = 10 / 0.9 = 11.1

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# Planning Component Demand Example

## Planning Component Demand Example

| Envoy Plastic Cover Bill | | | |
|---|---|---|---|
| Op Seq | Component | Qty | Yield |
| 20 | Plastic Stock—Green | 0.04 | 0.97 |
| 20 | Plastic Stock—Red | 0.04 | 0.97 |
| 20 | Resin | 0.02 | 0.97 |

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The planning process explodes through the bill of material to generate component requirements. If there is demand for 1,000 Envoy Plastic Covers, the planning process generates the following material requirements:

Plastic Stock—Green: (0.04 / 0.97) * 1,000 = 41.23

Plastic Stock—Red: (0.04 / 0.97) * 1,000 = 41.23

Resin: (0.02 / 0.97) * 1,000 = 20.61

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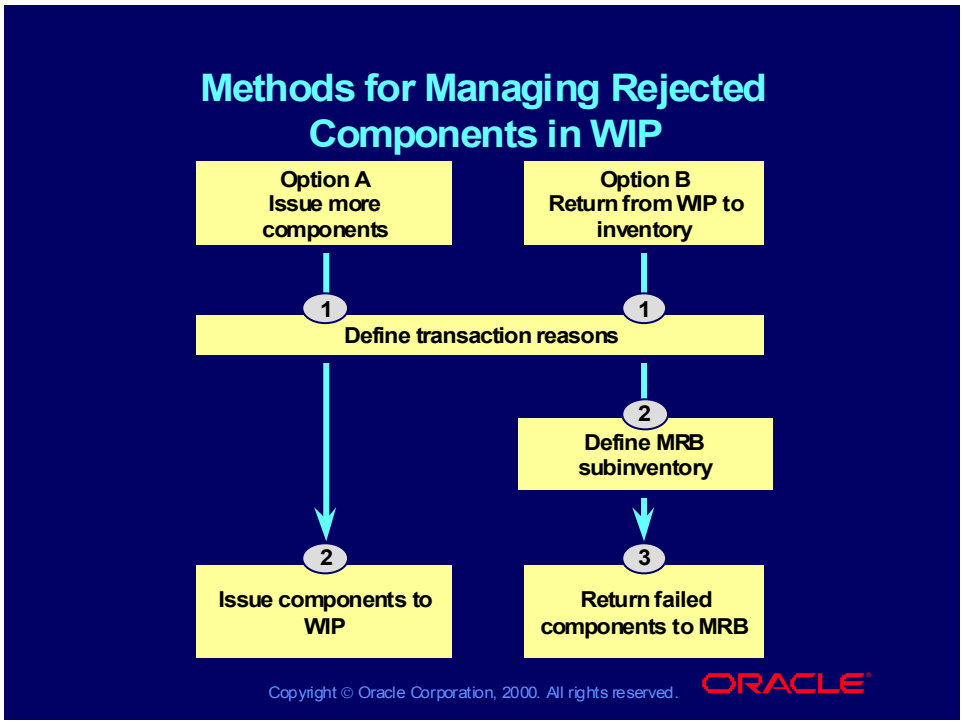
# Methods for Managing Rejected Components in WIP




You can manage rejected components in two ways:

- Issue more components
- Return from WIP to inventory

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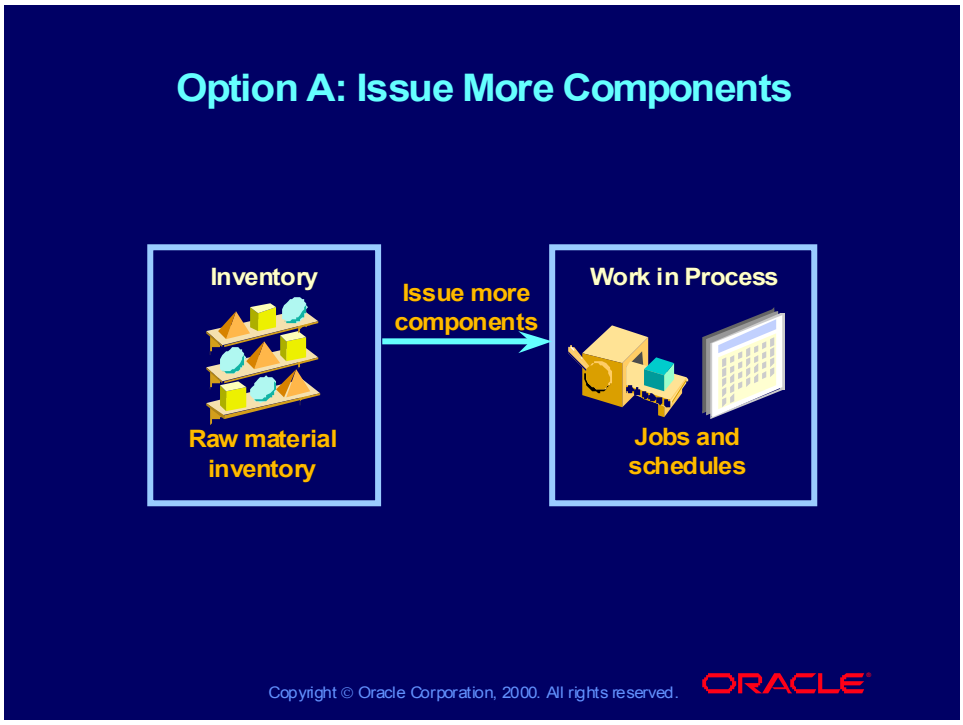
# Option A: Issue More Components




### Performing an Issue Transaction

- You can issue extra components to the discrete job using the WIP Material Transactions window.
- You can use a reason code to identify the cause of the overissue.
- You can leave rejected components in the job.

### Reviewing the Benefits of Option A

- Rejected components are easily traced by the system.
  - The overissued quantity identifies the volume of rejected components.
  - The material cost variance identifies the cost of rejected components.
  - Reason codes identify the cause of the problem.
- No need to stop production; additional components are easy to issue.
- No transactions are needed to scrap rejected components; you can just physically dispose of them.
- This option provides transaction history to help estimate component yield.

**Note:** This option does not work well for repetitive schedules, because any extra material in the schedule would be rolled forward to the next schedule.

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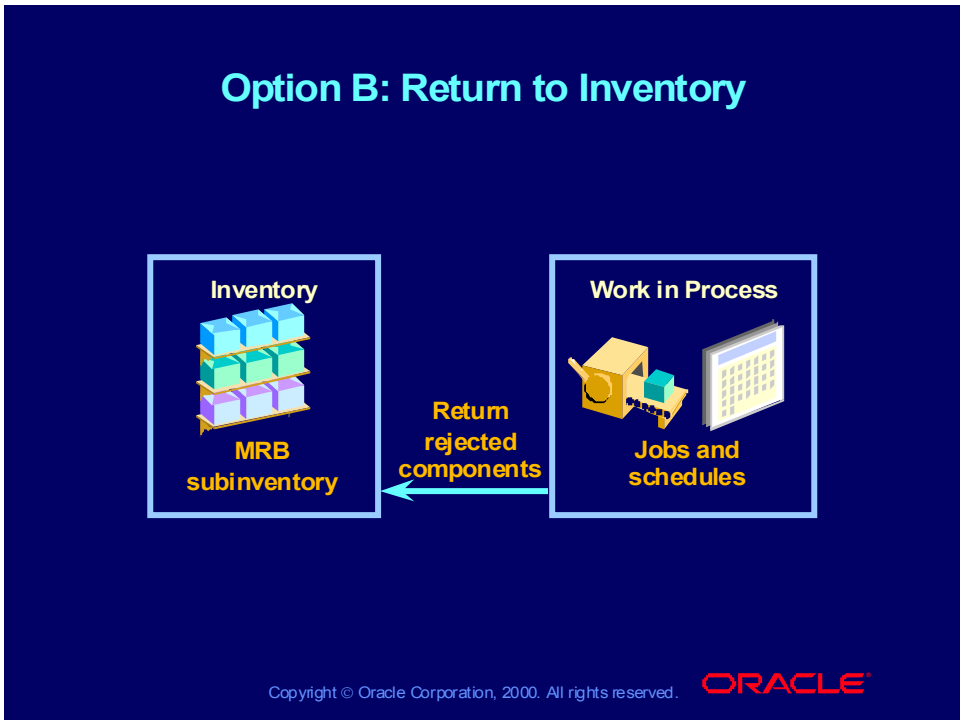
# Option B: Return to Inventory




### Performing a Return Transaction

- You can use the WIP Material Transactions window to return rejected components from WIP to inventory.
- You should make sure the components are returned to a nonnettable subinventory so they are not considered as supply by the planning processes.
- You can evaluate whether the components can be recovered.

### Benefits of Option B

- Leaves the option to recover the rejected components.
- Isolates rejected components.
- Provides transaction history to help estimate component yield.

### Notes

- If the raw material subinventory is close to your shop floor, you can directly exchange a rejected component in WIP with a good component in inventory. You should isolate the rejected component in the raw material subinventory and then dispose of it as you would any other rejected component in inventory.
- You can execute both options A and B simultaneously—that is, issue more good components and return rejected components to inventory.
- After returning the components to the MRB subinventory, you can also perform an inventory transaction to issue the failed components to a scrap account.

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# Review Question

## Review Question

What are the methods to manage rejected material in inventory?

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# Review Question Solution

## Review Question Solution

What are the methods to manage rejected material in inventory?

There are five ways you can manage rejected material in inventory:

Subinventory transfer
Miscellaneous transaction
Account issue
Account alias issue
Return to vendor

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# Review Question

## Review Question

**What are the methods to manage rejected components in work in process?**

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# Review Question Solution

## Review Question Solution

What are the methods to manage rejected components in work in process?

You can manage rejected components in two ways:

Issue more components
Return from WIP to inventory

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# Costing Overview

## Costing Overview

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## Costing Issue and Return Transactions

- Costing issue transactions: Accounting entries

| Account | Debit | Credit |
|---|---|---|
| WIP accounting class valuation accounts | XX | |
| Subinventory elemental accounts | | XX |

- Costing return transactions: Accounting entries

| Account | Debit | Credit |
|---|---|---|
| Subinventory elemental accounts | XX | |
| WIP accounting class valuation accounts | | XX |

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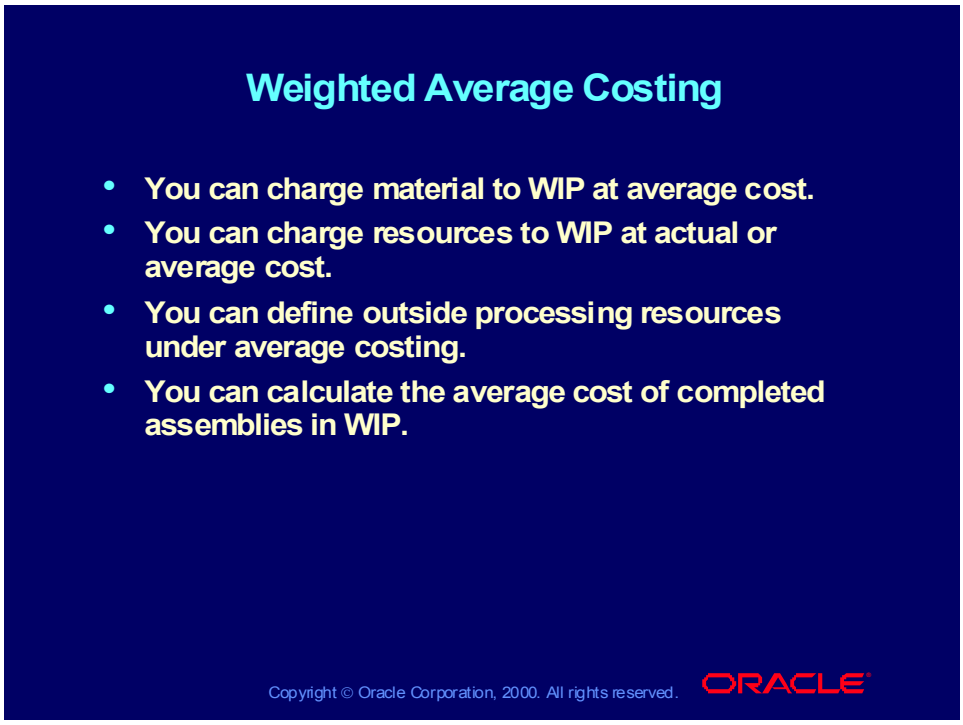


## Weighted Average Costing

With average costing capability in Work in Process, you can define your organization as a standard cost organization or an average cost organization.

- You can issue items from inventory to jobs and return components from a job back to inventory at the item's current average cost.
- You can charge resources to WIP jobs either at actual rate or at an average rate. How you define them is determined by the method you choose for charging labor and nonlabor resources to WIP.
- You can define outside processing resources under average costing in the same way you would in a standard cost organization.
- When you complete assemblies from WIP to a subinventory, they can be costed in one of the following ways:
  - A predefined cost in a user-designated cost type
  - An algorithm based on actual job charges that calculate the unit cost to be relieved from the job and charged to inventory for each unit completed

For more information, see *Oracle Cost Management Release 11i*.

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# Viewing and Reporting

## Viewing and Reporting

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# Viewing and Reporting Material Requirements

## Viewing and Reporting Material Requirements

| Windows/Reports | Description |
|---|---|
| View Material Requirements | View requirements by component item |
| View Discrete Jobs | View open requirements by job |
| View Repetitive Schedules | View open requirements by repetitive schedule |
| Discrete Job Data Report | Report job information, including material requirements |
| Repetitive Schedule Data Report | Report schedule information, including material requirements |
| Discrete Routing Sheet | Report routing information by job, including material requirements at each operation |

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You can view and report requirement information to control your work in process material flow.

### Material Reporting Common Elements

- Bulk and vendor item displays
- WIP supply subinventory and locator
- Alphanumeric ordering of items
- Quantity required, quantity issued, and quantity open
- Quantity on hand with nettable option

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# Viewing and Reporting Material Requirements

## Viewing and Reporting Material Requirements

| Windows/Reports | Description |
|---|---|
| Repetitive Routing Sheet | Report routing information by schedule, including material requirements at each operation |
| Discrete Job Shortage Report | Report open requirements or shortages by job |
| Repetitive Schedule Shortage Report | Report open requirements or shortages by repetitive assembly and line |
| Discrete Job Pick List Report | Report requirements for a job, ordered by supply type |
| Repetitive Pick List Report | Report requirements for a repetitive assembly, ordered by supply type |

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Oracle Work in Process reports do not show WIP allocations or reservations—that is, material is not allocated or reserved for use in a specific job or schedule ahead of use.

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# Viewing and Reporting Material Requirements

## Viewing and Reporting Material Requirements

| | |
|---|---|
| WIP_CUR_NET_AVAILABLE_VIEW | View open requirements whose start date is less than or equal to the current system date |
| WIP_CUR_SUB_LOC_NET_AVAIL_VIEW | View open requirements whose start date is less than or equal to the current system date consolidated by supply subinventory and locator |
| WIP_NET_AVAILABLE_VIEW | View open requirements regardless of the requirement date |
| WIP_SUB_LOC_NET_AVAIL_VIEW | View open requirements regardless of the requirement date consolidated by supply subinventory and locator |

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The database business views shown in the slide provide additional information that is useful for customized allocation and shortage reporting. They all show the quantities on hand in nettable and nonnettable subinventories for each component.

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# View Material Transactions

## View Material Transactions

Use the Material Transactions window to:

- View detail associated with inventory transactions
- Search for transaction information by entering a combination of search criteria.

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(Help) Oracle Manufacturing Applications > Oracle Inventory > Transactions > Overview of Movement Statistics > Viewing Material Transactions

(N) Material Transactions—>View Material Transactions

If material transactions have not completed, the defined discrete jobs profile may be set to concurrent and the batch process has not run. Contact the system administrator to launch the Interface Manager for Material Transactions.

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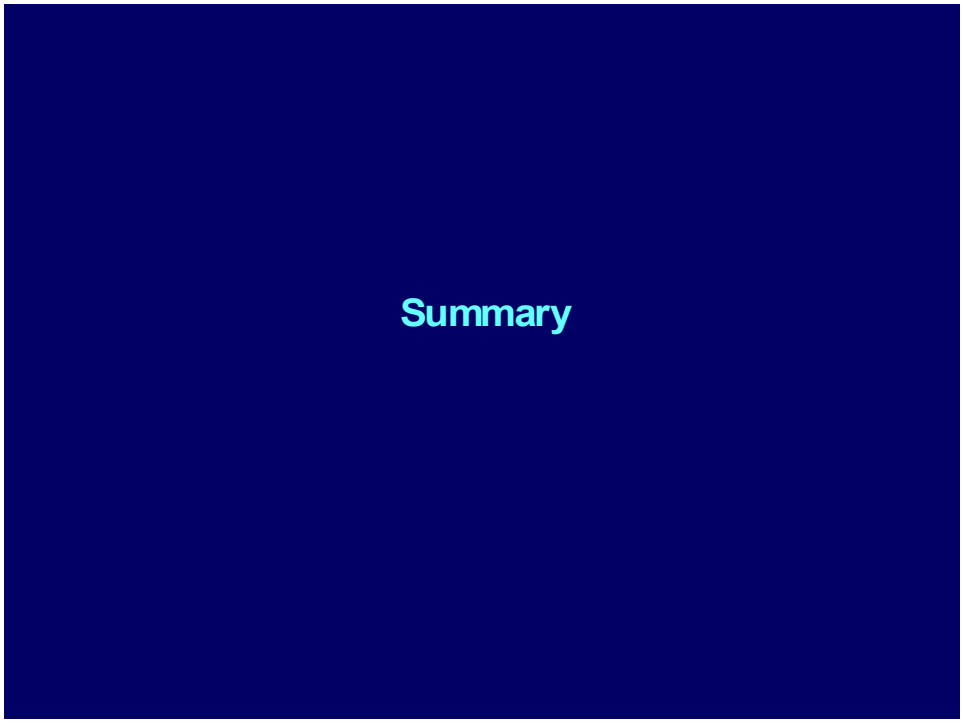
# Summary

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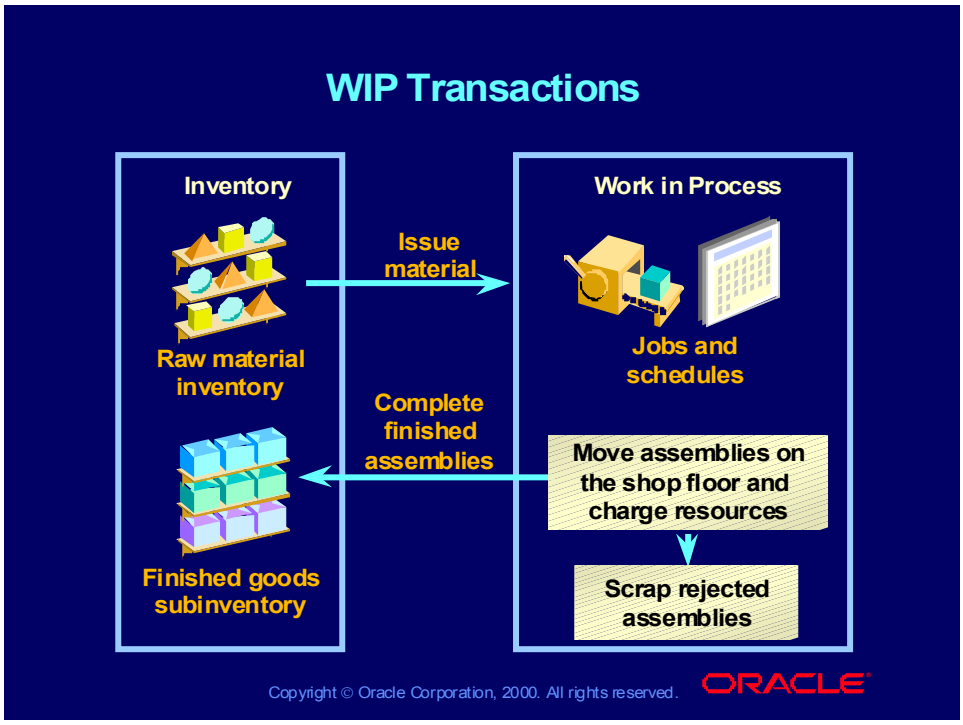
# WIP Transactions




## WIP Transactions

With Oracle WIP transactions you can

- Track and report your inventory accurately.
- Maintain accurate supply and demand information.
- Track activity costs.
- Value work in process.

Transactions are driven by actions.

## Examples

- Picking material from a pick list drives a material issue transaction in Oracle Work in Process.
- Completing an assembly at an operation drives a move and possibly a backflush transaction.
- Replenishing your subinventories drives a subinventory transfer transaction.
- Failing a test at an operation drives a scrap transaction.
- Shipping an assembly to an outside vendor drives a move transaction.
- Finishing an assembly drives a completion into inventory and possibly a backflush transaction.

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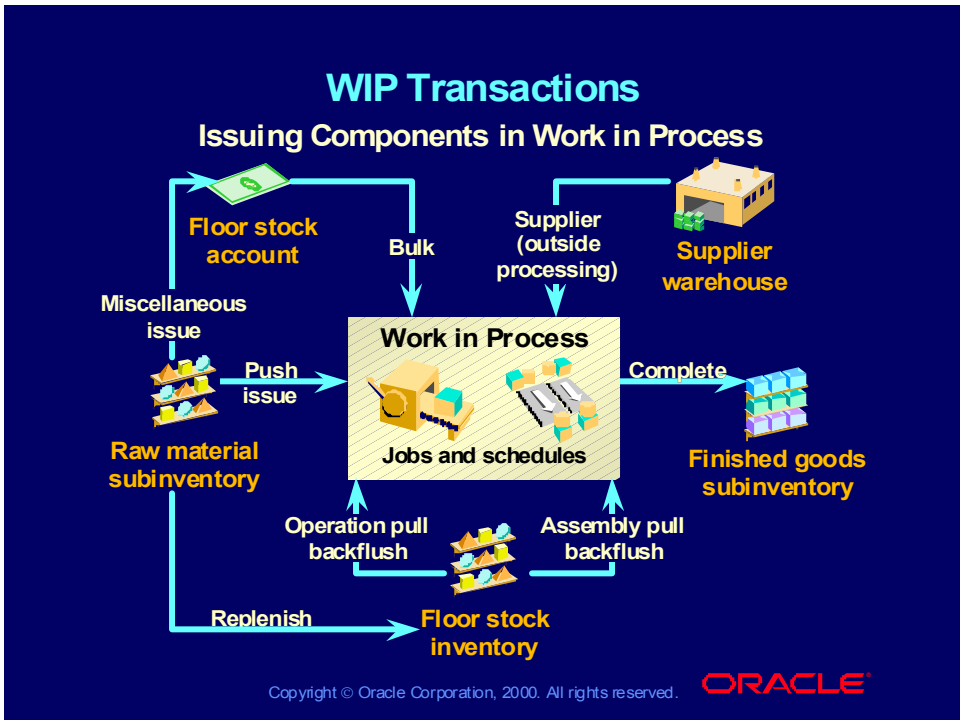
# WIP Transactions

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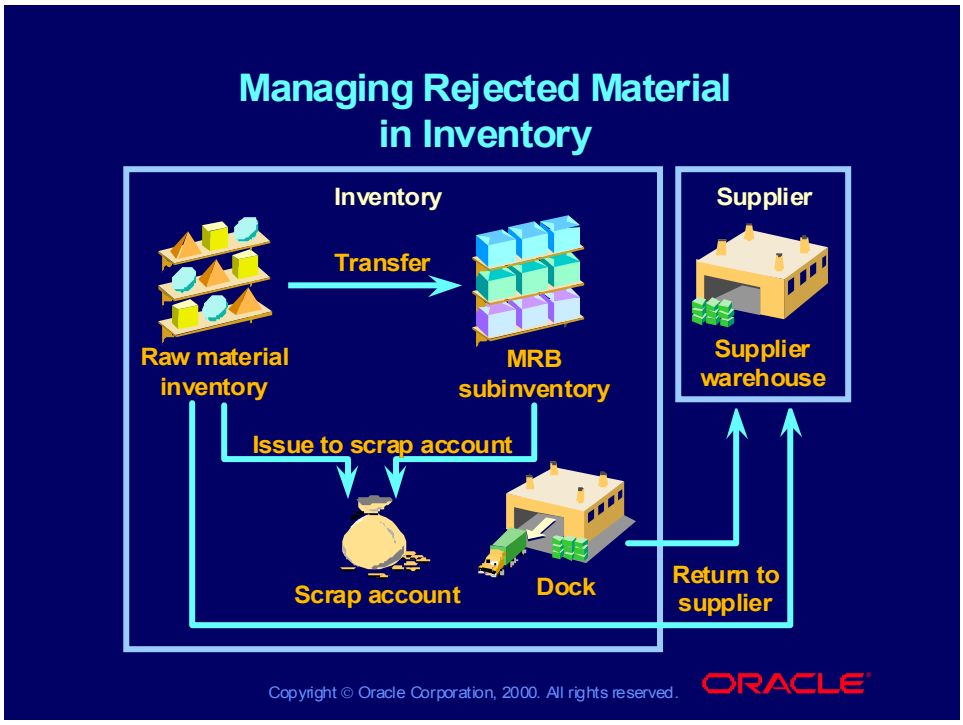
# Managing Rejected Material in Inventory

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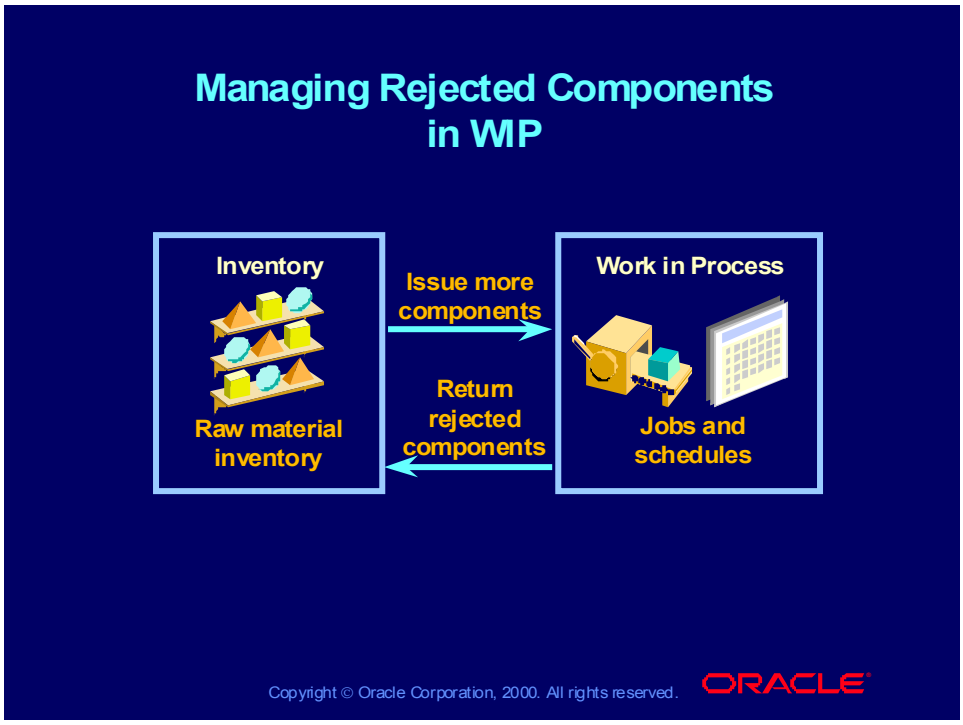
# Managing Rejected Components in WIP

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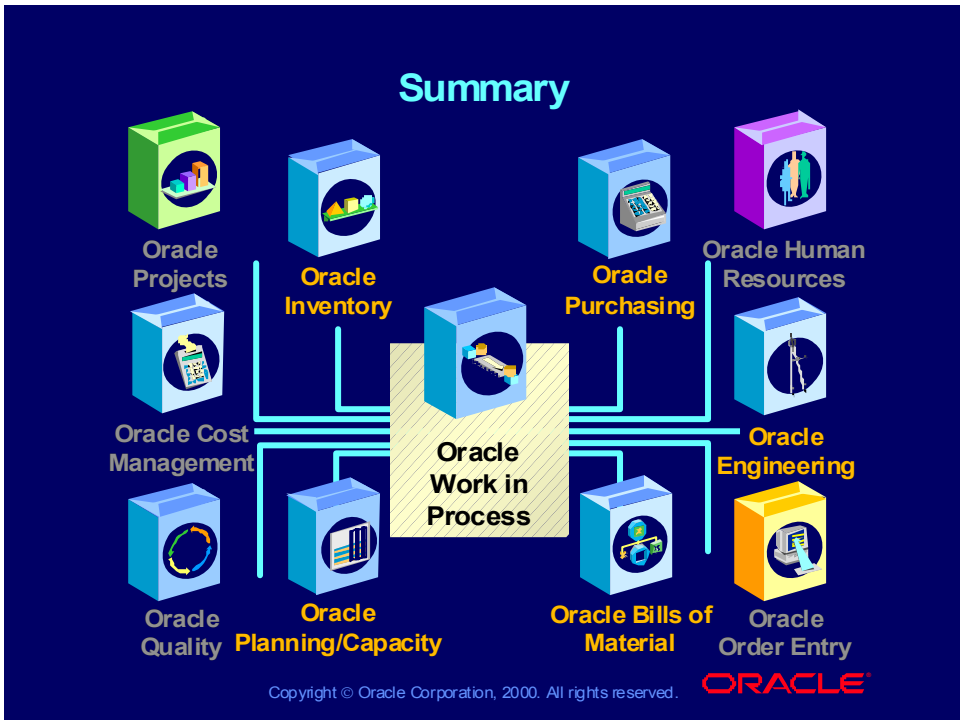
# Summary




## Product Integration

Oracle Work in Process interacts with Oracle's other applications products by sharing common information.

- Oracle Inventory
  - From: UOM, item information, and on-hand information
  - To: WIP activity and ATP supply information
- Oracle Bills of Material
  - From: Product structure information, routing information, and resource information
- Oracle Engineering
  - From: Engineering change information and product structure information
- Oracle Purchasing
  - From: Receipts deliveries
  - To: Subcontract requisitions
- Oracle Planning
  - From: Planned jobs and schedules
  - To: Open jobs, schedules, and repetitive assembly and line information
- Oracle Capacity
  - To: Existing resource load

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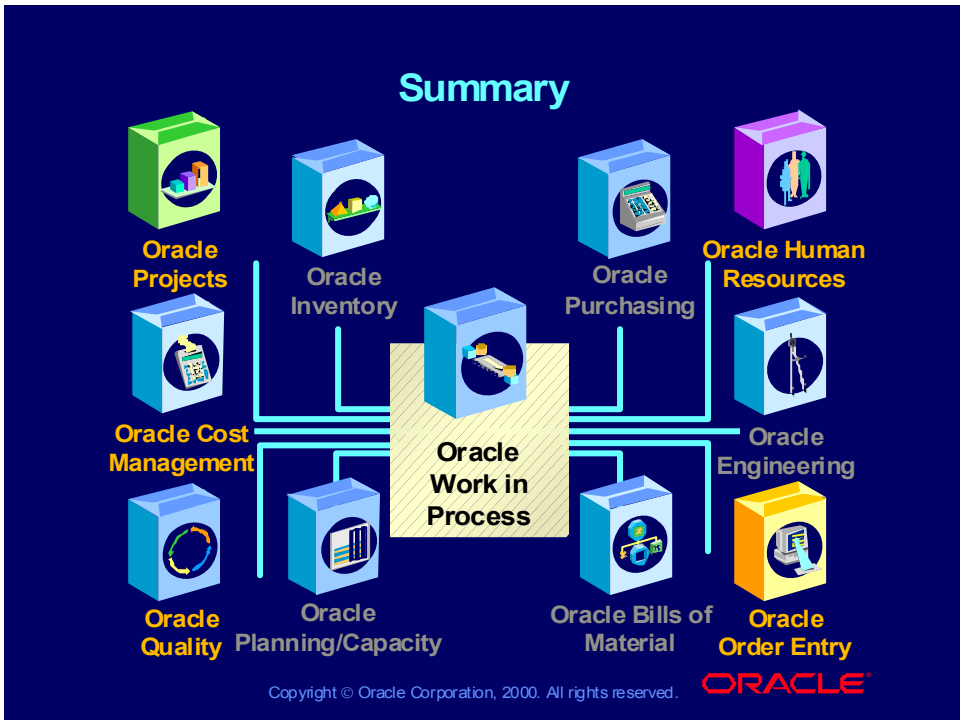
# Summary




**Product Integration (continued)**

- Oracle Cost Management
  - From: Cost information
  - To: Transaction costs
- Oracle Projects
  - From: Project tasks and IDs
  - To: Job cost information
- Oracle Quality
  - To: Quality data
- Oracle Human Resources
  - From: Employee information
- Oracle Order Entry
  - From: Final assembly orders

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# R11i Oracle Work in Process Transactions - Moves and Resources

**Chapter 8**

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## Objectives

After completing this component, you should be able to do the following:

- Move assemblies on the shop floor
- Track assembly movements on the shop floor
- Report shop floor activity
- Manage rejected assemblies in work in process
- Charge resources to jobs or schedules
- Monitor resource transaction activity

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# Agenda

## Agenda

- Overview
- Moving Assemblies
- Managing Rejecting Assemblies
- Charging Resources

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# Overview

## Overview

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## Objectives

In this section you will cover the following:

- Work in process flow
- Repetitive flow
- WIP transactions
- Backflushing components
- Moving assemblies and charging resources
- Managing rejected assemblies
- WIP integration

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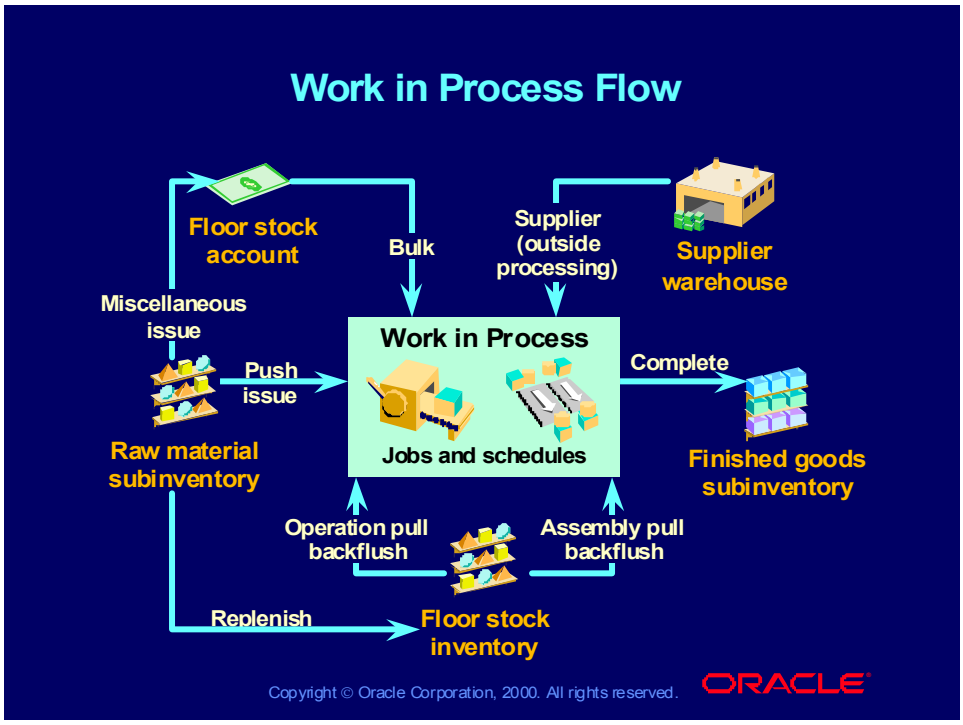
# Work in Process Flow




## Definitions

- **Issue transaction** is a material transaction to issue component items from inventory to work in process.
- **Replenishment transaction** is a material transaction to stage components in advance of backflushing.
- **Return transaction** is a material transaction to return components from WIP back to inventory. Return transactions increase WIP material requirements, inventory balances, and valuation, and decrease WIP valuation.

## Distinguishing Between Types of Material Transactions

- **Material issue transactions** fulfill WIP material requirements on jobs or schedules.
  - Issue transactions reduce inventory balances and valuation.
  - Issue transactions incur WIP costs and increase WIP valuation.
- You can use supply types to control how components are supplied to fulfill material requirements.
- **Push issue transaction** is a material transaction to issue component items from inventory to work in process before you manufacture the assembly.

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# Work in Process Flow (continued)

- **Backflush transaction** is a material transaction that automatically issues component items into work in process from inventory when you move or complete the assembly. A backflush transaction is also known as post–deduct or pull.

### WIP Material Requirements

WIP material requirements describe the items and quantities needed to build an assembly on a discrete job or repetitive schedule. Requirements in discrete jobs or repetitive schedules come from component items defined on a bill of materials. WIP issue transactions fulfill material requirements.

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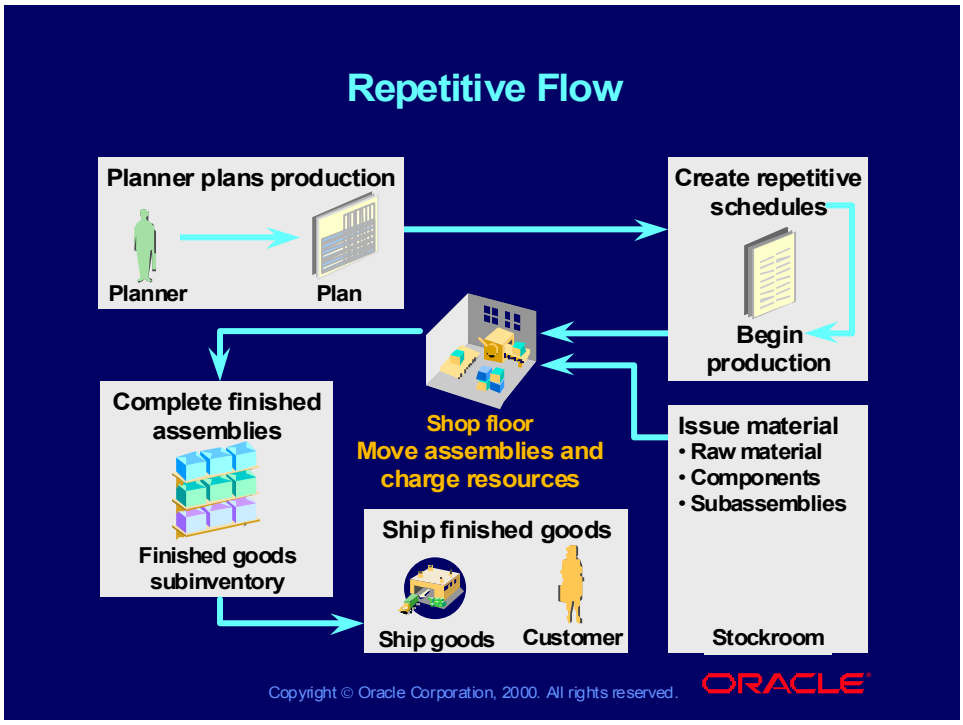
# Repetitive Flow

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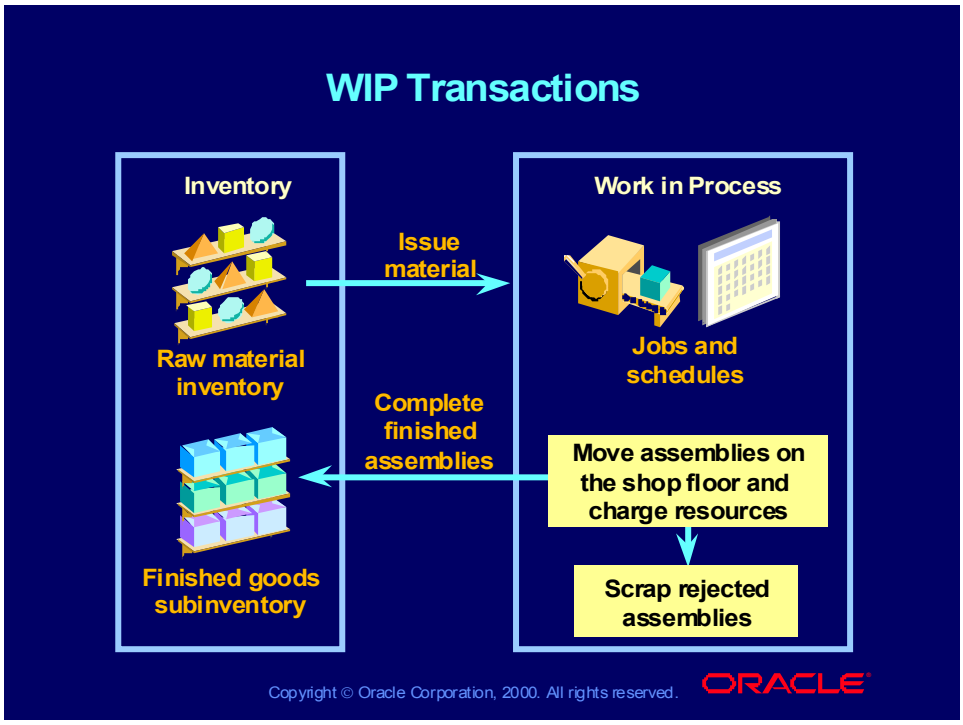
# WIP Transactions




## WIP Transactions

With Oracle WIP transactions, you can:

- Track and report your inventory accurately.
- Maintain accurate supply and demand information.
- Track activity costs.
- Value work in process.

Transactions are driven by actions.

## Examples

- Picking material from a picklist drives a material issue transaction in Oracle Work in Process.
- Completing an assembly at an operation drives a move and possibly a backflush transaction.
- Replenishing your subinventories drives a subinventory transfer transaction.
- Failing a test at an operation drives a scrap transaction.
- Receiving an assembly back from an outside vendor drives a move transaction.
- Finishing an assembly drives a completion into inventory and possibly a backflush transaction and job completion.

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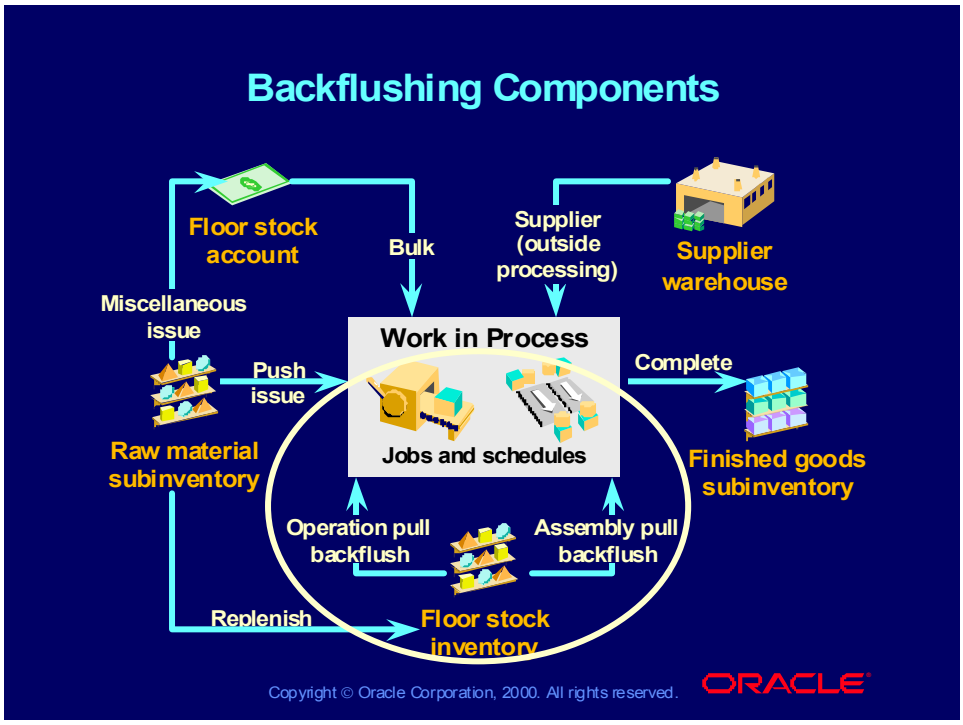
# Backflushing Components




## Backflushing Components

You can initiate a backflush from several sources. You do not need to do an explicit issue transaction if you use backflushing. You can automatically launch backflush transactions when moving or completing assemblies.

## Backflush Sources

- Move Transactions window
- Completion Transactions window
- Enter Receipts window in Oracle Purchasing (for outside processing)
- Oracle Inventory Material Transaction interface
- Open Move Transaction interface

## Operation Pull

- Move transactions that complete an operation backflush all components with a supply type of Operation Pull.
- The backflush occurs only at routing operations with a backflush type of Yes. The backflush transaction backflushes all Operation Pull components at all appropriate previous operations in the routing as well.
- Components with a supply type of Operation Pull defined for an operation with a backflush type of No are backflushed after completing an operation with a backflush type of Yes later in the routing.

## Assembly Pull

WIP completion transactions backflush all components with a supply type of Assembly Pull.

