R11*i* Implement and Use Oracle Engineering and Bill of Materials

Student Guide

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Preface

Profile

Before You Begin This Course

Before you begin this course, you should have the following qualifications:

- Thorough knowledge of planning and production processes
- Thorough knowledge of Oracle Bills of Material
- Working experience with Oracle Bills of Material
- Knowledge of the manufacturing processes
- Thorough knowledge and proficiency in navigating Oracle applications
- Working experience with inventory items and bills of material, planning and forecasts, product with offered-options
- Thorough knowledge of setting up items and bills of material as well as the typical business requirements for processing engineering changes.
- Working experience with Oracle Engineering and Oracle Bills Of Material.

Prerequisites

- Oracle Inventory
- Defining & Maintaining Items (Inventory)
- Creating Bill of Materials (BOMs)
- Creating Bills of Material (e-class)
- R11i – Setting Up and Implementing Engineering

How This Course Is Organized

R11i, Implement and Use Oracle Engineering and Bill of Materials is an instructor-led course featuring lecture and hands-on exercises. Online demonstrations and written practice sessions reinforce the concepts and skills introduced.

Related Publications

Oracle Publications

Title	Part Number
Oracle Bills of Material User's Guide, Release 11i	A75087-01
Oracle Engineering User's Guide, Release 11i	A75090-01
Oracle Inventory User's Guide	A83507-01
Oracle Bills of Material User's Guide	A75087-01
Oracle Master Scheduling/MRP and Oracle Supply Chain Planning User's Guide	*A82941-01*

Additional Publications

- System release bulletins
- Installation and user's guides
- *read.me* files
- *Oracle Magazine*

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, check boxes, triggers, windows	Click the Executable button. Select the Can't Delete Card check box. Assign a When-Validate-Item trigger to the ORD block. Open the Master Schedule window.
Courier new, case sensitive (default is lowercase)	Code output, directory names, filenames, passwords, pathnames, URLs, user input, usernames	Code output: `debug.set ('I", 300);` Directory: `bin` (DOS), `$FMHOME` (UNIX) Filename: Locate the `init.ora` file. Password: User `tiger` as your password. Pathname: Open `c:\my_docs\projects` URL: Go to `http://www.oracle.com` User input: Enter `300` 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, titles of books and courses, variables	Do *not* save changes to the database. For further information, see *Oracle7 Server SQL Language Reference Manual.* 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; lesson and chapter titles in cross-references	Select "Include a reusable module component" and click Finish. 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.

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` `FROM s_emp;`
	Passwords	`DROP USER scott` `IDENTIFIED BY tiger;`

	PL/SQL objects	`OG_ACTIVATE_LAYER`
		`(OG_GET_LAYER`
		`('prod_pie_layer'))`

Lowercase italic	Syntax variables	`CREATE ROLE` *`role`*
Uppercase	SQL commands and functions	`SELECT userid` `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

(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.

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.

R11i Oracle BOM and Engineering: Defining and Maintaining Engineering Items

Chapter 1

R11i Oracle BOM and Engineering: Defining and Maintaining Engineering Items

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Objectives

Objectives

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

- Create engineering items
- Copy from item templates
- Search for engineering items
- View item information and revise item attributes
- Enable organization assignments
- Create item catalog groups
- Create cross references, relationships and documents
- Create deletion groups

Agenda

Agenda

- Using Oracle Applications Help
- Creating engineering items
- Copying from item templates
- Searching for engineering items
- Viewing item information and revising item attributes
- Enabling organization assignments
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Using Oracle Applications Help Within a Window

Using Oracle Applications Help Within a Window

Any window launched from the Oracle Navigator will link to online help. Select Help—>Window Help from the menu bar. Oracle Applications Help displays detailed information about the window you opened, including step-by-step instructions for entering information in each field in the window.

Note: The Library topic contains help for products.

Help Note

You can launch Oracle Help using the toolbar "?" icon only from a window that is open from the Navigator. If you launch Oracle Help from a window that is opened via the menu bar, a button, or pop up window, you will receive a http://404 - no data found error.

Searching Oracle Applications Help

Searching Oracle Applications Help

1. From any window within an Oracle Application select Help—>Window Help from the menu bar.
2. The Oracle Applications Help window is displayed.
3. Enter your search criteria, enclosed within quotation marks, in the Find field and click Find.
4. Select a topic to view detailed information.

Note: Select Search Instructions for help when searching Oracle Applications Help.

Help Note

You can only launch Oracle Help using the toolbar "?" icon from a window that is open from the Navigator. If you launch Oracle Help from a window that is opened via the menu bar, a button, or pop up window, you will receive a http://404 - no data found error.