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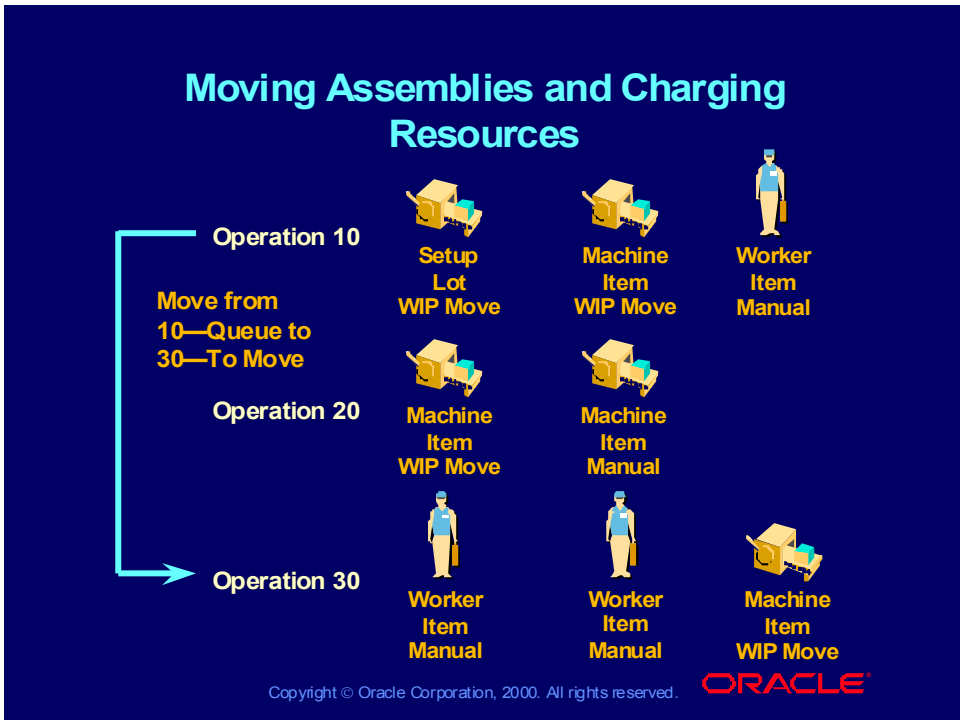


## Moving Assemblies and Charging Resources

### Move and Resource Transactions

- **Move transactions** move assemblies from any operation on the routing to any other operation. Moves normally follow the sequence as defined by the routing.
- **Backward move** is used to correct a mistake or to perform additional work at a previous operation. Backward moves uncharge everything that was charged by the forward move.
- **Resource** is a thing of value, except material and cash, that is required to manufacture, cost, and schedule products. Resources include people, tools, machines, services purchased from a vendor, and physical space.
- **Resource basis** is the basis for resource usage quantity that indicates whether that quantity is required per item or per lot.
- **Lot-based resources** are resources whose usage quantity represents the amount you require per job or schedule. For example, a lot-based resource could be the amount of time required to set up a machine at an operation to build the assemblies on a job or painting or drying, where time is constant regardless of the job or schedule quantity.
- **Item-based resources** are resources whose usage quantity represents the amount you require per assembly you make. For example, an item-based resource could be the amount of time required to process each assembly at an operation for the job.

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# Moving Assemblies and Charging Resources (continued)

- **Resource transaction** is a transaction in which you automatically or manually charge resource costs to a discrete job or repetitive schedule. Transacting a resource is synonymous with charging a resource.

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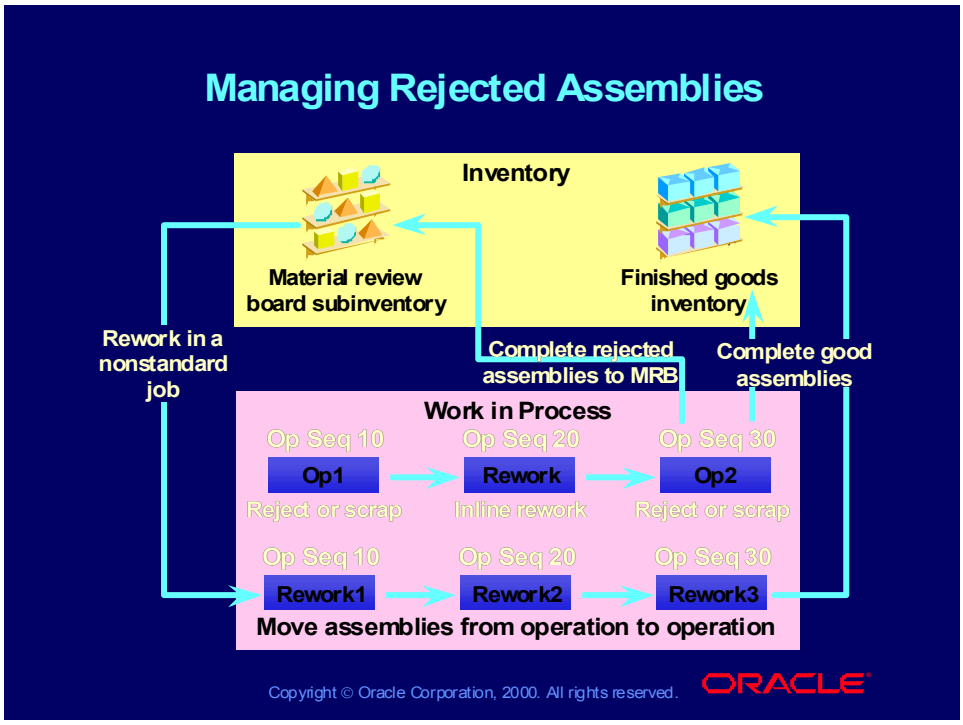


## Managing Rejected Assemblies

### Definitions

- **Reject** is an intraoperation step in an operation at which you record assemblies that require rework or need to be scrapped.
- **Scrap** is an intraoperation step at which you move assemblies that cannot be reworked or completed.
- **Scrap account** is an account that you use to charge scrap transactions.

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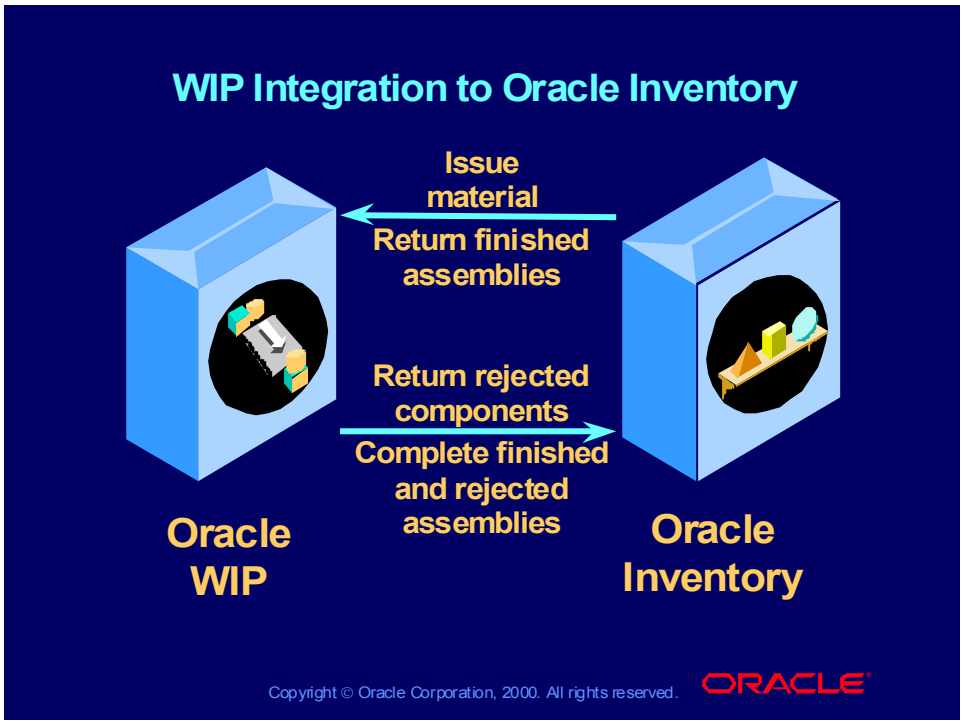
# WIP Integration to Oracle Inventory




## WIP Integration to Oracle Inventory

## Material Transactions Use Inventory Controls

**Item Status**

The item being transacted must be transactable in Oracle Inventory.

**Subinventories and Locators**

You can use the subinventories and locators and any transaction default values defined in Oracle Inventory.

**Lot Control**

- Oracle Work in Process supports lot control for all material transactions.
- You can use the same entry window for issues, backflushes, and completions.
- You can enter lot numbers for items under lot control when performing issues, returns, and completions.
- You can use the lot number assigned upon receipt of an item into inventory when issuing that item to work in process.

**Serial Number Control**

- Oracle Work in Process supports serial number control for all material transactions.
- You can use the same entry window for issues, backflushes, and completions.

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- When performing issues, returns, and completions, you can enter serial numbers for items under serial number control.
- When issuing that item to work in process, you can use the predefined or dynamically created serial numbers assigned upon receipt of an item into inventory.

**Revisions**

- You can issue, return, or complete components under revision quantity control.
- Transaction quantities are tracked by revision.

## Issuing Material

An issue transaction is a material transaction to issue component items from inventory to work in process.

- Material issue transactions fulfill WIP material requirements on jobs or schedules.
- Issue transactions reduce inventory balances and valuation.
- Issue transactions incur WIP costs and increase WIP valuation.
- You can use supply types to control how components are supplied to fulfill material requirements.
- A push issue transaction is a material transaction to issue component items from inventory to work in process before you manufacture the assembly.
- A backflush transaction is a material transaction that automatically issues component items into work in process from inventory when you move or complete the assembly. A backflush transaction is also known as post-deduct or pull.

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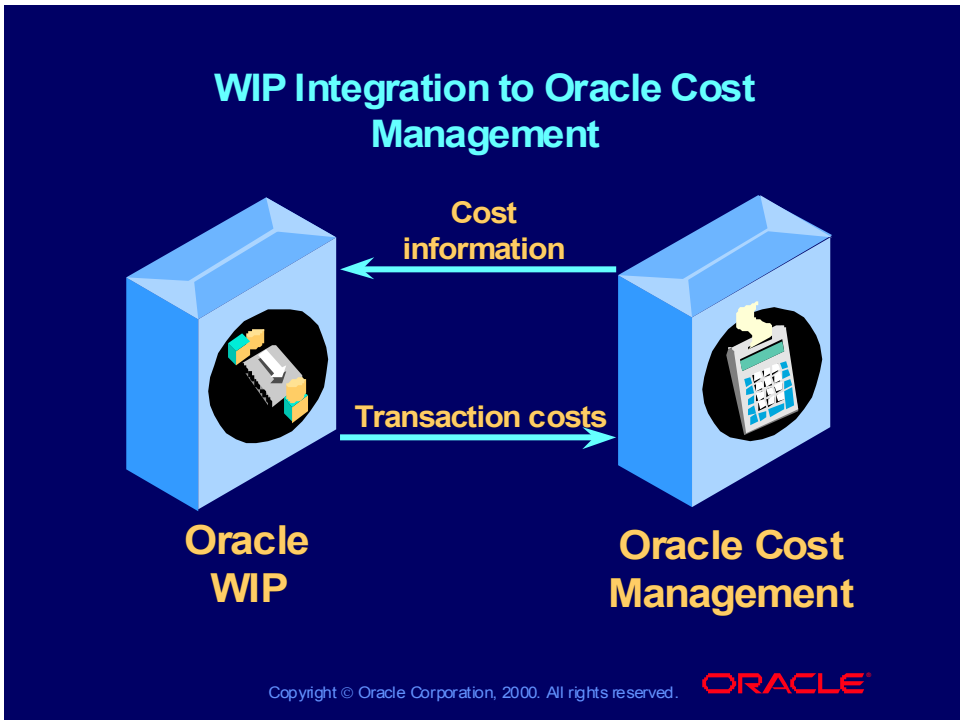
# WIP Integration to Oracle Cost Management




## WIP Integration to Oracle Cost Management

### Costing Transactions

- Issue and return transactions affect your work in process and inventory valuations.
- Issue transactions increase your work in process valuation and decrease your inventory valuation.
- Return transactions increase your inventory valuation and decrease your work in process valuation.
- Move transactions can automatically launch backflush transactions and charge resources and overheads.
- Backflush material transactions increase your work in process valuation and decrease you inventory valuation.
- Resource charges increase your work in process valuation.
- Overhead charges increase your work in process valuation.
- You can cost resource transactions at either standard or actual.
- Completion transactions affect your work in process and inventory valuations.
- Completion transactions decrease your work in process valuation and increase your inventory valuation.

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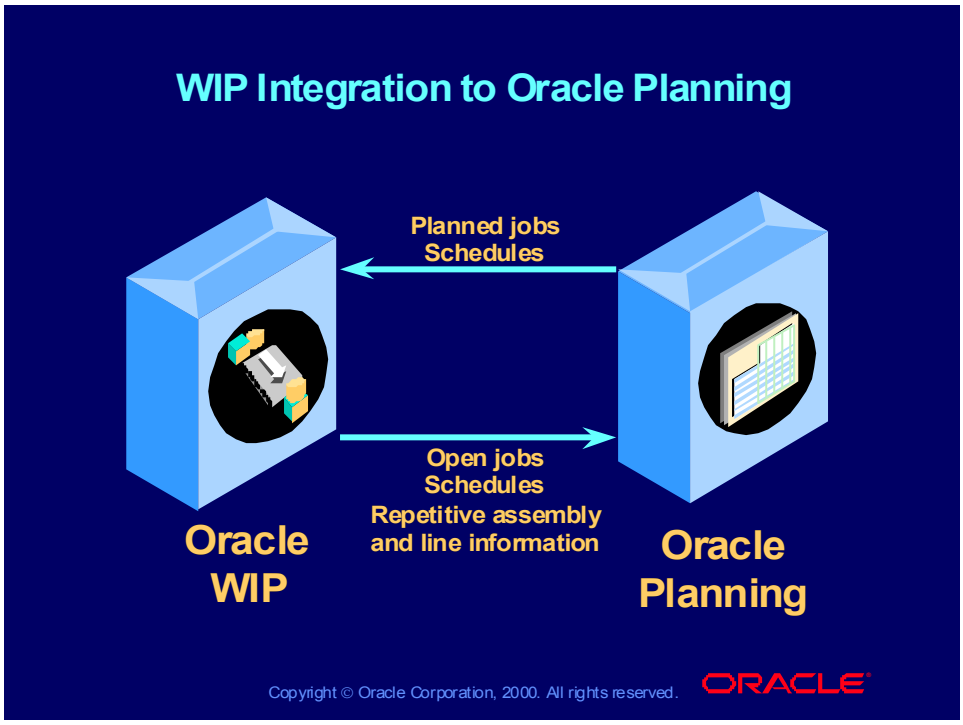


## WIP Integration to Oracle Planning

**Requirements**

The planning process inflates the demand for a component with a yield factor of less than 1 to compensate for the expected component rejection in WIP.

**New Component Usage Quantity = Component Usage Quantity / Yield Factor**

The planning process creates additional demand for an item to compensate for the expected assembly shrinkage loss and maintain supply.

**Supply Quantity = (MRP Net Quantity - Quantity Completed - Quantity Scrapped) * (1 - Shrinkage Rate)**

**Net Requirement = Original Demand - Supply Quantity From the Job**

**Shrinkage Demand = Demand * 1 / (1 - Shrinkage Rate)**

**Total Demand = Manual (Original) Demand + Discrete Job Shrinkage + Planned Order Shrinkage**

**Discrete Job Shrinkage = MRP Net Quantity - Supply Quantity from the Job**

**Planned Order Shrinkage = Shrinkage Demand - Net Requirement**

**Total Supply = Discrete Job Quantity + Planned Order Quantity**

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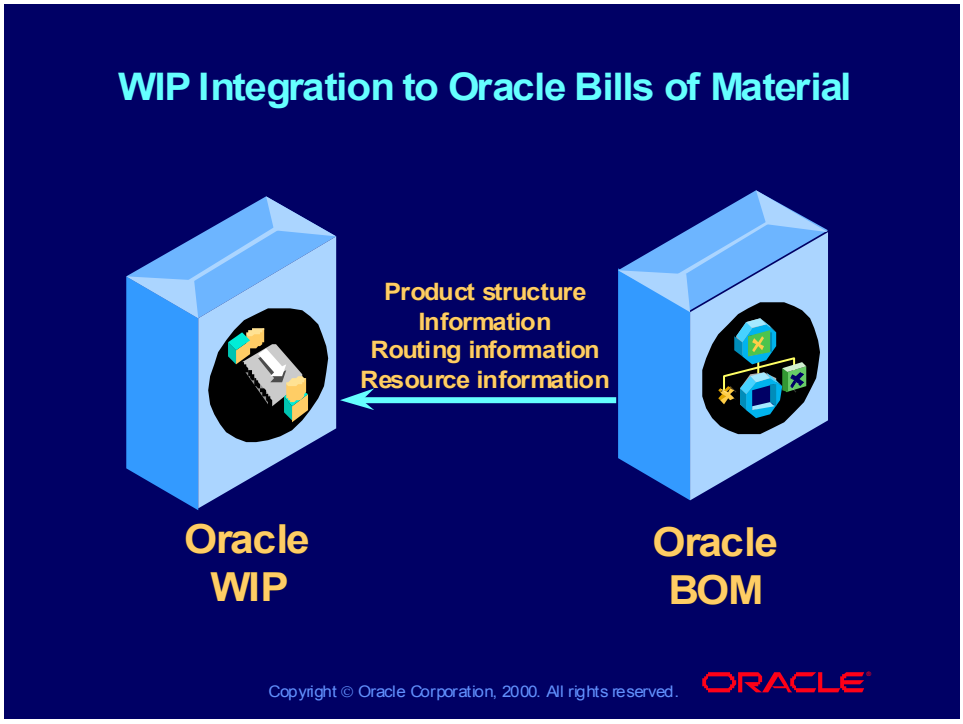
# WIP Integration to Oracle Bills of Material

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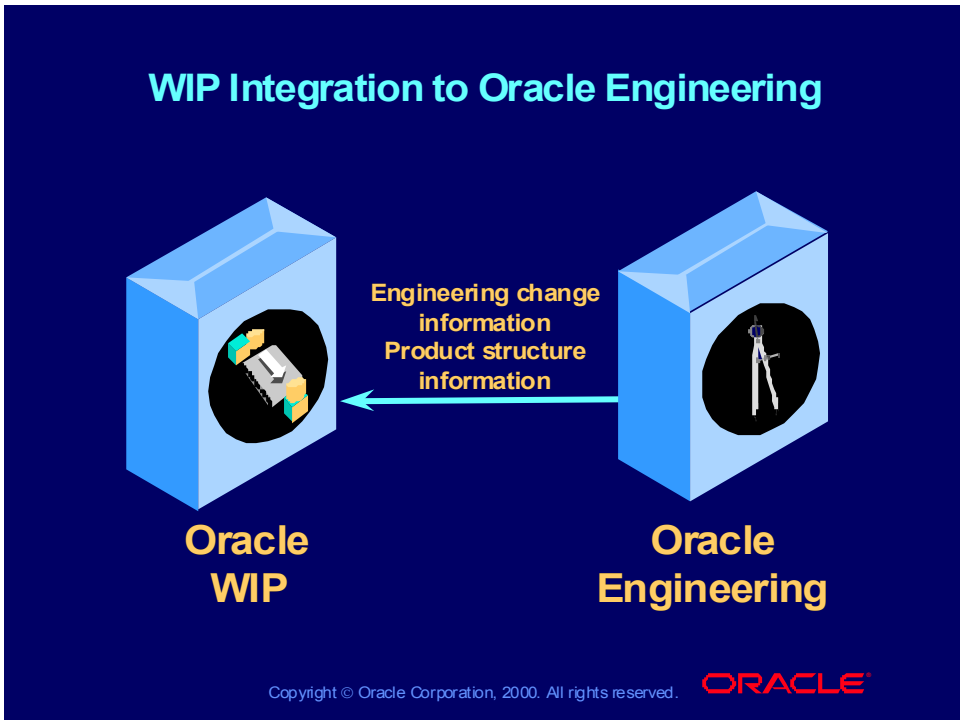
# WIP Integration to Oracle Engineering

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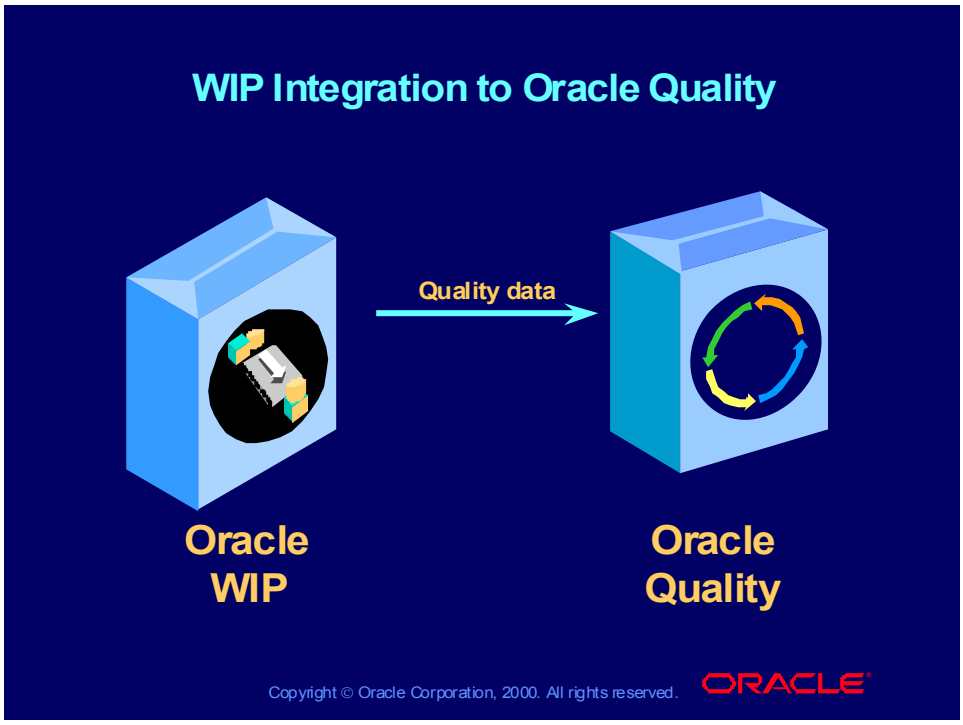
# WIP Integration to Oracle Quality




### WIP Integration to Oracle Quality

- Collecting transactional data when doing move transactions.
- Writing context information for reference collection elements to the quality data repository.

### Collection Elements

Before you can collect data with Oracle Quality, you must first set up your data collection structure. The basic building block of this structure is the collection element, which is used in both the specification and the collection plan.

Collection elements define the characteristics of the product or process for which you are collecting, analyzing, and reporting data. For each collection element, you can specify a list of acceptable values or specification limits, such as target value and upper and lower limits.

### Specifications

Specifications describe the requirements of a product. You can define specification limits for key characteristics of the product that you produce.

### Collection Plans

Collection plans are similar to test or inspection plans. Collection plans specify the collection elements to use in collecting data. Collection plans specify when and how to collect the data as well as the actions to take based on the data collected.

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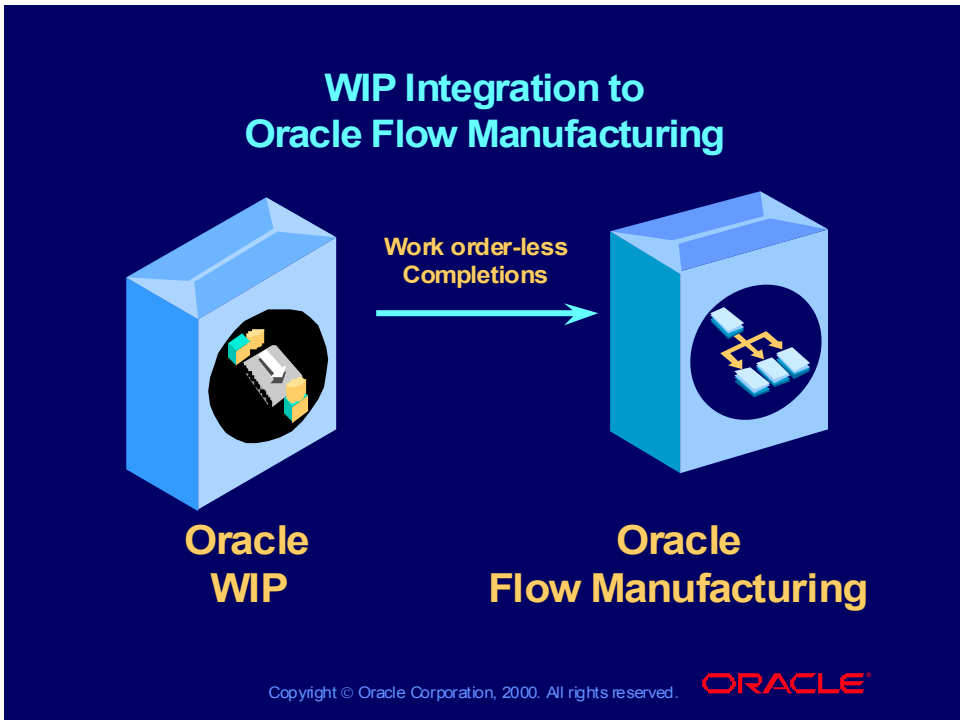
# WIP Integration to Oracle Flow Manufacturing




## WIP Integration to Oracle Flow Manufacturing

Flow Manufacturing is a manufacturing approach with the objective of building the highest quality product in the shortest possible time at the lowest cost.

Production is recorded with the Work Order-less Completion transaction against flow schedules created with the Line Scheduling Workbench. Completions can be either unscheduled or scheduled against a flow schedule. The system backflushes all components and performs resource and overhead transactions upon recording completion of the finished product. Additionally, Oracle Flow Manufacturing allows assembly completions to be recorded without having to create work order, a job or repetitive schedule, or a flow schedule.

Work order-less completions in WIP and Flow do the following:

- Backflush pull and push components
- Charge resources and overhead based on the flow routing

You do not need to use Flow Manufacturing to do work order-less completions. They can be completed in Work in Process.

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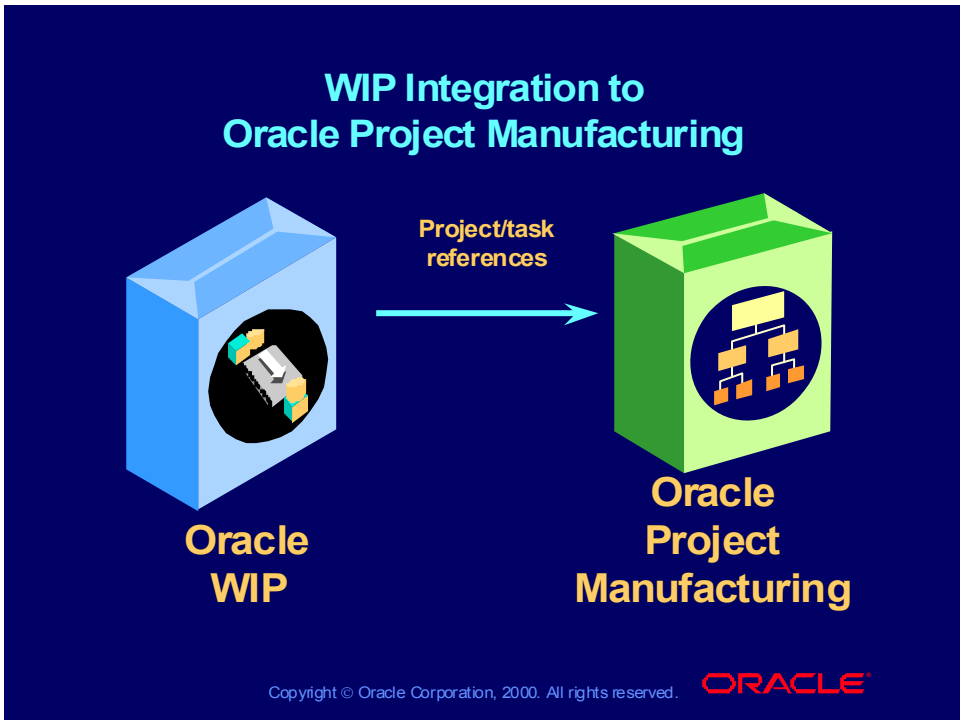


## WIP Integration to Oracle Project Manufacturing

### Project WIP Jobs

You can create WIP jobs (work orders) with project/task references. Both standard and non-standard WIP jobs are supported. Standard Project WIP jobs can be created automatically and released from the Planner Workbench.

Performing move and resource transactions in Project Manufacturing is similar to doing moves and resources in discrete WIP jobs.

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# Moving Assemblies

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## Objectives

In this section you will cover the following:

- Intraoperation and interoperation moves
- Operation completions and uncompletions
- Reverse backflush transactions
- Performing, viewing, and pending move transactions
- Overcompletions
- Assignment of shop floor statuses and move restrictions
- Discrete workstation
- Shop floor activity reports
- Costing move transactions

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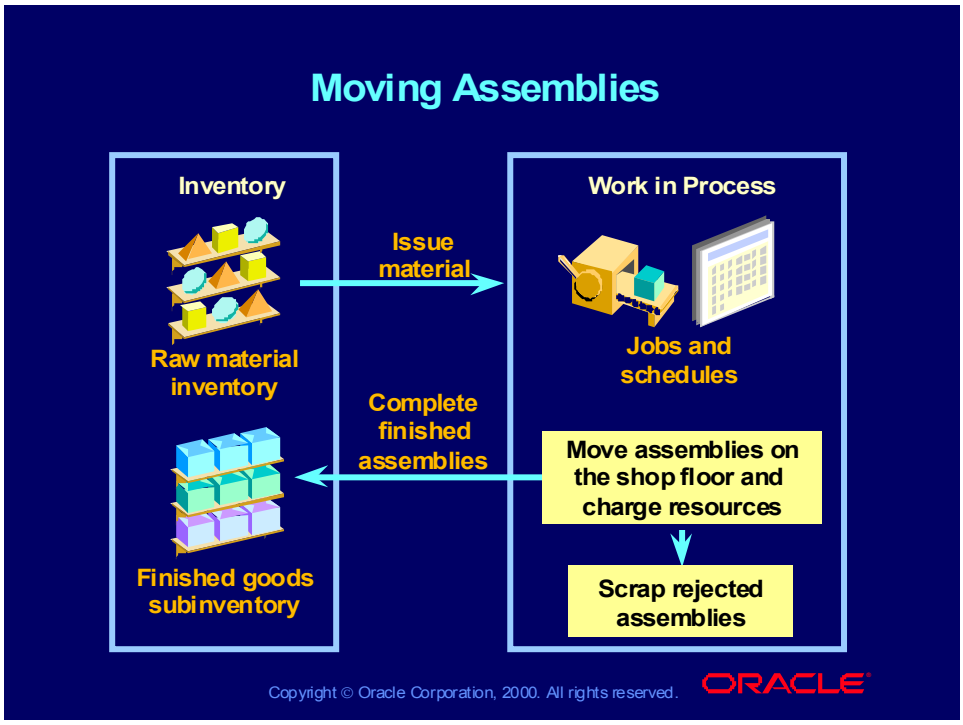


## Moving Assemblies

**Moving Assemblies from Any Operation on the Routing to Any Other Operation**

Moves normally follow the sequence as defined by the routing. For example, you can perform backward moves to correct a mistake or to perform additional work at a previous operation.

Backward moves uncharge everything that was charged by the forward move.

**Adding Operations to WIP Routings**

You can add an operation during a move transaction using the Move Transactions window only.

You can verify that the Enable Adding Operation flag is set to Yes in the Work in Process Parameters window.

For example, you can add an operation to perform sample testing if the routing does not already have it.

**Move Transaction Concepts**

Move Transactions can initiate other transactions in Oracle Work in Process:

- Backflush issue transactions for components with supply type Operation Pull
- Automatic resource transactions for resources with autocharge type WIP Move
- Overhead transactions for overheads with basis type Item or Lot

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions

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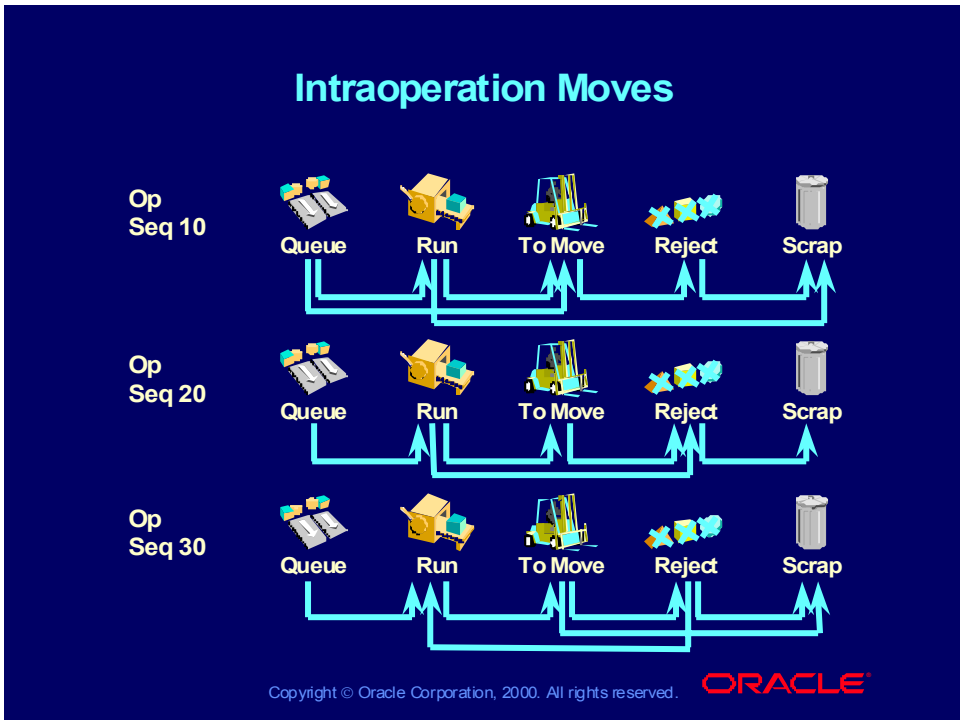
# Intraoperation Moves




## Intraoperation Moves

Intraoperation moves are assembly moves within an operation. Intraoperation steps are phases within an operation used to track assembly locations in detail. The steps are Queue, Run, To Move, Reject, and Scrap.

Intraoperation steps are not related to resource information or scheduling. For example, if you want to schedule queue time, you must define a queue resource in Oracle Bills of Material.

## Enable Steps

You can use the WIP Parameters window to specify which intraoperation steps you want to use. For example, if you want to keep track of the phases of your assemblies at each operation very closely, you would enable all intraoperation steps.

The Queue intraoperation step must be enabled.

## Move Assemblies to Enabled Steps

A pull manufacturer would probably enable the Run and To Move intraoperation steps. Assemblies wait in the To Move intraoperation step of the previous operation before they are pulled to the Run step of the next operation.

A push manufacturer would probably enable the Queue and Run intraoperation steps. Items wait in the Queue intraoperation step of the operation before they are pushed to the Run intraoperation step of the operation.

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# Intraoperation Moves (continued)

## Automatic Transactions Timing

The automatic transactions that can result from a move transaction must take place at one specific event point for each operation. This ensures that transactions are handled consistently and are not duplicated.

The event point at which the automatic transactions take place is called the operation completion.

Operation completions occur when quantities move into to move, reject, or scrap.

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions > Intraoperation Moves

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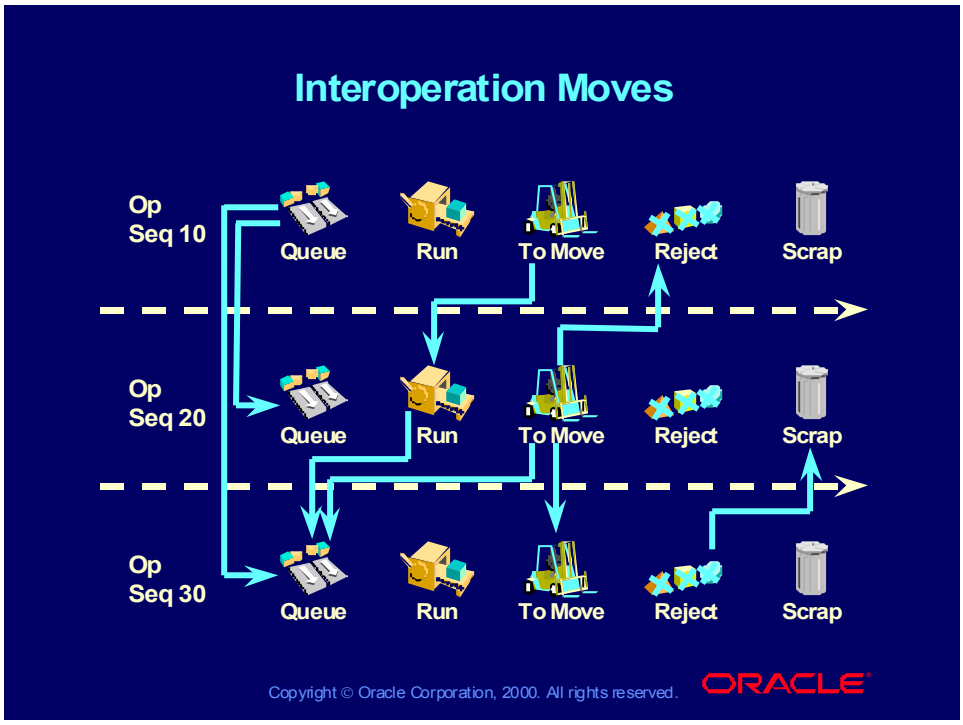
# Interoperation Moves




## Interoperation Moves

Interoperation moves are assembly moves from one operation to another in a routing.

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions > Interoperation Moves

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# Review Question

## Review Question

**Which intraoperation steps might you want to enable if you have a just-in-time production environment?**

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# Review Question Solution

## Review Question Solution

**Which intraoperation steps might you want to enable if you have a just-in-time production environment?**

**You would probably enable only Run and To Move to model your environment.**

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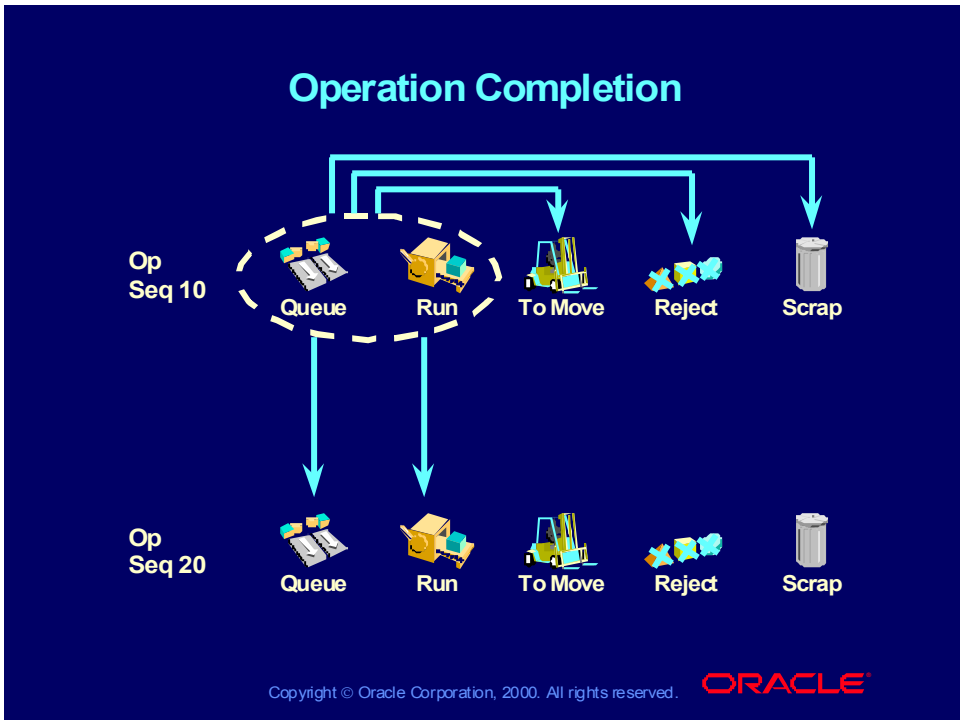
# Operation Completion




**Operation Completion**

The slide shows the operation completion for Operation Sequence 10.

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions > Operation Completion Moves

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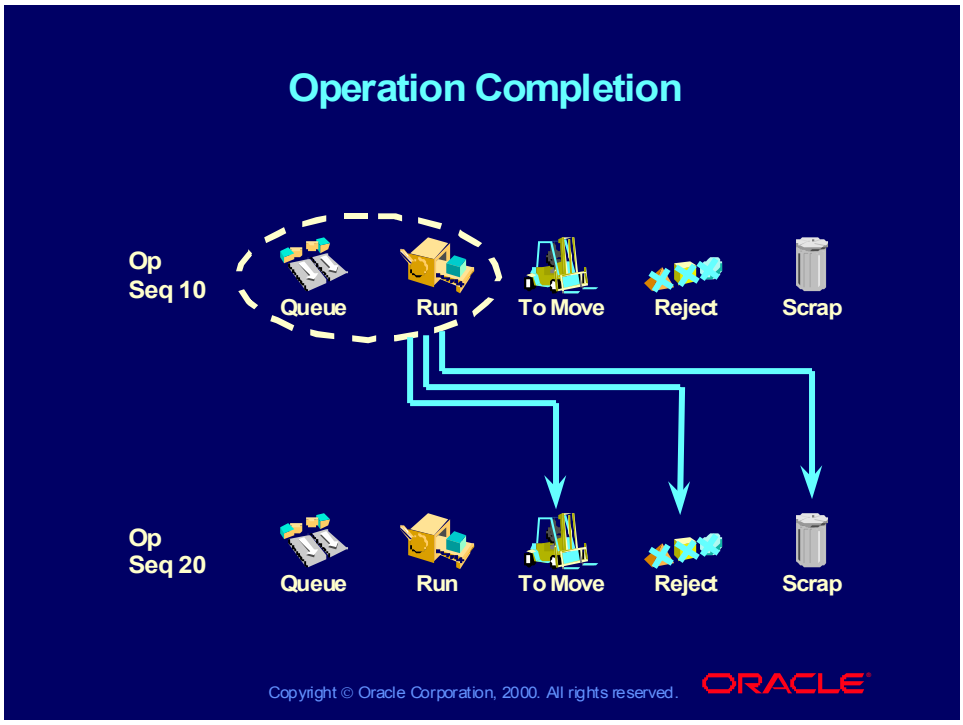
# Operation Completion




## Operation Completion

The slide shows the operation completion for Operation Sequences 10 and 20.

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## Operation Completion: Example 1

| Move Transaction | Operations Completed |
|---|---|
| 10 Queue—>10 Run | |
| 10 Queue—>10 To Move | 10 |
| 10 Queue—>20 Queue | 10 |
| 10 Queue—>20 Scrap | 10, 20 |
| 10 Queue—>50 Queue | 20, 30, 40 |
| 30 Reject—>50 To Move | 40, 50 |
| 50 Reject—>50 Scrap | |

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### Operation Completion: Example 1

The routing consists of operation sequences 10, 20, 30, 40, and 50.

Assume that all operations have Autocharge selected.

### Notes

With the autocharge flag you can control operation completions and associated automatic transactions.

Count point determines the default for the next operation when you do a move transaction.

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## Operation Completion: Example 2

| Move Transaction | Operations Completed |
|---|---|
| 10 Queue—>10 Run | |
| 10 Queue—>10 To Move | 10, 20 |
| 10 Queue—>30 Queue | 10 |
| 10 Queue—>20 Scrap | 10, 20 |
| 10 To Move—>40 Queue | 30 |
| 10 Queue—>50 To Move | 10, 30, 40, 50 |
| 30 Queue—>50 Scrap | 30, 40, 50 |

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### Operation Completion: Example 2

The routing consists of operation sequences 10, 20, 30, 40, and 50.

The count point types are

- Op seq 10: Count Point selected, Autocharge cleared.
- Op seq 20: Count Point cleared, Autocharge cleared.
- Op seq 30: Count Point cleared, Autocharge selected.
- Op seq 40: Count Point selected, Autocharge selected.
- Op seq 50: Count Point selected, Autocharge selected.

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# Operation Completion: Example 3

## Operation Completion: Example 3

| Op Seq | Backflush Flag | Component | Supply Type |
|---|---|---|---|
| 10 | No | A<br>B<br>C | Push<br>Operation pull<br>Assembly pull |
| 20 | Yes | D<br>E | Operation pull<br>Assembly pull |
| 30 | No | F<br>G | Operation pull<br>Assembly pull |
| 40 | Yes | H | Operation pull |

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### Operation Completion: Example 3

Assume that all operations have Autocharge selected.

With backflush flag you can control when you want to process your backflush transactions.

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# Operation Completion: Example 3

## Operation Completion: Example 3

| Move Transactions | Backflushing Now? |
|---|---|
| 10 Queue—>20 To Move | Yes—Components B and D |
| 10 Queue—>30 To Move | Yes—Components B and D |
| 10 Queue—>40 To Move | Yes—Components B, D, F, and H |
| 20 Queue—>30 To Move | Yes—Components B and D |
| 20 Queue—>40 To Move | Yes—Components B, D, F, and H |
| 20 To Move—>30 To Move | No |
| 20 To Move—>40 Queue | No |
| 30 Queue—>40 To Move | Yes—Components F and H |

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# Review Question

## Review Question

**Why should the backflush flag of the last operation on a routing always be set to Yes?**

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# Review Question Solution

## Review Question Solution

**Why should the backflush flag of the last operation on a routing always be set to Yes?**

**Because otherwise some of the components at that operation and at previous operations would not get backflushed.**

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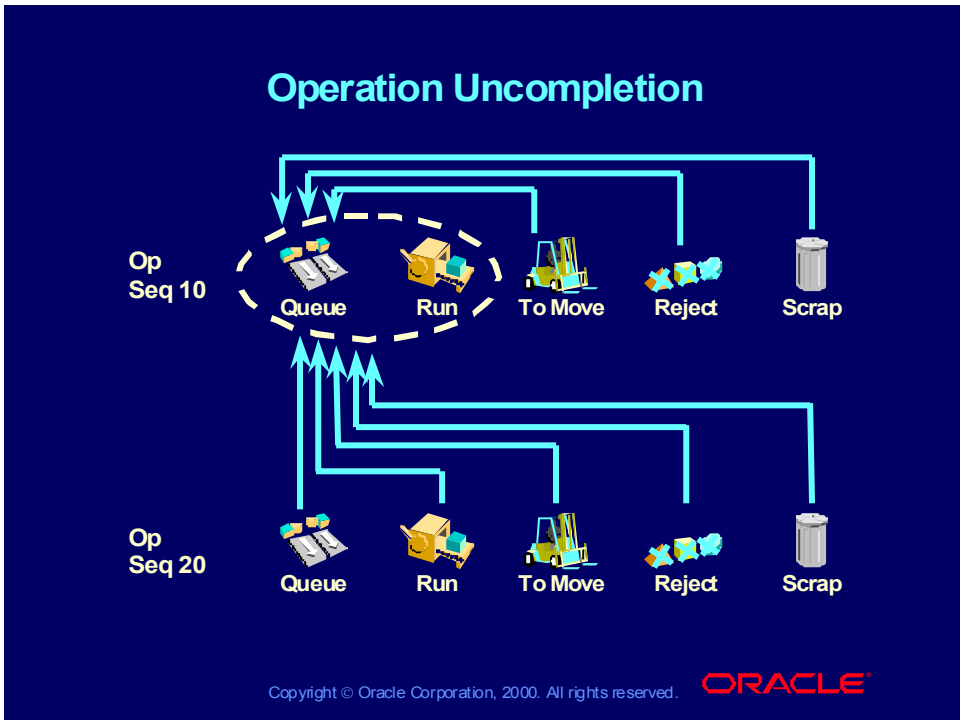
# Operation Uncompletion




## Operation Uncompletion

### Backward Move

A backward move into or past the To Move step of an operation constitutes an operation uncompletion for that operation.

You can uncomplete an operation by reversing any of the moves that constitute operation completion.

Oracle Work in Process reverses any automatic transaction that took place upon completion of an operation when that operation is uncompleted.

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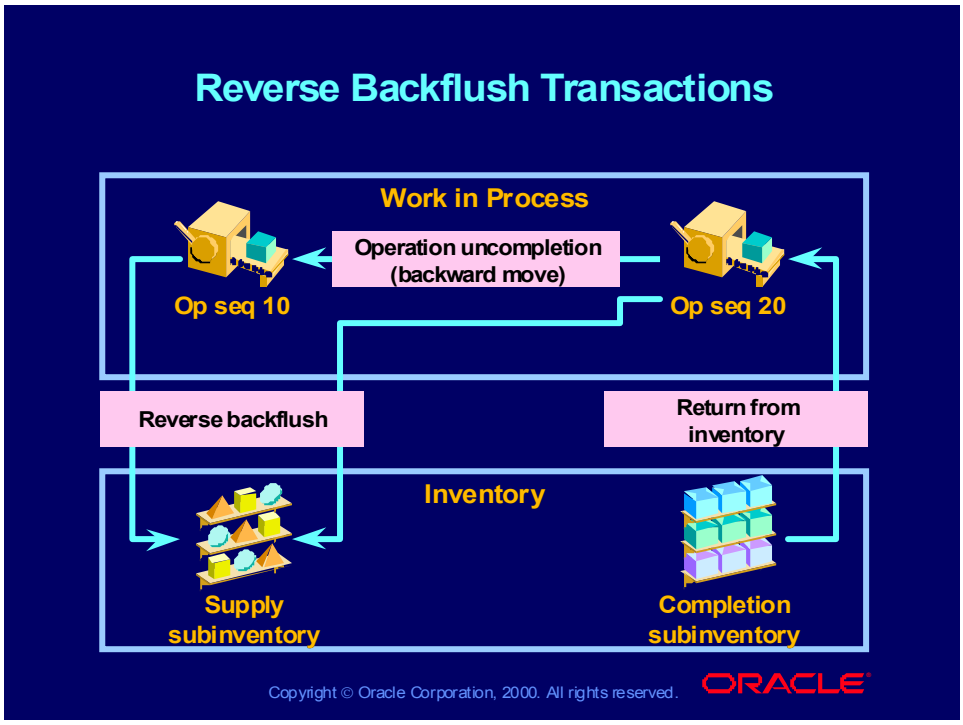
# Reverse Backflush Transactions




## Backflush Transactions

When an assembly is completed at an operation, Oracle Work in Process automatically backflushes any Operation Pull components associated with it.

When an operation is uncompleted, Oracle Work in Process automatically reverses any backflushing transactions that have taken place during the forward move.

## Resource Charging

Upon operation completion, Oracle Work in Process automatically charges WIP move resources associated with that operation.

For WIP move resources with a basis of Item, Oracle Work in Process automatically charges them upon completion of each assembly at the operation.

For WIP move resources with a basis of Lot, Oracle Work in Process automatically charges them upon completion of the first assembly at the operation.

On uncompletion, Oracle Work in Process automatically reverses WIP move resource charges (because these are the only resources that Oracle Work in Process automatically charges on forward moves).

Automatic resource charges for Lot-based resources are reversed when all assemblies have been uncompleted at the operation.

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions > Move Completion/Return Transactions

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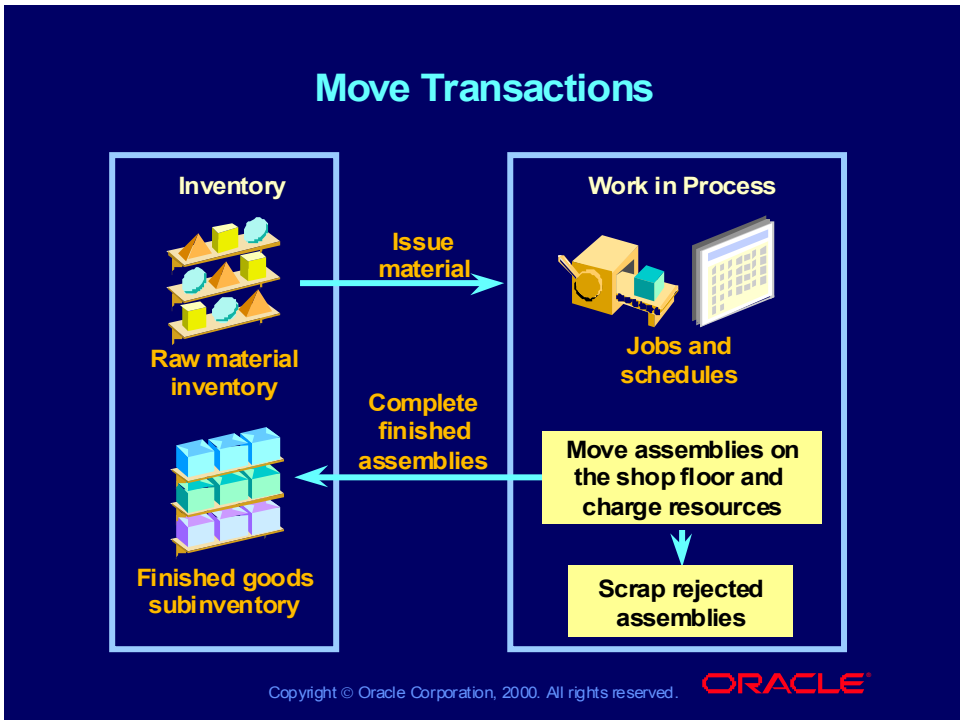


## Move Transactions

### Where Can You Perform Move Transactions?

Move Transactions window

- You can move assemblies between and within the operations on a routing.
- Oracle Work in Process validates the transaction information online.

Open Move Transaction Interface

- You can insert move transactions into the Move Transaction Interface table.
- Oracle Work in Process validates and then processes the transactions.
- Failed transactions are marked with an appropriate error code.
- You can view, update, and resubmit the information in the Pending Move Transactions window.

Receipts form in Oracle Purchasing (for outside processing)

- You can automatically move assemblies from an outside processing operation to the next operation in the routing as you receive the outside processed assembly back from the vendor.

Discrete Workstation

- You can move quantities within an operation.
- You can also access the move transaction window to perform moves between operations.

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions > Move Transaction Options

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# Performing Move Transactions

## Performing Move Transactions

**Use the Move Transactions window to:**

- **Perform move transactions for discrete jobs and repetitive schedules with routings**
- **Perform move transactions for non-standard discrete jobs that have assemblies and routing references**

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Oracle WIP (N) Move Transaction > Move Transactions

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions

../ > Performing Move Transactions

../ > Operation Pull Backflush Transactions

../ > Backflushing Pull Components

../ > Move Completions/Return Rules

../ > Performing Move Completions/Return Transactions

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# Viewing Move Transactions

## Viewing Move Transactions

**Use the Find Move Transactions window to:**

- **View move transactions for an individual job or repetitive schedule**

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Oracle WIP (N) Move Transaction > View Move Transactions

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions

../ > Viewing Move Transactions

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# Pending Move Transactions

## Pending Move Transactions

**Use the Find Pending Move Transactions window to:**

- **View move transactions awaiting processing**
- **Update, delete, and resubmit move transactions that have failed validation or processing**

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Oracle WIP (N) Move Transaction > Pending Move Transactions

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions

../ > Processing Pending Move Transactions

../ > Finding Pending Move Transactions

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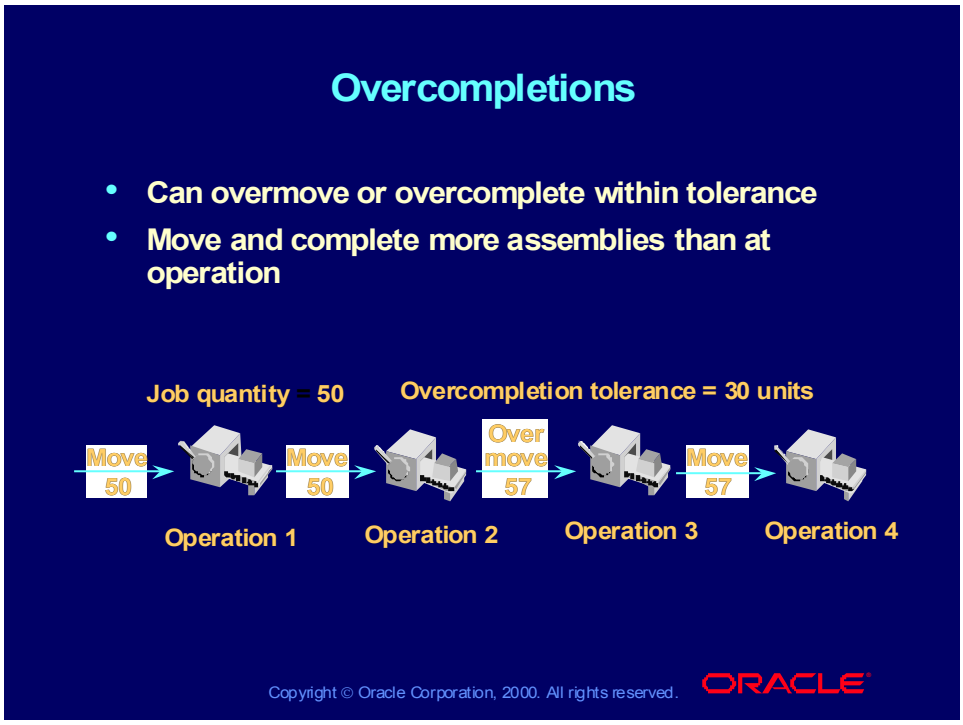
# Overcompletions




(Help) Oracle Manufacturing Applications > Oracle Work in Process > Material Control > Assembly Over-Completions and Over-Moves

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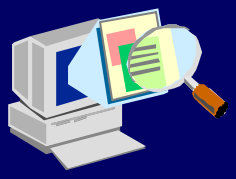
# Demonstration

## Demonstration

This demonstration covers overcompletions.



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## Review Questions

**True or False**

- **You can overcomplete assemblies to inventory from jobs and schedules per established tolerance limits without changing the job start quantity.**
- **You cannot move more assemblies than are available at a routing operation.**

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## Review Questions Answers

**True or False**

- **You can overcomplete assemblies to inventory from jobs and schedules per established tolerance limits without changing the job start quantity.**
  **True**
- **You cannot move more assemblies than are available at a routing operation.**
  **False**

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# Assignment of Shop Floor Statuses

## Assignment of Shop Floor Statuses

**Use the Assign Shop Floor Statuses window to:**

- **Assign shop floor statuses to operations steps for individual jobs or for an assembly and line combination**

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(N) Move Transaction > Shop Floor Statuses > Assign Shop Floor Statuses

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions

../ > Shop Floor Statuses

../ > Assigning and Viewing Shop Floor Statuses

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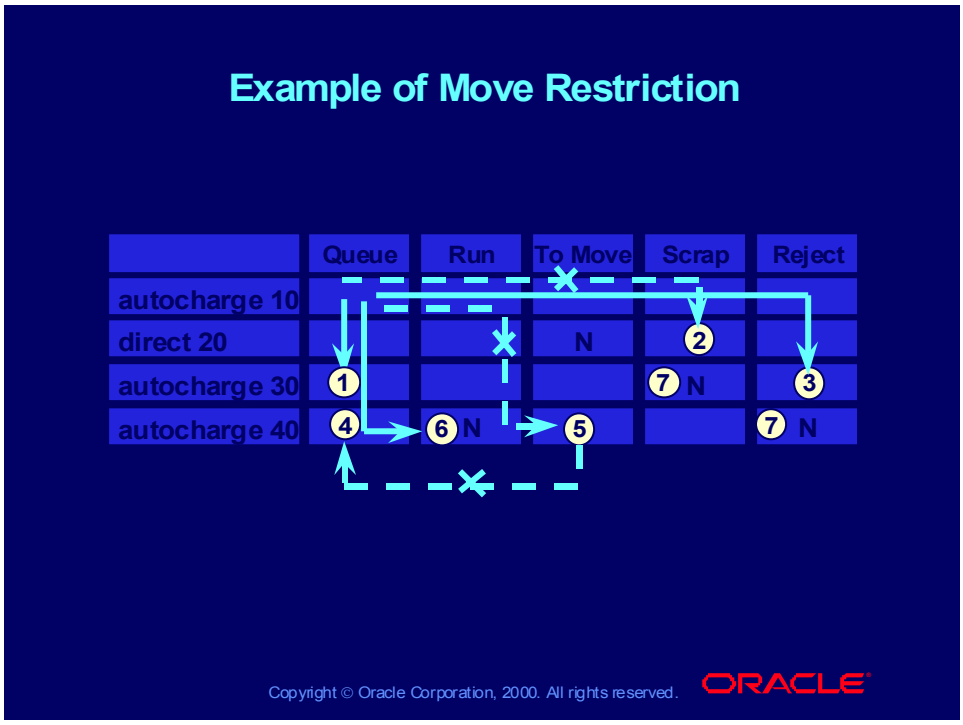
# Example of Move Restriction




## Example of Move Restriction

Given the routing shown in the slide, in which a label of N indicates a No Move shop floor status; a label of autocharge indicates an operation that is Yes—Autocharge or No—Autocharge, and a label of direct indicates an operation that is No—Direct Charge.

1. You can move from 10 Queue to 30 Queue because the No Move status at 20 To Move is on a direct operation.
2. You cannot move from 10 Queue to 20 Scrap because there is a No Move status at 20 To Move.
3. You can move from 10 Queue to 30 Reject because the No Move status at 30 Scrap is not considered.
4. You cannot move from 40 To Move to 40 Queue because of the No Move status at 40 Run.
5. You cannot move from 10 Queue to 40 To Move because of the No Move status at 40 Run, and you cannot move-complete from 10 Queue because of that same status; however, you can complete from 40 To Move.
6. You can move from 10 Queue to 40 Run because you can move *into* an operation and step with a No Move status.
7. The No Move statuses at 30 Scrap and 40 Reject are of no consequence unless you move into them. In that case, you cannot move out once you move in until you have either disabled the status or deleted it.

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# Example of Move Restriction (continued)

Oracle Work in Process provides an option that prevents you from performing move transactions over operations and intraoperation steps that have No Move statuses, depending on the autocharge types of the operations.

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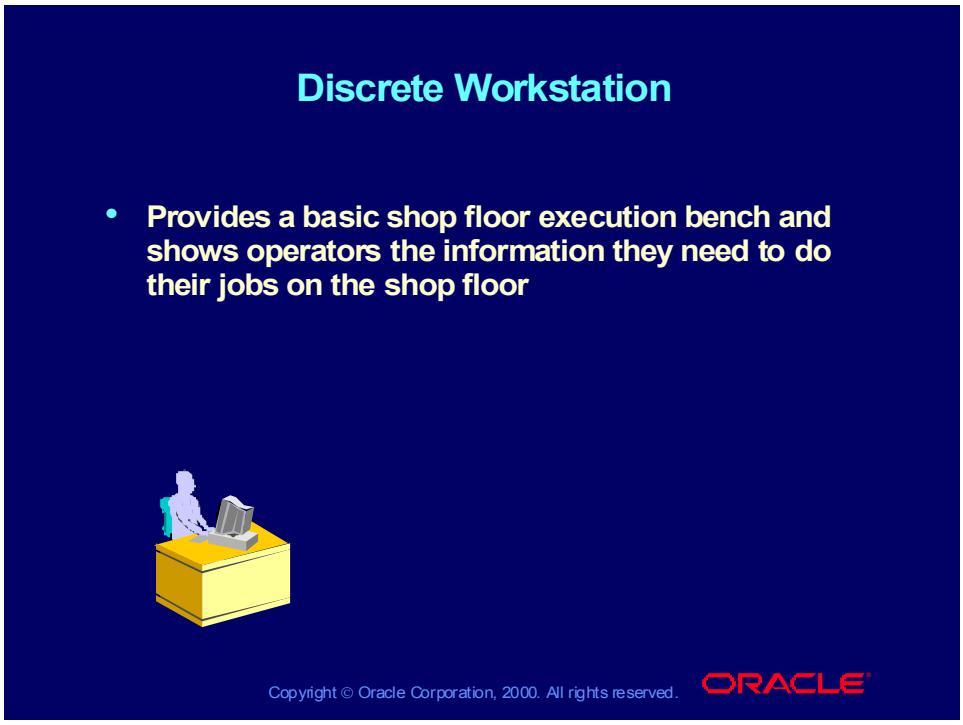


## Production Control Board

You can now graphically view and perform manufacturing activities on the shop floor using the discrete workstation. The graphical interface of the workstation enables employees to quickly and easily obtain information critical to supporting business decisions and controlling daily shop floor activities. This feature provides you with the flexibility to record your activities and view status and production performance information, while maintaining security to protect sensitive data.

Using the Discrete Workstation, production operators working on discrete jobs can quickly and easily obtain frequently-used information (such as performance measurements, component, and resource requirements), and perform common shop floor transactions, without having to return to the Work in Process menu.

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# Discrete Workstation

(N) Discrete > Discrete Workstation (B) Launch

## Discrete Workstation Display

You can launch the workstation by selecting a department or department and resource. On the left pane, the list of job operations is those assigned to the department or department and resource combination that you selected.

The workstation interface displays information on graphs and tables for fast access and easy readability. You can monitor the utilization, efficiency, productivity, and load on a resource from all departments in a table and graph format.

## Dispatch Lists

The Immediate Dispatch List includes those job operations, assigned to the department and resource that currently have quantity in queue, run, or to move intraoperation steps. The job status must be released or hold. (Hold jobs are red in color.)

The Upstream Dispatch List includes job operations that are directly preceding an operation assigned to the department and resource, and there is quantity in that operation. The upstream dispatch list includes jobs that will be in the Immediate Dispatch List very soon.

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# Discrete Workstation (continued)

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Discrete Manufacturing > Discrete Workstation > Discrete Workstation Window

- ../ > Viewing the Tree
- ../ > Discrete Workstation Menus
- ../ > Discrete Workstation Toolbar
- ../ > Launching the Workstation

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Discrete Manufacturing > Discrete Workstation > Discrete Workstation Transactions

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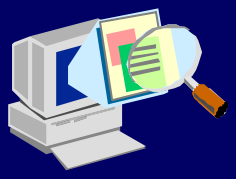
# Demonstration

## Demonstration

This demonstration covers the discrete workstation.



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## Review Question

**True or False**

- **Using the Discrete Workstation, production operators working on discrete jobs can quickly and easily obtain frequently used information (such as performance measurements, component, and resource requirements), and perform common shop floor transactions, without having to return to the Work in Process menu.**

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## Review Question Answer

**True or False**

- **Using the Discrete Workstation, production operators working on discrete jobs can quickly and easily obtain frequently used information (such as performance measurements, component, and resource requirements), and perform common shop floor transactions, without having to return to the Work in Process menu.**
  **True**

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## Shop Floor Activity Reports

| Report | Function |
|---|---|
| Move Transaction | Review move transactions for a specific job or schedule or range of jobs or schedules. |
| Discrete Dispatch | Prioritize work in each department. |
| Repetitive Line | Prioritize work on a line. |
| WIP Location | Locate assemblies currently in work in process. |
| Job/Repetitive Schedule Data | View comprehensive job or schedule information, including work that remains to be done. |
| Discrete Job Listing | See which jobs to release and start work on. |

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## Shop Floor Activity Reports

### Prioritizing Shop Floor Activity

You can prioritize your shop floor activity to meet customer demands by using the reports described in the slide. You can use the View Move Transactions window to review move transactions online.

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# Costing Move Transactions: Accounting Entries

## Costing Move Transactions: Accounting Entries

**Backflush material transactions:**

| Account | Debit | Credit |
|---|---|---|
| WIP accounting class valuation accounts | XX | |
| Inventory valuation accounts | | XX |

**Resource transactions:**

| Account | Debit | Credit |
|---|---|---|
| WIP accounting class resource valuation account | XX | |
| Resource absorption account | | XX |

| Account | Debit | Credit |
|---|---|---|
| WIP accounting class overhead account | XX | |
| Overhead absorption account | | XX |

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### Costing Backflush Material Transactions

Move transactions can automatically launch backflush transactions and charge resources and overheads.

Backflush material transactions increase your work in process valuation and decrease your inventory valuation. The accounting entries for backflush material transactions are shown on the slide.

### Costing Move-Based Resource Transactions

Resource charges increase your work in process valuation. The accounting entries for resource transactions are shown on the slide.

### Costing Overhead Charges

Overhead charges increase your work in process valuation. The accounting entries for resource transactions are shown on the slide.

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# Costing Move Transactions

## Costing Move Transactions

| Costing Backward Move Transactions | |
|---|---|
| **Charges** | **Reversed?** |
| Backflush material charges | Reversed. |
| Resource charges | WIP Move resource charges only are reversed. |
| Overhead charges | Reversed if default basis is Item.<br>Reversed if default basis is Lot only if the move results in zero net assemblies completed in the operation. |

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# Overhead Charging

## Overhead Charging

| Charging Method | Default Basis | Overhead Charge |
|---|---|---|
| Move-based overhead charging | Item | Fixed amount per item |
| | Lot | Fixed amount for first unit completed |
| Resource-based overhead charging | Resource units | Fixed amount for each resource unit charged |
| | Resource value | Percentage of the resource value |

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### Move-Based Overheads

Upon completion of an operation, Oracle Work in Process automatically charges move-based overheads at that operation. Move-based overheads are overheads that have a default basis of Item or Lot.

Upon uncompletion, overhead charges are reversed. For Lot-based overheads, charges are reversed when all assemblies have been uncompleted at the operation.

### Resource-Based Overheads

If the operation completion move resulted in automatic resource charges for WIP Move resources, and these resources have associated overheads, the overheads will be charged when the resource is charged. Therefore, a move transaction that completes an operation can result indirectly in resource-based overhead charges.

Resource-based overhead charges are reversed when the resource transaction is reversed.

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# Review Question

## Review Question

Suppose that an operation for a discrete job has Autocharge set to No. It is used for rework, which requires extra components, so the operation has material requirements associated with it.

A) What kinds of cost variances would you expect to see?
B) What kinds of material planning problems might you anticipate?
C) How could you adjust your requirements to alleviate some of those problems?

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## Review Question Solution

Suppose that an operation for a discrete job has Autocharge set to No. It is used for rework, which requires extra components, so the operation has material requirements associated with it.

A) What kinds of cost variances would you expect to see?

Unless you manually transacted all assemblies through the No operation, or you reworked all of your assemblies, you would see a favorable material cost variance on the job.

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## Review Question Solution

Suppose that an operation for a discrete job has Autocharge set to No. It is used for rework, which requires extra components, so the operation has material requirements associated with it.

B) What kinds of material planning problems might you anticipate?

You would overplan the material; that is, you would have planned enough material for all of the assemblies to go through rework, but most likely not all of them will.

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## Review Question Solution

Suppose that an operation for a discrete job has Autocharge set to No. It is used for rework, which requires extra components, so the operation has material requirements associated with it.

C) How could you adjust your requirements to alleviate some of those problems?

You could adjust your usage rate to reflect the percentage of assemblies that you anticipate having to rework. For example, if each assembly that is reworked used 1 of a component, and you expect to rework 30% of all assemblies, you could set the usage rate to 0.3.

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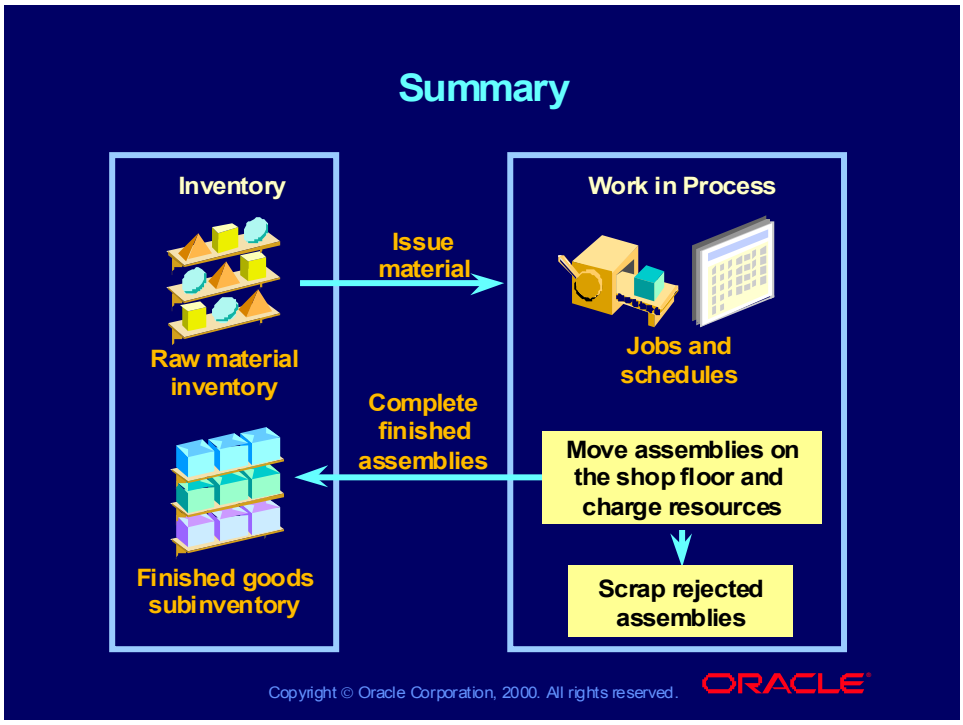
# Summary




## Summary

**Moving Assemblies**

•There are two kinds of moves: intraoperation and interoperation.

•Move transactions can create backflush transactions, resource charges, and overhead charges.

•To create such automatic transactions, a move transaction must complete one or more operations.

•Automatic transactions are reversed when an operation is uncompleted.

•You can use one of four data-entry methods to enter moves: the Move Transaction window, the Open Move Transaction Interface table, the Receipts window in Oracle Purchasing or the Discrete Workstation.

•You can perform overmove transactions.

•You can view shop floor activity in a variety of windows and reports using Oracle Work in Process.

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# Practice 1-1 Overview

## Practice 1-1 Overview

In this exercise you will define a discrete job, issue material to the job, and move assemblies from Queue to Move.

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### Practice 1-1

In this exercise you will define a discrete job, issue material to the job, and move assemblies from Queue to Move.

1. Define a discrete job. Use the Discrete Jobs window to define the job.
   - Organization: M1 Seattle Manufacturing
   - Assembly: Sentinel Deluxe AS18947
   - Status: Released
   - Quantity: 200
   - Class: Discrete
   - Start Date: Today's date
2. Issue all push material to the job. Use the WIP Material Transactions window to issue push components to the job.
   - Transaction Type: WIP Component Issue
   - Transact: All Material
3. Because Vision is a pull manufacturer, assemblies usually wait in the To Move intraoperation step of the previous operation before they are pulled to the Run step of the next operation. Perform move transactions that illustrate this type of scenario.
4. When you move assemblies to a Reject intraoperation step, you prevent them from being moved until they have been inspected. How do you implement such a scenario?

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# Practice 1-1 Overview (continued)

5. Five assemblies need to be rejected at the first operation. Move them to the appropriate operation/step. What do you need to do to move them out of that operation/step after they have been inspected?

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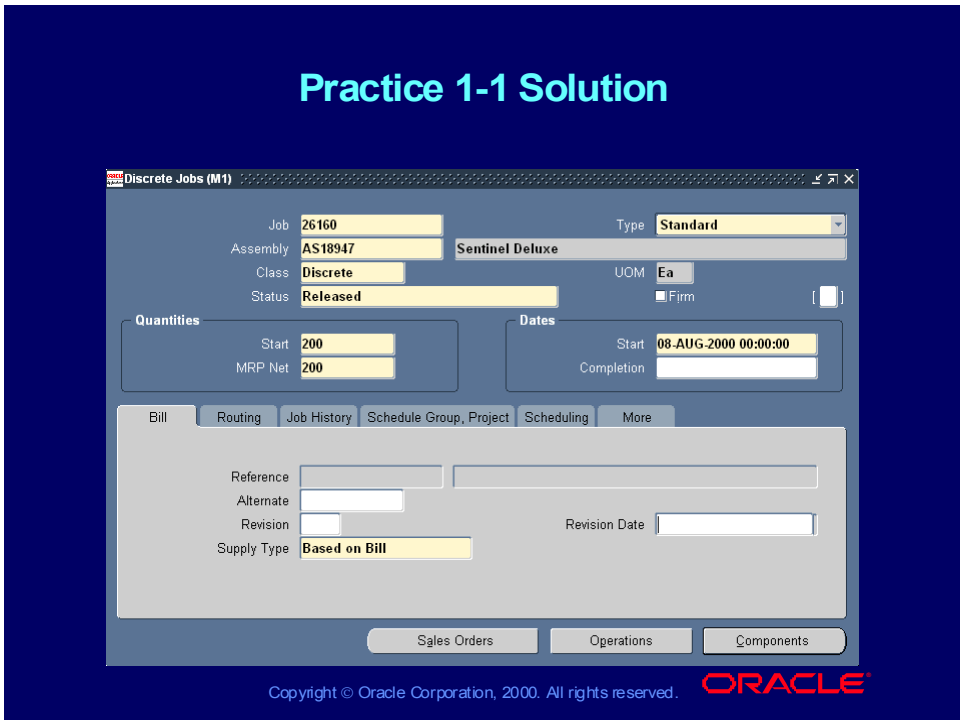
# Practice 1-1 Solution




## Practice 1-1 Solution

Define a discrete job. Use the Discrete Jobs window to define the job.

Oracle WIP (N) Discrete—>Discrete Jobs

1. Navigate to the Discrete Jobs window and define a job using the following information:
   - Organization: M1 Seattle Manufacturing
   - Assembly: Sentinel Deluxe AS18947
   - Status: Released
   - Start Quantity: 200
   - Class: Discrete
   - Start Date: Today's date
2. Save your work.

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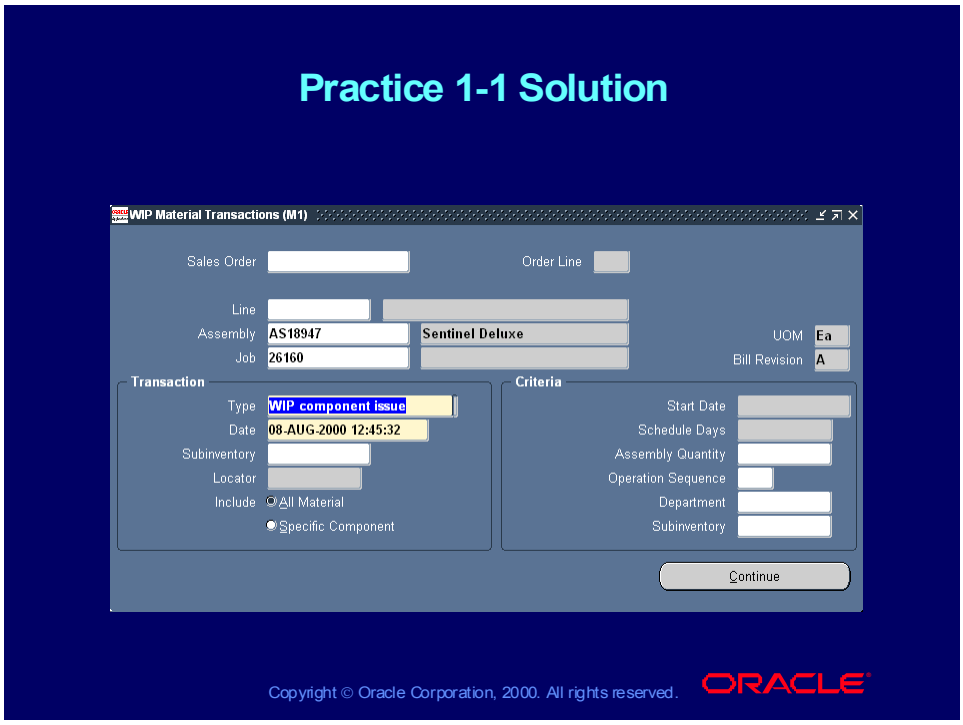
# Practice 1-1 Solution




## Practice 1-1 Solution (continued)

Issue all push material to the job. Use the WIP Material Transactions window to issue push components to the job.

- Transaction Type: WIP Component Issue
- Transact: All Material

Oracle WIP (N) Material Transactions—>WIP Material Transactions

1. Use the WIP Material Transactions window to issue push components to the job.

- Transaction Type: WIP Component Issue
- Transact: All Material

Note: You may receive a Caution window with the message Quantity will drive inventory negative, click OK.

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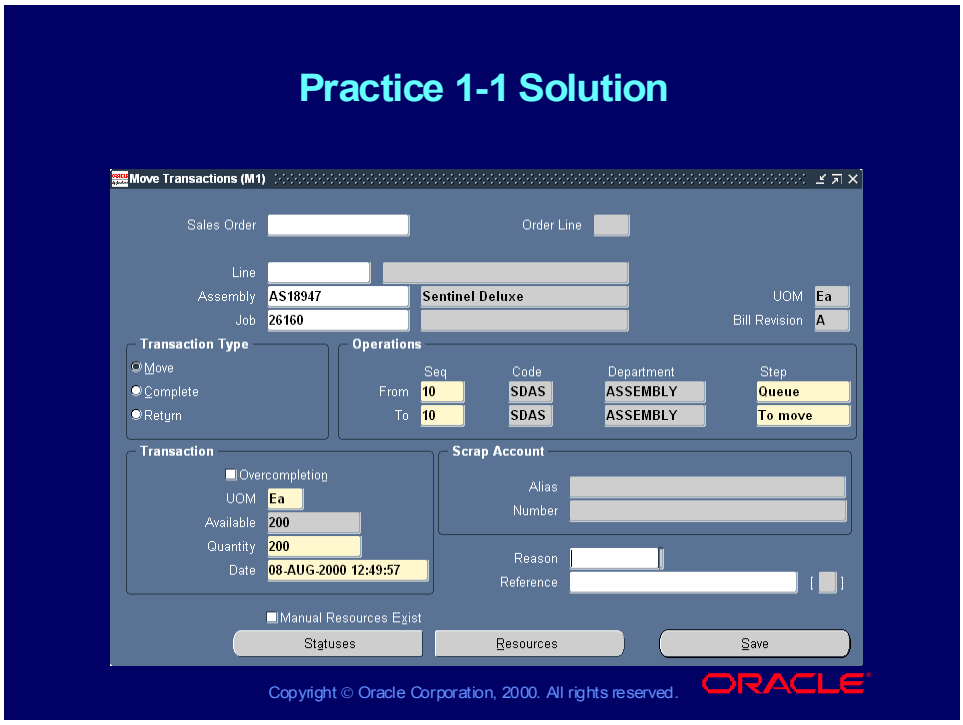
# Practice 1-1 Solution




## Practice 1-1 Solution (continued)

Because Vision is a pull manufacturer, assemblies usually wait in the To Move intraoperation step of the previous operation before they are pulled to the Run step of the next operation. Perform move transactions that illustrate this type of scenario.

Oracle WIP (N) Move Transactions—>Move Transactions

1. Use the Move Transactions window. Move 200 assemblies from Queue to To Move.
2. Save your work.

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# Practice 1-1 Solution

## Practice 1-1 Solution (continued)

When you move assemblies to a Reject intraoperation step, you prevent them from being moved until they have been inspected. How do you implement such a scenario?

Shop Floor Statuses

Oracle WIP (N) Move Transactions—>Shop Floor Statuses—>Shop Floor Statuses

Oracle WIP (N) Move Transactions—>Shop Floor Statuses—>Assign Shop Floor Statuses

You define a shop floor status that disallows moves (Shop Floor Statuses window) and you attach it to the Reject intraoperation step of each operation (Assign Shop Floor Statuses window).

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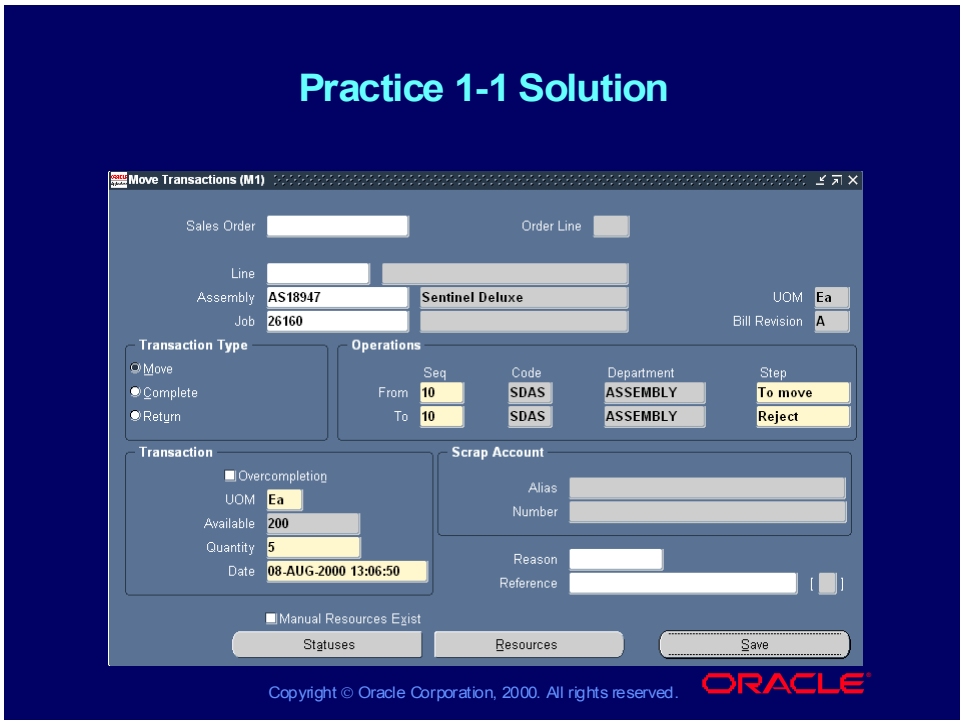
# Practice 1-1 Solution




## Practice 1-1 Solution (continued)

Five assemblies need to be rejected at the first operation. Move them to the appropriate operation/step. What do you need to do to move them out of that operation/step after they have been inspected?

Oracle WIP (N) Move Transactions—>Move Transactions

Use the Move Transactions window. Move five assemblies from Move to Reject at the first operation.

To move them out of that step, you must remove the Shop Floor status that you previously created and attached to that step.

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# Managing Rejected Assemblies

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## Objectives

In this section you will cover the following:

- Rejected assemblies in WIP
- Methods of managing rejected assemblies
  - Move rejected assemblies to reject
  - Scrap rejected assemblies
  - Add a rework operation
  - Rework inline
  - Use a nonstandard job to rework assemblies

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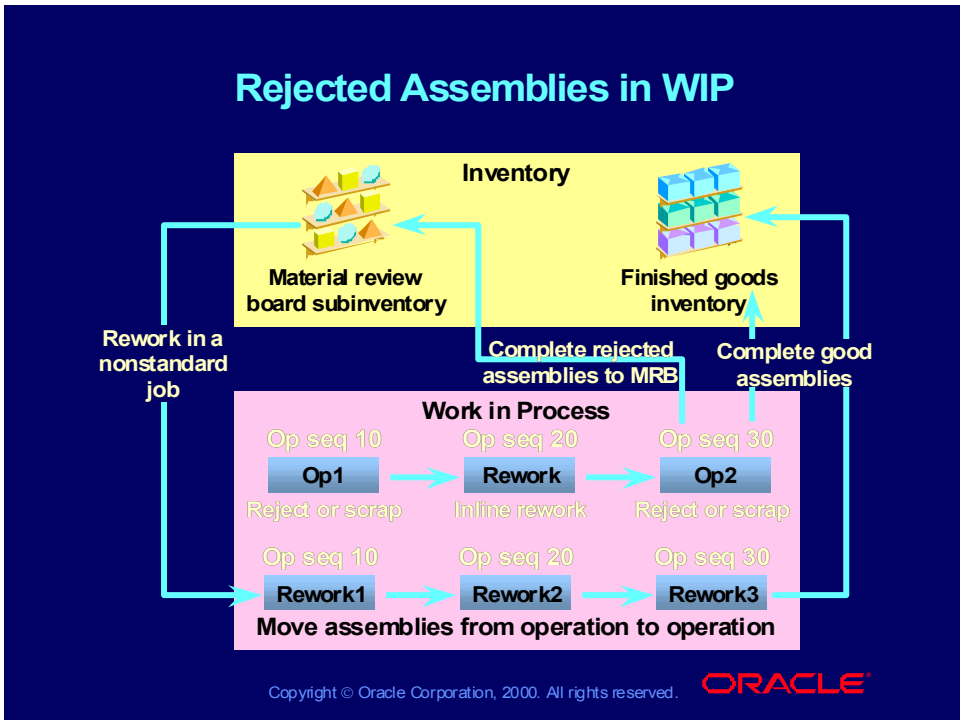
# Rejected Assemblies in WIP




## Rejected Assemblies in WIP

### Definitions

- **Reject** is an intraoperation step in an operation at which you record assemblies that require rework or need to be scrapped.
- **Scrap** is an intraoperation step at which you move assemblies that cannot be reworked or completed.
- **Scrap account** is an account that you use to charge scrap transactions.
- **Shorthand alias** is a user-defined code or character string that represents a complete or partial flexfield value.

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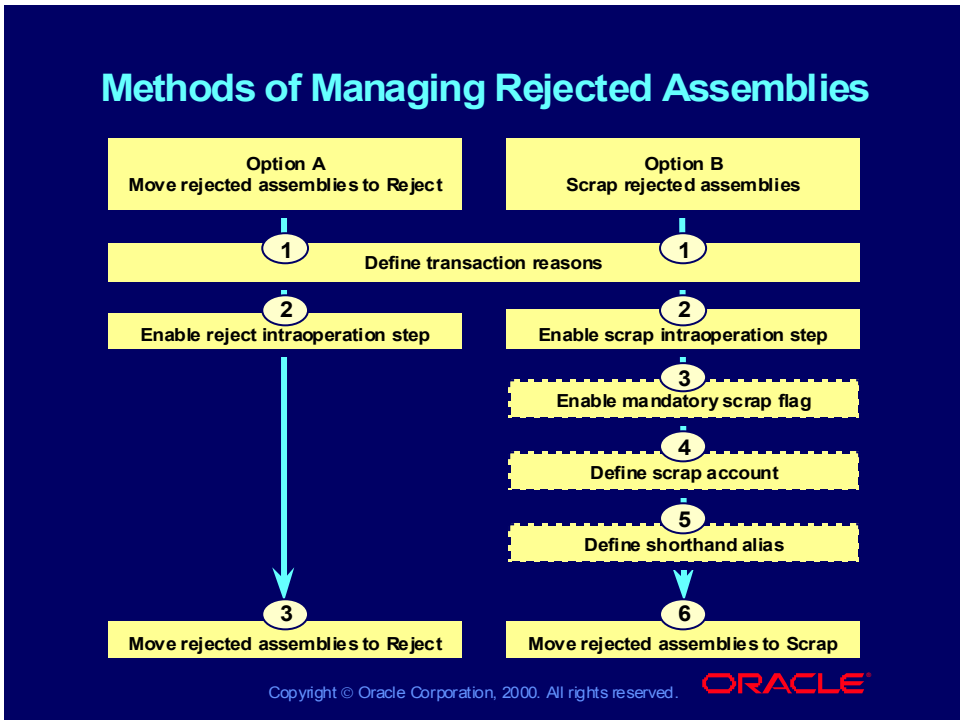


## Methods of Managing Rejected Assemblies

There are five ways you can manage rejected assemblies in Oracle Work in Process.

- Move rejected assemblies to Reject.
- Scrap rejected assemblies.
- Add rework operation.
- Inline rework.
- Rework in a nonstandard job.