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- Using Oracle Applications Help
- Creating engineering items
- Copying from item templates
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- Viewing item information and revising item attributes
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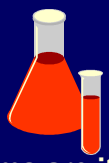
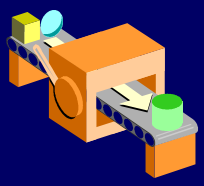
Engineering and Manufacturing Items

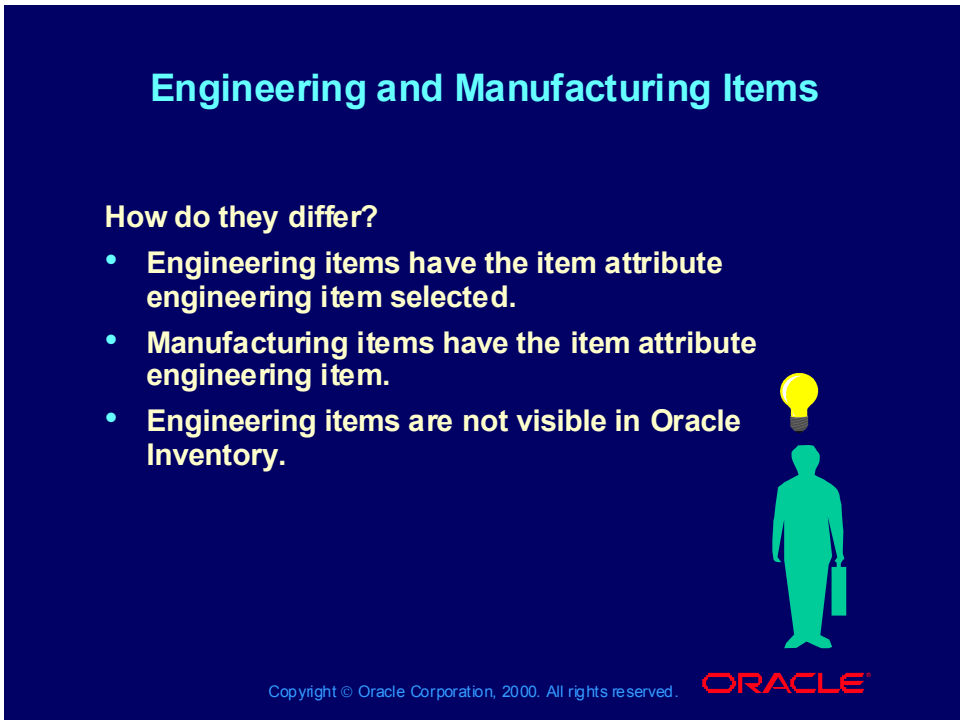
Engineering and Manufacturing Items

- Engineering items are items that your engineering function creates and that are not ready for production (created in Oracle Engineering).



- Manufacturing items are items you use in production (created in Oracle Inventory).