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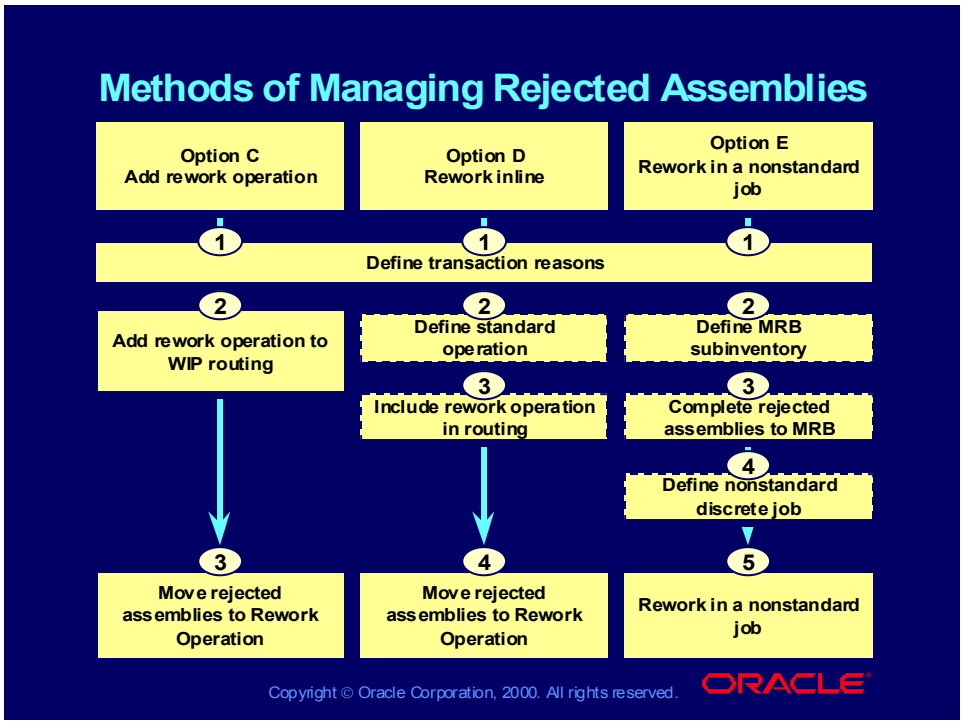
# Methods of Managing Rejected Assemblies

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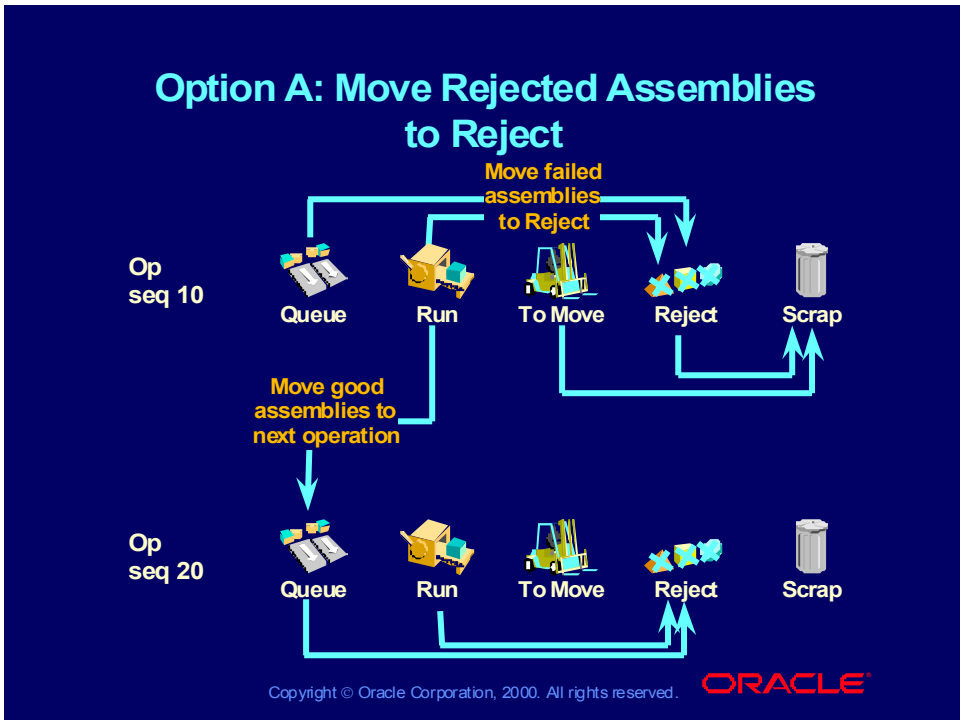
# Option A: Move Rejected Assemblies to Reject




## Moving Rejected Assemblies

You can move rejected assemblies to the Reject intraoperation step to possibly rework them at that operation or later move them to Scrap.

## Using the Move Transaction Window

You can move rejected assemblies to the Reject intraoperation step of the operation they are currently in.

You can evaluate whether the assemblies can be reworked.

If they can be reworked, you can move them back to the Queue or Run intraoperation step. Otherwise, you can move them to Scrap (see Option B).

## Benefits of Option A

- Isolates questionable assemblies.
- Works well if there is space near the work center to temporarily store the questionable assemblies (same operation, same department).
- You have the option to scrap or recover the questionable assemblies.

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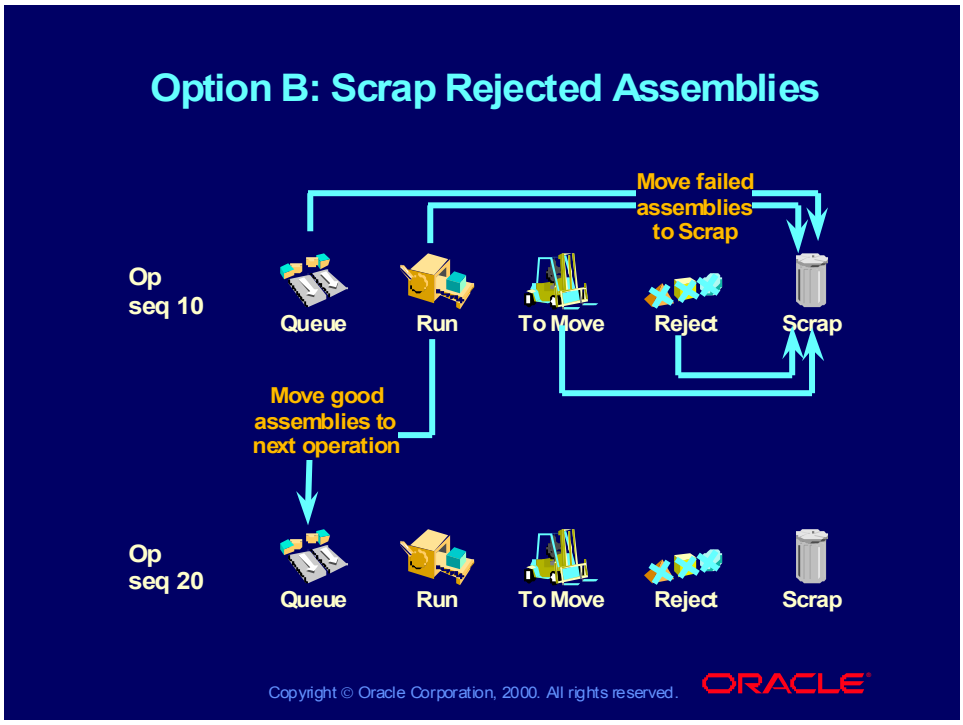
# Option B: Scrap Rejected Assemblies




## Scrapping Rejected Assemblies

You can move assemblies that cannot be recovered to the Scrap intraoperation step.

## Using the Move Transaction Window

You can move rejected assemblies to the Scrap intraoperation step of the operation they are currently in.

Depending on the value of the Mandatory Scrap flag, you may have to enter a Scrap account during the move transaction.

You can enter a Scrap account that removes the scrap costs from the job immediately. Otherwise, the scrap costs stay in the job until it is closed.

## Benefits of Option B

- Isolates material.
- Deducts from MRP supply on standard discrete jobs.
- Offers the option to write off scrap immediately instead of waiting for the job close (standard discrete and nonstandard asset jobs) or period close (repetitive and nonstandard expense jobs).
- Offers the option to undo the transaction later if necessary.

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Shop Floor Management

../ > Assembly Scrap

../ > Scrap Assemblies

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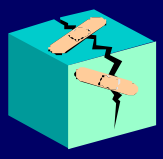
# Scrap Enhancements

## Scrap Enhancements

When scrapping an assembly, backflush assembly pull components from the current or a previous operation.



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## Review Questions

**True or False**

- When you scrap assemblies on a discrete job, all assembly pull components required at or before the operation in which the scrap occurred are not fully costed.
- Prior to release 11i , the system relieved inventory only for the quantity that completed into inventory, and did not take scrapped assemblies into account.

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## Review Questions Answers

**True or False**

- **When you scrap assemblies on a discrete job, all assembly pull components required at or before the operation in which the scrap occurred are not fully costed.**
  **False**
- **Prior to release 11i , the system relieved inventory only for the quantity that completed into inventory, and did not take scrapped assemblies into account.**
  **True**

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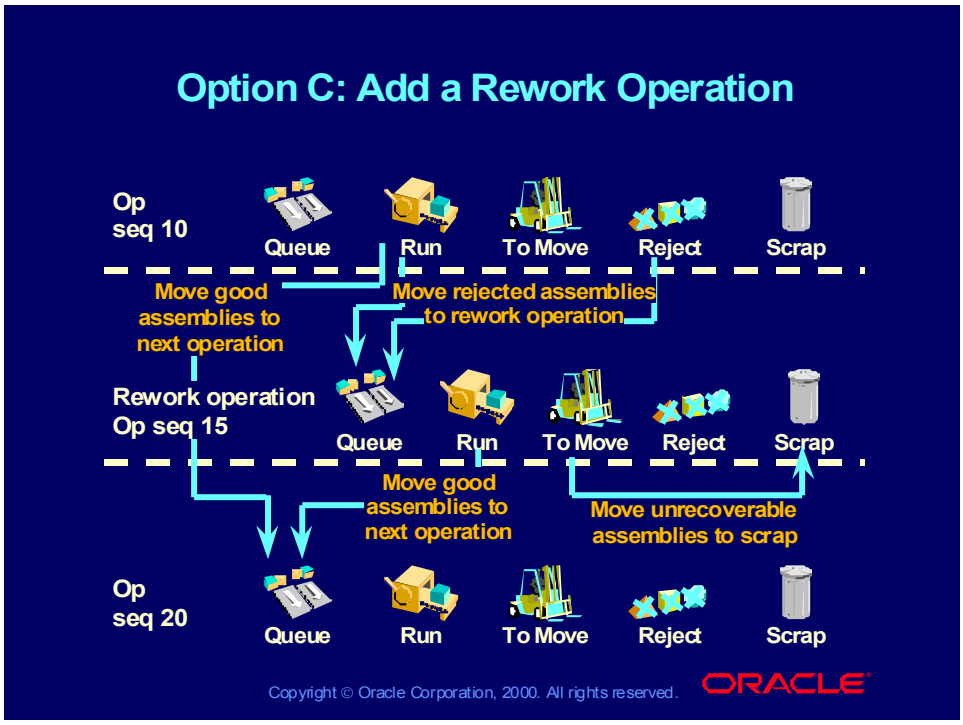
# Option C: Add a Rework Operation




## Reworking Rejected Assemblies

You can rework rejected assemblies directly in the job by adding a rework operation in the WIP routing.

## Adding a Rework Operation

You can use the Operations window or the Move Transactions window to add the rework operation (the Enable Adding Operation flag must be set to Yes to add the operation in the Move Transactions window).

The rework operation should have a clear Count Point check box because you only want to record operation completions for the assemblies that actually move in and out of the operation. The resources may also have an autocharge type of Manual because the number of resource units you charge may vary with each assembly.

## Moving to the Rework Operation

- You can move the rejected assemblies to the rework operation to fix them.
- You can move assemblies that could not be reworked to Scrap.
- You can move assemblies that were successfully reworked to the next operation.

## Benefits of Option C

- You can use predefined rework operations for repeatable rework activities.
- You can add the rework operation when necessary.
- You can easily charge incremental material, resource, and overhead costs at rework operation.

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## Option C: Add a Rework Operation (continued)

- This option works well to locate rejected assemblies if the rework area is not near the work center where the rejection occurs.
- The good assemblies do not need to be transacted through the rework operation because the Count Point check box is clear.

**Note**

Use Option D for repetitive schedules, because operations cannot be added to repetitive routings.

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Shop Floor Management

../ > Rework Production

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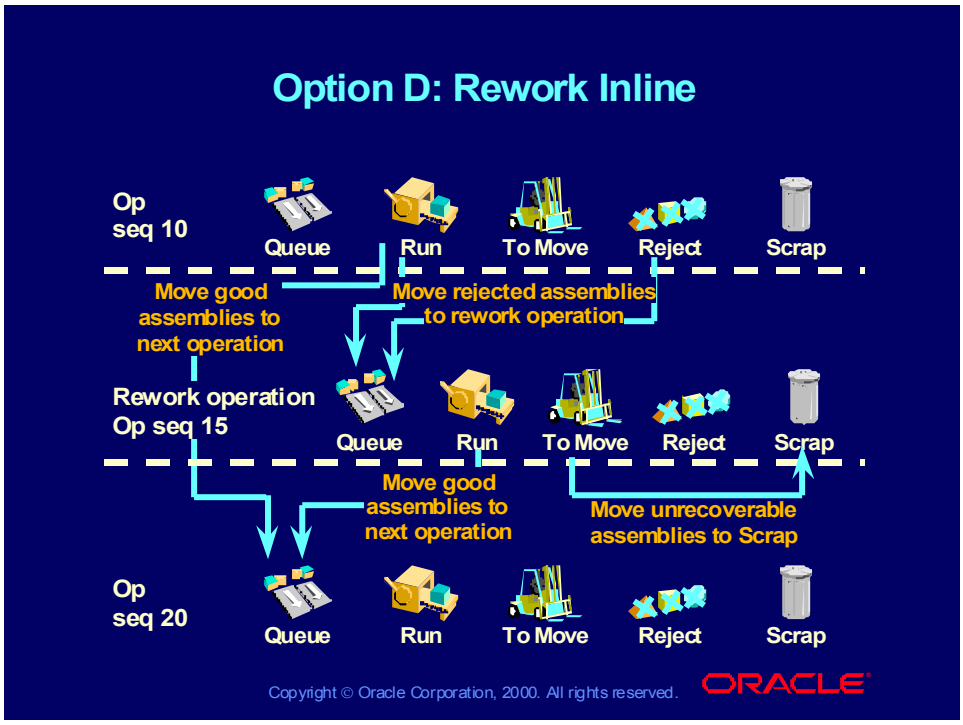
# Option D: Rework Inline




## Reworking Rejected Assemblies

You can use a routing with a rework operation and rework rejected assemblies directly in the job or repetitive schedule.

## Assigning a Rework Operation to the Routing

If you expect a number of assemblies to be rejected during the manufacturing process, you can attach a rework operation when defining the routing.

The rework operation should be a standard operation with a clear Count Point check box and the resources charge type should be Manual.

## Moving to the Rework Operation

- You can move the rejected assemblies to the rework operation to fix them.
- You can move assemblies that could not be reworked to Scrap.
- You can move assemblies that were successfully reworked to the next operation.

## Benefits of Option D

- This option allows process engineers to predefine and production staff to use the rework operation on the routing when rework is anticipated.
- Rework can be performed on a repetitive production line (Option C applies only to discrete jobs, because operations cannot be added to a repetitive routing).
- You can easily charge incremental material, resource, and overhead costs at rework operation.

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## Option D: Rework Inline (continued)

- This option works well to locate rejected assemblies if the rework area is not near the work center where the rejection occurs.
- Good assemblies do not need to be transacted through the rework operation, because the Count Point check box is clear.

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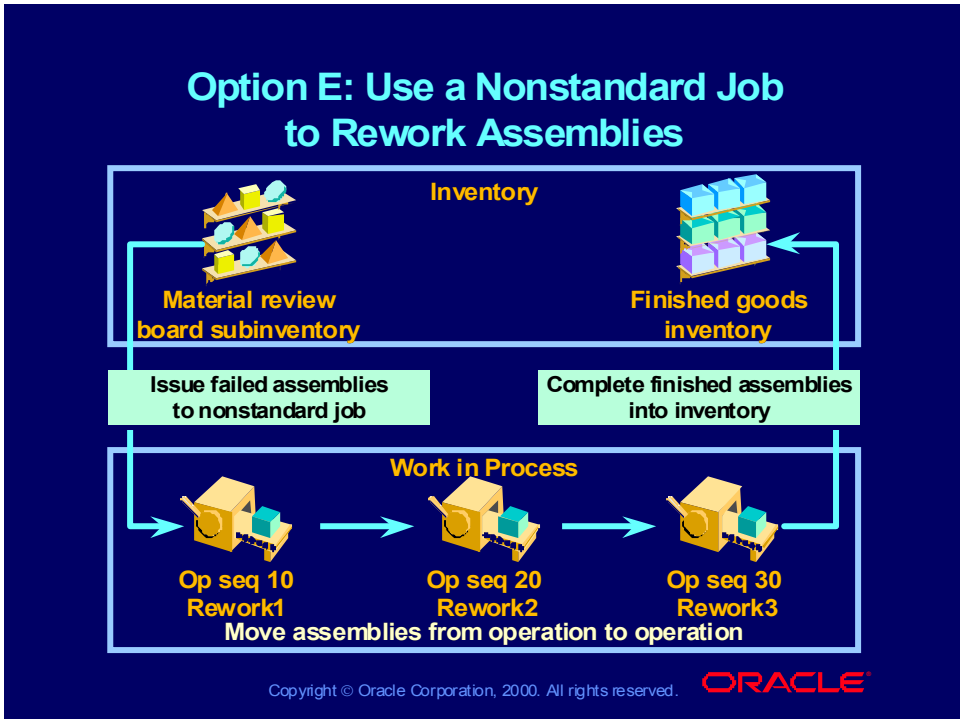
# Option E: Use a Nonstandard Job to Rework Assemblies




## Using a Nonstandard Job to Rework Assemblies

You can rework rejected assemblies currently in an MRB subinventory using a nonstandard job.

## Completing Rejected Assemblies

You can complete rejected assemblies from the current job to an MRB subinventory.

Optionally you can store the assemblies in that subinventory until you are ready to rework them.

## Defining a Nonstandard Job

- You can define a nonstandard job for the number of assemblies to be reworked.
- You can select an asset type nonstandard accounting class because the job is building up assets.
- You can enter the quantity that the planning process should expect as supply in the MRP Net Quantity field.

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Shop Floor Management

../ > Rework Production

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Non-Standard Discrete Job > Business Scenarios > Rework Assemblies

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# Review Question

## Review Question

**What are the methods to manage rejected assemblies in work in process?**

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## Review Question Solution

**What are the methods to manage rejected assemblies in work in process?**

**There are five ways you can manage rejected assemblies in Oracle Work in process:**

- **Move rejected assemblies to Reject**
- **Scrap rejected assemblies**
- **Add rework operation**
- **Inline rework**
- **Rework in a nonstandard job**

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# Summary

## Summary

You can manage rejected assemblies in Oracle Work in Process in five ways:

- Move rejected assemblies to Reject
- Scrap rejected assemblies
- Add rework operation
- Rework inline
- Rework in a nonstandard job

Choose the method that best meets your business needs.

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# Practice 1-2 Overview

## Practice 1-2 Overview

in this exercise you will create a job and perform a scrap transaction.

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**Practice 1-2**

1. Create a job for a quantity of 10 for assembly AS62445, the Envoy Upgrade Pack.
2. Verify in the Material Requirements window that the CM22683 component on the work-in-process BOM has a supply type of assembly pull, which is created from the original BOM.
3. Move half of the quantity to the scrap step of operation 20. Use an existing alias such as SCRAP ADJ for the account number.

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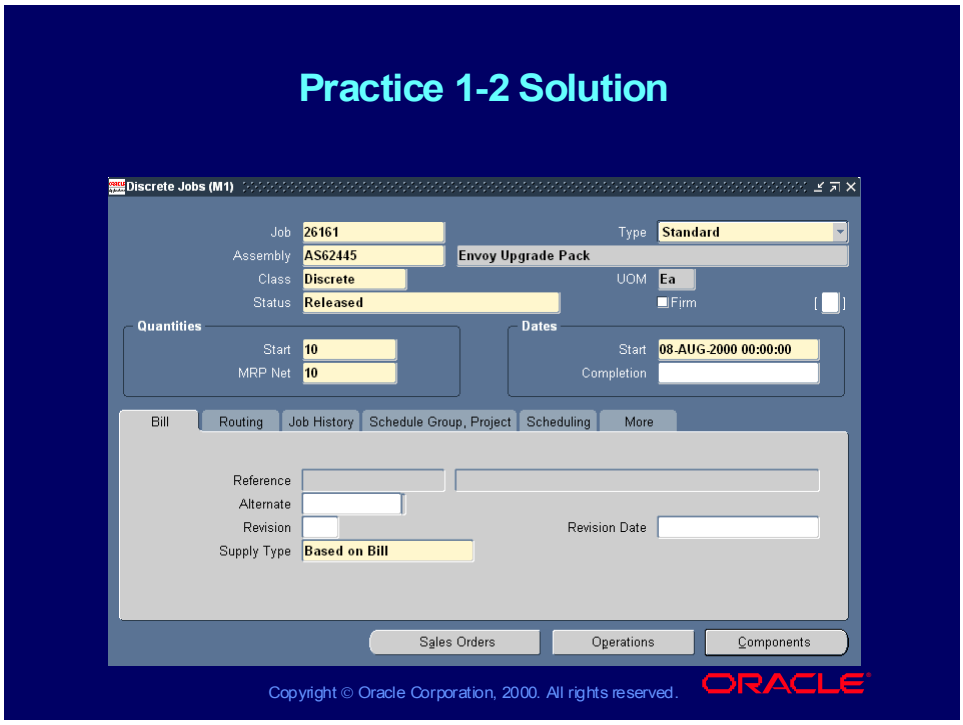


## Practice 1-2 Solution

### Discrete Jobs

Create a standard job for a quantity of 10 for assembly AS62445, the Envoy Upgrade Pack.

Work in Process (N) Discrete —> Discrete Jobs

1. Create a standard job for a quantity of 10 for assembly AS62445. Make sure the job status is Released.
2. Save your work.

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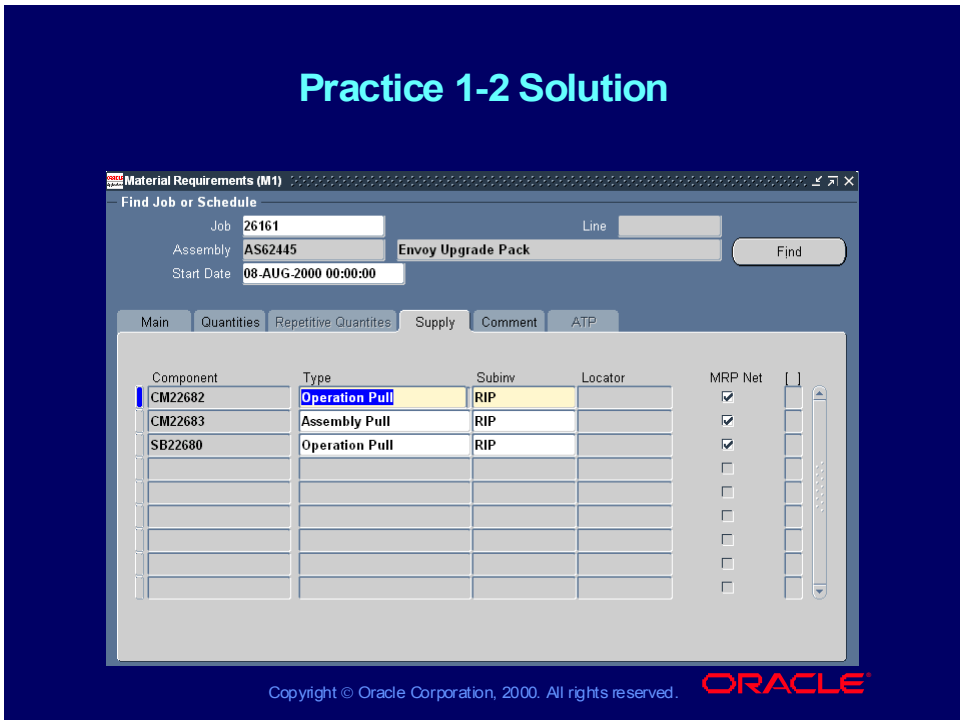


## Practice 1-2 Solution (continued)

### Material Requirements

Verify in the Material Requirements window that the CM22683 component on the work-in-process BOM has a supply type of assembly pull, which is created from the original BOM.

Work in Process (N) Job/Schedule Details—>Material Requirements

1. Type in the job number and click Find.
2. Go to the Supply tab and verify that the Envoy Upgrade Manual, item number CM22683, has a supply type of Assembly Pull.

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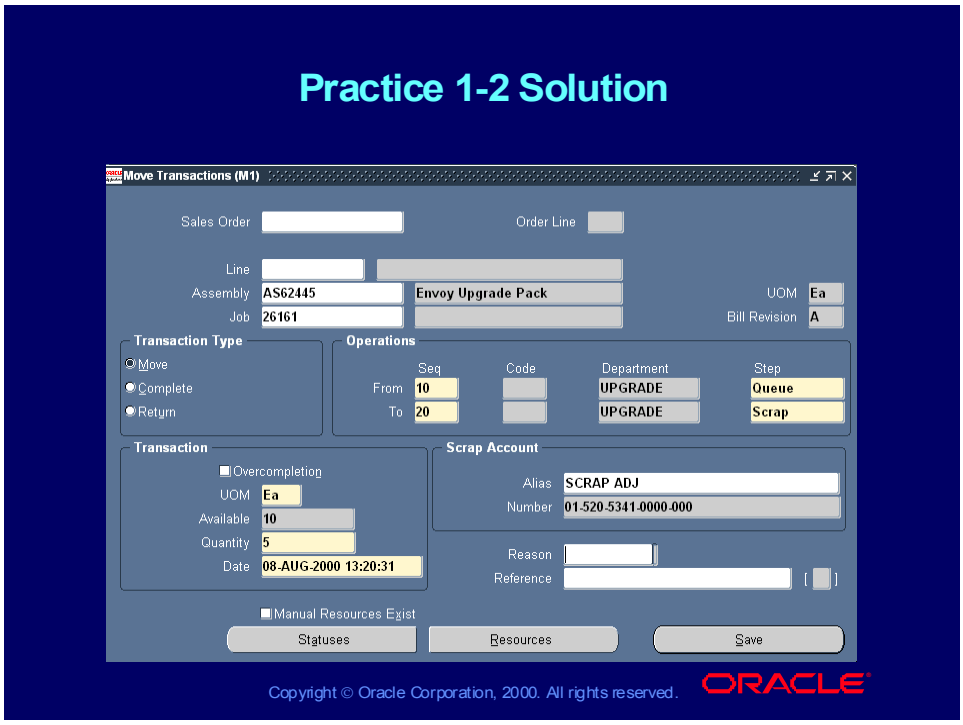


## Practice 1-2 Solution (continued)

### Move Transactions

Move half of the quantity to the scrap step of operation 20. Use an existing alias such as SCRAP ADJ for the account number.

Work in Process (N) Move Transactions—>Move Transactions

1. Move 5 Envoy Upgrade Packs to seq 20, step Scrap.
2. Save your work.

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# Charging Resources

## Charging Resources

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## Objectives

In this section you will cover the following:

- Data entry mechanisms
- Manually charging resources
- Charging resources with move transactions
- Automatically charging resources - backflushing
- Discrete workstation
- Viewing and pending resource transactions
- Processing resource requirements
- Charging multiple schedules and repetitive allocations
- Costing resource charges
- Resource transactions activity reports

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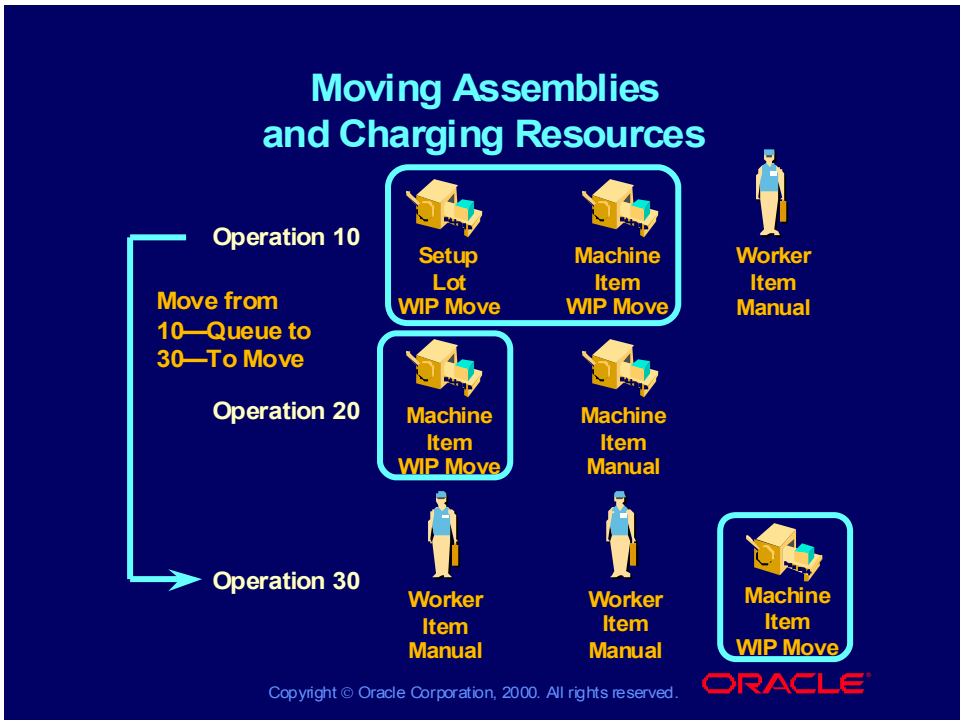


## Concepts in Resource Transactions

### Move Transaction

Resources are automatically charged during move transactions.

### Resource

A resource is a thing of value, except material and cash, that is required to manufacture, cost, and schedule products. Resources include people, tools, machines, services purchased from a vendor, and physical space.

### Resource Transaction

A resource transaction is a transaction in which you automatically or manually charge resource costs to a discrete job or repetitive schedule. Transacting a resource is synonymous with charging a resource.

### Resource Basis

Resource basis is the basis for resource usage quantity that indicates whether that quantity is required per item or per lot.

### Lot-Based Resources

Lot-based resources are resources whose usage quantity represents the amount you require per job or schedule.

For example, a lot-based resource could be the amount of time required to set up a machine at an operation to build the assemblies on a job, where time is constant regardless of the job or schedule quantity.

### Item-Based Resources

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Item-based resources are resources whose usage quantity represents the amount you require per assembly you make.

For example, an item-based resource could be the amount of time required to process each assembly at an operation for the job.

### Resource Units Applied

Resource units applied is a quantity you charge to a discrete job or repetitive schedule for work performed by a resource. The quantity is expressed in the unit of measure of the resource.

For example, if the unit of measure of a resource is hours and the resource works 120 hours, you apply 120 units to the discrete job or repetitive schedule.

### Autocharge

Autocharge is a method of automatically charging a resource to a discrete job or repetitive schedule.

This is implemented in Oracle Work in Process through use of the autocharge type associated with each resource.

### WIP Move Resource

A WIP move resource is a resource that is automatically charged to a discrete job or repetitive schedule by a move transaction that completes an operation.

The autocharge type for this type of resource is WIP Move.

### Manual Resource

A manual resource is a resource that you manually charge to a discrete job or repetitive schedule.

The autocharge type for this type of resource is Manual.

### Activity

An activity is an action or task you perform in a business that uses a resource or incurs cost.

When resources are charged, Oracle Work in Process records the activity associated with that resource in the routing.

You can use activities to categorize the costs of certain manufacturing functions such as setup or teardown.

### Efficiency

Efficiency is a productivity measure that focuses on actual performance against a standard. Expressed by percentage, efficiency is calculated by dividing the actual resource time charged to a task by the standard resource requirements for the same task.

### Efficiency Variance

Efficiency variance is a quantity variance defined as the difference between the amount of a resource (typically in hours) required at standard and the actual amount you use to manufacture an assembly.

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# Moving Assemblies and Charging Resources

## Charging Overheads

You can charge resource-based overheads automatically as you charge a resource.

You can define overheads to be charged based on resource units or resource value of the resource with which overhead is associated.

Oracle Work in Process automatically charges appropriate overhead costs as you charge resources.

Oracle Work in Process reverses overhead charges when you reverse associated resource charges.

**Note:**

You should remember that the overheads could also be tied directly to the move transactions. Such overheads have basis type Item or Lot instead of resource units or resource value.

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## Data-Entry Mechanisms

- Move Transactions window
- Resource Transactions window
- Open Resource Transaction Interface
- Receipts window in Oracle Purchasing
- Discrete workstation

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### Where You Can Perform Resource Transactions

You can perform resource transactions using the most convenient data-entry mechanism.

- From the Move Transaction window
  - You can charge resources automatically or manually.
  - Oracle Work in Process optionally validates the transaction information online.
- From the Resource Transactions window
  - You can charge resources manually.
  - Oracle Work in Process optionally validates the transaction information online.
- Open Resource Transaction Interface
  - You can insert resource transactions into the Open Resource Transaction Interface table.
  - Oracle Work in Process validates and then processes the transactions.
  - Failed transactions are marked with an appropriate error code.
  - You can view, update, and resubmit the information in the Update WIP Transaction Interface window.

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## Data-Entry Mechanisms (continued)

- Receipts window in Oracle Purchasing (for outside processing)
  - You can automatically charge outside resources for an outside operation as you receive the outside processed assembly back from the vendor.
- Discrete Workstation
  - You can enter time on the Discrete Workstation for a resource.
  - You can enter direct labor time using an actual labor rate.
  - You can enter down to the minute as opposed to the hour with the resource form.
  - The Time Charges tab is chosen.

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# Manually Charging Resources

## Manually Charging Resources

You can manually charge resources to a discrete job or repetitive assembly and line with or without an associated move transaction.

- Manually charging resources without a move
- Manually charging resources with a move
- Manually reversing resource charges

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### Manually Charging Resources with a Move

•You can perform the move transaction.

•You can charge resources with an autocharge type of Manual assigned to the operations completed during the move (Oracle Work in Process displays those resources automatically).

•If the standard rate flag for a manual resource is No, and the resource is of type Person, you can charge the resource at the employee labor rate instead of the standard rate by specifying an employee identifier.

•This transaction is done from the Move Transactions window by choosing the Resources button.

### Manually Charging Resources without a Move

You can charge any resource assigned to an operation in a job or schedule.

You can charge any resource not previously assigned to an operation in a job or schedule. The resource must be defined for the department associated with the operation. It can have autocharge type Manual or WIP move.

This transaction is done by navigating to the Resource Transactions window.

### Manually Reversing Resource Charges

You can manually reverse resource charges at any time by specifying negative resource units applied.

This transaction is done by navigating to the Resource Transactions window.

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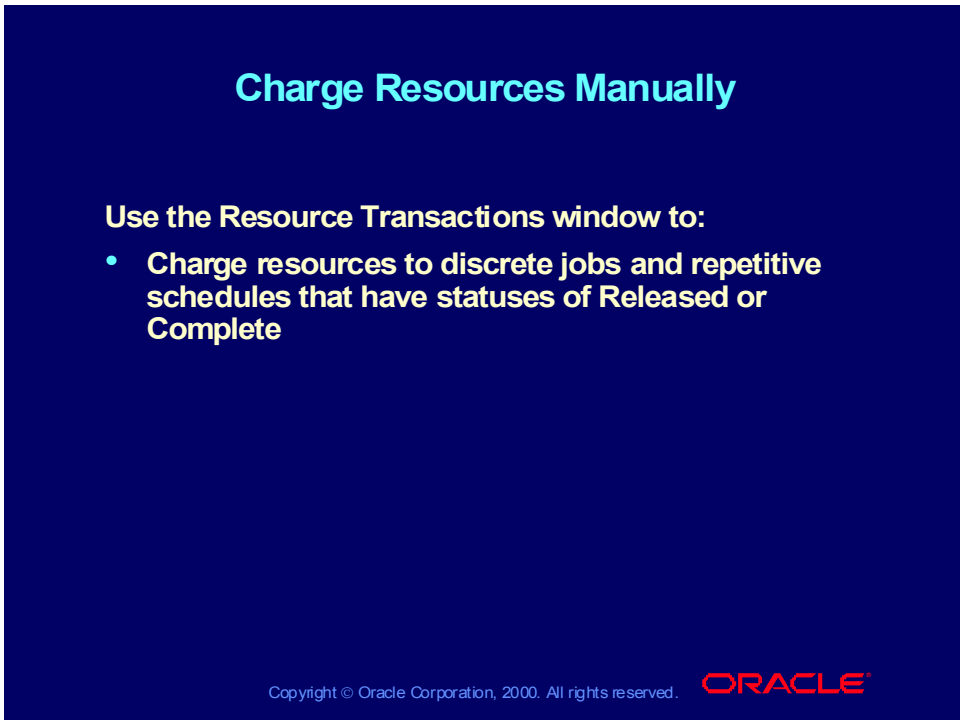
# Charge Resources Manually




## Charge Resources Manually

Resources are charged based on how they are defined at the operation they are assigned.

Oracle WIP (N) Resource Transactions > Resource Transactions

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Resource Management > Resource Transactions > Charging Resources Manually

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# Example of Manual Resources

## Example of Manual Resources

| Routing Summary | | | | |
|---|---|---|---|---|
| Op Seq | Count Point Type | Resource | Autocharge | Standard Rate |
| 10 | Yes—autocharge | RES1 | WIP Move | Yes |
| | | RES2 | Manual | No |
| 20 | Yes—autocharge | RES3 | WIP Move | Yes |
| | | RES4 | WIP Move | Yes |
| 30 | No—direct charge | RES5 | Manual | Yes |
| 40 | No—autocharge | RES6 | WIP Move | Yes |
| 50 | Yes—autocharge | RES7 | Manual | Yes |

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### Manual Resources

If the Manual Resources Exist check box is selected, the Move Transactions window queries manual resource charges associated with the operation you are completing to make data entry easier when you choose the Resources button.

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# Resource Charging Examples

## Resource Charging Examples

| Move Transaction | Manual Resources Displayed |
|---|---|
| 20 Queue—>20 To Move | |
| 10 Queue—>40 To Move | RES2 |
| 40 To Move—>50 To Move | RES7 |
| 10 To Move—>30 To Move | RES5 |
| 40 To Move—>20 Queue | |

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# Review Question

## Review Question

How can you reverse manual resource charges?

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# Review Question Solution

## Review Question Solution

**How can you reverse manual resource charges?**

**You can manually charge the same resource to the job or schedule and enter a negative value in the Units Applied field.**

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# Charging Resources with Move Transactions

## Charging Resources with Move Transactions

**Use the Move Transactions window to:**

- **Charge manual resources with a move**
- **Add and charge resources not already associated with a job or repetitive schedule**

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Oracle WIP (N) Move Transaction > Move Transactions (B) Resources

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Resource Management > Resource Transactions > Charging Resources with Move Transactions

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# Example of WIP Move Resources

## Example of WIP Move Resources

| Routing Summary | | | | |
|---|---|---|---|---|
| Op Seq | Count Point Type | Resource | Autocharge | Standard Rate |
| 10 | Yes—autocharge | RES1 | WIP Move | Yes |
| | | RES2 | Manual | No |
| 20 | Yes—autocharge | RES3 | WIP Move | Yes |
| | | RES4 | WIP Move | Yes |
| 30 | No—direct charge | RES5 | Manual | Yes |
| 40 | No—autocharge | RES6 | WIP Move | Yes |
| 50 | Yes—autocharge | RES7 | Manual | Yes |

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# Example of Resource Charging

## Example of Resource Charging

| Move Transaction | Resources Charged Automatically |
|---|---|
| 10 Queue—>10 Run | |
| 10 Queue—>40 To Move | RES1, RES3, RES4, RES6 |
| 40 To Move—>50 To Move | |
| 10 To Move—>50 Queue | RES3, RES4, RES6 |
| 40 To Move—>20 Queue | RES6, RES3, RES4 (unchanged) |

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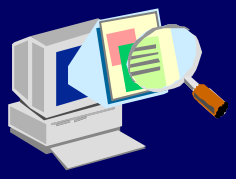
# Demonstration

## Demonstration

This demonstration covers manually charging resources.



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# Review Question

## Review Question

How can you reverse WIP move resource charges?

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## Review Question Solution

**How can you reverse WIP move resource charges?**

- You can manually charge the same resource to the job or schedule and enter a negative value in the Units Applied field.
- You can perform a backward move: Oracle Work in Process automatically reverses the WIP move resource charges.

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# Review Question

## Review Question

**Why would you want to charge resources that are not assigned to an operation on a routing?**

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## Review Question Solution

**Why would you want to charge resources that are not assigned to an operation on a routing?**

**You might need to charge an unexpected resource to a job or schedule, such as a temporary worker that you hired for an overtime shift. Or you might have received an additional machine that you want to use to speed up the manufacturing process.**

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# Automatic Resource Transactions

## Automatic Resource Transactions

- Automatically charging resources at standard rate
- Completing an operation and automatically charging resources
- Reversing resource charges

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### Automatically Charging Resources at Standard Rate

You u can automatically charge resources at their standard rate to a discrete job or repetitive assembly and line while performing a move transaction.

•Completing an operation and automatically charging resources

•Reversing resource charges

### Completing an Operation and Automatically Charging Resources

Oracle Work in Process charges all resources with an autocharge type of WIP move at their standard rate.

WIP move resources with a basis type of Item are charged upon completion of each assembly at the operation the resource is tied to.

WIP move resources with a basis type of Lot are charged upon completion of the first assembly at the operation the resource is tied to.

### Reversing Resource Charges

If you perform an uncompletion, Oracle Work in Process automatically reverses any resource charges associated with the completion for WIP move resources.

If a WIP move resource has a basis type of Lot, Oracle Work in Process reverses the resource charges only if you uncomplete all assemblies at the operation.

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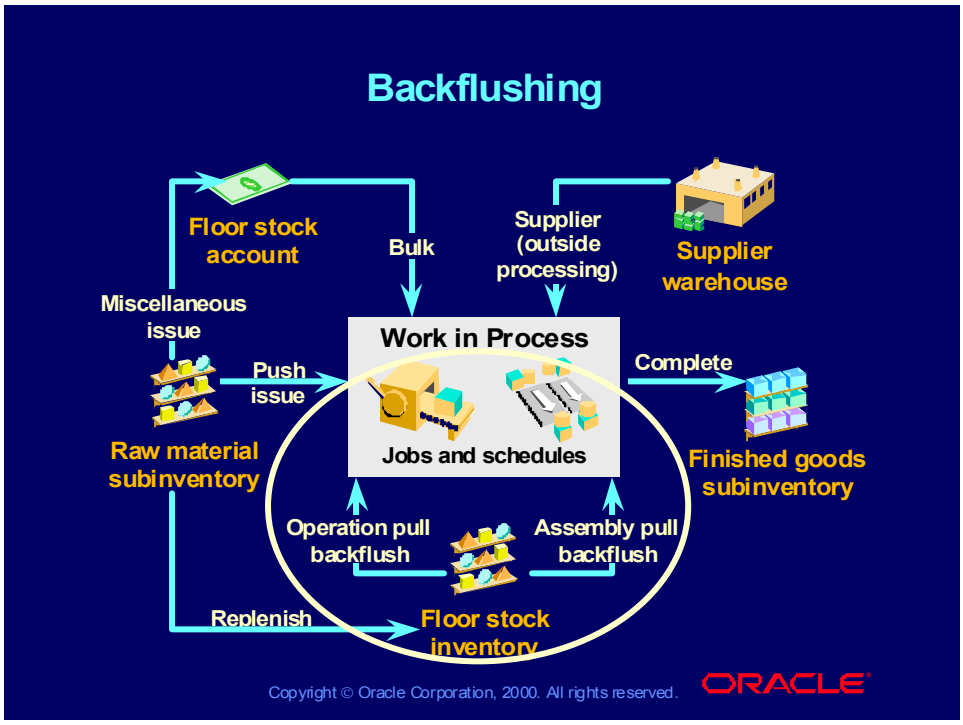
# Backflushing




## Backflushing Components

You can initiate a backflush from several sources. You can automatically launch backflush transactions when moving or completing assemblies.

## Backflush Sources

- Move Transactions window
- Completion Transactions window
- Enter Receipts window in Oracle Purchasing (for outside processing)
- Oracle Inventory Material Transaction interface
- Open Move Transaction interface

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# Discrete Workstation

(N) Discrete > Discrete Workstation (B) Launch

**Discrete Workstation Display**

You can launch the workstation by selecting a department or department and resource. On the left pane, the list of job operations is those assigned to the department or department and resource combination that you selected.

The workstation interface displays information on graphs and tables for fast access and easy readability. You can monitor the utilization, efficiency, productivity, and load on a resource from all departments in a table and graph format.

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Discrete Manufacturing > Discrete Workstation > Discrete Workstation Transactions > Charge Resources

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# Viewing Resource Transactions

## Viewing Resource Transactions

Use the View Resource Transactions window to:

- Find and view resource transactions for an individual job or a repetitive line and assembly
- View resource transactions across jobs and schedules

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Oracle WIP (N) Resource Transactions > View Resource Transactions

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Resource Management > Resource Transactions > Viewing Resource Transactions

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# Pending Resource Requirements

## Pending Resource Requirements

Use the View Pending Resource Transactions window to:

- Find pending resource transactions for an individual job or schedule name

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Oracle WIP (N) Resource Transactions > Pending Resource Transactions

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Resource Management > Resource Transactions > Finding Pending Resource Transactions

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# Processing Resource Requirements

## Processing Resource Requirements

**Use the Pending Resource Transactions window to:**

- **View, update, delete, and resubmit resource transactions that have failed validation**

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Oracle WIP (N) Resource Transactions > Pending Resource Transactions

(Help) Oracle Manufacturing Applications > Oracle Work in Process > Resource Management > Resource Transactions > Processing Pending Resource Transactions

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## Charging Multiple Schedules

### Example of Repetitive Allocation

| Transaction | Allocate to Schedule 1 | Allocate to Schedule 2 |
|---|---|---|
| Transact 300 assemblies | 300 | 0 |
| Transact 200 assemblies | 100 | 100 |
| Transact 100 assemblies | 0 | 100 |

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## Charging Multiple Schedules

Flow charging is a repetitive transaction method in which you charge material, move, resource, and overhead transactions to a specific assembly on a line rather than a specific repetitive schedule.

If more than one schedule has a status that allows charges, you can perform transactions against the consolidated sum of all the schedules.

For example, if there are three schedules for 100 units each with status Released for the same assembly and line combination, you could move up to 300 units with one transaction.

## Advantages of Flow Charging

Flow charging means that shop floor data entry can be performed by charging against the assembly and line. The person who enters shop floor data does not need to be able to identify which schedule an assembly belongs to.

Flow charging means that you can batch all your transactions against an assembly on a line and then enter all of them in one transaction. For example, if you run three schedules per day building the same assembly on the same line, you can enter all your transactions against the assembly and line at the end of the day without worrying about which schedule was building the assemblies.

Flow charging supports the idea of a schedule being less of an individual entity than a discrete job is. As long as two schedules build the same assembly on the same line, Oracle Work in Process does not distinguish between them for transaction purposes.

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# Charging Multiple Schedules (continued)

**Note:** Many Oracle Work in Process repetitive reports also consolidates quantities across schedules for the same assembly on the same line.

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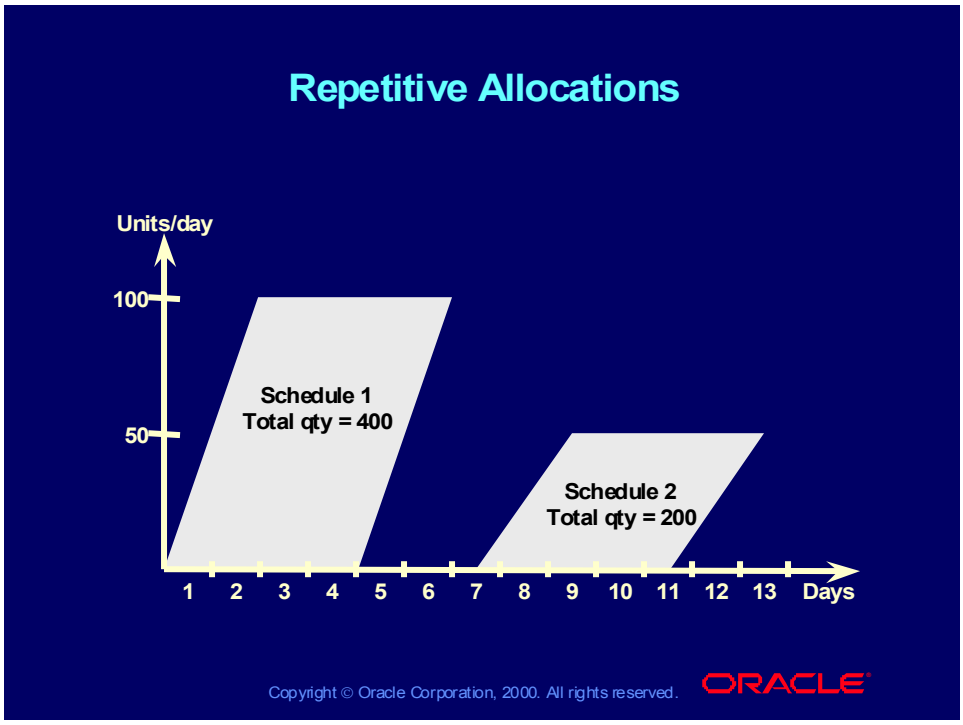
# Repetitive Allocations




## Repetitive Allocation

Repetitive allocation is a system technique for applying transaction quantities and costs across several repetitive schedules that are building the same repetitive assembly on the same line.

The repetitive allocation algorithm allows Oracle Work in Process to allocate the transactions that were flow charged to particular schedules.

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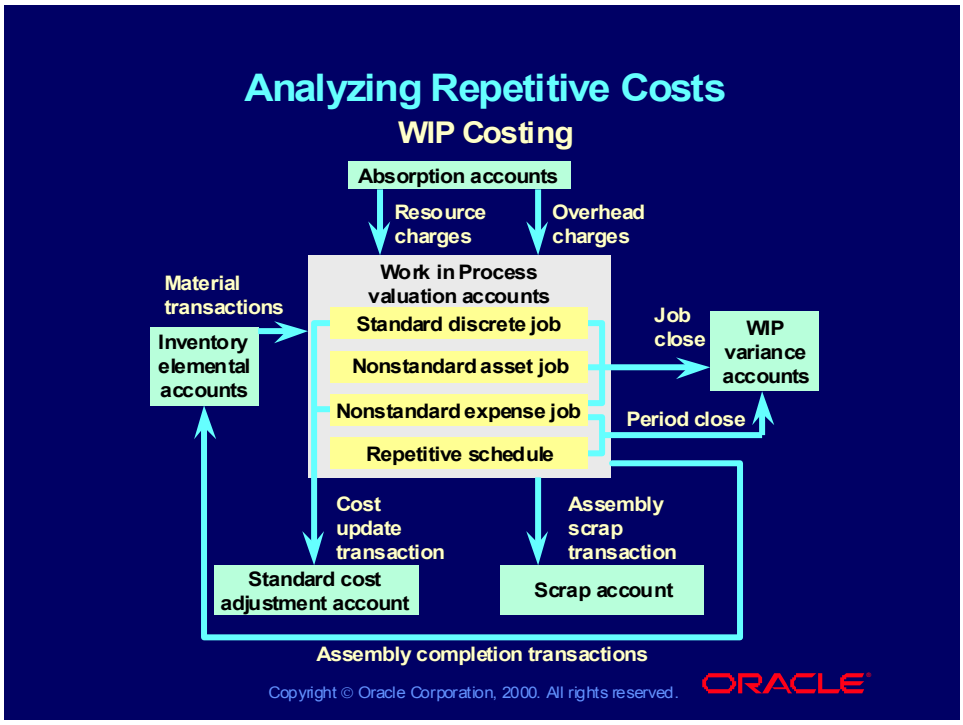
# Analyzing Repetitive Costs




## Flow Charging

When you enter repetitive transactions, you charge the repetitive assembly and line rather than a specific job. Therefore you can also see repetitive costs consolidated across all schedules for an assembly on a line.

## Period Costing

- You can use the Inventory Accounting Period window in Oracle Inventory to close a period and perform period costing for your repetitive production.
- Period costs for an assembly are calculated by totaling the charges made during the period and dividing that number by the number of assemblies completed in the period.
- The difference between the period cost and the standard cost is called a variance.
- Oracle Work in Process writes variances to the variance accounts associated with the WIP accounting classes assigned to the assembly/line combination for which a repetitive schedule was defined.
- You can use the parameter Recognize Repetitive Variances to control whether your variances at period end are based only on completed and canceled schedules or on all schedules.

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# Costing Resource Charges at Resource Standard

## Costing Resource Charges at Resource Standard

- Resource charges increase your work in process valuation. The accounting entries for resource transactions are:

| Account | Debit | Credit |
|---|---|---|
| WIP accounting class resource valuation account | XX | |
| Resource absorption account | | XX |

- The accounting entries for negative manual resource transactions and backward moves for WIP move resources are:

| Account | Debit | Credit |
|---|---|---|
| Resource absorption account | XX | |
| WIP accounting class resource valuation account | | XX |

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### Cost Resource Transactions

You can cost resource transactions at standard, average, or actual.

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## Costing Labor Charges at Actual

The accounting entries at transaction time are:

| Account | Debit | Credit |
|---|---|---|
| WIP accounting class resource valuation account | XX | |
| Resource absorption account | | XX |

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### Costing Labor Charges at Actual

For labor charges using an actual or employee rate for a resource with the Standard Rate check box clear, the job or schedule is debited at the actual or employee rate. The employee rate used needs to be set up at the organization level.

The absorption account is credited at the same rate. The variance between actual and standard is captured at the time of accounting close.

The accounting entries at transaction time are shown on the slide.

If you enter an actual rate for a resource with the Standard Rate check box selected, Oracle Work in Process charges the job or repetitive schedule at standard. It also charges the variance account of the resource for the difference between the standard and the actual at transaction time.

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## Costing Resource Transactions

**If the actual rate is greater than the standard rate, the accounting entries are:**

| Account | Debit | Credit |
|---|---|---|
| WIP accounting class resource valuation account | XX | |
| Resource rate variance account | XX | |
| Resource absorption account | | XX |

**If the actual rate is less than the standard rate, the accounting entries are:**

| Account | Debit | Credit |
|---|---|---|
| WIP accounting class resource valuation account | XX | |
| Resource rate variance account | | XX |
| Resource absorption account | | XX |

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## Weighted Average Costing

- You can charge material to WIP at average cost.
- You can charge resources to WIP at actual or average cost.
- You can define outside processing resources under average costing.
- You can calculate the average cost of completed assemblies in WIP.

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### Weighted Average Costing

- You can issue items from inventory to jobs and return components from a job back to inventory at the item's current average cost.
- You can charge resources to WIP jobs either at actual rate or at an average rate. How you define them is determined by the method you choose for charging labor and nonlabor resources to WIP.
- You can define outside processing resources under average costing in the same way you would in a standard cost organization.
- When you complete assemblies from WIP to a subinventory, they can be costed in one of the following ways:
  - A predefined cost in a user-designated cost type
  - An algorithm based on actual job charges that calculates the unit cost to be relieved from the job and charged to inventory for each unit completed

For more information, see *Oracle Cost Management Release 11i*.

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# Resource Transactions Activity Windows

## Resource Transactions Activity Windows

| Window | Description |
|---|---|
| Operations | Use this window to add, change, or delete resource requirements on a job or schedule. |
| View Resource Requirements | Use this window to review resource transactions online. |

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# Resource Transactions Activity Reports

## Resource Transactions Activity Reports

| Report | Description |
|---|---|
| Resource Transaction | Review resource transactions for a specific job or schedule or a range of jobs or schedules. |
| Resource Performance | Review resource efficiency by resource or department. |
| WIP Account Distribution | Review the resource and overhead transactions against an account charged by job or schedule. |
| WIP Account Summary | List the account summary of resource and overhead transactions. |

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# Resource Transactions Activity Reports

## Resource Transactions Activity Reports

| Report | Description |
|---|---|
| WIP Offsetting Account | List the resource and overhead transactions for a specific account. |
| Discrete Job Value | Review the status of resource and resource-based overhead charges for a job. |
| Repetitive Value | Review the status of resource and resource-based overhead charges for an assembly on a line during an accounting period. |

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# Summary

## Summary

- You can let Oracle Work in Process charge resources automatically based on moves, or you can manually charge resources with or without a move.
- You can use one of four data-entry methods to charge resources: the Material Transactions window, the Resource Transactions window, the Open Resource Transaction Interface table, or the Receipts window in Oracle Purchasing.
- You can charge resources at standard, at average, at an employee rate, or (through the open interface) at actual.
- You can monitor resource transactions activity with a variety of windows and reports.

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# Practice 1-3 Overview

## Practice 1-3 Overview

In this exercise you will create a discrete job, move assemblies and charge resources.

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**Practice 1-3**

1. Create a new job for a quantity of 100 for assembly AS54888, the Sentinel Standard Desktop.
2. Move 100 assemblies from Queue to To move.
3. Manually charge resources with the move. Charge 5 hours to Ms. Catherine Baker.

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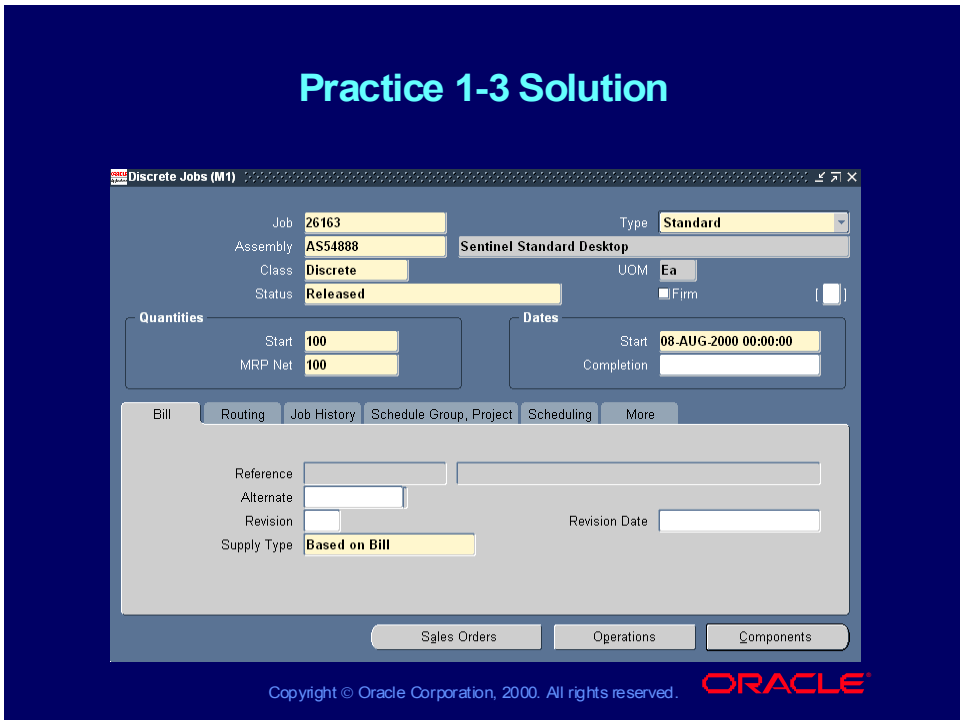
# Practice 1-3 Solution




## Practice 1-3 Solution

Create a new job for a quantity of 100 for assembly AS54888, the Sentinel Standard Desktop.

Oracle WIP (N) Discrete—>Discrete Jobs

1. Navigate to the Discrete Jobs window and define a standard job for 100 assemblies of AS54888. The status of the job should be released.
2. Save your work.

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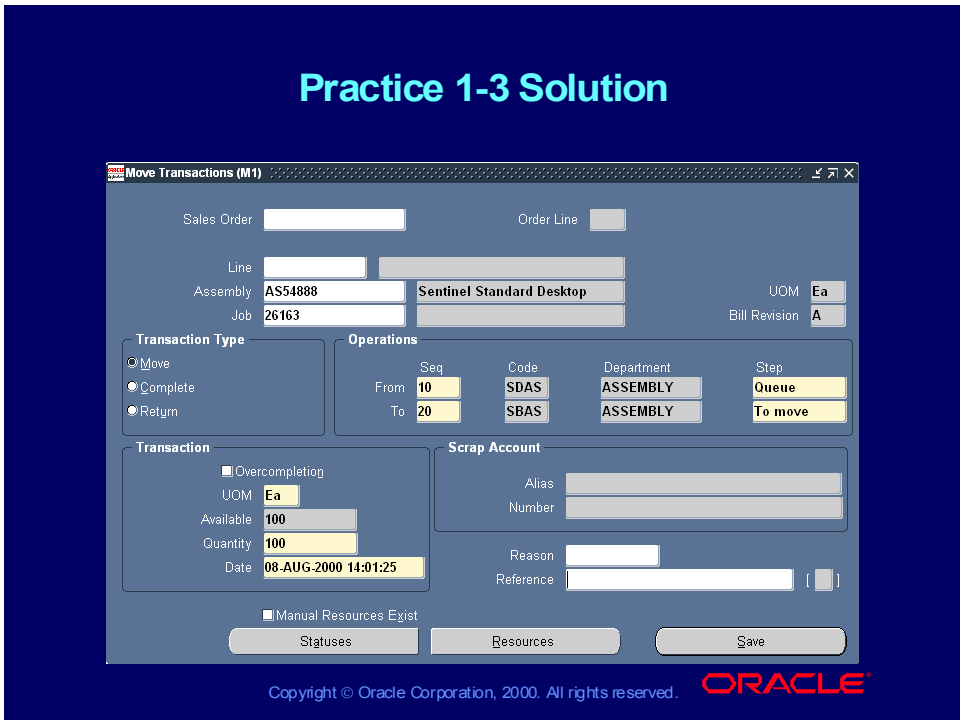
# Practice 1-3 Solution




## Practice 1-3 Solution (continued)

Move 100 assemblies from Queue to To move.

Work in Process (N) Move Transactions—>Move Transactions

1. Move 100 assemblies from Operation Seq 10 Queue to Operation Seq 20 To move.

2. Do <u>not</u> save your work yet. Click on the Resources button to do step 3 of the practice.

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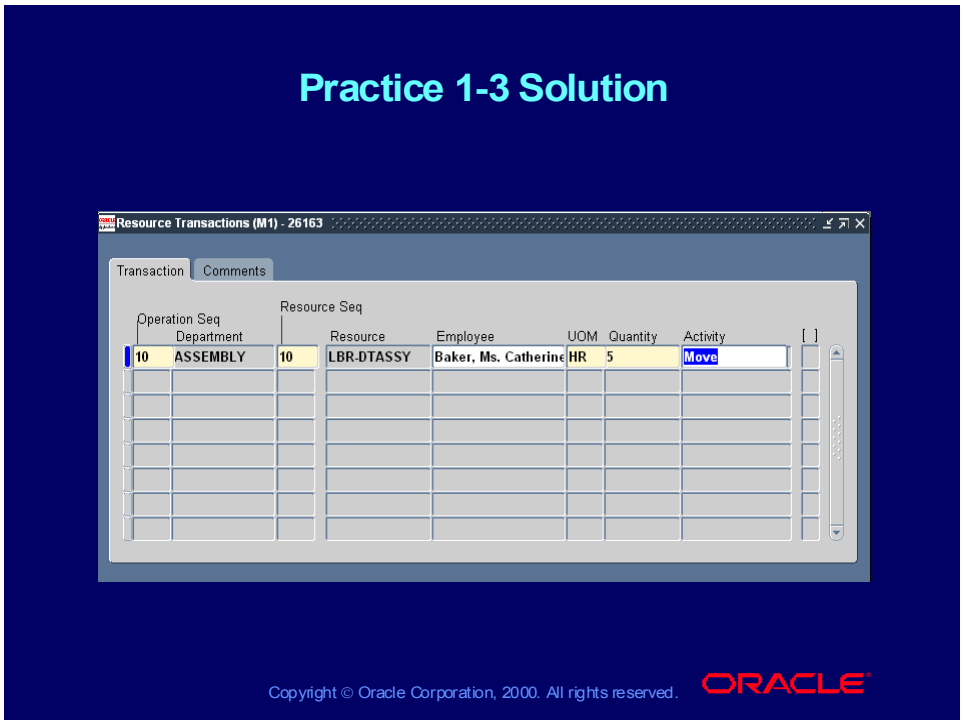
# Practice 1-3 Solution




## Practice 1-3 Solution (continued)

Manually charge resources with the move. Charge 5 hours to Ms. Catherine Baker.

Work in Process (N) Move Transactions—>Move Transactions (B) Resources

1. Charge 5 hrs to Ms Catherine Baker (employee ID is 40) at Operation Seq 10.
2. Save your work.

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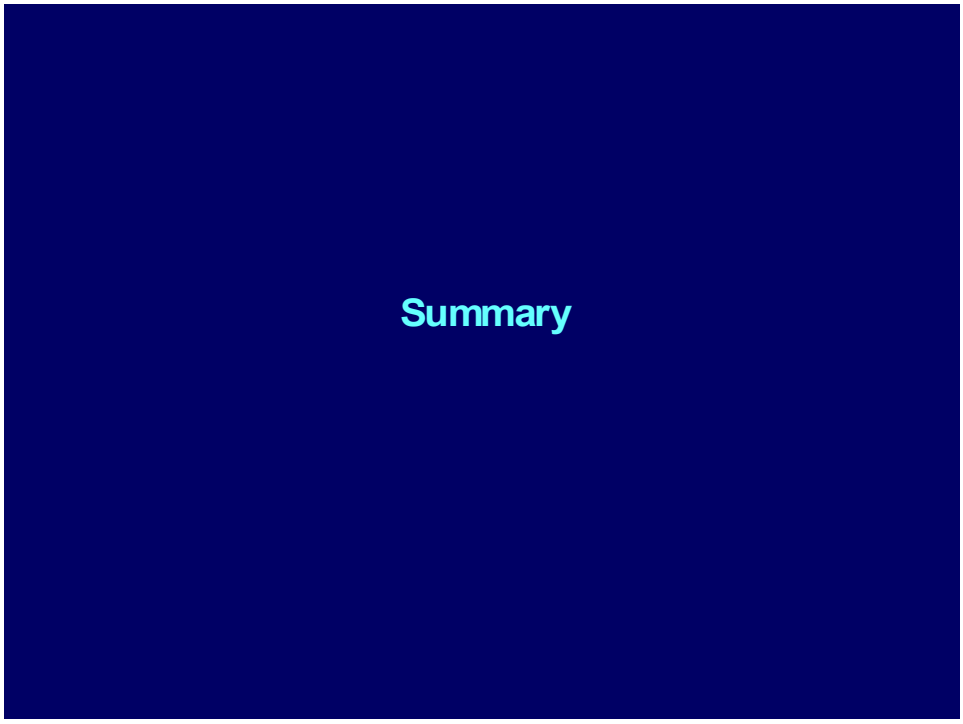
# Summary

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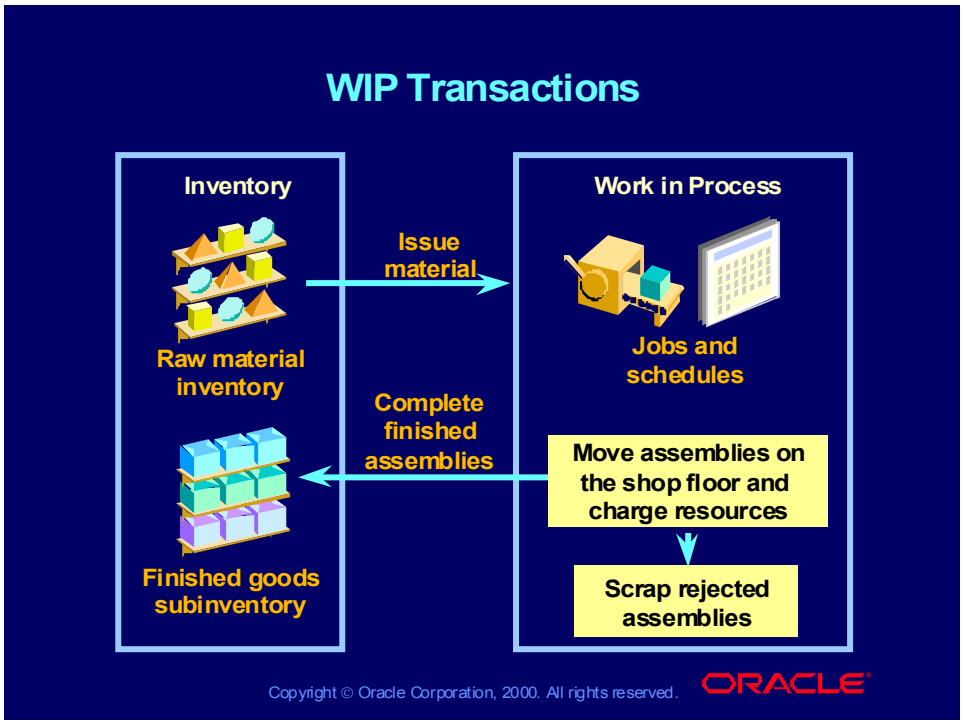
# WIP Transactions

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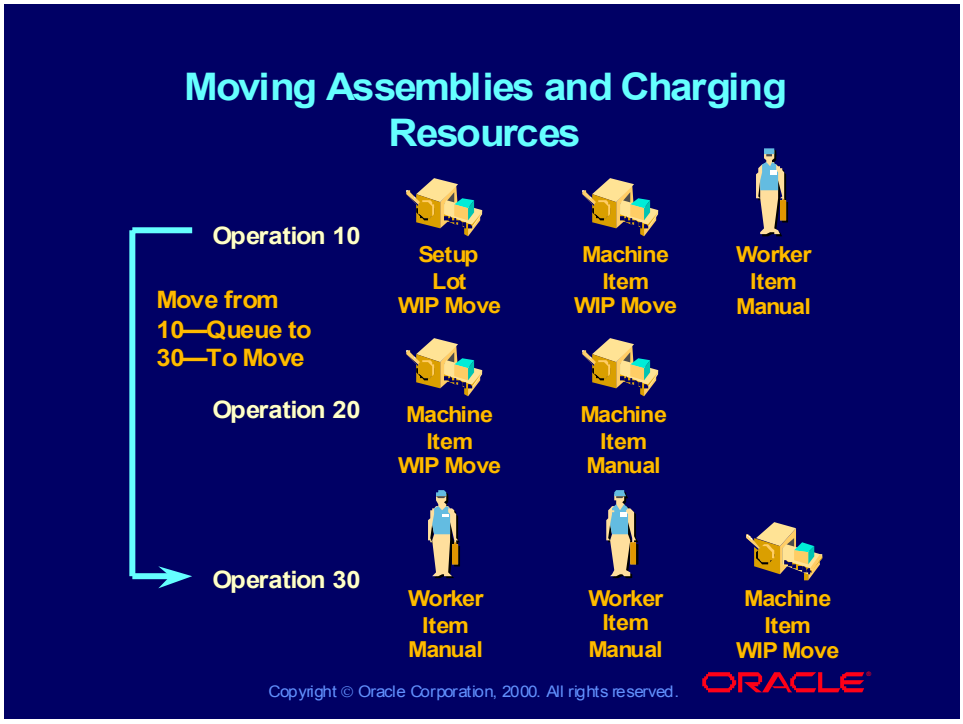
# Moving Assemblies and Charging Resources

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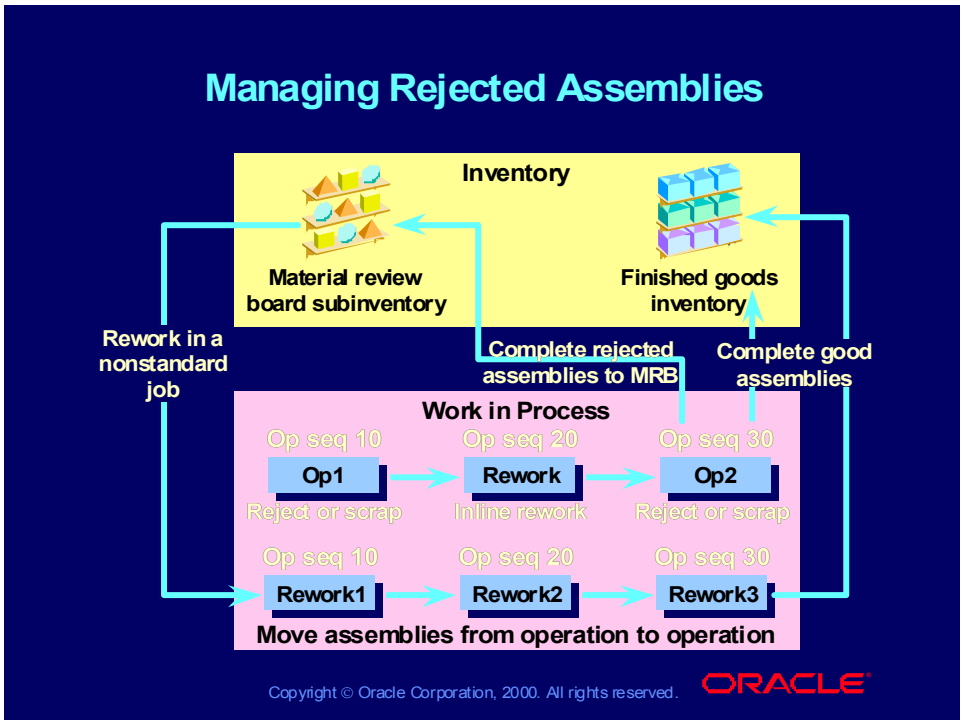
# Managing Rejected Assemblies

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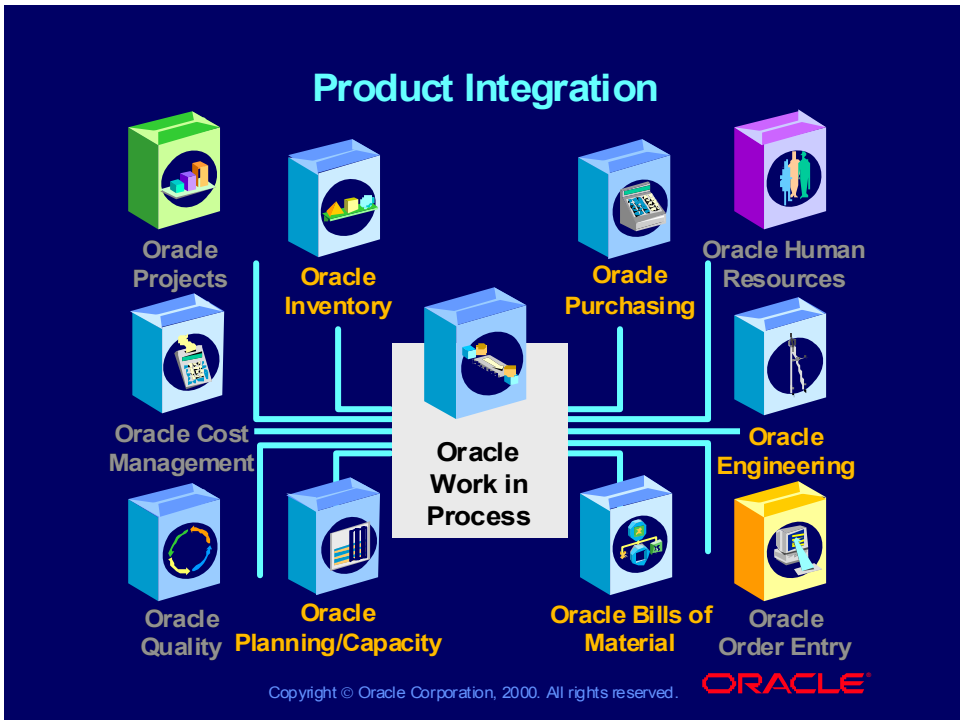
# Product Integration




## Product Integration

Oracle Work in Process interacts with Oracle's other applications products by sharing common information.

- Oracle Inventory
  - From: UOM, item information, and on-hand information
  - To: WIP activity and ATP supply information
- Oracle Bills of Material
  - From: Product structure information, routing information, and resource information
- Oracle Engineering
  - From: Engineering change information and product structure information
- Oracle Purchasing
  - From: Receipts deliveries
  - To: Subcontract requisitions
- Oracle Planning
  - From: Planned jobs and schedules
  - To: Open jobs, schedules, and repetitive assembly and line information
- Oracle Capacity
  - To: Existing resource load

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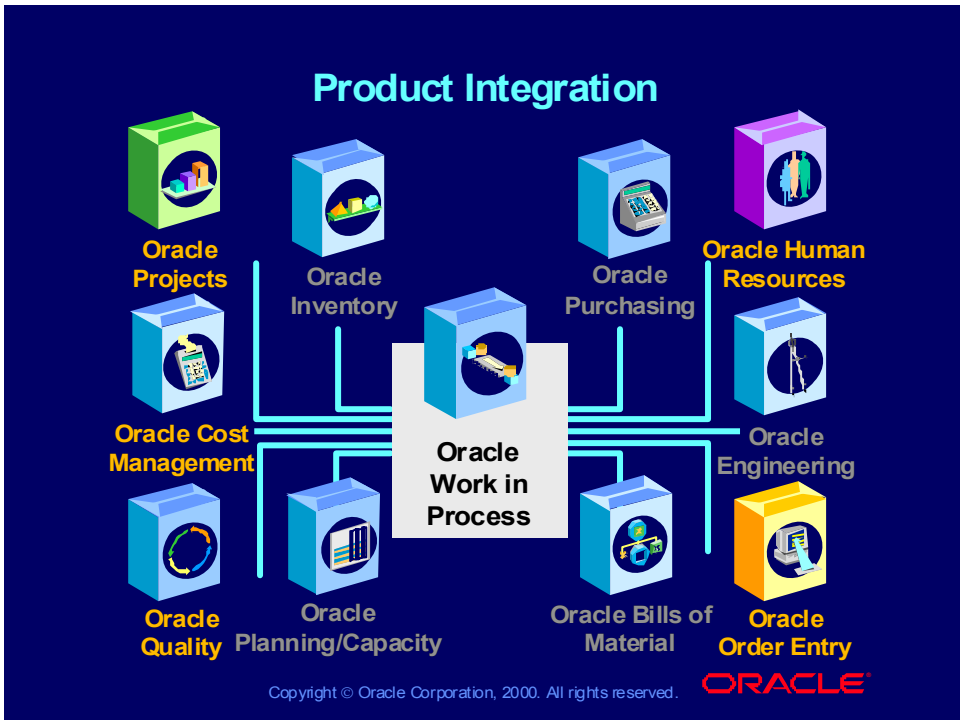
# Product Integration




**Product Integration (continued)**

- Oracle Cost Management
  - From: Cost information
  - To: Transaction costs
- Oracle Projects
  - From: Project tasks and IDs
  - To: Job cost information
- Oracle Quality
  - To: Quality data
- Oracle Human Resources
  - From: Employee information
- Oracle Order Entry
  - From: Final assembly orders

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# Course Summary

## Course Summary

In this component, you should have learned how to:

- Move assemblies on the shop floor
- Track assembly movements on the shop floor
- Report shop floor activity
- Manage rejected assemblies in work in process
- Charge resources to jobs or schedules
- Monitor resource transaction activity

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# 11i Complete Discrete Jobs and Repetitive Schedules

**Chapter 9**

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## Objectives

After completing this course, you should be able to do the following:

- Describe basic completion transaction concepts
- Perform completion transactions
- Overcomplete discrete jobs and repetitive schedules
- Perform workorder-less completions
- Return assemblies from inventory to WIP
- Explain completion transactions using manufacturing average costing

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# Objectives (continued)

## Objectives (continued)

- Identify set up steps for workflow alerts and intelligent messaging
- Explain integration with Oracle Quantity
- Explain rollforward
- Close discrete jobs
- Purge jobs and schedules

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# Agenda

## Agenda

- Lesson 1: Overview
- Lesson 2: Performing Completion Transactions
- Lesson 3: Performing Workorder-less Completions
- Lesson 4: Intelligent Messaging and Quality Integration
- Lesson 5: Performing Completion Transactions for Repetitive Jobs
- Lesson 6: Closing and Purging Jobs and Schedules
- Lesson 7: Summary

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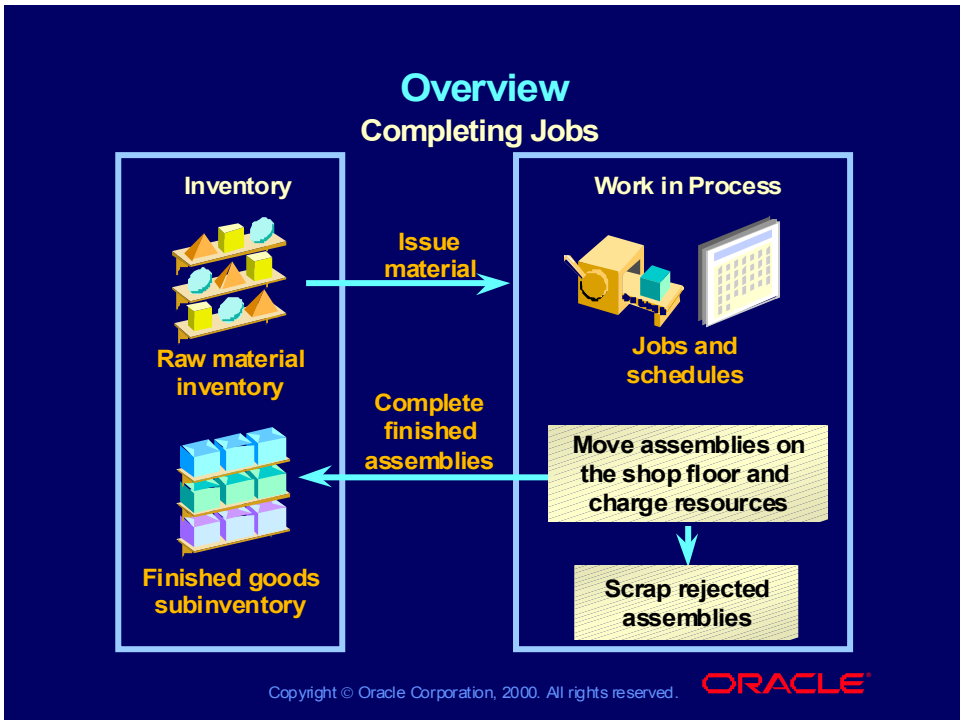
# Overview




### Definitions

• **Assembly completion transaction** is a material transaction in which you receive assemblies into inventory from a job or repetitive assembly/line upon completion of the manufacture of the assembly.

• **Completion subinventory** is an inventory location at the end of your production line or shop floor routing where you receive completed assemblies from work in process. This is often the supply subinventory for subassemblies or finished goods inventories for final assemblies.

• **Completion locator** is an inventory location in a completion subinventory where you receive completed assemblies from work in process.

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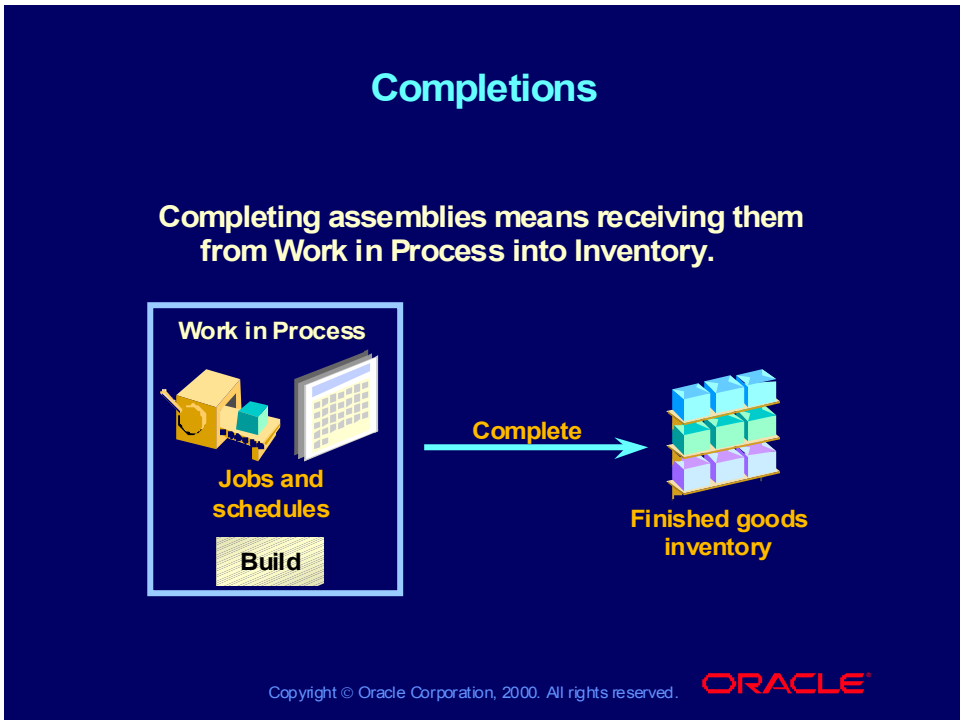
# Completions




### Completion Transaction Process

• The finished assemblies are received into inventory, either to be used as subassemblies or to be shipped as finished goods.

• All Assembly Pull material attached on the bill is backflushed.

• The quantity in the To Move step of the last operation is decreased, if there is a routing.

• The Quantity Complete on the job or repetitive schedule is increased.

• If the quantity completed equals the total quantity for a schedule, and there are other active schedules following it on the assembly/line, the schedule's status is changed to Complete—No Charges. If the schedule is the last active schedule, its status is changed to Complete.

• Job and repetitive schedule statuses are automatically updated to Complete when the total number of assemblies completed and scrapped on a job or repetitive schedule is greater than or equal to the required quantity. Previously, the job would not change status to "Complete" when there was a scrap quantity and you finished the remainder.

•**Quantity completed + Quantity scrapped ≥ New Job Start Quantity**

•**Note:** The new job start quantity takes into account the quantity overcomputed on a workorder or schedule.

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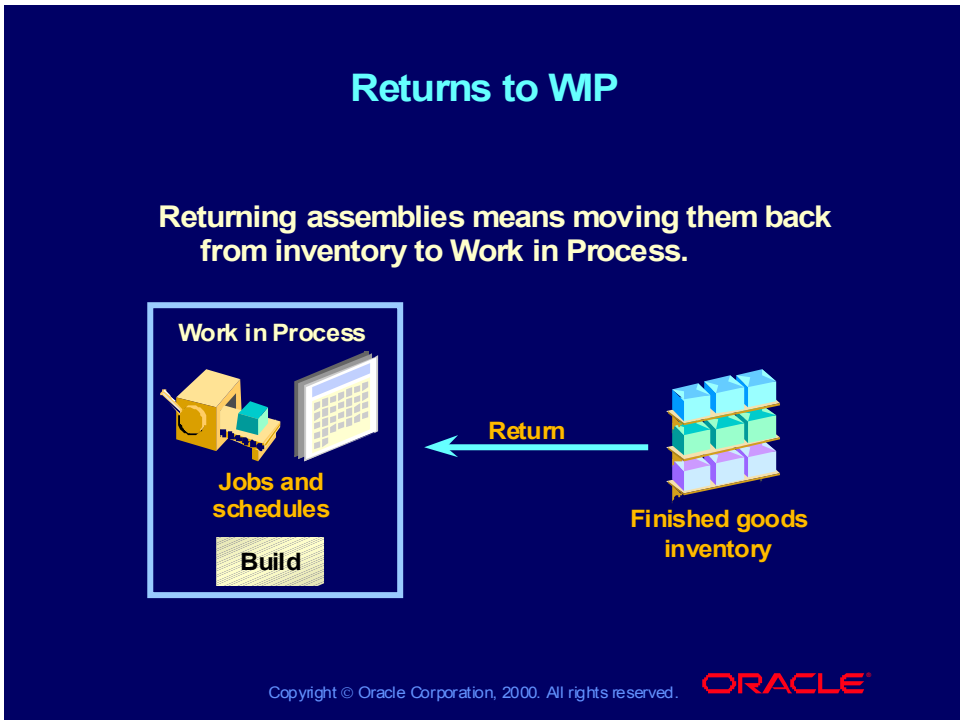
# Returns to WIP




**Return from Inventory Transaction Process**

- The finished assemblies are returned from inventory to work in process.
- All backflush transactions that took place during the corresponding completion transaction are reversed.
- The Quantity Complete is reduced.
- The quantity in the To Move step of the last operation in the routing is increased (assuming there is a routing).
- A discrete job's status is changed back to Released.
- Repetitive schedule statuses are only changed back to Released from Complete, never from Complete—No Charges.

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# Agenda

## Agenda

- Lesson 1: Overview
- Lesson 2: Performing Completion Transactions
- Lesson 3: Performing Workorder-less Completions
- Lesson 4: Intelligent Messaging and Quality Integration
- Lesson 5: Performing Completion Transactions for Repetitive Jobs
- Lesson 6: Closing and Purging Jobs and Schedules
- Lesson 7: Summary

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## Business Benefits

Using completion transactions, you can:

- complete assemblies from discrete jobs and repetitive schedules into inventory
- return completed assemblies from inventory to jobs and repetitive schedules
- complete a greater quantity than the job or schedule start quantity (over-complete) into inventory
- return more assemblies than were completed on repetitive schedules and non-standard discrete jobs

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# Completion Transactions

## Completion Transactions

Use the Completion Transactions window to:

- complete assemblies from jobs and repetitive schedules into inventory
- return completed assemblies from inventory to jobs and repetitive schedules
- over-complete assemblies

(N) Manufacturing & Distribution Manager > WIP > Material Transactions > Completion Transactions

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Discrete Manufacturing > Completing Discrete Jobs**

**... > Repetitive Manufacturing > Completing Repetitive Schedules**

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# WIP Assembly Completion

## WIP Assembly Completion

Use the WIP Assembly Completion window to enter:

- subinventory/Locator
- unit of Measure
- quantity

(N) Manufacturing & Distribution Manager > WIP > Material Transactions > Completion Transactions (B) Continue

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Material Control**

**... > Assembly Completions and Returns**

**... > Completing and Returning Assemblies**

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# Lot and Serial Numbers

## Lot and Serial Numbers

Use the Lot and Serial Number Entry window to enter:

- a new or existing lot number
- one or range of serial numbers for each item or lot quantity
- lot expiration

(N) Manufacturing & Distribution Manager > WIP > Material Transactions > Completion Transactions (B) Continue (B) Lot/Serial

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Material Control**

**... > Assembly Completions and Returns**

**... > Completing and Returning Assemblies**

**Serial Number Genealogy**

Use the material transaction history to view the attributes of your lots or the composition for a job or lot. These can also be viewed graphically.

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# Easy Completion

## Easy Completion

Use the Move Transaction window to receive assemblies from Work in Process into inventory.

(N) Manufacturing & Distribution Manager > WIP > Move Transactions > Move Transactions

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### Rules of the Easy Completion Transaction

• Assemblies are completed into the default completion subinventory or locator for the job, assembly, or line. Therefore, there must be a completion subinventory or locator default for the job or assembly/line.

• Assemblies under serial number control cannot be completed this way.

• Assemblies under lot control can be completed only if the discrete job lot is specified in the job header.

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# Practice 1 Overview

## Practice 1 Overview

This practice covers performing an easy completion.

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### Scenario

Your customer has called and requires 100 of the final assembly sent immediately. Create the work order using the easy completion and verify the following:

- the requirements for the phantom resources have been created
- the requirements for the sub-assembly have also been created
- the functionality of shortage messaging has been invoked

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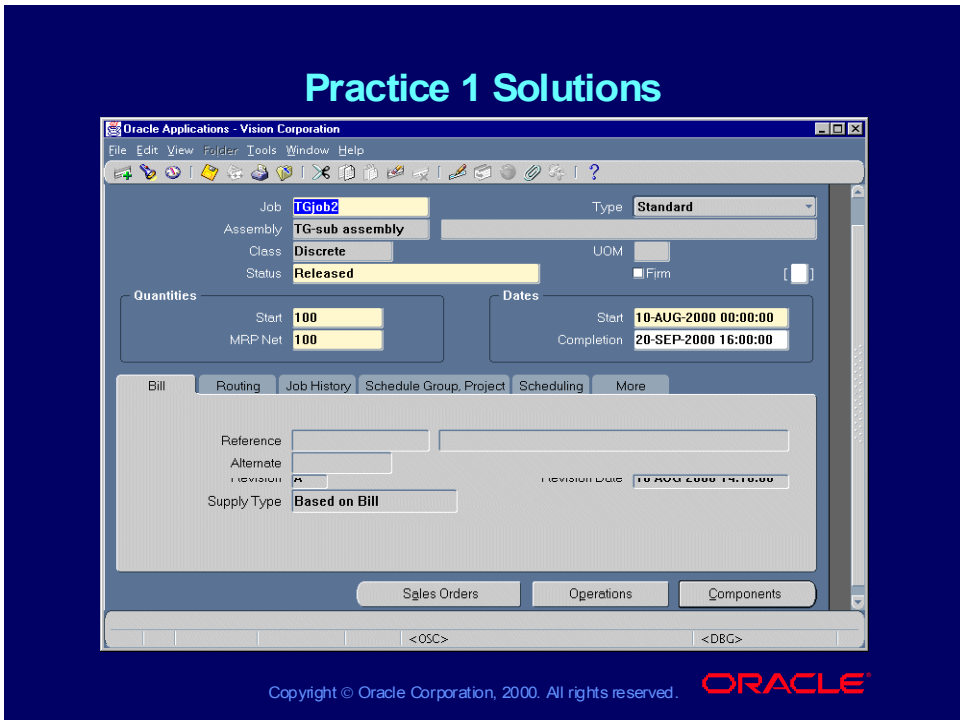
# Practice 1 Solutions




## Oracle Applications Logon

The following is specific information to access Vision for manufacturing:

1. Enter a url that is given to you by the instructor
2. Enter User Name: mfg
3. Enter Password: welcome
4. Click Connect
5. Select Responsibility: Manufacturing and Distribution Manager
6. Click OK
7. Select the M1 Seattle manufacturing organization in which to do all of the practices.
   (N) Other—>Change Organization (M) M1 Seattle Manufacturing (B) OK
8. Create an item XX-final assembly, where XX are your initials. Enter a description. Apply the Finished Good Item template. Enable your item in the M1and M3 organizations. Set Overcompletion Tolerance Type to Percent and set Overcompletion Tolerance Value to 20 (This should allow you to over-receive and over-move 20% more units per job/schedule). Save your work.
9. Create 3 items XX-buy part1, XX-buy part2, XX-buy part3. Enter a description. Apply the Purchased Item template. Set the Supply Type for item 1 = Push, item 2 = Operation Pull, and item 3 = Assembly Pull. Set Overcompletion Tolerance Type to Percent and set Overcompletion Tolerance Value to 20 for each item. Enable in organizations M1 and M3. Save each record.