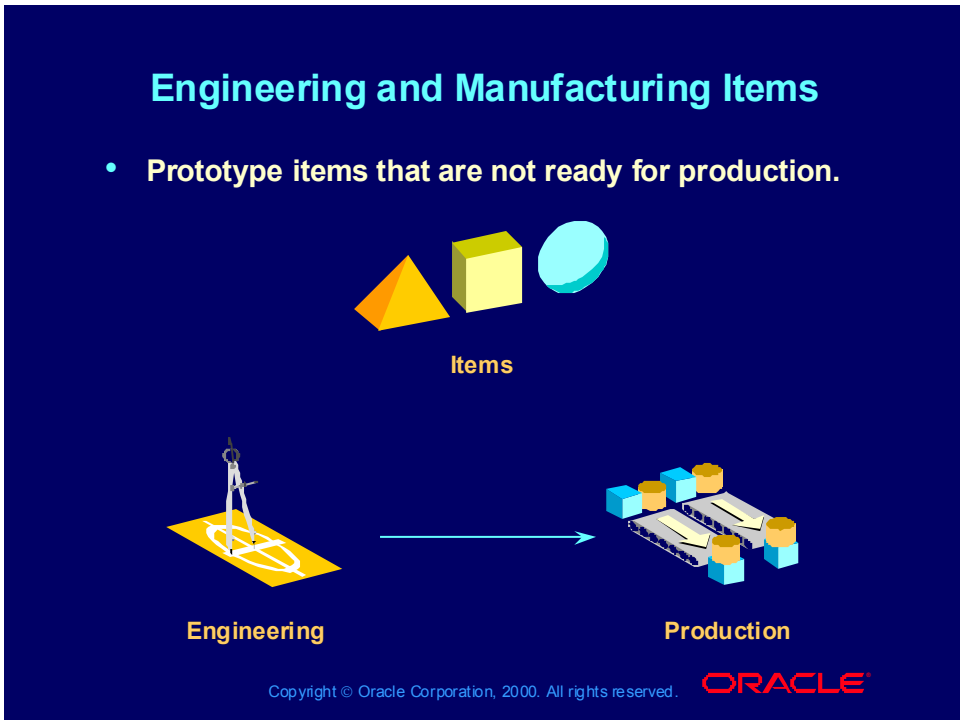
Engineering and Manufacturing Items

Engineering flag is not visible in Oracle Inventory.

Engineering and Manufacturing Items

Perform the same item functions with engineering items that you do with production items, including the following:

- Create item revisions
- Perform stock movements and valuation
- Perform cost rollup
- Perform material planning
- Sell and ship to customers
- Buy on purchase orders or internal requisitions
- Make on and issue to discrete jobs and repetitive schedules

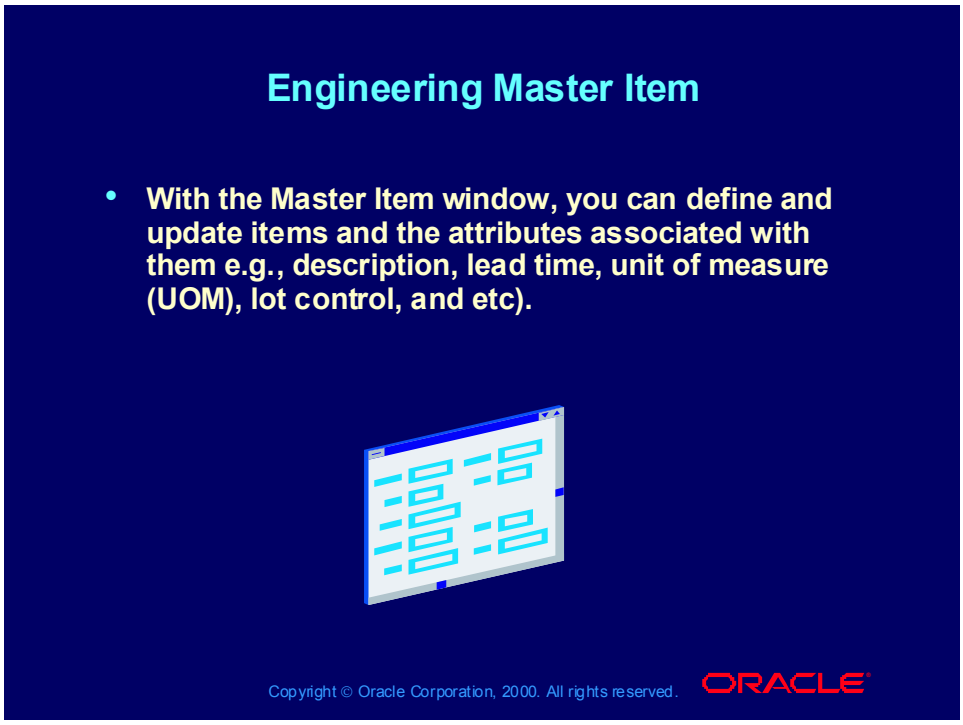


Engineering and Manufacturing Items

The windows that you use to create engineering and manufacturing items are identical. They differ only in the following ways:

- You create and change engineering items using the Oracle Engineering windows. You can create and change manufacturing items using the Oracle Inventory forms.
- When your engineering items are ready for production, you can transfer or copy them to Oracle Inventory as manufacturing items. When you transfer an engineering item, it becomes a manufacturing item. When you copy an engineering item, it remains and you create a manufacturing item with a different item number.

Engineering Master Item



Engineering Master Item

Use this window to create and change engineering items in the same way that you use the corresponding Oracle Inventory window to create and change production items.

(N) Prototypes > Items > Master Items

(Help) Oracle Inventory > Items > Defining Items

Engineering Master Item

Engineering Master Item

Much of the information for an item is optional. You define only the information you need to maintain the item in the following tabs:

Main	Receiving	Lead times
Inventory	Physical attributes	WIP
Bill of Materials (BOM)	General	OM
Costing	MPS/MRP	Invoicing
Purchasing	Planning	Service
		Web option

Agenda

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- Using Oracle Applications Help
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Item Templates

- Templates are defined sets of attributes that you can reuse to create many similar items. Templates make initial item definition easier.
- If attribute item template is null, it will not change a pre-set item attribute.
- When you apply a template to an item, you copy all existing, non-blank attribute values from the template to the item.
- You may apply multiple templates to a single item. The last values assigned are retained, and blanks don't overlay assigned values.
- Item templates change item attributes consistently.