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# Practice 1 Solutions (continued)

10. Create 2 items XX-sub assembly and XX-phantom assembly. Enter a description for these components. Apply the Finished Good Item template. Set the Supply Type for sub-assembly = Operation Pull and phantom = Phantom. Set Overcompletion Tolerance Type to Percent and set Overcompletion Tolerance Value to 20. Enable in M1and M3. Save each record.

11. Create 3 resources used to process the assemblies: XX-res1, XX-res2, and XX-res3. Enter descriptions. Type is Machine for resource 1 and Person for resources 2 and 3. UOM is HR for all resources. Charge type is WIP MOVE. Basis = Item, Costed and Standard Rate should be enabled. Select an Absorption and Variance account (should be the same for each resource). Select Rates button. Select a Cost Type (should be the same for each resource). For the Resource Unit Cost enter $10, $5, and $20 respectively. Save each record.

12. Create 3 departments for each resource XX-dept1, XX-dept2, and XX-dept3. Enter department descriptions. In the Main tabbed region, link the appropriate resource to each department (example: XX-res1 to XX-dept1). Enable Available 24 hours. In the Units column, enter 1. Save each record.

13. Create 2 more resources and departments for your phantom. Resource 1 will be Type = Person and resource 2 Type = machine. Resource Unit Cost for resource 1 = $25 and resource 2 = $15. Enter the rest of the information the same as in step 11.

14. Create 4 operations to be used in all the routings:

– XX-d1: Dept=XX-dept1

– Option dependent (cleared), Count Point (enabled), Autocharge (enabled)

– In Operation Resources, Resource=XX-res1

– UOM=HR

– Basis=Item

– Usage =5

– In Scheduled tabbed page, Scheduled = Yes

– In Costing tabbed page, Charge Type = WIP Move, Standard Rate is enabled

– XX-d2: Dept=XX-dept2

– Option dependent (cleared), Count Point (enabled), Autocharge (enabled)

– In Operation Resources, Resource=XX-res2

– UOM=HR

– Basis=Item

– Usage=5

– In Scheduled tabbed page, Scheduled = Yes

– In Costing tabbed page, Charge Type = WIP Move, Standard Rate is enabled

– XX-d3: Dept=XX-dept3

– Option dependent (cleared), Count Point (enabled), Autocharge (enabled)

– In Operation Resources, Resource=XX-res3

– UOM=HR

– Basis=Item

– Usage=5

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– In Scheduled tabbed page, Scheduled = Yes
– In Costing tabbed page, Charge Type = WIP Move, Standard Rate is enabled.
– XX-p1: Dept=XX-phandept
– Option dependent (cleared), Count Point (enabled), Autocharge (enabled)
– In Operation Resources, Sequence = 10, Resource=XX-phanres1
– UOM=HR
– Basis=Item
– Usage=10
– In Scheduled tabbed page, Scheduled = Yes
– In Costing tabbed page, Charge Type = WIP Move, Standard Rate is enabled
– In Operation Resources, Sequence = 20, Resource=XX-phanres2
– UOM=HR
– Basis=Item
– Usage=10
– In Scheduled tabbed page, Scheduled = Yes
– In Costing tabbed page, Charge Type = manual, Standard Rate is enabled

15. Create 3 routings for the sub-assembly, final-assembly and phantom:
– Item = XX-sub assembly
– Sequence 10, Code XX-d1, Referenced enabled
– Sequence 20, Code XX-d2, Referenced enabled
– Using Routing Details button and specify FGI as the completion subinventory
– Item = XX-phantom assembly
– Sequence 10, Code XX-p1, Referenced enabled
– Sequence 15, Code XX-p2, Referenced enabled
– Using Routing Details button and specify FGI as the completion subinventory
– Item = XX-final assembly
– Sequence 10, Code XX-d1, Referenced enabled
– Sequence 20, Code XX-d2, Referenced enabled
– Sequence 30, Code XX-d3, Referenced enabled
– Using Routing Details button and specify FGI as the completion subinventory

16. Create the bills of material (revision A) for each item:
– Item = XX-sub assembly
– Item sequence 10, Operation sequence 01, Component = XX-buy part1, Quantity = 2
– In the Material Control tabbed page, Supply Type = Push,
Supply Sub-inventory = Stores
– Item = XX-phantom assembly
– Item sequence 10, Operation sequence 10, Component = XX-buy part2, Quantity = 5
– In the Material Control tabbed page, Supply Type = Operation Pull,
Supply Sub-inventory = Stores

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– Item sequence 10, Operation sequence 15, Component = XX-buy part3, Quantity = 5

– In the Material Control tabbed page, Supply Type = Assembly Pull,

Supply Sub-inventory = Stores

– Item = XX-final assembly

– Item sequence 10, Operation sequence 10, Component = XX-sub assembly,

Quantity = 1

– In the Material Control tabbed page, Supply Type = Operation Pull,

Supply Sub-inventory = Stores

– Item sequence 10, Operation sequence 20, Component = XX-phantom assembly, Quantity = 1

– In the Material Control tabbed page, Supply Type = Phantom,

Supply Sub-inventory = Stores

17. Define a discrete job to satisfy a customer order of 100 assemblies required. Assume that the job must start today.

- Use the Discrete Jobs window to define the job

  Oracle WIP (N) Discrete—>Discrete Jobs
- Type: Standard
- Assembly: XX-final assembly
- Class: Discrete
- Status: Released
- Firm (cleared)
- Start Quantity: 100, MRP Net Quantity: 100
- Start Date: Today's date

18. Verify that requirements for the phantom have been created:

    Oracle WIP (N) Discrete —>View Discrete Jobs

- Search for the job for the final assembly
- Select the Operations button
- Select the Resources button
- Select the Quantities tabbed page

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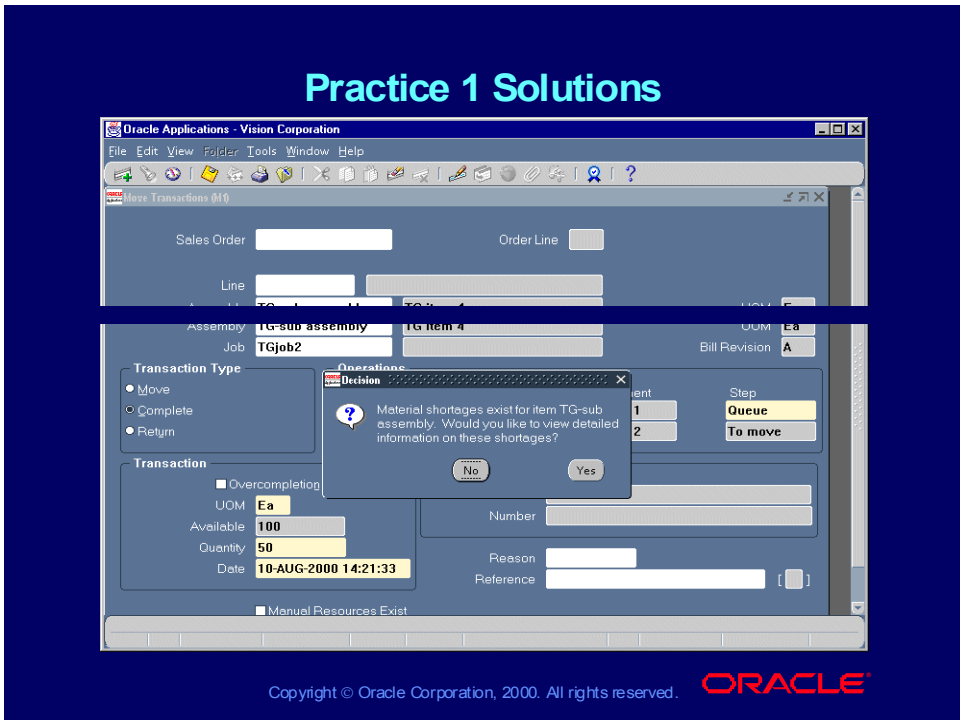


19. Create a work order for the sub-assembly:
    - Use the Discrete Jobs window to define the job

      Oracle WIP (N) Discrete—>Discrete Jobs
    - Type: Standard
    - Assembly: XX-sub assembly
    - Class: Discrete
    - Status: Released
    - Firm (cleared)
    - Start Quantity: 100, MRP Net Quantity: 100
    - Start Date: Today's date
20. View potential shortages:
    - You can run a pick list report or shortage report.

      Oracle WIP (N) Report

      Oracle Inventory (N) On hand, Availability—>View Potential Shortages
21. Perform an easy completion on 1/2 of the quantity on the work order for the sub-assembly:
    - Use the Move Transactions window to complete a job

      Oracle WIP (N) Move Transactions—>Move Transactions
    - Job: your job for the sub-assembly
    - Transaction Type = Complete
    - From Operation Sequence 10, Step = Queue
    - Quantity = 50.

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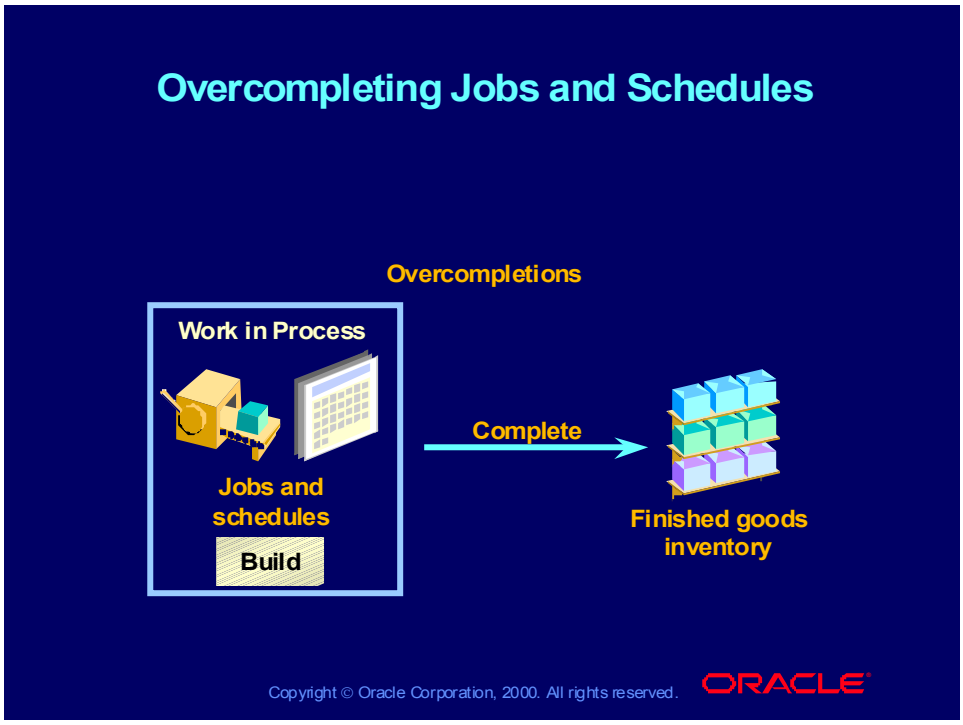
# Overcompleting Jobs and Schedules




### Overcompletions

You can over-complete assemblies to inventory from jobs and schedules per established tolerance limits without changing the job start quantity. You also can move more assemblies than are available at a routing operation.

For example, if 50 intermediate assemblies move into an operation and that operation yields 57 assemblies, you may move 57 units into the next operation.

**Note:** The extra quantity must be within overcompletion tolerance.

### Overcompletions on Jobs

You can overcomplete a quantity of assemblies greater than the job quantity.

#### Discrete Job without a Routing

You can complete any quantity from a discrete job to inventory.

### Overcompletions on Schedules

You can overcomplete the quantity of assemblies scheduled on a production line.

#### Repetitive Schedule without a Routing

You can complete any quantity from the schedules for the assembly/line combination to inventory.

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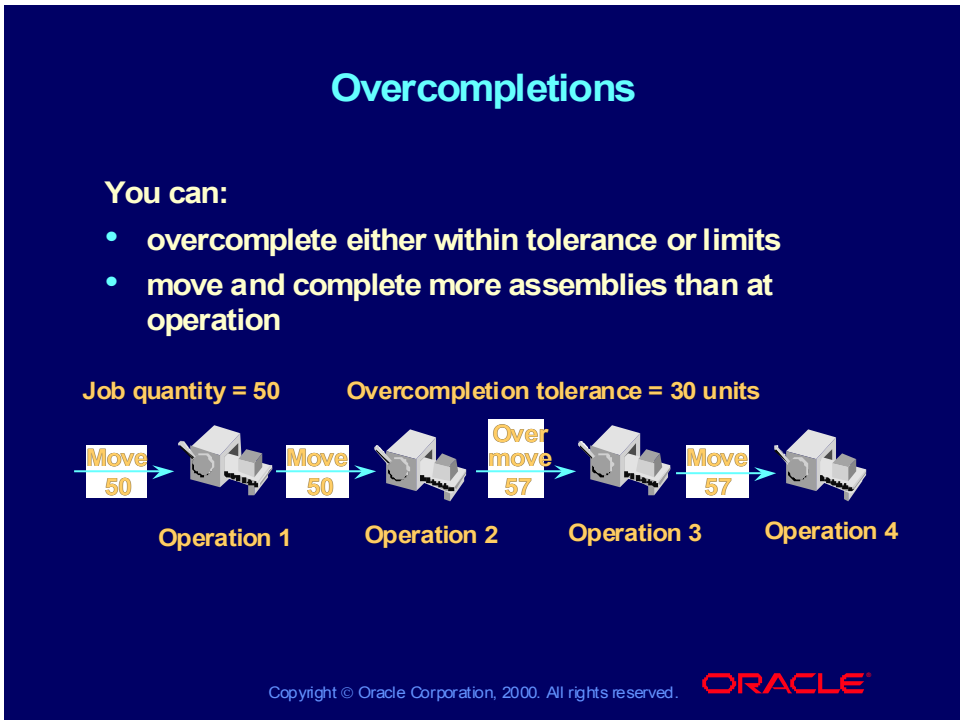
# Overcompletions




### WIP Explodes BOM and Routing for Job Requirements

WIP creates the requirements for operation pull and assembly pull components for the additional assemblies by exploding the bill of materials. WIP creates the requirements for resources by exploding the routing. For the completions:

• Operation pull and assembly pull components will be backflushed automatically.

• Move transactions will charge resources automatically.

• Push components and manual resources will be issued manually.

•The job start quantity remains the same. The completion quantity reflects the overcompletions. It doesn't matter when the overcompletion happens within the routing because the system acts as though the start quantity is higher.

### •Default Overcompletion Tolerance %

•A hierarchy is used to establish tolerances based on settings at different levels:

• Organization level tolerances

Set in WIP parameters, are considered if no other tolerances are set at the item level or at the discrete job level.

• Item level tolerances

Set in the Inventory Item Attributes form by organization, are considered for overcompletions, indicating tolerance type and tolerance value. If no item level tolerances are established, organization level tolerances in WIP parameters are considered.

• Discrete job level

Set in the Discrete Job form in the More page.

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# Overcompletion Checkbox

## Overcompletion Checkbox

**Use the Move Transactions or Completions window and select the Overcompletions checkbox to complete more quantities than the available quantity.**

**(N) Manufacturing & Distribution Manager > WIP > Move Transactions > Move Transactions**

**or**

**(N) Manufacturing & Distribution Manager > WIP > Material Transactions > Completion Transactions (B) Continue**

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### Overcompletion Checkbox

You no longer need to change the job start quantity to complete more than the available quantity in to move. Any extra quantities will be moved through each operation.

You select the overcompletion checkbox in the Move Transactions window or in the Completions window.

• In the Completions window, you must have quantity in the to move of the last operation in order to do an overcompletion.

• In the Move Transactions window, you can complete from any operation.

•The amount you can overcomplete is subject to tolerances defined at the organization level, item level, or job/schedule level. You can select an overcompletion tolerance by percent or amount.

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# Overcompletion Setup

## Overcompletion Setup

**Use the Work in Process Parameters: Other window to enter the default overcompletion tolerance percent.**

**(N) Manufacturing & Distribution Manager > WIP > Setup > Parameters (T) Other**

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Setting Up > Defining WIP Parameters**

**Default Overcompletion Tolerance % (continued)**

The WIP parameter is used to default tolerance. If tolerance value is not set up at item level or at the job/schedule level, this parameter will be used to determine the tolerance level.

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# Overcompletions Tolerance at the Item Level

**(Help) Oracle Manufacturing Applications > Oracle Inventory > Items > Updating Organization Level Items**

**Default Overcompletion Tolerance % (continued)**

On the Inventory Item Attributes form in the work in process page, you can set an overcompletion tolerance for a specific item. You can either set up a tolerance percentage or amount. The item tolerance overrides the WIP parameter tolerance.

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# Overcompletions Tolerance at the Job Level

## Overcompletions Tolerance at the Job Level

**Use the Discrete Jobs or Repetitive Line/Assembly Association window to enter an overcompletion tolerance percentage or amount for a job.**

**(N) Manufacturing & Distribution Manager > WIP > Discrete > Discrete Jobs (T) More**

**or**

**(N) Manufacturing & Distribution Manager > WIP > Repetitive > Associate Lines and Assemblies**

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Discrete Manufacturing > Defining Discrete Jobs Manually**

**Default Overcompletion Tolerance % (continued)**

On the job or schedule, you can either set up a tolerance percentage or amount. The job or schedule overcompletion tolerance overrides the item and organization tolerance.

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## Review Question

A hierarchy is used to establish tolerances based on settings at different levels. In which order (from lowest to highest) do they go?

1. Item level, Organization level, Discrete job level
2. Discrete job level, Organization level, Item level
3. Discrete job level, Item level, Organization level
4. Organization level, Item level, Discrete job level
5. Organization level, Discrete job level, Item level

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## Review Solution

A hierarchy is used to establish tolerances based on settings at different levels. In which order (from lowest to highest) do they go?

1. Item level, Organization level, Discrete job level
2. Discrete job level, Organization level, Item level
3. Discrete job level, Item level, Organization level
4. Organization level, Item level, Discrete job level
5. Organization level, Discrete job level, Item level

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# Agenda

## Agenda

- Lesson 1: Overview
- Lesson 2: Performing Completion Transactions
- **Lesson 3: Performing Workorder-less Completions**
- Lesson 4: Intelligent Messaging and Quality Integration
- Lesson 5: Performing Completion Transactions for Repetitive Jobs
- Lesson 6: Closing and Purging Jobs and Schedules
- Lesson 7: Summary

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## Business Benefits

Using workorder-less completions, you can:

- complete assemblies without having to create a job or schedule
- do several tasks in one step at completion
- substitute components
- support lot and serial number control
- cost transactions using standard and average costing

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### Business Benefits

Workorder-less completions support flow manufacturing, standard costing, and manufacturing average costing. Using workorder-less completions, you can:

- Complete assemblies without having to create a job or schedule
- Do all of the following in one step at completion:
  - Backflush pull and push components
  - Charge WIP move resources and overhead based on the routing
  - Complete assemblies to a designated completion subinventory/locator

  No move transactions are required since the workorder-less completion backflushes and charges resources at completion versus at each operation
- Substitute components

  Add, delete, and substitute components that are not normally associated with the assembly you are building
- Support lot and serial number control
  - Backflushing
  - Completing
- Cost completion transactions
  - Standard
  - Average

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# Workorder-less Completions

## Workorder-less Completions

Use the Work Order-less Completions window to:

- complete and return unscheduled assemblies to and from Inventory
- scrap assemblies from and return scrapped assemblies to any operation
- reserve assemblies completed from Flow schedules to ATO sales order
- add, delete, and change bill of material components
- specify lot, serial, and lot and serial information for assemblies and components.

(N) Manufacturing & Distribution Manager > WIP > Material Transactions > Workorder-less Completion Transactions

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Flow Manufacturing > Work Order-less Completions**

**Performing Workorder-less Completion Transactions**

• You can complete assemblies using the Workorder-less Completions window without having to create a job or repetitive schedule.

• Assembly Pull, Operation Pull, and Push components are automatically backflushed when you complete assemblies in this window.

• Lots for backflush components under lot number control can be identified manually or automatically depending on how the WIP Backflush Lot Selection Method parameter is set.

• For backflush components under serial or lot and serial control, you can manually identify which lots or serial numbers to backflush using the Lot/Serial action in the Components window.

• If you return assemblies using this window, you must always identify the lot, serial, and lot or serial numbers of the components being returned to inventory.

**Caution:** Assembly Pull, Operation Pull, and Push components are automatically backflushed. Bulk and supplier components are not backflushed. The bills for Phantoms are exploded and the Phantom components are backflushed. The system backflushes these components from the supply subinventory/locator assigned to the components on the bill of materials or the one that the user specified in the window. If no supply subinventory/locator is assigned to the bill components, the system pulls components from the supply subinventory/locator defined for the item. If no item supply subinventory/locator is defined at the item level, items are pulled from the default supply subinventory/locator as determined by the Supply Subinventory and Supply Locator parameters.

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# Components on a Workorder-less Completion

## Components on a Workorder-less Completion

Use the Components window to add, delete, change components or specify component lot/serial information

(N) Manufacturing & Distribution Manager > WIP > Material Transactions > Workorder-less Completion Transactions (B) Components

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Flow Manufacturing > Performing Work Order-less Completions**

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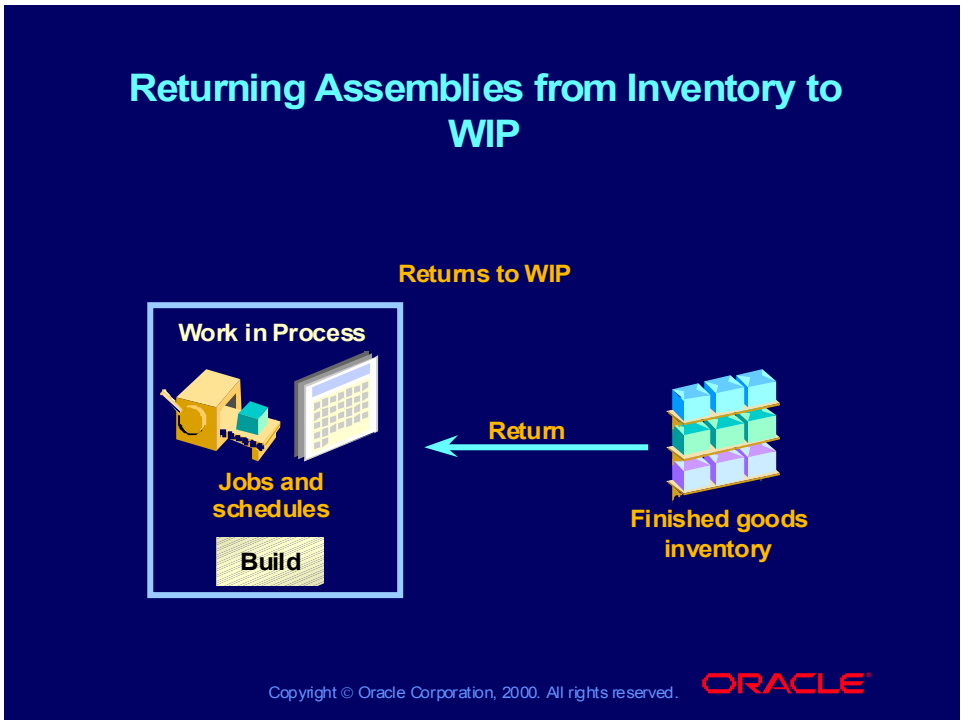
# Returning Assemblies from Inventory to WIP




## Return Completed Assemblies

You can return completed assemblies to work in process using the Completion Transactions window as well as the Move Transactions window.

### Reasons to Return Assemblies to Work in Process

- You want to perform additional processing.
- You found a quality problem.
- You mistakenly completed unfinished assemblies to inventory.
- You are performing a disassembly using a nonstandard job.

### •Return Characteristics

- You can return assemblies from inventory to work in process by selecting Return as the transaction type.
- You can return as many assemblies as needed.
- Any assembly pull components that were backflushed upon completion are unbackflushed; that is, they are returned to inventory when you return the assembly to work in process.

**•Note**

•For repetitive production, Oracle Work in Process allocates returns to active schedules on a last-in-first-out basis.

•For standard discrete jobs, you can never return more assemblies than you completed.

•You can return more assemblies than you completed for nonstandard discrete jobs without a routing, as in the case of disassembly.

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# Move Transactions for Return Assemblies

**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Shop Floor Control > Move Transactions >Performing Move Transactions**

**Move Transactions**

You can return assemblies to the shop floor and simultaneously move them to a specific operation using the Move Transactions window.

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## Costing Completion Transactions: Accounting Entries

- The accounting entries for assembly completion transactions are:

| Account | Debit | Credit |
|---|---|---|
| Subinventory elemental accounts | XX | |
| WIP accounting class valuation accounts | | XX |

- The accounting entries for earning assembly material overhead on completions are:

| Account | Debit | Credit |
|---|---|---|
| Subinventory material overhead account | XX | |
| Inventory material overhead absorption account | | XX |

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### Costing Assembly Completion Transactions

Completion transactions affect your work in process and inventory valuations.

Completion transactions decrease your work in process valuation and increase your inventory valuation. The accounting entries for assembly completion transactions are shown on the slide.

### Earning Assembly Material Overhead on Completion

You can assign overheads based on the total value of an item. You can earn these overheads as you complete assemblies into inventory. The accounting entries are shown on the slide.

**Note:** Applicable to both standard and average costing.

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## Manufacturing Average Costing

You can cost items at a weighted average perpetual cost.

- Completions are valued using the sum of the actual costs of resources and materials issued to a job
- Partial completions are valued using the appropriate proportional sum of actual resource and materials issued to a job

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## Manufacturing Average Costing (continued)

- Final completions are valued using the total net value in a job
- The unit cost of a completion is computed elementally
  - Material
  - Material and overhead
  - Resource
  - Overhead
  - Outside processing

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# Practice 2 Overview

## Practice 2 Overview

In this practice you will perform a workorder-less completion.

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### Scenario

Create a workorder-less completion for the final assembly. You should see a request for quality results.

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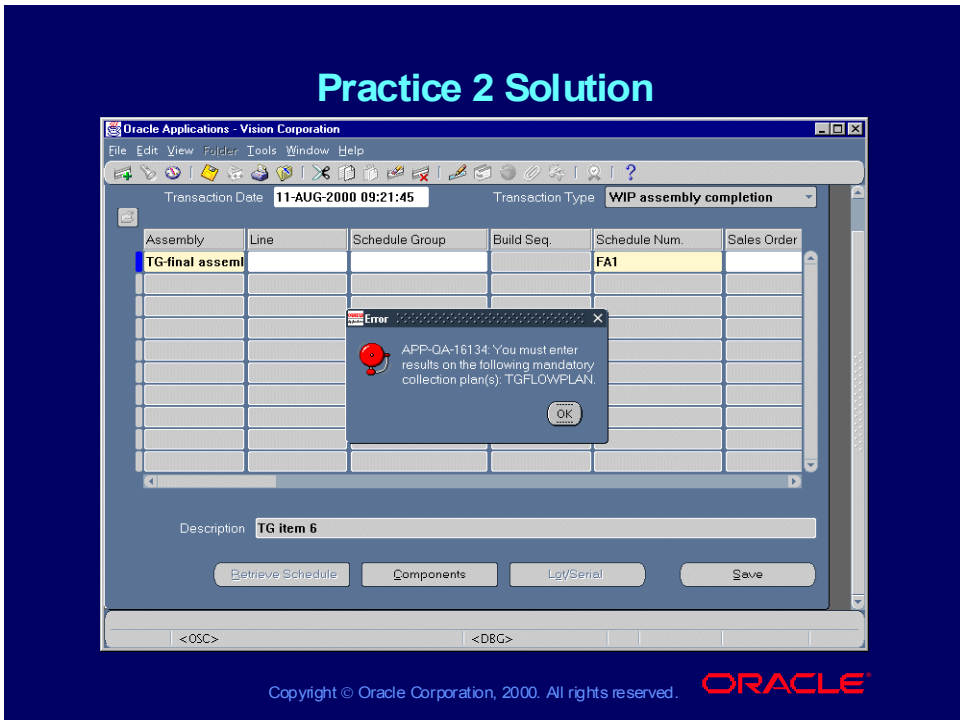
# Practice 2 Solution




## Workorder-less Completion

1. Navigate to the Workorder-less Completions window to complete a final assembly.

   Oracle WIP (N) Material Transactions—>Workorder-less Completions

2. Assembly: XX-final assembly

   Schedule: you decide

   Quantity: you decide

   Save your work. Upon save you should receive a message that says you must enter mandatory quality results.

   Select the Blue Ribbon on the tool bar.

   Enter the quality results. Select OK.

**Note:** Depending on the action you chose, you may see a message.

3. Verify that the phantom routing was exploded correctly and the WIP move resources in the phantom routing were charged to the schedule.

   Oracle Cost (N) View Transactions—>WIP Distributions

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- Lesson 6: Closing and Purging Jobs and Schedules
- Lesson 7: Summary

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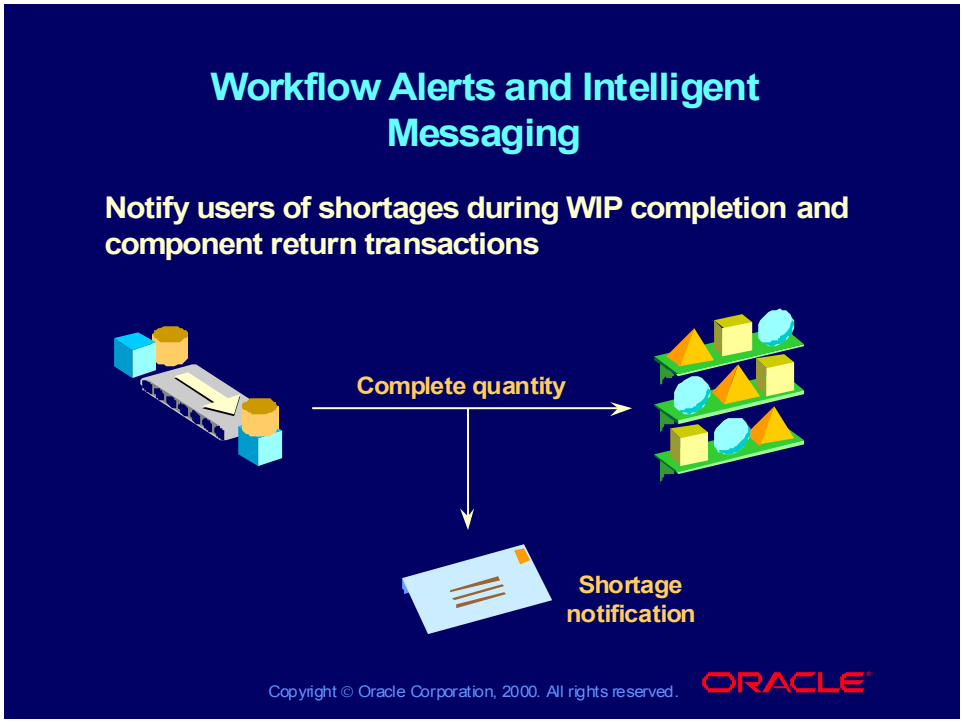
# Workflow Alerts and Intelligent Messaging

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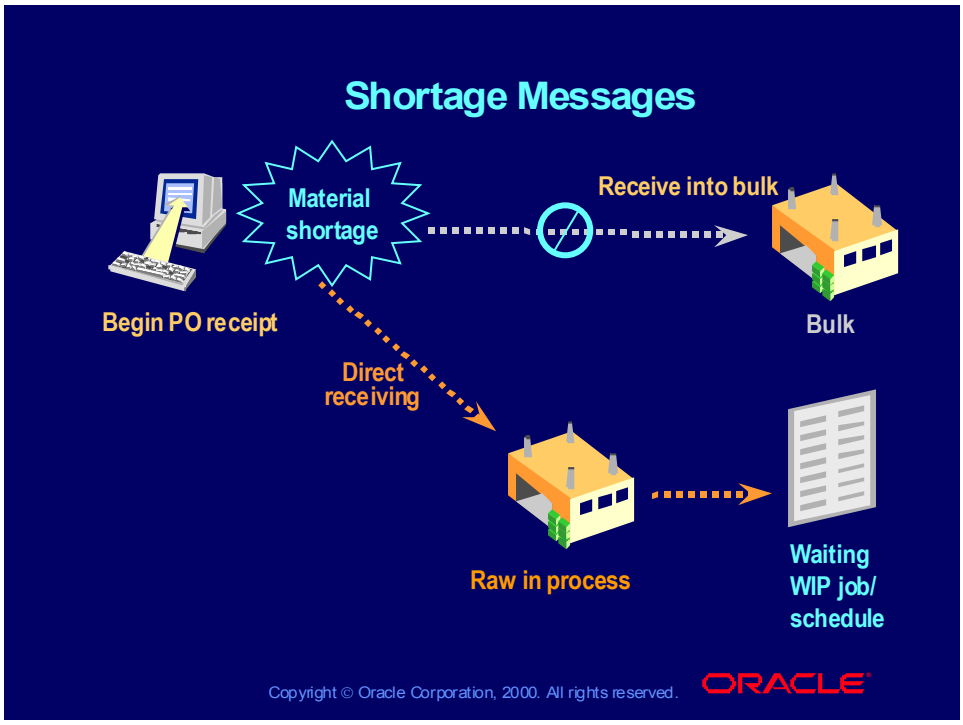
# Shortage Messages

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**(Help) Oracle Manufacturing Applications > Oracle Inventory > Items > On-hand and Availability**

**Material Shortages**

View material shortages directly from all of the forms that have been enabled to alert users of material shortages, bringing up the View Potential Shortages form.

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# Material Shortage Parameter Setup

## Material Shortage Parameter Setup

**Use the Organization Item window to identify which items will have the Check Material Shortage attribute enabled.**

**(N) Manufacturing & Distribution Manager > Inventory > Items > Organization Items**

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### Technical Note

This setup is at the item level.

### Implementation Considerations for Shortage Messages

- Determine which items should have shortage checks
- Determine shortage parameters
- Which type of WIP jobs to check for shortages
- What location to check for shortages
- Who should be notified

### •Other Setup Required for Material Shortage Feature

- On the Setup Transaction Types form, you must choose the type of message (online or workflow notification), and you must select the transaction types to trigger the shortage check.
- On the Inventory Item Attributes form, you must check the material shortages check box for those items that you want included in the material to be checked for shortages at the organization level of the item.

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# Shortage Message Configuration

## Shortage Message Configuration

What is needed to configure shortage messages?

- Define demand sources and individuals notified in Shortage Parameters for Inventory Organization.
- Set item to be shortage message enabled.
- Set Transaction Type to be shortage message-enabled.
- Optionally, assign planners and buyers to items.

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# Review Question

## Review Question

**True or False**

- **Users performing WIP completion and component return transactions can be sent a message indicating that, for the item being moved into inventory, a shortage exists in an inventory location or on a sales order or manufacturing order.**

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## Review Solution

**True or False**

- **Users performing WIP completion and component return transactions can be sent a message indicating that, for the item being moved into inventory, a shortage exists in an inventory location or on a sales order or manufacturing order.**

***Answer:***

***True***

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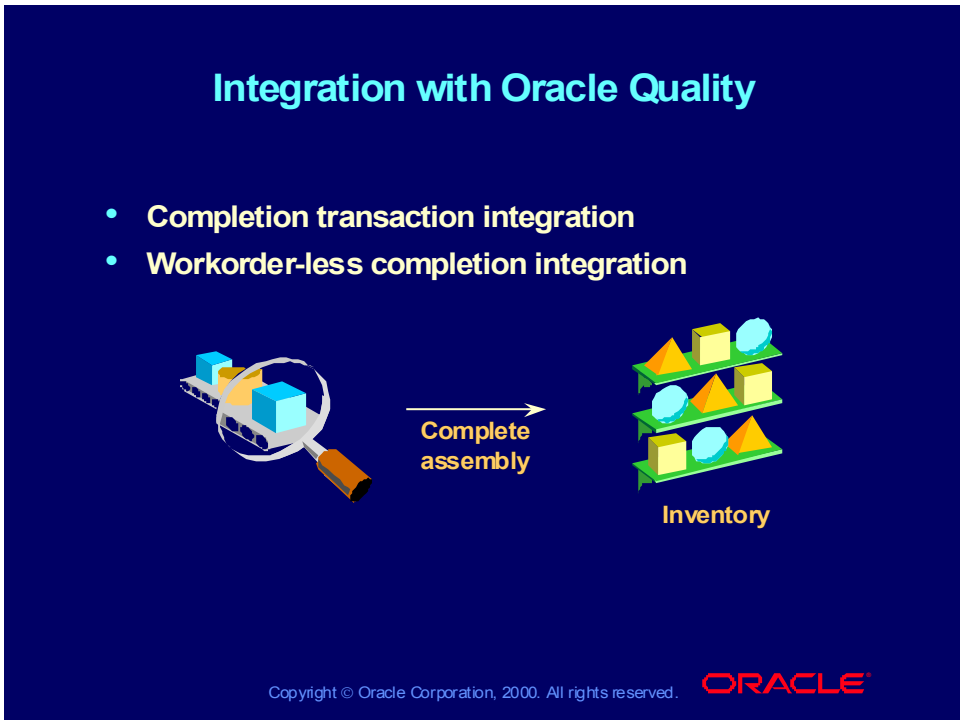
# Integration with Oracle Quality




### Oracle Quality Integration

You can collect quality data while performing a completion transaction or a work orderless completion in Oracle WIP. You can collect data as you complete, return, or scrap assemblies on discrete jobs, repetitive schedules, or work orderless flow schedules.

### Quality Collection Criteria in Oracle Quality

You set measures for quality data collection in Oracle Quality.

What Oracle Quality does is driven by the form. Prompts to collect quality data are form specific and are only invoked when in the completion window.

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# Review Question

## Review Question

**True or False**

- **You can collect quality data while performing a completion transaction or a workorder-less completion in Oracle WIP.**

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# Review Solution

## Review Solution

**True or False**

- **You can collect quality data while performing a completion transaction or a workorder-less completion in Oracle WIP.**

***Answer:***

***True***

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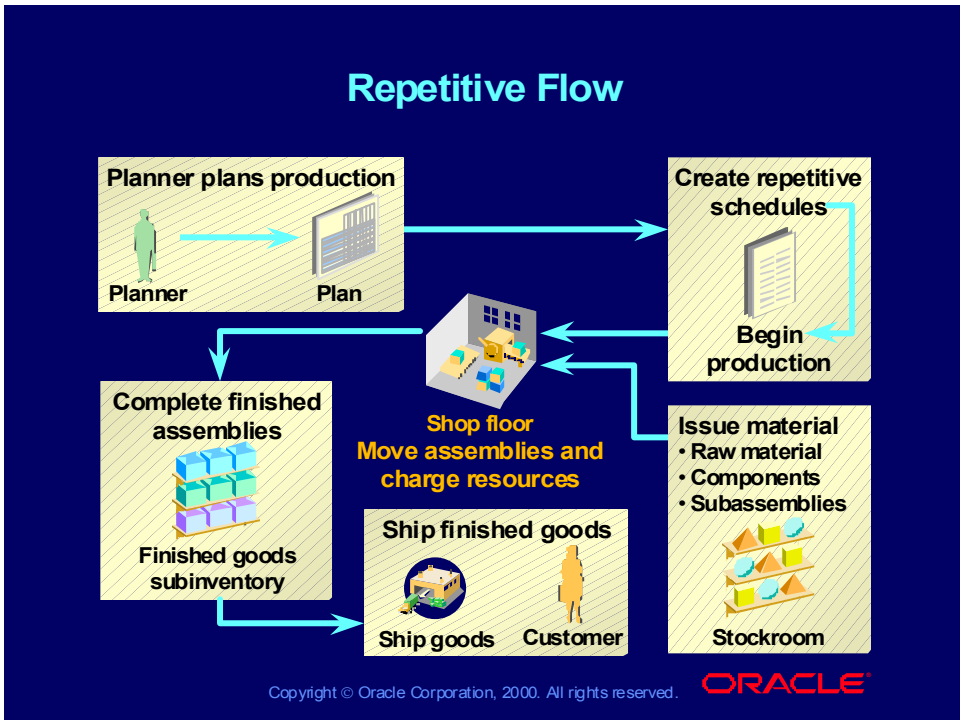
# Repetitive Flow

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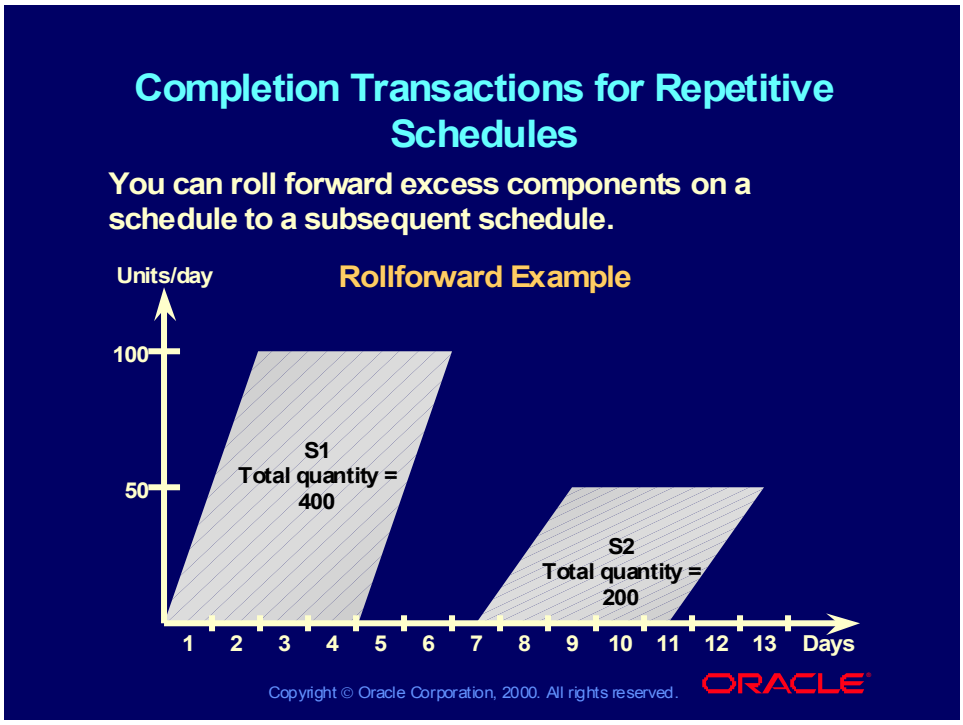
# Completion Transactions for Repetitive Schedules




### Rollforward Rules

• When all assemblies of a schedule are completed, Oracle Work in Process checks the schedule for any excess components resulting from overissue of material requirements.

• If the subsequent schedule is released, or if it is unreleased and falls into the autorelease time fence, Oracle Work in Process rolls the excess material charges forward to that schedule.

• If there is no subsequent schedule to autorelease, Oracle Work in Process does not roll the excess material charges forward.

### Overissue Examples

• Push a quantity greater than the quantity required based on the total quantity on the assembly times (the component usage divided by the component yield), because you issue in daily or weekly buckets, and not by exact schedule quantity.

• Reduce the schedule quantity on a schedule after you already issued all the components to meet the material requirements. For example:

Prior schedule quantity = 1,000 Component usage/component yield = 2/1 = 2

Prior required quantity = 1,000 * 2 = 2,000

New schedule quantity = 800 New required quantity = 1,600

• Issue additional components on the fly without ever creating corresponding material requirements. For example:

Quantity required = 0 Quantity issued = 10

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# Performing Completion Transactions Example

## Performing Completion Transactions Example

| Rollforward Example | | | | |
|---|---|---|---|---|
| Component | Required Qty for S1 | Qty Issued to S1 | Required Qty for S2 | Qty Rolled Forward to S2 |
| COMP1 | 800 | 850 | 400 | 50 |
| COMP2 | 400 | 400 | 200 | 0 |
| COMP3 | 400 | 420 | N/A | 20 |

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**Examples**

• Both S1 and S2 are released.

• Oracle Work in Process rolls forward the extra 50 COMP1 issued to S1 to S2 because COMP1 is a requirement for S2 and S2 is released.

• Oracle Work in Process also rolls forward the extra 20 COMP3 issued to S1 to S2 and creates a requirement for COMP3 on the S2 schedule with a quantity required of 0.

•**Note:** You also have the option of rolling forward issued material if you are canceling a schedule.

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## Autorelease

With Oracle Work in Process, you can streamline your repetitive production by automatically releasing the next schedule when one schedule is completed.

- You may want to continue running your line and building your repetitive assembly if another schedule is defined for the assembly on that line.
- If the schedule is defined but unreleased, the completion of the preceding schedule can serve as a signal to automatically release the next unreleased schedule.

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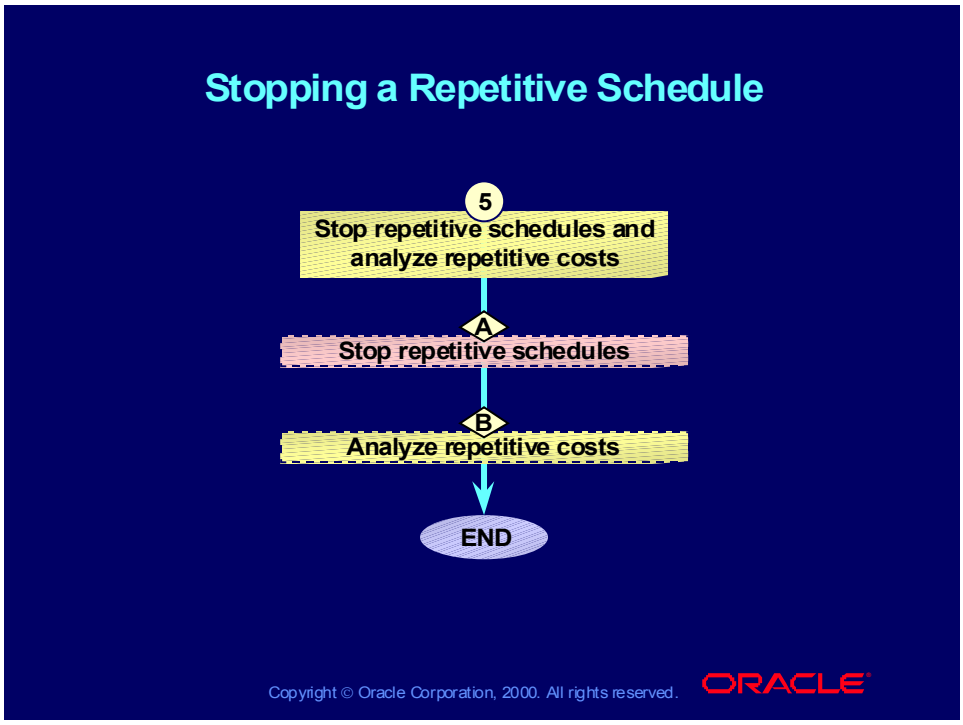
# Stopping a Repetitive Schedule




## Status Change

You can stop a repetitive schedule to indicate that the schedule has reached its expected production.

• A schedule automatically stops when the number of assemblies completed in a WIP completion transaction equals the number of assemblies planned. The status of the schedule changes to Complete—No Charges if there is a subsequent schedule on the same line for the same assembly, or to complete if it is the last schedule.

• You can stop a schedule at any time manually by switching its status to Canceled.

• Unlike discrete jobs, repetitive schedules cannot be closed.

• You can change the status of a complete schedule to Canceled or Complete—No Charges to prevent any accidental charges to a schedule that is no longer needed.

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# Agenda

## Agenda

- Lesson 1: Overview
- Lesson 2: Performing Completion Transactions
- Lesson 3: Performing Workorder-less Completions
- Lesson 4: Intelligent Messaging and Quality Integration
- Lesson 5: Performing Completion Transactions for Repetitive Jobs
- **Lesson 6: Closing and Purging Jobs and Schedules**
- Lesson 7: Summary

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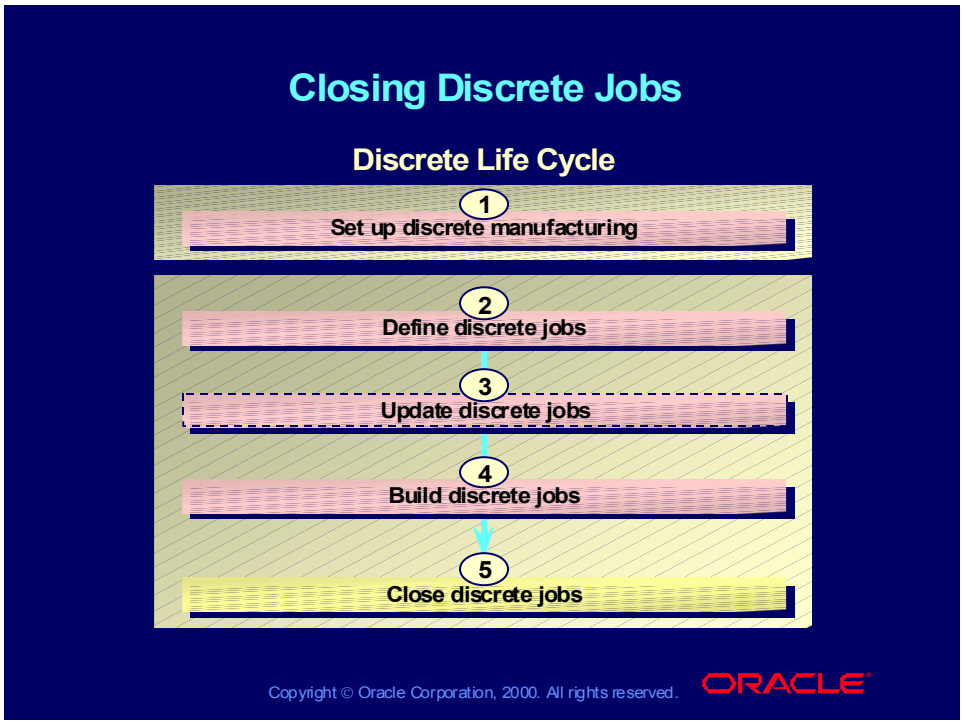
# Closing Discrete Jobs




### What Happens When You Close a Job

You can close discrete jobs that need to be closed so that the system can calculate final costs and variances automatically. During the close process, the job status becomes Pending Close. When the job close process succeeds, further activity on the job is prevented and the status of the job becomes Closed—No Charges.

The system removes any remaining costs from the job by creating journal entries that charge remaining job costs to the variance accounts.

Assuming a positive balance in the job at the end of the close, here are the accounting entries for a job close:

| Account | Debit | Credit |
|---|---|---|
| WIP accounting class variance accounts | XX | |
| WIP accounting class valuation accounts | | XX |

The remaining balance in the job is zero.

### What Should You Do Before Closing a Job?

You should verify that all transactions were performed correctly using the Discrete Job Value report (because Oracle Work in Process cannot close a job with pending transactions). View the transactions from the Discrete Jobs window.

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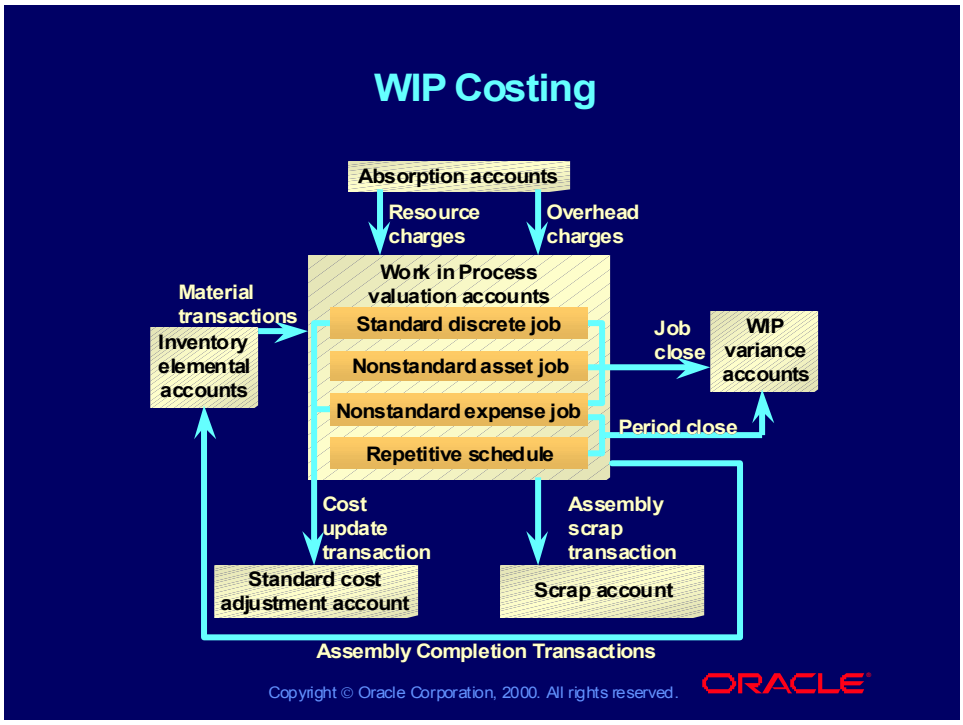
# WIP Costing




### What Happens after You Close a Job?

You can still view job information in the View Discrete Jobs window and Discrete Jobs window.

### Can the Status of a Closed Job Be Changed?

• To be able to unclose jobs, the Close Discrete Jobs function security parameter must be set to Y.

• Only jobs closed in error should be unclosed, and you should do this immediately after the close using the Close Discrete Jobs window.

• If assembly costs are rolled up between the time you close and unclose a job, your costs may be incorrect because the unclose process does not revalue the job.

• You cannot unclose a job that is linked to a sales order.

• You cannot unclose a job that was closed in an accounting job that is no longer open.

### •What Happens If the Job Close Process Fails?

•The job is assigned a status of Failed Close. You can examine jobs that could not be closed using the concurrent request log file. You can resubmit jobs that could not be closed.

### •Flow Charging

•When you enter repetitive transactions, you charge the repetitive assembly and line rather than a specific job. Therefore you can also see repetitive costs consolidated across all schedules for an assembly on a line.

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# WIP Costing (continued)

## Period Costing

• You can use the Inventory Accounting Period window in Oracle Inventory to close a period and perform period costing for your repetitive production.

• Period costs for an assembly are calculated by totaling the charges made during the period and dividing that number by the number of assemblies completed in the period.

• The difference between the period cost and the standard cost is called a variance.

• Oracle Work in Process writes variances to the variance accounts associated with the WIP accounting classes assigned to the assembly/line combination for which a repetitive schedule was defined.

• You can use the parameter Recognize Repetitive Variances to control whether your variances at period end are based only on completed and canceled schedules or on all schedules.

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# Close Discrete Job Form

## Close Discrete Job Form

**Use the Close Discrete Jobs Summary window to:**

- **close discrete jobs**
- **resubmit jobs that failed to close**
- **unclose Jobs**

**(N) Manufacturing & Distribution Manager > WIP > Discrete > Close Discrete Jobs > Close Discrete Jobs (Form)**

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Discrete Manufacturing > Discrete Job Close >Closing Discrete Jobs**

**Technical Note**

Closing a discrete job is an accounting close. It is independent of the manufacturing close (completed all transactions against the job), but once the accounting close is done, you can no longer perform transactions against the job.

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# Close Discrete Jobs Standard Request Submission (SRS)

## Close Discrete Jobs
## Standard Request Submission (SRS)

**Use the Close Discrete Jobs window to enter the parameters to close a single job or a range of jobs.**

**(N) Manufacturing & Distribution Manager > WIP > Discrete > Close Discrete Jobs > Close Discrete Jobs (SRS)**

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Reports and Processes > Closing Jobs Using Submit Requests**

**Window Characteristics**

• You use the same window to close both standard and nonstandard discrete jobs.

• You can enter selection criteria to close several jobs at the same time. For example, you can choose to close all complete jobs by entering that status in the Status field.

• You can specify a submission date and time in the Run Option region. For example, you might want to run this process during off hours to prevent the additional computing load from slowing down your system.

• It is good practice to review jobs that are to be closed before closing them using the View Discrete Jobs window or discrete job reports.

**•Note**

•The window launches a concurrent process that optionally purges all details and move and resource transactions for closed jobs.

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# Purging Discrete Jobs

## Purging Discrete Jobs

Use the Purge Discrete Jobs Summary window to select which closed jobs or information from closed jobs will be purged.

(N) Manufacturing & Distribution Manager > WIP > Discrete > Purge Discrete Jobs > Purge Discrete Jobs (Form)

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Discrete Manufacturing > Discrete Job Purge > Purging Discrete Jobs**

**... > Purging Jobs and Schedules**

**... > Specifying Purge Options**

**... > Processing Pending Jobs and Schedules**

**... > Standard versus Non-Standard Discrete Jobs**

### Purge Discrete Jobs Summary

You can purge discrete jobs using the SRS window or the Purge Discrete Jobs window. You have the following reporting options when you purge from the Purge Discrete Jobs window:

- Full: Provides a detailed report
- Summary: Provides a summarized report
- Exception: Reports only exceptions that are raised as a result of the purge operation
- None: Listing only the purge options selected
- You can choose the following purge options:
- Report Only
- Purge and Report
- Purge Only

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# Purging Repetitive Schedules

## Purging Repetitive Schedules

Use the Purge Repetitive Schedules Summary window to select which schedules or information from the schedules will be purged.

(N) Manufacturing & Distribution Manager > WIP > Repetitive > Purge Repetitive Schedules > Purge Schedules (Form)

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Repetitive Manufacturing > Repetitive Schedule Purge > Purging Repetitive Schedules**

**... > Purging Jobs and Schedules**

**... > Specifying Purge Options**

**... > Processing Pending Jobs and Schedules**

**Purge Repetitive Schedules Summary**

You can purge repetitive schedules using the SRS window or the Purge Repetitive Schedules window. When you purge from the Purge Repetitive Schedules window, you have the following reporting options:

• Full: Provides a detailed report

• Summary: Provides a summarized report

• Exception: Reports only exceptions that are raised as a result of the purge operation

• None: Lists only the purge options selected

•You can choose the following purge options:

• Report Only

• Purge and Report

• Purge Only

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# Purging Jobs and Schedules  Standard Request Submission (SRS)

## Purging Jobs and Schedules
## Standard Request Submission (SRS)

**Use the Purge Jobs and Schedules window to submit the request to purge the information selected in the Purge Discrete Jobs window.**

**(N) Manufacturing & Distribution Manager > WIP > Discrete > Purge Discrete Jobs > Purge Discrete Jobs (SRS)**

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**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Reports and Processes > Purging Jobs and Schedules**

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# Agenda

## Agenda

- Lesson 1: Overview
- Lesson 2: Performing Completion Transactions
- Lesson 3: Performing Workorder-less Completions
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- Lesson 7: Summary

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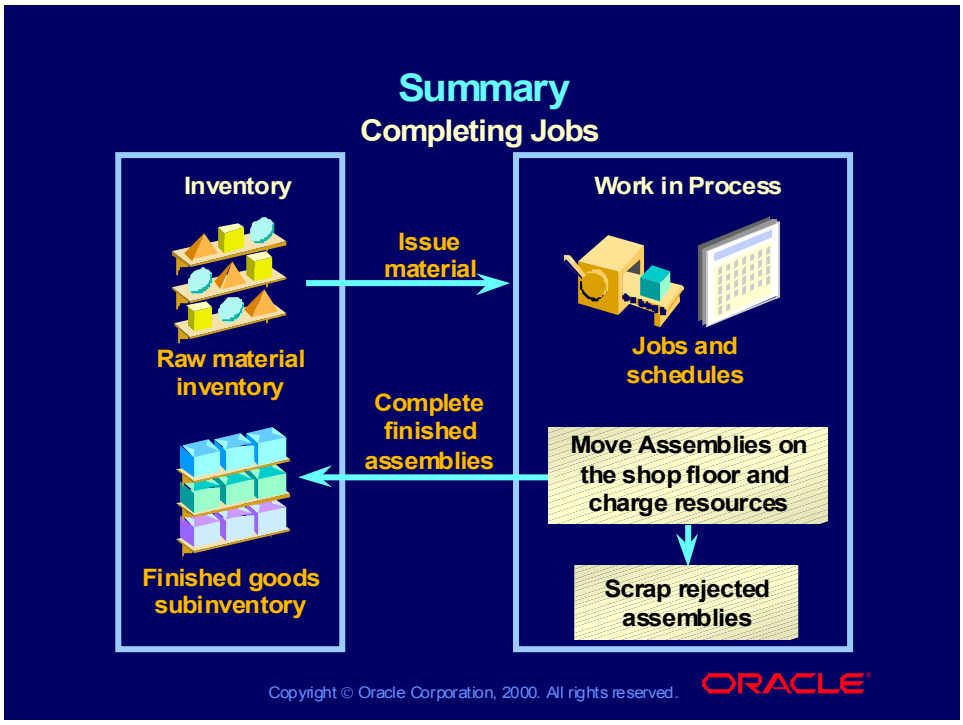
# Summary




### Completing Assemblies

• You can use one of four data-entry methods to complete assemblies to inventory or return assemblies to WIP: the Completion Transactions window, the Move Transactions window, the Material Transaction Interface table, or the Workorder-less Completions window.

• Assembly pull component backflushes are initiated by WIP completion transactions.

• You can roll forward extra material from one schedule to the next upon completion.

• You can overcomplete discrete jobs or repetitive schedules.

• You can return completed assemblies to work in process using the Completion Transactions window.

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# Discussion Question

## Discussion Question

**What are some reasons Oracle Work in Process would prevent you from performing a completion transaction?**

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## Discussion Solutions

What are some reasons Oracle Work in Process would prevent you from performing a completion transaction?

- There is no available quantity in the To Move step of the last operation in the routing.
- There is a shop floor status preventing movement from the To Move step of the last operation in the routing.
- The job/schedule status prevents transactions.
- The item is not transactable.

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# 11i Manufacturing Collaboration

**Chapter 10**

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# R11*i* Manufacturing Collaboration

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## Objectives

After completing this course you should be able to do the following:

- Describe the difference between Outside Processing and Manufacturing Collaboration
- Explain why Manufacturing Collaboration is a business solution
- Identify the key integration points
- Execute the setup steps for Manufacturing Collaboration

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## Agenda

- Overview of Outside Processing and Manufacturing Collaboration
- Using Manufacturing Collaboration
- Identifying how Manufacturing Collaboration is accomplished
- Identifying key integration points
- Setting up Manufacturing Collaboration
- Automating Manufacturing Collaboration
- Demonstrating Manufacturing Collaboration

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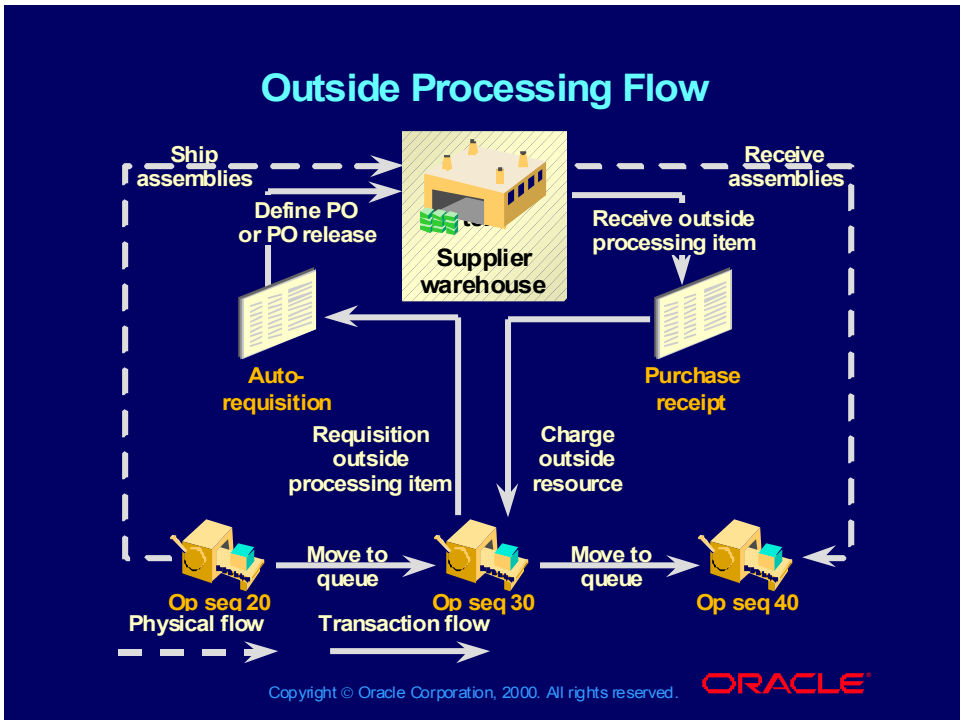
# Outside Processing Flow

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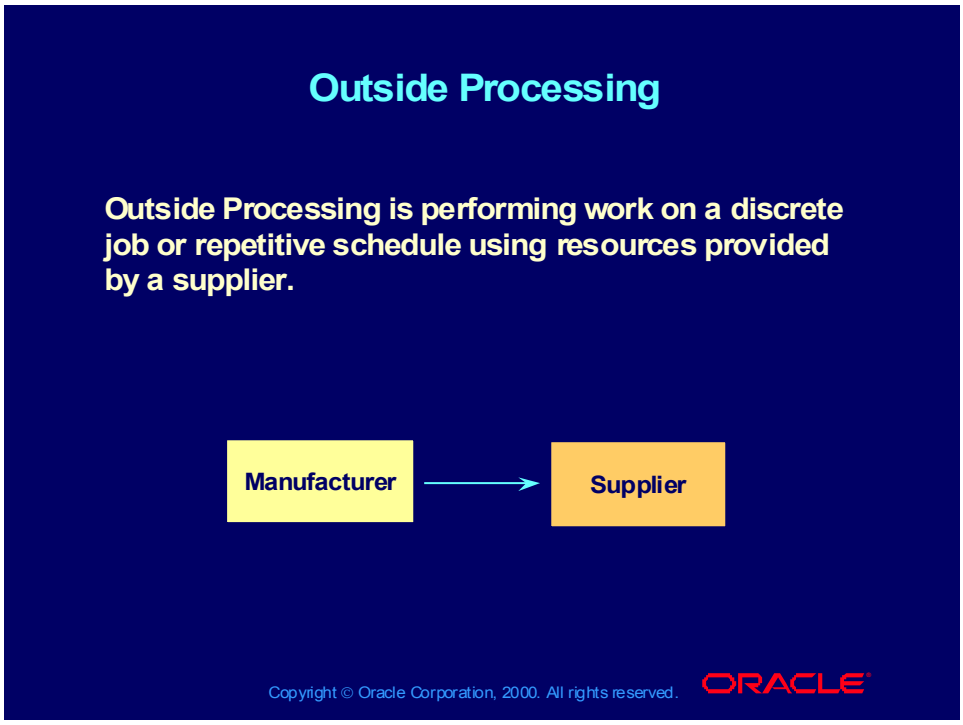
# Outside Processing




### Oracle Purchasing

You can purchase and receive items through the use of requisitions and purchase orders.

### Oracle Work in Process

• You can manage the assembly flow.

• You can schedule, transact, and cost resources.

• You can control supplier-supplied components.

•In advance of your day-to-day outside processing execution, you should take the following steps:

• Determine the need for outside service during production or process design

• Identify and qualify specific suppliers

• Create relationships and contracts with selected suppliers

• Identify and create blanket purchase orders to handle contract volume by using Oracle Purchasing

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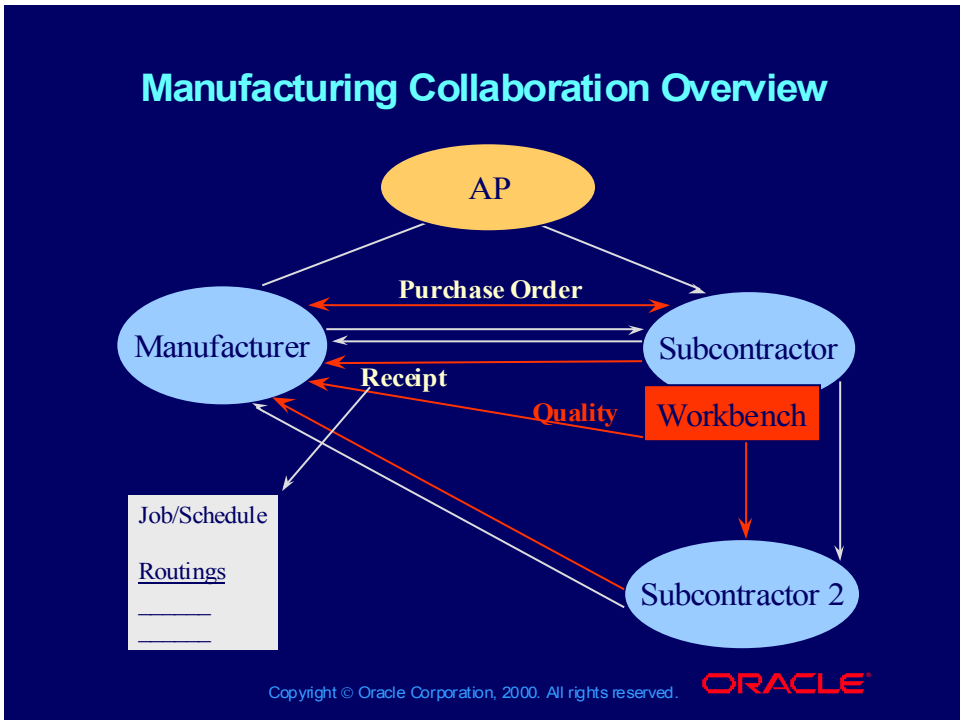
# Manufacturing Collaboration Overview

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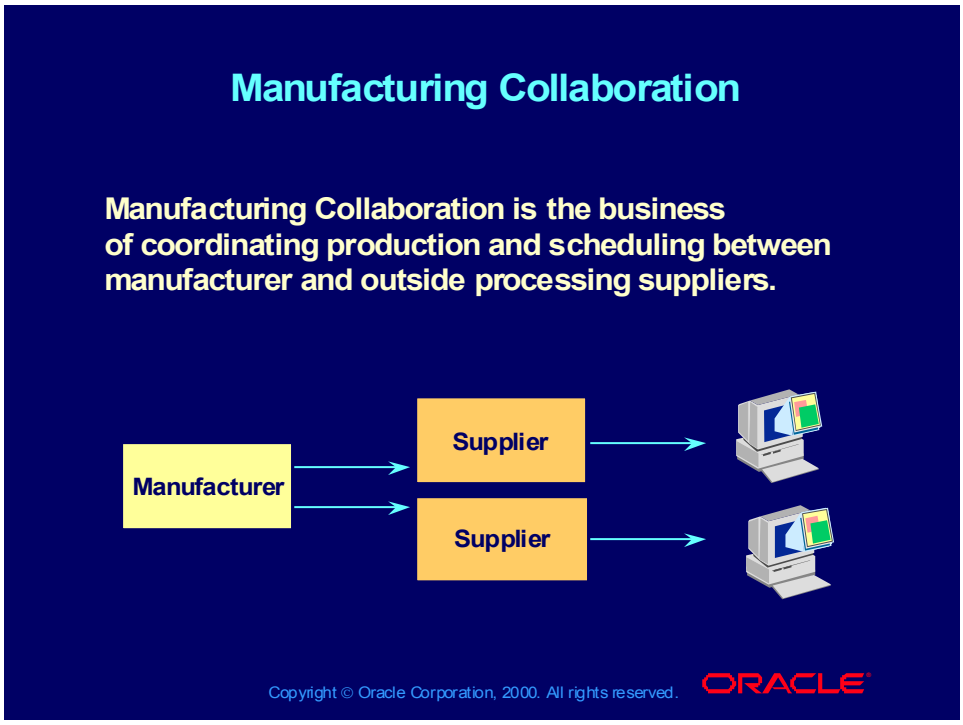


## Overview

Manufacturing Collaboration is an approach to manufacturing that provides:

- improved and automated communication
- the linking activities between work orders and purchase orders

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## Using Manufacturing Collaboration

Reasons why a manufacturer may outsource part of their production:

- the supplier can complete the process more efficiently
- the supplier can complete the process at a lower cost
- production is outsourced when additional capacity is needed (seasonal demand)

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## Accomplishing Manufacturing Collaboration

- Resource on routing represents supplier's resource
- Outside processing item on purchase order represents supplier contribution
- The outside processing item is linked to the resource on the routing so that a one-to-one relationship exists

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## Manufacturing Collaboration

**Manufacturing Collaboration is more than Outside Processing...**

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**Outside Processing Enhancements**

The outside processing enhancements listed below are designed to improve usability and save time:

- Automatic completions
- Create requisition options
- Item revision
- Need-by-date
- Web supplier integration

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# Describing the Differences

## Describing the Differences

- Integration with the internet supplier portal
  - makes it easier to collaborate with your supplier
  - provides suppliers with greater access to information that affects them
- Automated notifications using workflow reduces the need to make calls or use a fax

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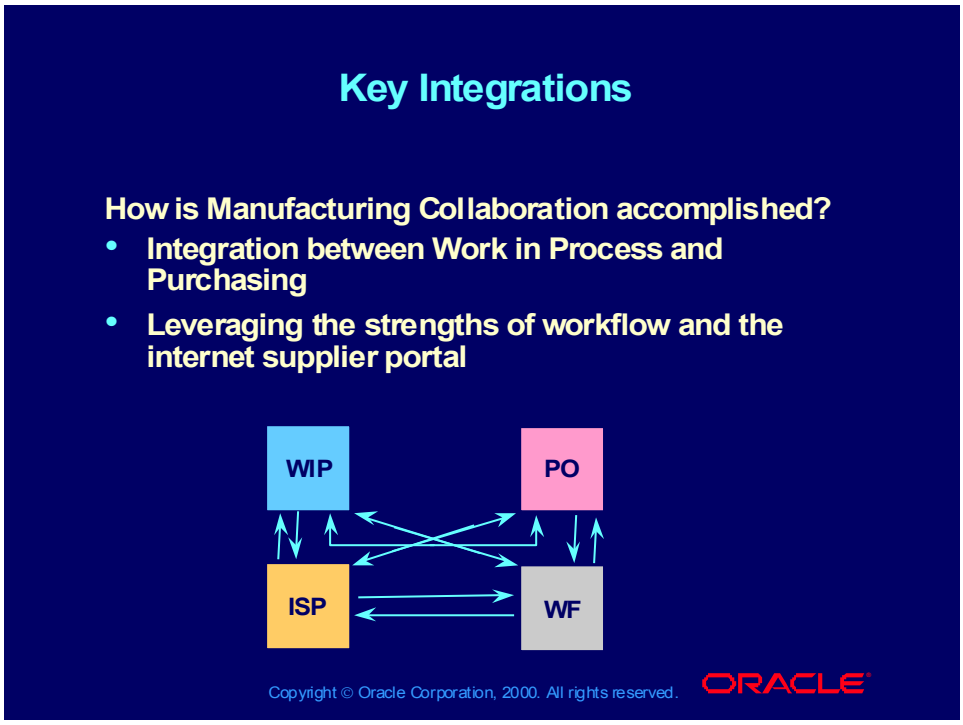
# Key Integrations




**Integration Flow**

a) Manufacturer creates a work order in WIP. This launches Requisition Import in Purchasing.

b) A purchase order needs to be created and approved if a there is not an approved blanket po. The movement of the assemblies into the queue step of the outside processing operation starts an ASN to the supplier. When the supplier is finished with the work, the Internet Supplier Portal is used by the Supplier to create and submit an ASN or ASBN

c) The ASN creates the logical receipt of the assemblies and moves the assemblies to the next operation if there are two or more sequential outside processing operations in the routing

d) The ASN also launches the WIP: Shipping and Receiving Intermediate workflow which allows the Buyer, Production Manager and the Second Supplier to communicate about the quantity of assemblies shipped and received as well as their condition upon receipt

e) The process continues until the ASN is submitted at the final outside processing operation. The receipt of the assemblies will create both the delivery into wip and the subsequent movement of the assemblies into a sub-inventory if a sub-inventory is defined at the routing or job level.

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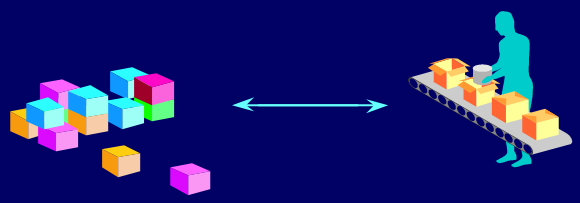
# Example

## Example

**WIP routing is as follows:**

| Op | Dept | Resource |
|---|---|---|
| 10 | out1 | supplier #1 |
| 20 | out2 | supplier #2 |



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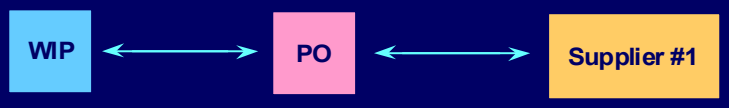
# Example (continued)

## Example (continued)

Time to execute - manufacturing site

- Create work order in a status of released
- Requisition import is executed and requisition is created; blanket release created in a status of approved
- Component parts issued to wip and physically shipped to supplier #1

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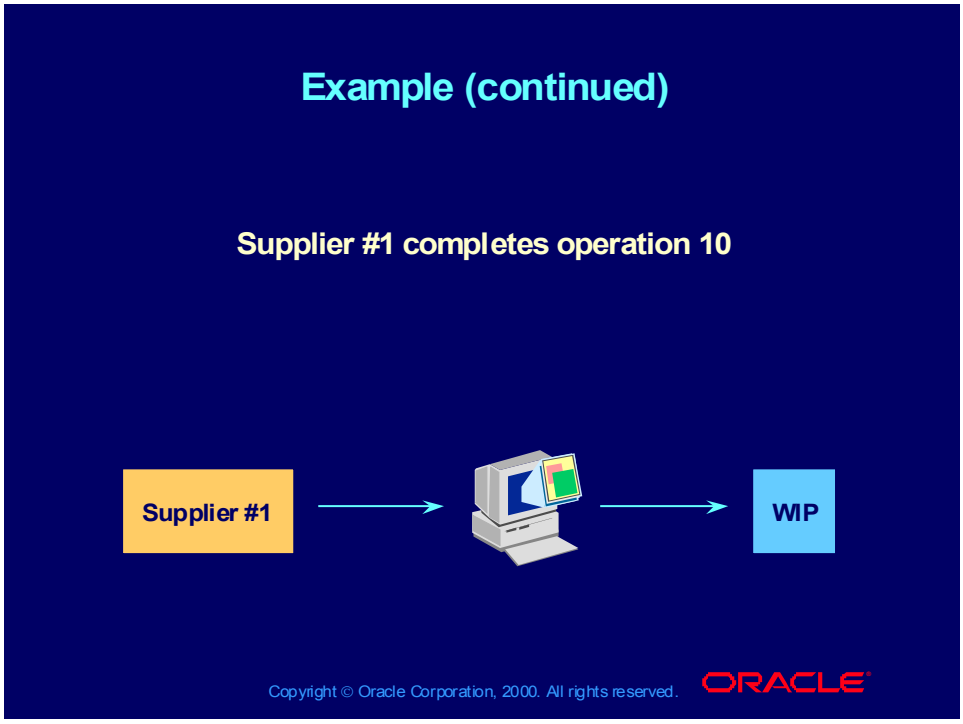
# Example (continued)

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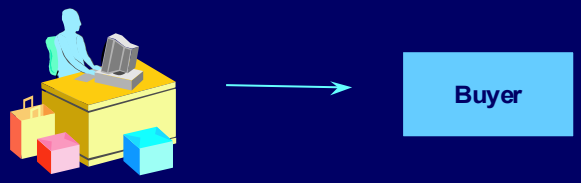
# Example (continued)

## Example (continued)

Back to the manufacturer

- Buyer responds to the notification
- Notification is sent tot the second supplier
  - Second supplier responds as to how many were received
  - Response is sent to buyer with the quantity received

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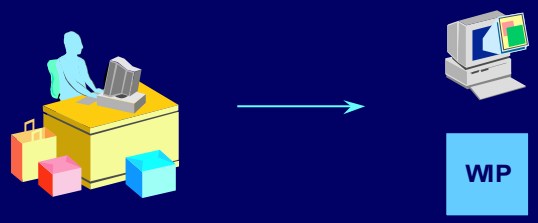
# Example (continued)

## Example (continued)

Suppler #2 finishes the process

- Supplier #2 creates an ASN or ASBN; ASN creation notification is sent to buyer
- Supplier #2 physically ships the assemblies back to the manufacturer
- Optionally, quality data can be entered

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# Example (continued)

## Example (continued)

Back to the manufacturer

- Buyer receives ASN Creation Notification
  - Receiving Transaction Processor is run
  - Receiver receives the assemblies
  - Delivery on system is to wip job

- Work order continues

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# Example (continued)

## Example (continued)

**Back to the manufacturer (continued)**

- **Work order is completed, reviewed, and closed**
- **Invoice is created and processed in AP**

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## Internet Supplier Portal

What information is available?

- Purchase order
- Receipt
- Invoice
- Quality data
- Component information on a job

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## Additional Capabilities of Workflow

- Supplier can update capacity information
  - workflow notification sent to buyer
  - used in the sourcing process

- Supplier can update promise date on PO
  - workflow notification sent to buyer
  - buyer must accept

- Manufacturer can change the need by date on PO
  - workflow notification sent to buyer and supplier
  - if supplier accepts change; PO is updated

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# Review Question

## Review Question

The Internet Supplier Portal gives the supplier instant access to information in the manufacturers system. Which of the following can not be viewed through the portal?

A. Purchase order

B. Quality data

C. Quantity delivered

D. Resources used in the job

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# Answer to Review Question

## Answer to Review Question

The Internet Supplier Portal gives the supplier instant access to information in the manufacturers system. Which of the following can not be viewed through the portal?

A. Purchase order

B. Quality data

C. Quantity delivered

D. Resources used in the job

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## Review Question

How is the need-by-date for a purchase requisition at an OSP operation determined?

A. Start date of the current operation

B. Start date of the next operation

C. Start date of the job

D. Start time of previous operation plus OSP resource lead time

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## Answer to Review Question

How is the need-by-date for a purchase requisition at an OSP operation determined?

A. Start date of the current operation

B. Start date of the next operation

C. Start date of the job

D. Start time of previous operation plus OSP resource lead time

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## Review Question

You can change the need-by-date on a purchase order and have a workflow triggered which sends notification to the supplier. Which navigation path would be used to update the need-by-date?

A. WIP > Discrete > Discrete Jobs (M) Tools

B. WIP > Job/Schedule Details > Material Requirements (M) Tools

C. WIP > Discrete > View Discrete Jobs (M) Tools

D. WIP > Job/Schedule Details > Operations (M) Tools

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## Answer to Review Question

You can change the need-by-date on a purchase order and have a workflow triggered which sends notification to the supplier. Which navigation path would be used to update the need-by-date?

A. WIP > Discrete > Discrete PBS (M) Tools

B. WIP > Job/Schedule Details > Material Requirements (M) Tools

C. WIP > Discrete > View Discrete Jobs (M) Tools

D. WIP > Job/Schedule Details > Operations (M) Tools

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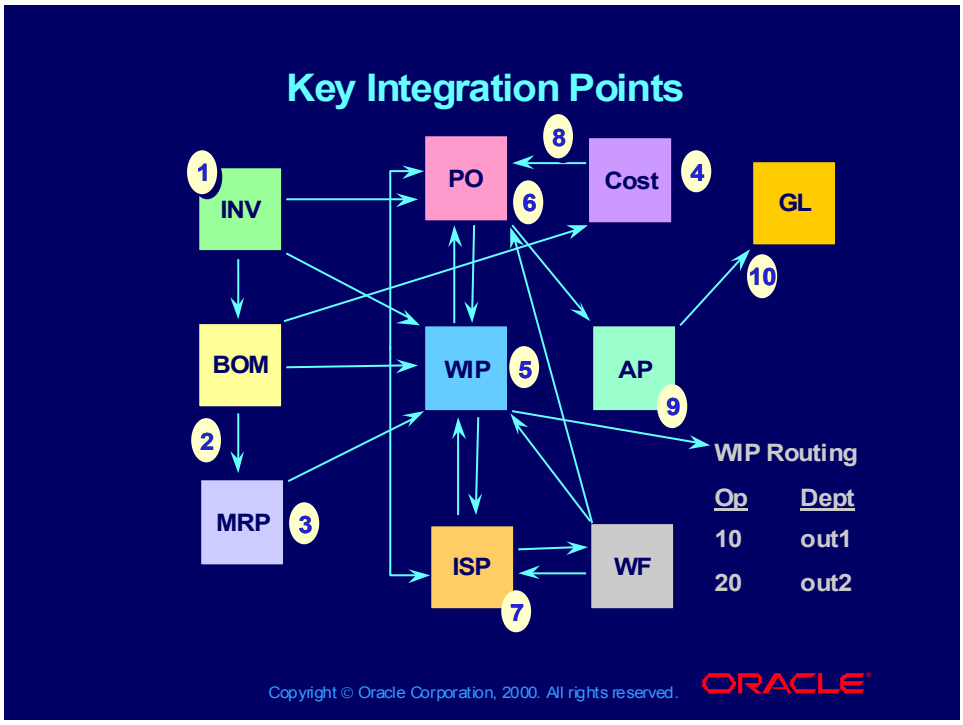
# Key Integration Points

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# Key Setups - Inventory

## Key Setups - Inventory

| Assembly | Outside Processing Item |
|---|---|
| Item/Part number (inventory item) | Item/Part number (supplier contribution) |
| Planning | Purchasing |
| WIP | Receiving |

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# Assigning a Planner

## Assigning a Planner

Use the Organization Item window to assign the planner to the assembly for planning.

(N) Oracle Inventory > Items > Organization Items
(T) General Planning

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**Assign a Planner**

Create the item you are building in WIP and assign a planner to the assembly

**(Help) Oracle Manufacturing Applications > Oracle Inventory > Items > Updating Organization Level Items**

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# Defining Planning Attributes

## Defining Planning Attributes

Use the Organization Item window to define MRP/MPS planning attributes for your assembly.

(N) Oracle Inventory > Items > Organization Items
(T) MPS/MRP Planning

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**Define Planning Attributes**

Determine the release time fence for your assembly

**(Help) Oracle Manufacturing Applications > Oracle Inventory > Items > Updating Organization Level Items**

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# Verifying WIP Attributes

## Verifying WIP Attributes

Use the Organization Item window to verify that WIP attributes have been set for the assembly being manufactured.

(N) Oracle Inventory > Items > Organization Items
(T) Work in Process

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**Verify WIP Attributes**

Verify the the attribute *Build in WIP* has been checked

**(Help) Oracle Manufacturing Applications > Oracle Inventory > Items > Updating Organization Level Items**

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# Setting Purchasing Attributes

## Setting Purchasing Attributes

Use the Organization Item window to set the purchasing attributes for the outside processing items at each OSP operation.

(N) Oracle Inventory > Items > Organization Items
(T) Purchasing

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**Set Purchasing Attributes**

Create items representing the supplier contribution at each OSP operation

**(Help) Oracle Manufacturing Applications > Oracle Inventory > Items > Updating Organization Level Items**

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# Setting Receiving Attributes

## Setting Receiving Attributes

Use the Organization Item window to create an item and set the receiving attributes for each OSP item.

(N) Oracle Inventory > Items > Organization Items
(T) Purchasing

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**Set Receiving Attributes**

Determine the receipt routing for each OSP item

**(Help) Oracle Manufacturing Applications > Oracle Inventory > Items > Updating Organization Level Items**

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## Key Setups - BOM

- Outside Processing Resource
  - charge type of po move or po receipt
  - outside processing enabled
  - establish the relationship with purchasing
  - determine if resource is to be costed
  - charge to wip at either standard or actual
  - define absorption and variance accounts (both default from the org level parameters)

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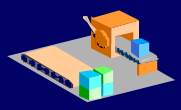
# Key Setups - BOM (continued)

## Key Setups - BOM (continued)

- Departments
  - location is the address for delivery to either the manufacturer or second supplier
  - determine if uncompleted assembly is coming back or going to another supplier

- Routing - completion sub-inventory for automatic completion
- BOM - supply type of operation pull for components needed at OSP operation



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# Creating a Resource

## Creating a Resource

Use the Resources window to create a supplier's resource for each operation.

(N) Oracle Inventory > Bills of Materials > Routings > Resources

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**Create a Resource**

Create a resource representing the supplier's resource for each operation

• In this form:

- OSP item is linked to outside processing resource
- the resource will be charged to WIP at standard or actual rate

**(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Routings > Setting Up > Defining a Resource**

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# Entering a Location

## Entering a Location

Use the Location window to enter address information of the suppliers where the assemblies are to be delivered.

(N) Oracle Inventory > Bills of Materials > Setup > Locations

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### Enter a Location

Create a location representing the address of where the assemblies are to be delivered.

**(Help) Oracle Manufacturing Applications > Oracle Purchasing > Setting Up > Defining Locations**

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# Defining a Department

## Defining a Department

Use the Departments window to define departments within your organization that represents each outside supplier.

(N) Oracle Inventory > Bills of Materials > Routings > Departments

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**Define a Department**

Create a department for each of your outside suppliers

**Note:** For more information on defining and linking Locations and Departments, see the *Oracle Purchasing User's Guide Release 11i.*

**(Help) Oracle Manufacturing Applications > Oracle Bills of Materials > Setting Up > Defining a Department**

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# Assigning Resources to Departments

## Assigning Resources to Departments

Use the Resources window from the Departments window to establish the relationship between the resources and the departments.

(N) Oracle Inventory > Bills of Materials > Routings > Departments (B) Resources

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**Assign Resources to Departments**

Assign all your resources to their respective departments

**Note:** A Queue Resource can be set up to represent time at the OSP supplier to calculate the lead time without impacting cost.