Engineering Master Item

Engineering Master Item

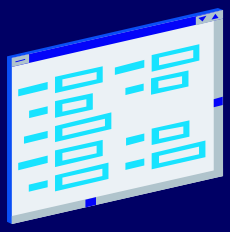
Templates provided by Oracle

Assemble to order (ATO) Model	Supply Item
ATO Option Class	Freight
ATO Item	Product Family
Finished Good	Outside Processing Item
Kit	Pick to Order (PTO) Model
Purchased	PTO Option Class
Reference Item	
Subassembly	

Item Template Summary

Item Template Summary

- The Find button on the Find Item Templates window displays the searched template summary information in the Item Templates Summary window.
  - Template
  - Description
  - Organization
  - Item status
  - Primary UOM
  - User item type
  - Bills of Material item type
  - Checkboxes for status codes



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Items Templates

Use this window to create and change item attribute templates. Use the same item templates in Oracle Engineering as in Oracle Inventory.

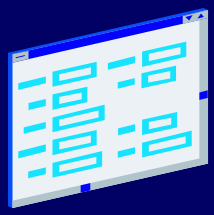
(N) Prototypes > Items > Template (B) Find > Item Templates Summary (B) Open or (B) New

(Help) Oracle Inventory > Items > Defining Items

Item Template Summary Window

Item Template Summary Window

- The Open button utilizes existing template information.
- The New button allows for the entering of a new template.



(N) Prototypes > Items > Template (B) Find > Item Templates Summary (B) Open or (B) New

(Help) Oracle Inventory > Items > Defining Items

Copying From Templates

Copying From Templates

- Use the copy function from the tools menu in the Engineering Master Item window. This opens the Copy From window, where you can use to copy item attributes from one item to another or from a template.
- You can also create a hybrid template by copying attributes from multiple templates.

(N) Prototypes > Items > Master Items (M) Tools, Copy From

(N) Prototypes > Items > Template (B) New (M) Copy Template

(Help) Oracle Inventory > Items > Defining Items

Agenda

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- Using Oracle Applications Help
- Creating engineering items
- Copying from item templates
- **Searching for engineering items**
- Viewing item information and revising item attributes
- Enabling organization assignments
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Searching Engineering Items

Searching Engineering Items

Use the Item Search window to search for items based on any combination of criteria you specify:

- Having a particular cross-reference
- Item category
- Purchasing information
- Quantity types
- Item catalog
- Matching specified inventory detail, or having a specified descriptive element value
- Related to or that are substitutes for a specified item

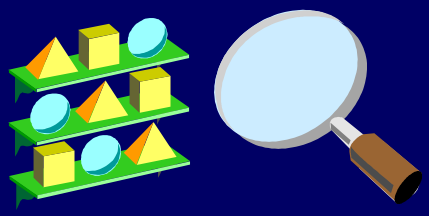
(N) Prototypes > Items > Item Search (B) Find

(Help) Oracle Inventory > Items > Searching for Items

Searching Engineering Items

Searching Engineering Items

You can specify as much or as little criteria as you want.

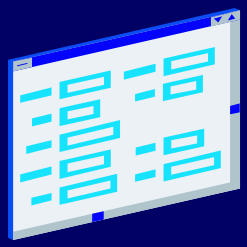


Search Results

Search Results

View search results in the Item Search window.

- Item
- Description
- Organization
- UOM



Review Question

Review Question

Which window allows users to define and update items?

1. Manual Items Define
2. Cross Reference Item
3. Allocation Items
4. Master Item
5. Find Item Template

Answer to Review Question

Answer to Review Question

Which window allows users to define and update items?

1. Manual Items Define
2. Cross Reference Item
3. Allocation Items
4. Master Item
5. Find Item Template

Review Question

Review Question

The Item Templates Summary window has the following buttons:

1. Engineering and Inventory buttons
2. Utility and Item buttons
3. Search and Query buttons
4. New and Open buttons
5. Error and Existing buttons

Answer to Review Question

Answer to Review Question

The Item Templates Summary window has the following buttons:

1. Engineering and Inventory buttons
2. Utility and Item buttons
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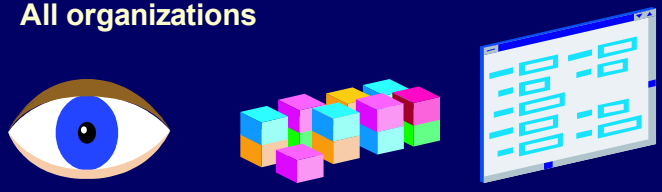
Viewing Item Information

Viewing Item Information

- View revisions, attributes, and categories using the Find Item Information window
- Depending on the function security assigned to your responsibility, view the information for:
  - Single organization only
  - Single organization and its master organization
  - All organizations



(N) Prototypes > Items > View Item Details

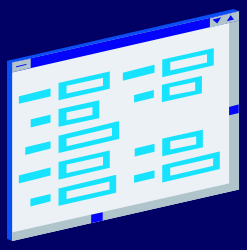
(Help) Oracle Inventory > Items > Viewing Item Attributes

Viewing Item Revisions

Viewing Item Revisions

The Revisions button displays:

- Revision
- Description
- Organization
- Dates and time
- Engineering change orders (ECOs)



(N) Prototypes > Items > View Item Details (B) Revisions

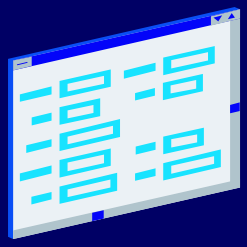
(Help) Oracle Inventory > Items > Viewing Item Attributes

Viewing Item Attributes

Viewing Item Attributes

The Attributes button displays:

- Description of the item
- Group
- Attribute
- Organization
- Value
- Control level



(N) Prototypes > Items > View Item Details (B) Attributes

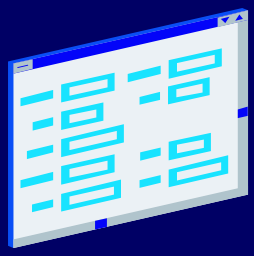
(Help) Oracle Inventory > Items > Viewing Item Attributes

Viewing Item Categories

Viewing Item Categories

The Categories button displays:

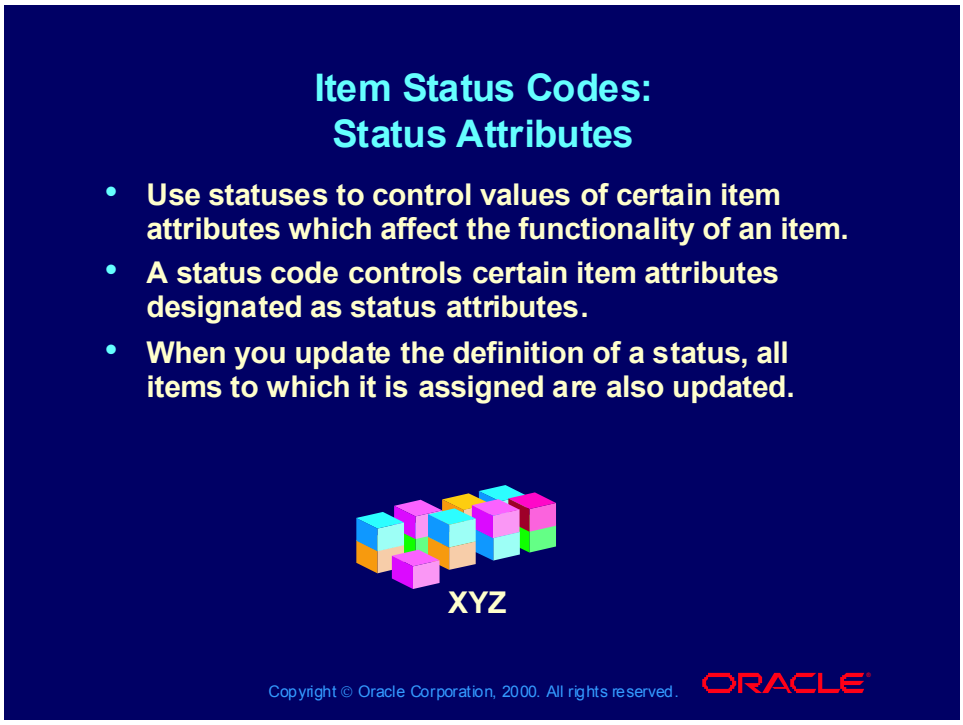
- Category set
- Organization
- Category
- Control level



(N) Prototypes > Items > View Item Details (B) Categories

(Help) Oracle Inventory > Items > Viewing Item Attributes

Item Status Codes: Status Attributes



Item Status and Status Codes

An Item Status Code has a user-defined set of Yes/No values for the status attributes. The values are applied to the status attributes when you choose an Item Status Code when defining an item. For example, assume you define an Item Status named Prototype with all status attributes set to Yes except for Customer Orders Enabled. Next, you define another Item Status, Active, with all status attributes set to Yes. In the beginning of a product development cycle, assign the status code Prototype to an item so that you cannot place the item on a sales order. Later, assign the status code Active to allow all functions for the item.