**(Help) Oracle Manufacturing Applications > Oracle Bills of Materials > Setting Up > Assigning Resources to a Department**

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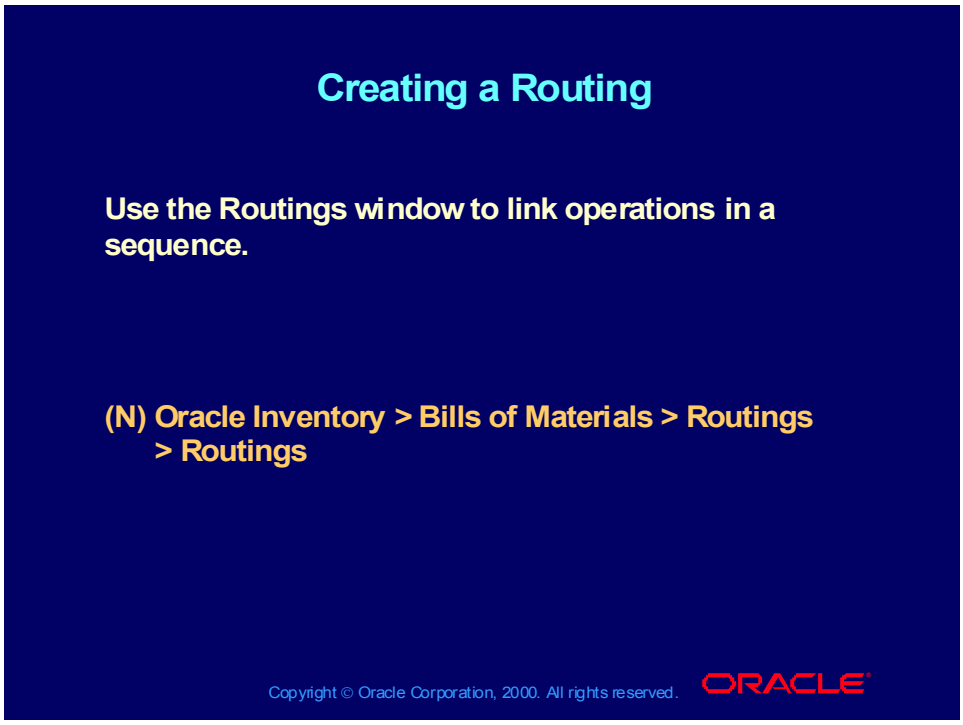
# Creating a Routing




**Create a Routing**

Create a routing for the assembly

**(Help) Oracle Manufacturing Applications > Oracle Bills of Materials > Routings > Defining a Routing > Creating a Routing**

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# Selecting Resources for an Operation in a Routing

## Selecting Resources for an Operation in a Routing

Use the Operation Resources window to link the required resources to the department in the routing.

(N) Oracle Inventory > Bills of Materials > Routings > Routings (B) Operation Resources

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**Select Resources for an Operation**

Select the required resources for this operation routing

• The usage represents the cost per assembly fir the OSP resource

• The time to be scheduled is calculated by setting up a queue resource which is defined as scheduled and uncosted.

**(Help) Oracle Manufacturing Applications > Oracle Bills of Materials > Routings > Defining a Routing > Assigning Operation Resources**

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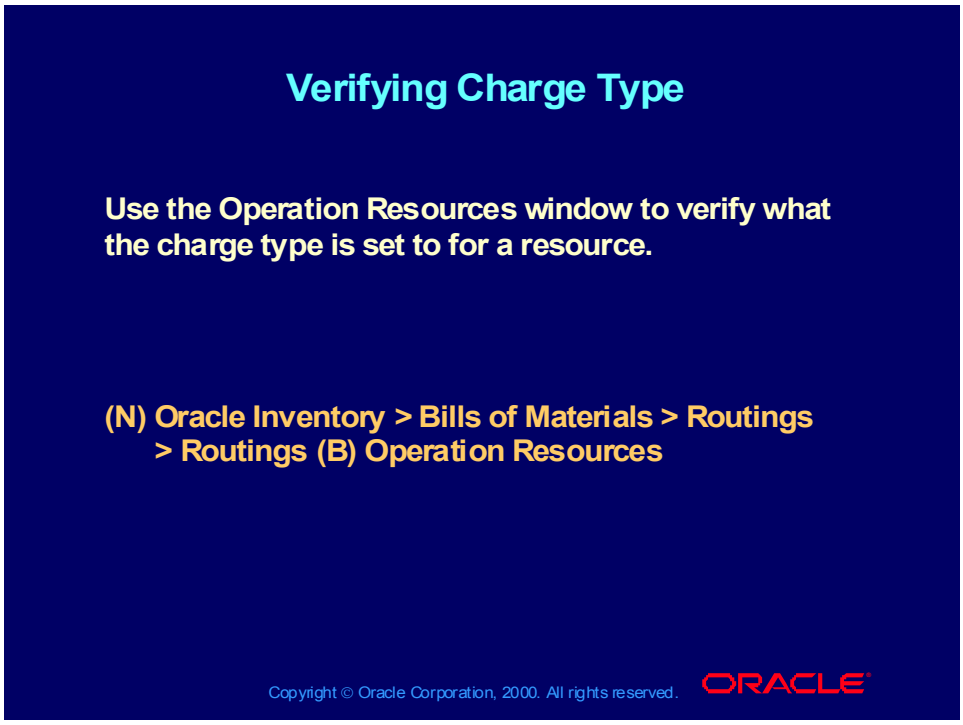
# Verifying Charge Type




**Verify Charge Type**

Verify the OSP resource has a charge type set to PO Move or PO receipt. This tells the system whether or not to move the assemblies to the next operation upon receipt.

**(Help) Oracle Manufacturing Applications > Oracle Bills of Materials > Routings > Defining a Routing > Assigning Operation Resources**

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# Assigning a Completion Sub-Inventory

## Assigning a Completion Sub-Inventory

Use the Routing Details window to assign a completion sub-inventory where finished assemblies are stored.

(N) Oracle Inventory > Bills of Materials > Routings > Routings (B) Routing Details

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### Assign a Completion Sub-Inventory

Assign a completion sub-inventory to the assembly. This will allow the assemblies to be completed directly into a sub-inventory if the last operation is an OSP operation and the charge type is PO Move.

**(Help) Oracle Manufacturing Applications > Oracle Bills of Materials > Routings > Defining a Routing >Assigning a Completion Subinventory and Locator**

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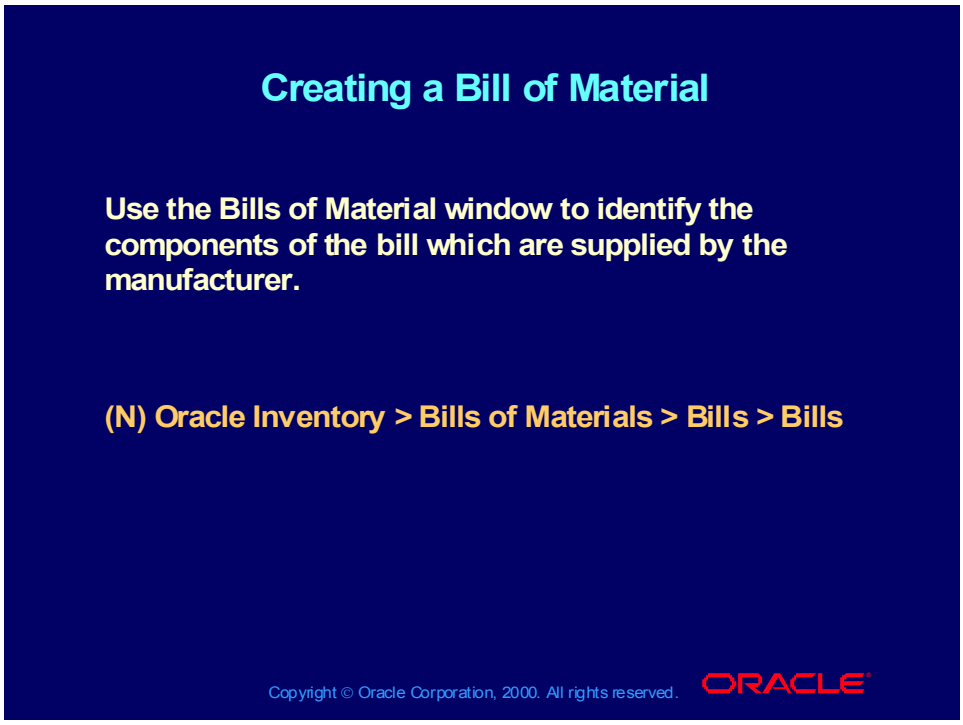
# Creating a Bill of Material




**Create a Bill of Material**

Create a bill of material if there are parts which are supplied by the manufacturer from the sub-inventory

**Note:** The supply type determines the timing of the issuance of the material.

**(Help) Oracle Manufacturing Applications > Oracle Bills of Materials > Bills of Material > Defining a Bill of Material > Creating a Bill of Material**

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# Key Setups - Purchasing

## Key Setups - Purchasing

- Required
  - Shipping network location at supplier site - address of next supplier where assemblies are shipped
  - Supplier contact for workflow and internet supplier portal
- Optional (to create more automated flow)
  - Supplier site as pay on receipt
  - Receipt routing
  - Blanket PO
  - Approved supplier list
  - Sourcing rules

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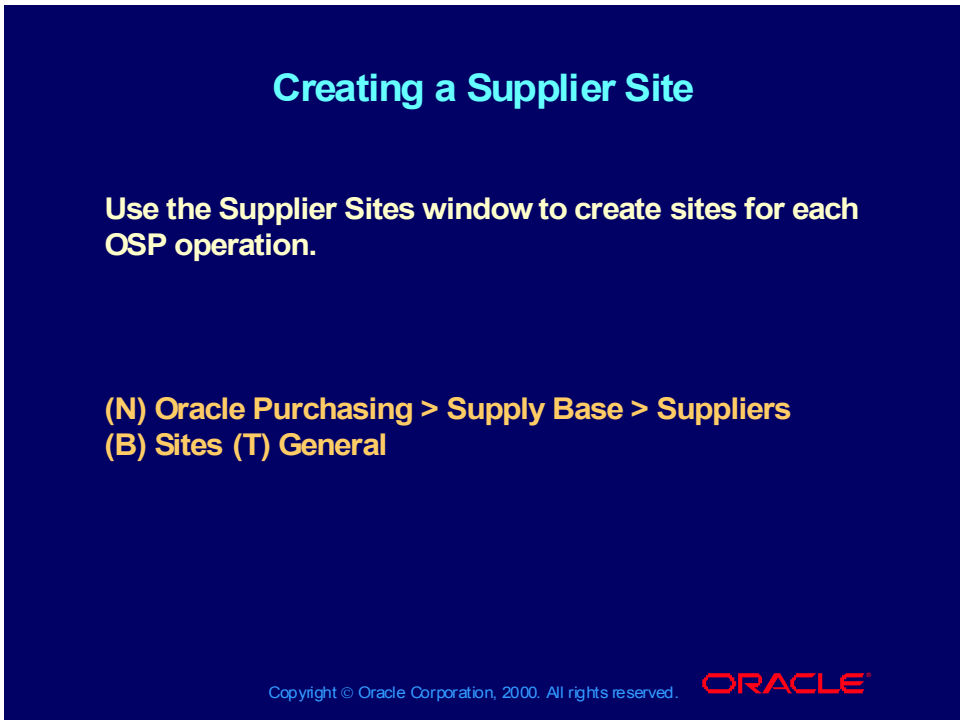
# Creating a Supplier Site




**Create a Supplier Site**

Create a supplier site for each OSP operation. Verify that each site is a pay and purchasing site.

**Note:** The Shipping Network Location represents the address of the second supplier. This is required for the workflow notifications and logical receipt.

**(Help) Oracle Financial Applications > Oracle Payables > Suppliers > Suppliers and Supplier Sites Window Reference > Suppliers and Supplier Sites Window Reference**

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# Entering a Contact

## Entering a Contact

Use the Supplier Sites window to enter contact(s) for the outside suppliers.

(N) Oracle Purchasing > Supply Base > Suppliers
(B) Sites (T) Contacts

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**Enter a Contact**

Create a contact for each of the outside suppliers you created.

**Note:** This is needed for the two outside processing workflows

**(Help) Oracle Financial Applications > Oracle Payables > Suppliers > Suppliers and Supplier Sites Window Reference > Suppliers and Supplier Sites Window Reference**

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# Verifying Payment on Receipt

## Verifying Payment on Receipt

Use the Supplier Sites window to verify that the supplier site allows for payment on receipt.

(N) Oracle Purchasing > Supply Base > Suppliers
(B) Sites (T) Purchasing

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**Verify Payment on Receipt**

Verify that each supplier site allows for pay on receipt to allow for a more automated flow.

**(Help) Oracle Financial Applications > Oracle Payables > Suppliers > Suppliers and Supplier Sites Window Reference > Suppliers and Supplier Sites Window Reference**

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# Entering a Blanket Purchase Order

## Entering a Blanket Purchase Order

Use the Purchase Orders window to enter blanket agreements for each OSP item.

(N) Oracle Purchasing > Purchase Orders
> Purchase Orders

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### Enter a Blanket Purchase Order

Enter an approved blanket purchase order for the supplier contribution at each operation to allow this process to be more automated.

**Note:** The type is Outside Processing. OSP item must have revision.

• Blanket agreements are not required

• Standard PO can be auto-created using an approved requisition

**•(Help) Oracle Manufacturing Applications > Oracle Purchasing > Purchase Orders > Purchase Order Types**

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# Adding to the Approved Supplier List

## Adding to the Approved Supplier List

Use the Approved Supplier List window to add the OSP Suppliers.

(N) Oracle Purchasing > Supply Base > Approved Supplier List

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### Add to the Approved Supplier List

Add the OSP suppliers to the approved supplier list for better automated processing.

**Note:** Supplier status should be approved.

**(Help) Oracle Manufacturing Applications > Oracle Purchasing > Supply Base Management > Approved Supplier List**

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# Defining Attributes

## Defining Attributes

Use the Supplier Item Attributes window to enter item attributes from the Approved Supplier List.

(N) Oracle Purchasing > Supply Base > Approved Supplier List (B) Attributes

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**Define Attributes**

Choose a Release Method from the list of values. Indicate the blanket po for sourcing.

**(Help) Oracle Manufacturing Applications > Oracle Purchasing > Supply Base Management > Defining the Supplier/Item Attributes**

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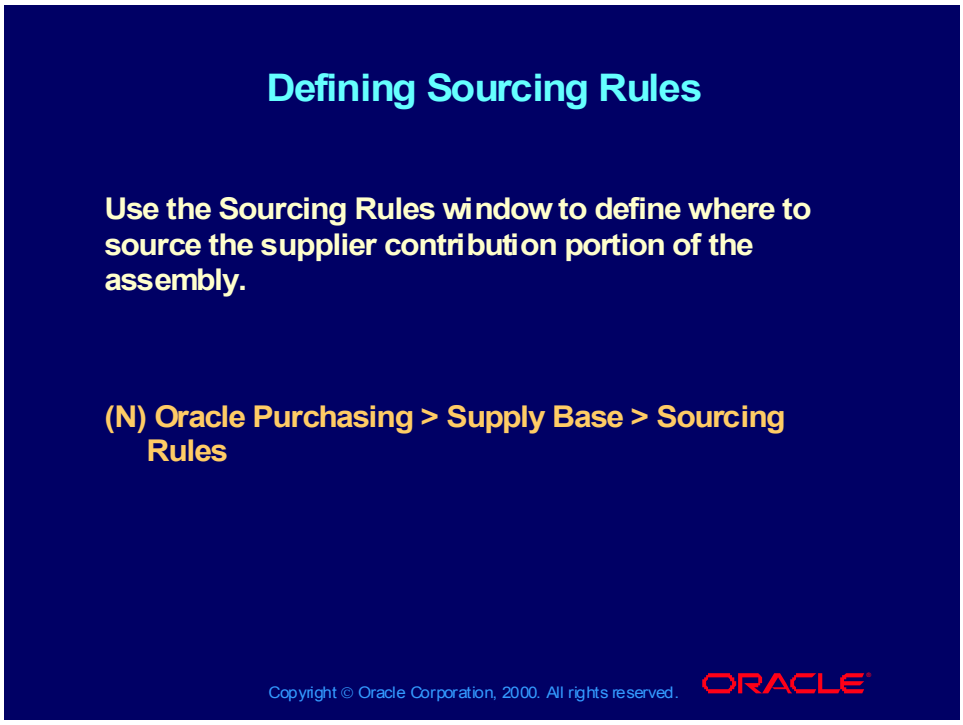
# Defining Sourcing Rules




**Define Sourcing Rules**

Create a sourcing rule for each outside processing supplier.

**Note:** For more information on sourcing rules, see the *Oracle Purchasing User's Guide Release 11i*.

**(Help) Oracle Manufacturing Applications > Oracle Purchasing > Supply Base Management > Defining Sourcing Rules**

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# Assigning Sourcing Rules

## Assigning Sourcing Rules

Use the Sourcing Rules : Bill of Distribution Assignments window to assign the sourcing rules to the MRP assignment set.

(N) Oracle Purchasing > Supply Base > Assign Sourcing Rules

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### Assign Sourcing Rules

Use the profile option MRP Default Assignment Set to see what assignment set is being used by planning to allow for better automation of the process.

**(Help) Oracle Manufacturing Applications > Oracle Purchasing > Supply Base Management > Assigning Sourcing Rules and Bills of Distribution**

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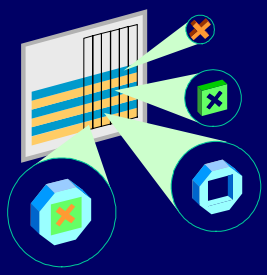
# Key Setups - Planning

## Key Setups - Planning

- Set up planner
- Preferences on Planner's Workbench
- MPS production attribute
- Release time fence



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# Creating a Planner

## Creating a Planner

Use the Planners window to identify employees who are assigned to planning schedules.

(N) Oracle Inventory > Setup > Planners

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**Create a Planner**

Create a planner for the assembly to be built in WIP.

**Note:** For automation, not required.

**(Help) Oracle Manufacturing Applications > Oracle Inventory > Setting Up > Inventory Structure > Defining Planners**

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# Defining Planning Preferences

## Defining Planning Preferences

Use the Preferences window off of the MPS Planners Workbench to set planning preferences for outside processing assemblies.

(N) Oracle Material Planning > MPS > Workbench
(M) Tools > Preferences

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### Define Planning Preferences

The preferences will be determined by each planner, to determine how the job status will be created in WIP. A status of Released automates the process even more.

**Note:** Item planner on assembly is required

**(Help) Oracle Manufacturing Applications > Oracle Master Scheduling/MRP > Setting Up > Defining Planning Parameters**

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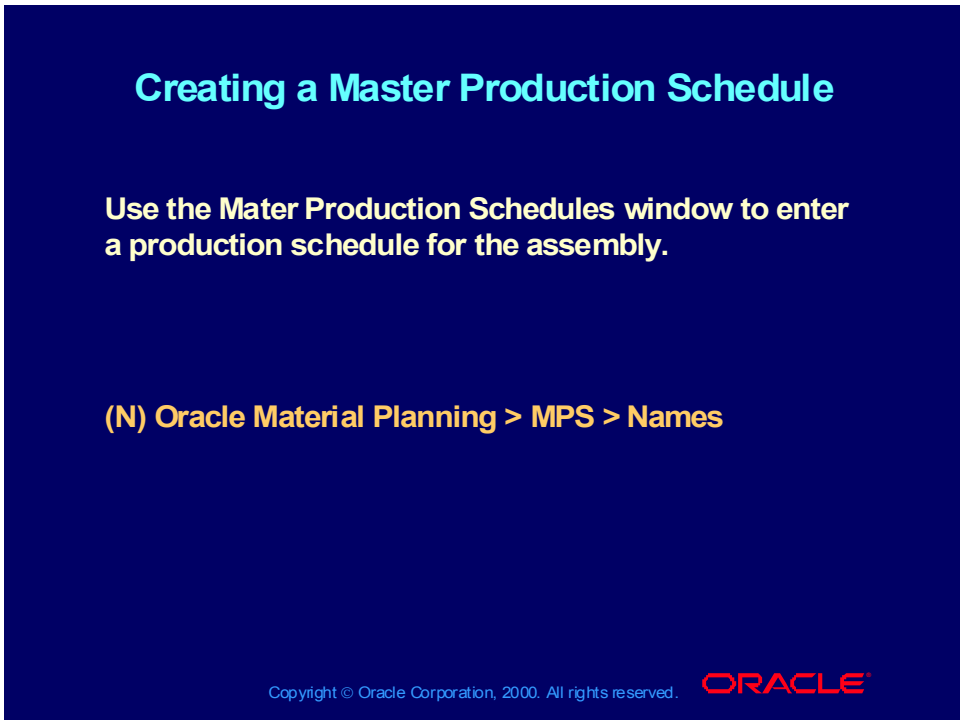


**Create a Master Production Schedule**

Create an master production schedule for your assembly based on MDS.

**Note:** Production must be enabled in order for work orders to be created automatically.

**(Help) Oracle Manufacturing Applications > Oracle Master Scheduling/MRP > Master Scheduling > Defining a Schedule Name**

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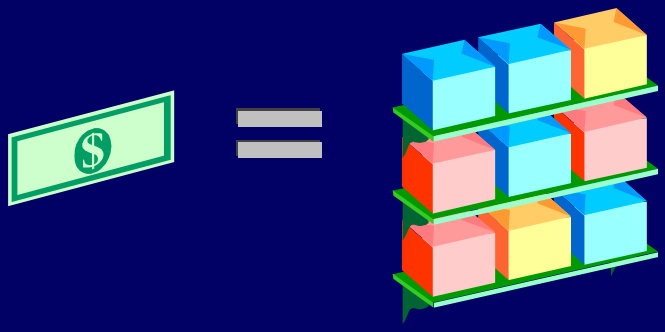
# Key Setups - Costs

## Key Setups - Costs

- Cost Rollup
- Cost Update



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# Viewing a Cost

## Viewing a Cost

Use the Item Costs Details window to view the cost of an assembly.

(N) Oracle Cost > Item Costs > Item Costs (B) Open

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**View a Cost**

The outside processing cost element is used to hold the cost of the OSP resource.

**(Help) Oracle Manufacturing Applications > Oracle Cost Management > Item Costing > Defining Item Costs Details**

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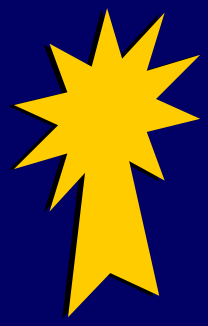
# Key Setups - Quality

## Key Setups - Quality

- Create a quality plan
- Select transaction type



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# Creating a Quality Plan

## Creating a Quality Plan

Use the Collection Plans window to define what quality information you want to collect.

(N) Oracle Quality > Setup > Collection Plans

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**Create a Quality Plan**

Create a quality plan for any of the outside processing suppliers.

**(Help) Oracle Manufacturing Applications > Oracle Quality > Collection Plans > Creating Collection Plans**

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# Selecting Quality Collection Transactions

## Selecting Quality Collection Transactions

Use the Collection Transactions window to select the quality transaction types.

(N) Oracle Quality > Setup > Collection Plans
(B) Transactions

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**Select Quality Collection Transactions**

The transaction must be Self Service Outside Processing for the ISP to enter quality data through the portal.

**Note:** Plan must be enabled to be seen in the Internet Supplied Portal.

**(Help) Oracle Manufacturing Applications > Oracle Quality > Collection Plans > Quality Data Collection During Transactions**

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# Key Setups - WIP

## Key Setups - WIP

- Requisition creation time
  - At job/schedule release
  - At operation
  - Manually
- Job Roles for Shipping Notifications
  - Production manager
  - Shipping manager
- Overcompletion tolerance
- Completion sub-inventory at job/schedule

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# Setting Requisition Creation Time

## Setting Requisition Creation Time

Use the Work in Process Parameters window to set the timing for the creation of a requisition for the outside processing item.

(N) Oracle WIP > Setup > Parameters (T) Outside Processing

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### Create Requisition Options

You can automatically create requisitions for outside processing, when the job or schedule is released, or when you move assemblies into an outside processing operation. You also can require that purchase requisitions be created manually.

The default setup is to automatically create the requisition when you move into an outside processing operation. This can be changed at the organization level parameter.

**Note:** Requisition import will be run based on the option you choose.

**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Setting Up > Defining WIP Parameters**

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# Assigning Shipping Notifications

## Assigning Shipping Notifications

Use the Work in Process Parameters window to define the employees who will receive the shipping notification.

(N) Oracle WIP > Setup > Parameters (T) Outside Processing

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### Assign Shipping Notifications

Determine who should receive the shipping notifications when the assembly is sent from supplier to supplier.

**Note:** Must be valid employees in the HR tables.

**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Setting Up > Defining WIP Parameters**

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# Defining Overcompletion Tolerances

## Defining Overcompletion Tolerances

Use the Work in Process Parameters: Other window to enter the default overcompletion tolerance percent.

(N) Oracle WIP > Setup > Parameters (T) Other

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**Default Overcompletion Tolerance %**

A hierarchy is used to establish tolerances based on settings at different levels:

- Organization level tolerances

  Set in WIP parameters, are considered if no other tolerances are set at the item level or at the discrete job level.

- Item level tolerances

  Set in the Inventory Item Attributes form by organization, are considered for overcompletions, indicating tolerance type and tolerance value. If no item level tolerances are established, organization level tolerances in WIP parameters are considered.

- Discrete job level

  Set in the Discrete Job form in the More page.

**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Setting Up > Defining WIP Parameters**

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# Modifying Completion Sub-Inventory

## Modifying Completion Sub-Inventory

Use the Discrete Jobs window to modify the default completion sub-inventory defined on the routing.

(N) Oracle WIP > Discrete > Discrete Jobs (T) Routing

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**Modify Completion Sub-Inventory**

The completion sub-inventory defaults from the routing but it can be changed at the job/schedule level.

**(Help) Oracle Manufacturing Applications > Oracle Work in Process > Outside Processing > Outside Processing Setup and Planning > Setting Up Work in Process**

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# Key Setups - System Administration

## Key Setups - System Administration

- User id's for suppliers
- Securing attributes
- Responsibilities
- Supplier contact at supplier site level

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# Creating a User for Each Supplier

## Creating a User for Each Supplier

Use the Users window to create a user name to identify each outside processing supplier and select the responsibilities.

(N) Oracle System Administrator > Security > User > Define (T) Responsibilities

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### Create a User

The supplier field on the Create User window will be the supplier contact name.

**Note:** The contact name is what the workflow will be looking for (this can be by supplier or supplier site).

**(Help) Oracle Manufacturing Applications > Oracle Applications System Administration > Overview of Oracle Applications Security > Users Window**

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# Defining Securing Attributes

## Defining Securing Attributes

Use the Users window to define the functions within the Internet Supplier Portal that the suppliers will be able to use.

(N) Oracle System Administrator > Security > User > Define (T) Securing Attributes

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**Define Securing attributes**

Securing attributes are what keep the suppliers within their own user information.

**(Help) Oracle Manufacturing Applications > Oracle Applications System Administration > Overview of Oracle Applications Security > Users Window**

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## Automating Manufacturing Collaboration

- Autorelease of planned orders with a status of released
- Blanket PO's with automatic release
- Requisition creation time of job/schedule release
- Charge type of PO Move on OSP resource
- Completion sub-inventory
- Pay on receipt - autoinvoice

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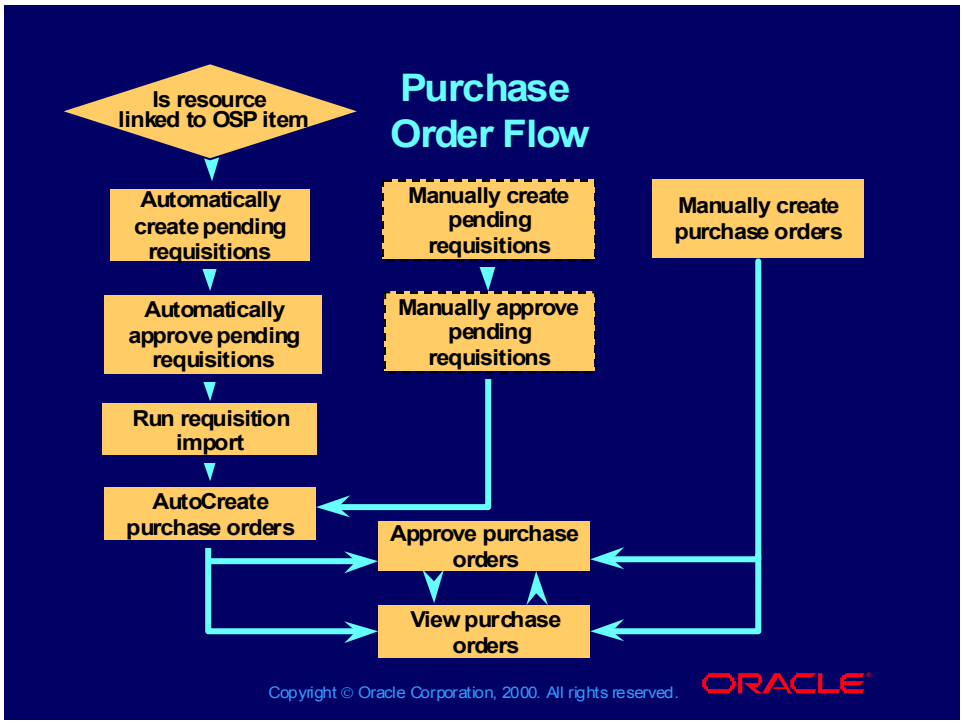
# Purchase Order Flow




## Purchase Order Flow

### Defining a Purchase Requisition

If you want to requisition an outside processing item not usually consumed by a job or schedule, you can manually define a requisition in Oracle Purchasing and link it to one or more jobs or schedules.

### Restrictions for Outside Processing

• You cannot change the status of a job or schedule to Unreleased if the job or schedule has an outside processing resource that is linked to a purchase requisition or a purchase order.

• You cannot delete outside processing operations or resources at those operations if a purchase requisition or a purchase order has been created.

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# Discussing Unit Types

## Discussing Unit Types

| Outside Processing Unit Type | UOM | Receipt Quantity | Charge Amount |
|---|---|---|---|
| Assembly | EA | Move quantity | (Move quantity x Usage rate or amount) |
| Resource | HR | (Move quantity x Usage rate or amount) | Receipt quantity |

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## Discussing Unit Types (continued)

| Outside Resource | | Transaction Quantities | |
|---|---|---|---|
| Usage Rate or Amount | Std Rate | Receipt Qty | Charge Amount |
| 10 | $2 | 50 EA | (50 x 10) @ $2 = $1,000 |
| 10 | $2 | 500 HR | (500HR @ $2) = $1,000 |

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### Class Management Note

Can you backflush components under lot control at an outside operation with a PO Move resource?

Answer: Yes, as long as you set the Backflush Lot Entry parameter to one of the FIFO options in the Work in Process Parameters window.

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# System Generated Transactions with PO Move Resources

## System Generated Transactions with PO Move Resources

| Move Quantities Example | | | |
|---|---|---|---|
| Outside Processing Unit Type | Usage Rate or Amount | Receipt Quantity | Quantity Moved |
| Assembly | 20 | 100 EA | 100 |
| Resource | 10 | 1,000 HR | 100 |

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### Additional Information

There can be only one PO Move resource per operation on a routing.

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## Additional Information

| Calculating Requisition Quantities | | |
|---|---|---|
| Outside Processing Unit Type (Item) | Basis (Resource) | Req, PO, Receipt Quantities |
| Assembly | Item | Move quantity |
| Assembly | Lot | 1 |
| Resource | Item | (Usage rate or amount x Move Quantity) |
| Resource | Lot | (Usage rate or amount x 1) |

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### Calculating Requisition Quantities

- When Oracle Work in Process requisitions an outside processing item with an Outside Processing Unit Type of Resource, it uses the outside resource's usage rate or amount and basis, as well as the assembly move quantity if the basis is Item, to calculate the requisition quantity.
- When Oracle Work in Process requisitions an outside processing item with an Outside Processing Unit Type of Assembly, it does not extend the assembly move quantity by the usage rate or amount.

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# Review Question

## Review Question

Manufacturing Collaboration gives the ability of an assembly to automatically be completed into inventory as the supplier contribution is received. Which of the following will prohibit the automatic completion?

A. OSP operation is last operation on the routing

B. PO move resources tied to the last operation

C. Completion sub-inventory designation

D. PO receipt resources tied to the last operation

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# Answer to Review Question

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# Review Question

## Review Question

A purchase requisition can now be automatically created for outside processing:

A. at job creation in a status of unreleased

B. when a job is changed to released

C. when a job is changed to on-hold

D. at job completion

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D. at job completion

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# Summary

## Summary

In this course, you should have learned how to:

- Describe the difference between Outside Processing and Manufacturing Collaboration
- Explain why Manufacturing Collaboration is a business solution
- Identify the key integration points
- Execute the setup steps for Manufacturing Collaboration

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# Practice 10 Overview

## Practice 1 Overview

This practice covers the manufacturing collaboration process.

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### Scenario

A manufacturer wants to send out an assembly to an outside processor. Perform the setup steps and transactions required to demonstrate the manufacturing collaboration process.

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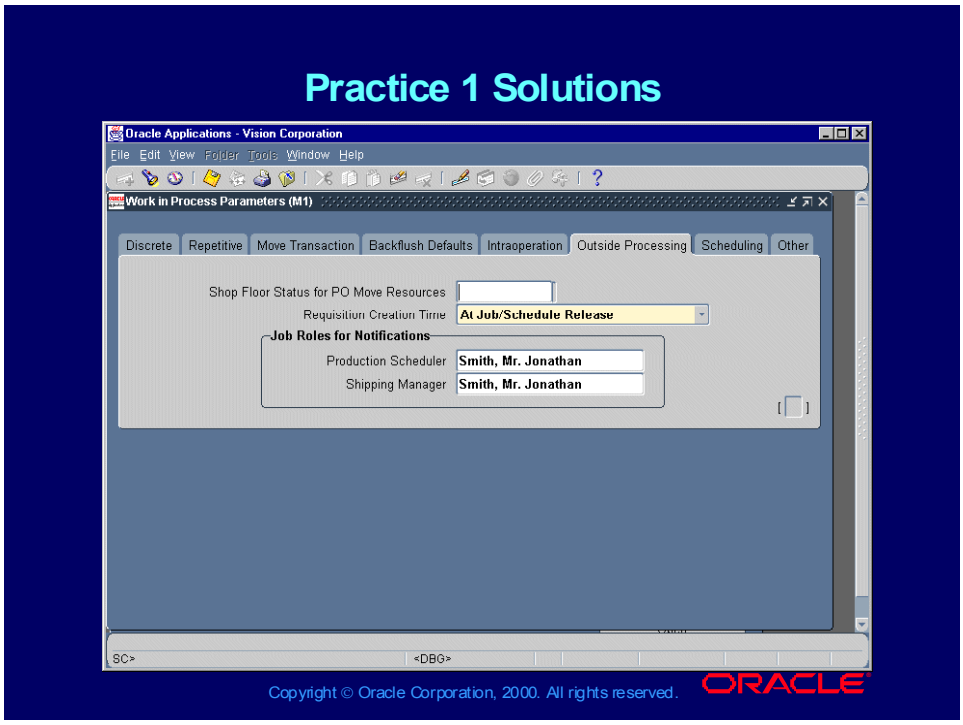


## Oracle Applications Logon

The following is specific information to access Vision for manufacturing:

1. Enter a url that is given to you by the instructor
2. Enter User Name: mfg
3. Enter Password: welcome
4. Click Connect
5. Select Responsibility: Manufacturing and Distribution Manager
6. Click OK
7. Select the M1 Seattle manufacturing organization in which to do all of the practices.
   (N) Other—>Change Organization (M) M1 Seattle Manufacturing (B) OK
8. Verify that the requisition will be created upon job release.
   (N) Work in Process > Setup > Parameters
9. Choose the Outside Processing tab
   - Requisition Creation Time: at job/schedule release
10. Save your work.
11. Create a location that will represent the address where the goods will be sent after they leave the first supplier.
    (N) Inventory > Setup > Organization > Locations
    - Name: you decide
    - Description: you decide
    - Address Details Tab:

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Address: you decide

Choose OK

- Shipping Details tab:

  Ship to location: the name of your location created above

  Ship to: enabled

  Receiving Site: enabled

  Office site: enabled

  Bill to site: enabled

  Internal site: enabled

- Save your work.

12. Establish the relationship between the two suppliers. You will need to attach the location you created above with the second supplier that you will use in the exercise.

(N) Purchasing > Supply Base > Suppliers

- (M) View > Find
- Supplier Name: Industrial Dressler
- Choose Find
- Choose Sites
- Choose the General tab.
- Shipping Network Location: the location you created above (this is needed to link the two supplier together)
- Save your work.

13. The suppliers are set up in sys admin, however, you will need to add the workflow responsibility to each supplier.

- Change your responsibility to System Administrator

  (N) Security > Responsibility > Define

- (M) View > Find
- Responsibility Name: @Workflow
- Effective date to: clear this field
- Save your work.
- Find a user

  (N) Security > User > Define

- (M) View > Find
- User name: Advanced
- Responsibilities: @Workflow
- Save your work.
- Repeat the same process for the second supplier contact.
- User Name: Industrial
- Responsibilities: @Workflow
- Save your work.
- Switch your responsibility back to Manufacturing and Distribution Manager.

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14. Create your items, bills and routings to be used in outside processing.

(N) Inventory > Items > Master Items

- Item: xx-osp assembly
- Description: you decide
- Choose (M) Tools > Copy from
- Template: finished good
- Save your work. Assign the assembly to the M1 organization.
- Choose (M) Tools > Organization assignment

  Org: M1 (enable)
- Save your work.

15. Create two parts that will represent supplier contribution at each operation. Use the outside processing template.

(N) Inventory > Items > Master Items

- Item: xx-osp item a
- Description: you decide
- Choose (M) Tools > Copy from
- Template: outside processing
- Choose the purchasing tab:

  Purchased: enabled

  Purchasable: enabled

  OSP item: enabled

  OSP type: assembly

  List price: you decide
- Choose the receiving tab:

  Receipt routing: direct
- Save your work. Assign the part to the M1 organization.
- Choose (M) Tools > Organization assignment

  Org: M1 (enable)
- Save your work.
- Choose (M) File > New record
- Create a second osp item using the outside processing template.
- Item: xx-osp item b
- Description: you decide
- Choose (M) Tools > Copy from
- Template: outside processing
- Choose the purchasing tab:

  Purchased: enabled

  Purchasable: enabled

  OSP item: enabled

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OSP type: assembly
List price: you decide

- Choose the receiving tab:
  Receipt routing: direct
- Save your work. Assign the part to the m1 organization.
- Choose (M) Tools > Organization assignment
  Org: M1 (enable)
- Save your work.

16. Create two resources which will be linked one on one to the outside processing item
    (N) Bill of Materials > Routings > Resources

- Resource: xx-ospresa
- Description: you decide
- Type: miscellaneous
- UOM: Each (you will be prompted for a choice; do not choose process)
- Charge type: PO Move
- Basis: item
- Outside Processing: enabled
- Item: xx-osp item a
- Costed: enabled
- Standard rate: enabled
- Absorption account: accept default
- Variance account: accept default
- Choose rates
  Cost type: Pending
  Rate: 1.00
- Save your work. You will now create a second outside processing resource.
- Choose (M) File > New record
- Resource: xx-ospresb
- Description: you decide
- Type: miscellaneous
- UOM: each
- Charge type: PO Move
- Basis: item
- Outside Processing: enabled
- Item: the second item you created above
- Costed: enabled
- Standard rate: enabled
- Absorption account: accept default
- Variance account: accept default

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- Choose rates
  Cost type: Pending
  Rate: 1.00
- Save your work.
- Choose (M) File > New record
  You will now create a queue resource that will be used for scheduling the time at the suppliers. This resource will not be costed just scheduled.
- Resource: xx-queue
- Description: you decide
- Type: machine
- UOM: hr
- Charge type: wip move
- Basis: item
- Save your work.

17. Create two departments that represent the two outside suppliers.
    (N) Bill of Material > Routings > Departments
- Department: xx-osp1
- Description: you decide
- Choose Resources
  Under the Main tab:
  Resource: xx-ospresa
  Available 24 hours: X
  UOM: will default
  Units: 1
  Resource: xx-queue
  Available 24 hours: X
  UOM: will default
  Units: 1
- Save your work.
- Choose (M) File > New record
- Create the second department which represents the second supplier
- Department: xx-osp2
- Description: you decide
- Location: the location created above (this is the second supplier's address and is where the assemblies will be sent once they leave the first supplier. They will not come directly back to the manufacturer.)
- Choose resources
- Under the Main tab:
  Resource: xx-ospresb

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Available 24 hours: X
UOM: will default
Units: 1
Resource: xx-queue
Available 24 hours: X
UOM: will default
Units: 1

- Save your work.

18. Create a routing for the assembly.
    (N) Bill of Materials > Routings > Routings

- Item: xx-osp assembly
- Navigate to the operations region
  Sequence: 10
  Department: xx-osp1
- Choose operation resources
  Sequence: 10
  Resource: xx-ospresa
  Usage: 3
- Choose costing
  Standard rate: X
  Charge Type: PO Move
- Return to the first page
  Sequence: 20
  Department: xx-osp2
- Choose operation resources
  Sequence: 10
  Resource: xx-queue
  Usage: you decide
- Choose scheduling
  Scheduled: yes
- Choose costing: wip move
  Sequence: 20
  Resource: xx-ospresb
  Usage: 1
- Choose costing
  Standard rate: X
  Charge type: PO Move
- Return to the first page
- Choose routing details.

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Completion Sub-inventory: fgi (a must have for automatic completion)

- Save your work.

19. Create a Bill of Material for the final assembly (optional)

(N) Bill of Material > Bills > Bills

- Item: xx-osp assembly
- Navigate to the main tab

Item seq: 10

Operation seq: 10

Component: choose a component from the seeded data

Quantity: 1

- Choose the tab material control

Supply type: operation pull

Supply sub-inventory: stores

- Save your work

20. Create a work order for a quantity of 100.

(N) Work in Process > Discrete > Discrete Jobs

- Choose new
- Job: xx-osp1
- Type: standard
- Assembly: xx-osp assembly
- Class: discrete
- Status: released
- Start quantity: 100
- MRP Net: will default
- Start date: you decide
- Choose the routing tab

Completion sub: verify that this field has a value

- Save your work.
- View the operations and make a note of the start date of the second operation.
- Choose operations.
- Choose dates.

21. The requisition import will run automatically after your job is created. Verify that the requisition import has completed normal.

(M) View > Requests

22. Autocreate the purchase orders from the requisitions. You will do this for both osp items.

(N) Purchasing > Autocreate

- Item: xx-osp item a
- Choose find
- Select your requisition.

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- Choose automatic
- Supplier: Advanced Network Devices
- Site: Santa Clara
- Choose create
- Make a note of your po number _____.
- Contact (on the header): Joseph Williams
- Need by date: defaulted from the start date of the second operation
- Choose shipments

  Ship to: should be the location you created. This says the goods are not coming back to my site but are going to an address for the second supplier.
- Save your work.
- Return to the header and approve the purchase order.
- Close the window and return to the find requisitions line window. Search for your second osp item.
- Item: xx-osp item b
- Choose find
- Select your requisition and choose automatic.
- Supplier: Industrial Dressler
- Site: US Headquarters
- Create the purchase order.
- Make a note of your po number _____.
- Contact: James Indus
- Choose shipments

  Ship to: M1-Seattle (this will default to the location you created above)
- Save your work.
- Approve the purchase order.

23. Log on to the Internet Supplier Portal and create an ASN for the first purchase order.

**Note:** By creating an ASN for the shipment, you will only need to run the receiving transaction processor in order for the assemblies to be moved to the next operation. The wip move interface manager will move the assemblies. The system is creating a logical receipt for the shipment from the first supplier to the second supplier.

- User Name: Advanced
- Password: welcome
- Choose supplier services by supplier.
- Choose Advanced Shipment Notice

  Supplier Site: choose the list and search for Santa Clara (this is case sensitive)

  Ship to: choose the list and search (this is case sensitive)
- Choose search
- Select your purchase order number.

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- Choose add to ASN. You should see a message that says:
  "total po shipments added: 1".
- Choose next.
- Enter the required information.
- Choose next.
- Choose finish. You should see a message that says:
  "an ASN has been successfully created."
- Choose Exit.

24. Return to the Core Manufacturing Applications and run the receiving transaction processor.

(N) Purchasing > Reports > Run

- Name: Receiving Transaction Processor
- Choose submit.

25. Verify that a workflow notification has been created for the shipment to the second supplier.

(N) Work in Process > Notification Summary

- Choose the flashlight to look for your notification.
- Status: all
- Type: WIP: Shipping and Receiving Intermediate
- Sent: today
- Choose find.
  - You should see that a notification has been sent to the production manager and the buyer on the second purchase order.
  - The buyer is required to respond to the purchase order.
  - The notification is then sent to the contact at the supplier contact. The supplier is required to respond saying how many assemblies were received and if any were damaged.
  - A notification is sent to the buyer once the second supplier has responded. This notification does not require a response.

26. Verify that the assemblies have moved to the second operation.

(N) Work in Process > Discrete > Discrete Jobs

- Job: xx-osp1
- Choose find.
- Choose operations.
- Choose the quantities tab. You should the quantity in the queue step of the second operation.

27. Once the workflow notifications have been processed, navigate back to the Internet Supplier Portal, login as the second supplier and create the ASN for the second supplier.

- User Name: Industrial
- Password: welcome
- Choose supplier services by supplier.

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- Choose Advanced Shipment Notice
- Search for the Supplier Site and Ship to Location (this is case sensitive)

  Supplier Site: US Headquarters

  Ship to location: M1-Seattle (your assemblies are coming back to the manufacturer after this operation)
- Choose search
- Select your purchase order and choose add to ASN.
- You will see a message that says "Total PO shipments added: 1"
- Choose next
- Fill in the required information as you did for the first supplier and choose finished.
- You should see a message that says ASN successfully created. Choose exit.

28. Navigate back to Core Manufacturing and run the receiving transaction processor.

    (N) Purchasing > Reports > Run
- Name: Receiving Transaction Processor
- Choose submit. Once this process completes, you will need to receive the assemblies.

  (N) Purchasing > Receiving >Receipts
- Item: xx-osp item b
- Choose find
- Select the box next to the item and save your work.

29. Verify that the assemblies have moved to the to move step of the next operation and that the assemblies have been completed into finished goods.

    (N) Work in Process > Discrete >Discrete Jobs
- Job: xx-osp1
- Choose find. The status of the job should be complete.
- Choose operations
- Choose quantities. There should not be any assemblies left in the job.

30. Verify that the completion transaction did occur.

    (N) Inventory > Transactions > Material Transactions
- Item: xx-osp assembly
- Choose find
- Choose Transaction Type

  Source: xx-osp1

  Transaction Type: WIP Assembly Completion

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