Pending Statuses

Use pending statuses to automatically update an item's status on a specified date. For each item, specify a list of pending statuses and the corresponding effective dates.

Item Status Codes: Status Attributes

Item Status Codes: Status Attributes

The status attributes are:

BOM allowed Build in WIP Customer orders enabled Transactable	Internal orders enabled Invoicable Purchasable Stockable

XYZ

Change Responsibility: (N) Oracle Inventory > Setup > Items > Status Codes

(Help) Oracle Inventory > Setting Up > Item Setup and Control > Defining Item Status Codes

Agenda

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- Using Oracle Applications Help
- Creating engineering items
- Copying from item templates
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- Viewing item information and revising item attributes
- **Enabling organization assignments**
- Creating item catalog groups
- Creating cross references, relationships and documents
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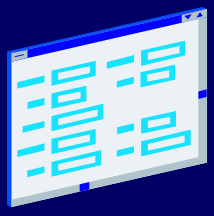
Organization Assignments

Organization Assignments

- Use the Organization Assignment window to assign an item to an organization.
  - Displays
    - Organization
    - Name
    - Primary UOM
    - The Assign All button/individual assign check boxes.
    - The Org Attributes button launches the Engineering Organization Item window.

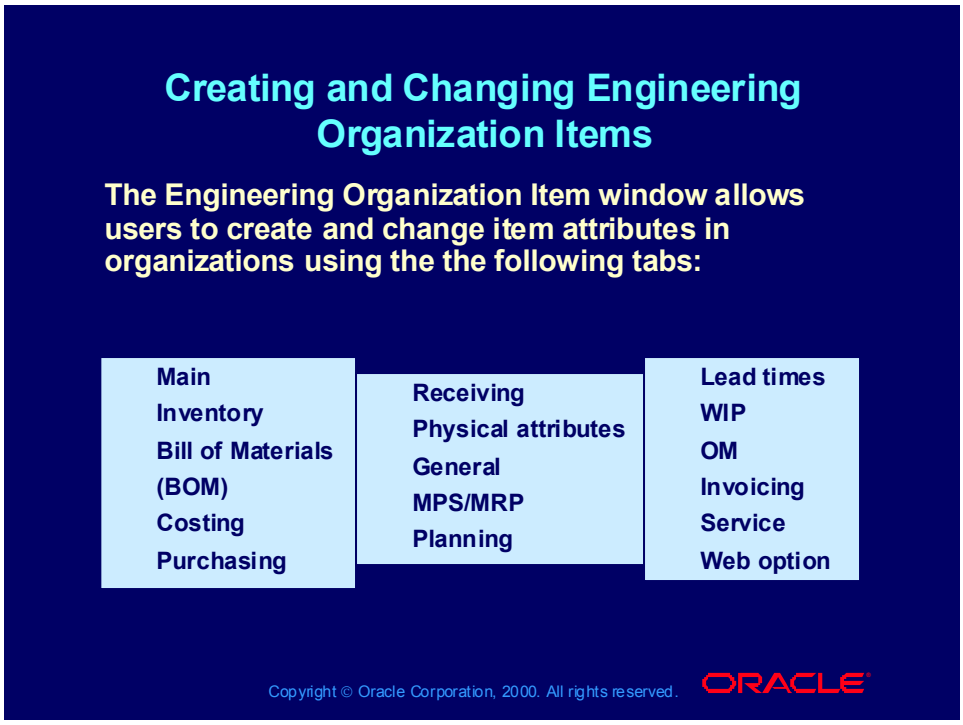


Enabling Organization Assignments

Use this window to enable engineering items and inventory items in organizations in the same way that you use the corresponding Oracle Inventory window to enable production items in organizations. It is not recommended to check Assign All. There are many times items should not be assigned to an organization, especially an engineering item.

(N) Prototypes > Items > Master Item (M) Tools > Organization Assignment (B) Assign All

(Help) Oracle Inventory > Items > Assigning Items to Organizations



Creating and Changing Engineering Organization Items

Use this window to create and change item attributes in organizations in the same way that you use the corresponding Oracle Inventory window to create and change production item attributes in organizations.

(N) Prototypes > Items > Master Item (M) Tools > Organization Assignment (B) Org Attributes

(Help) Oracle Inventory > Items > Assigning Items to Organizations

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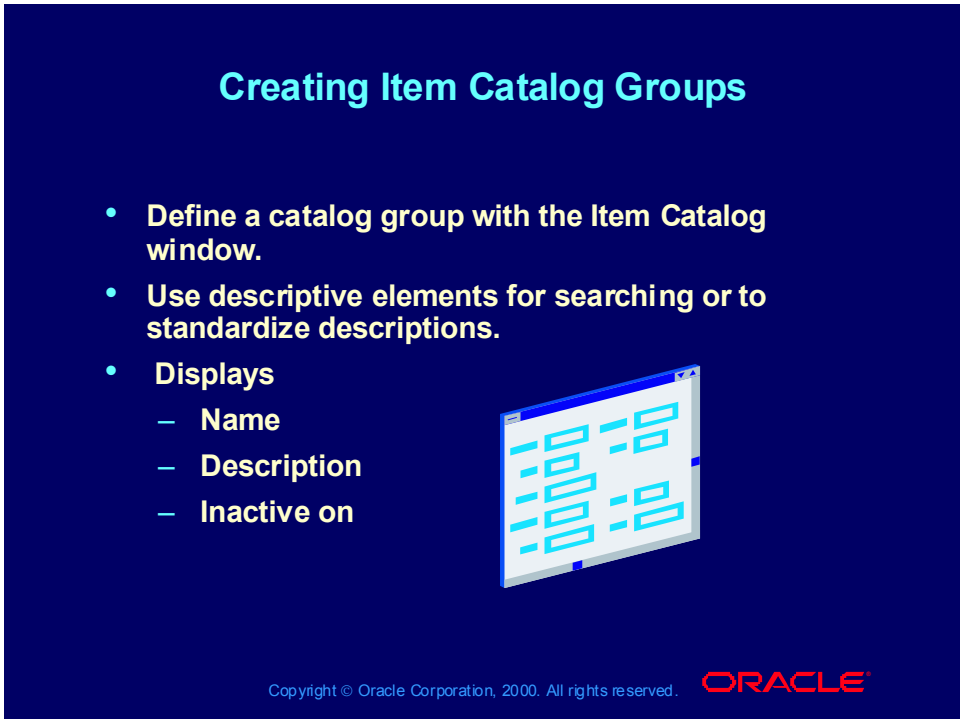

Creating Item Catalog Groups

Use the same item catalog groups in Oracle Engineering to work with engineering items that you use in Oracle Inventory to work with production items.

(N) Prototypes > Items > Catalog Groups

(Help) Oracle Inventory > Setting Up > Item Setup and Control > Item Cataloging > Defining Item Catalog Groups

Review Question

Review Question

When viewing items the three viewing functions include:

1. Summary, searched, and process sets
2. Attributes, revisions, and categories
3. Defined, template, and production
4. Assigned, material, and organization
5. Inventory, BOM, and manual

Answer to Review Question

Answer to Review Question

When viewing items the three viewing functions include:

1. Summary, searched, and process sets
2. Attributes, revisions, and categories
3. Defined, template, and production
4. Assigned, material, and organization
5. Inventory, BOM, and manual

Review Question

Review Question

All of the following are tabs in the Engineering Organization Item window <u>except</u>:

1. Purchasing
2. General
3. Physical attributes
4. Web options
5. Payables

Answer to Review Question

Answer to Review Question

All of the following are tabs in the Engineering Organization Item window <u>except</u>:

1. Purchasing
2. General
3. Physical attributes
4. Web options
5. Payables

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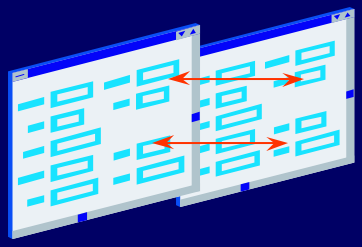
- **Creating cross references, relationships and documents**
- Creating deletion groups

Creating Cross References

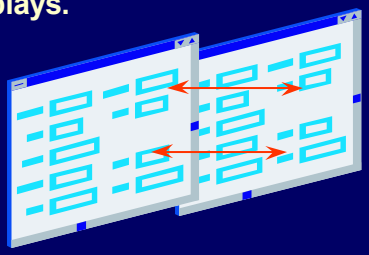
- Cross-reference types define relationships between items and entities such as old item numbers or supplier item numbers.
- For example, you can create a cross-reference type old to track the old item numbers, and a type supplier to track supplier part numbers.



Creating Cross References

Creating Cross References

- Cross Reference Types window displays
  - Type
  - Description
  - Inactive on
- The Assign button displays.
  - Items
  - Organizations
  - Values
  - Descriptions



(N) Prototypes > Items > Cross References

Related Items

Related Items

- Define relationships between items.
- This allows you to search for items through these relationships.
- The New button
  - Allows you to enter a new relationship.
  - From/to associations
- The Find button
  - Allows you to search relationships.

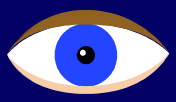
(N) Prototypes > Items > Related Items

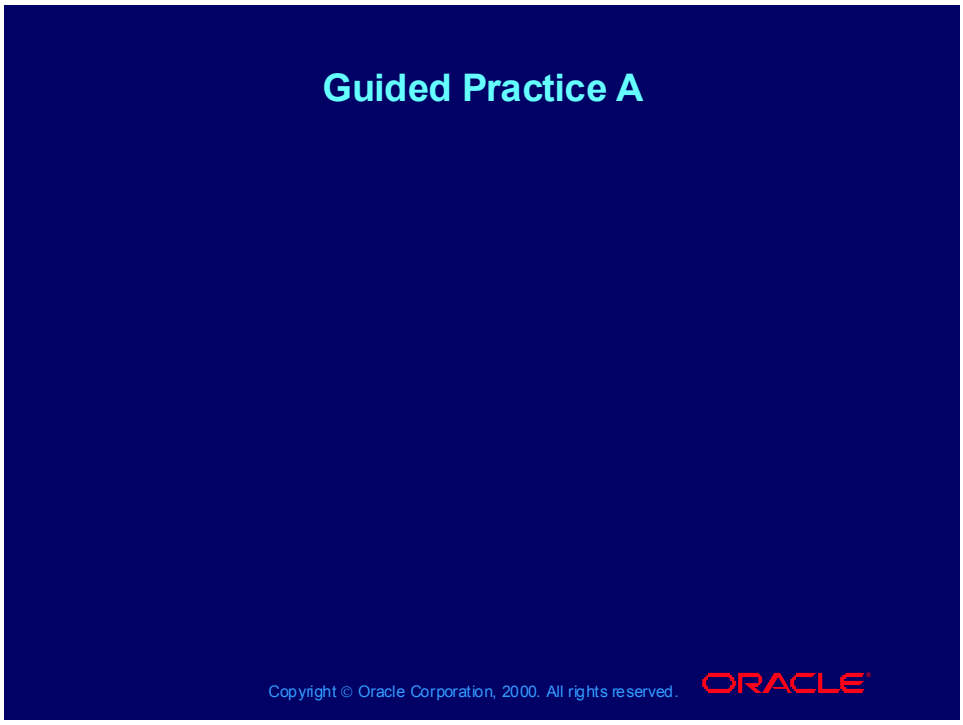
(Help) Oracle Inventory > Items > Defining Item Relationships

Item Documents

Item Documents

- Use the Documents window to add existing documents, or create new attachments in the document catalog. Use the same corresponding Oracle Inventory window to create and change production items.
- These documents will then be available for use as attachments from the Attachments window.
- Creating a document in the Documents window is much like creating an attachment in the Attachments window with the addition of security, usage, and effective date information.





1. Creating Engineering Items

1. Use the following table to create engineering items.
(**N) Prototypes > Items > Master Items** (displays the Engineering Master Item window) Enter the item number, description, and user item type. If a flexfield is displayed click the OK button. XX represents your initials or team. Note the item number may require five numbers after your initials e.g., XX1000 = XX10000.
2. Save the item.
3. Assign the items to an organization that your instructor specifies e.g., M2.
Tools > Org Assignment > e.g., M2 checkbox (displays the Organization Assignment window)
4. Save the item and close the window.
5. Choose the new record icon.

Copied items

1. Enter the item number and description.
2. Copy the item. **Tools > Copy From, enter copy item number (B)**

Done button (displays the Copy From window).

3. Save the item.
4. Assign the items to an organization (see above navigation path).
5. Save the item.
6. Choose the new record icon.

Item Number	Description	User Item Type	Copied Item
XX1000	Pentium Computer	Finished Good	
XX1010	17" Monitor	Purchased Item	
XX1020	101 Keyboard		XX1010
XX1030	Mouse		XX1010
XX1040	CPU Chassis	Subassembly	
XX2010	Motherboard		XX1040
XX2011	New Motherboard		XX2010
XX2020	Serial Board		XX1010
XX2030	1.6GB Hard Drive		XX1010
XX2040	3.5 Disk Drive		XX1010
XX3010	Blank Board		XX1010
XX3020	586 133mhz IC		XX1010
XX3030	Resistor		XX1010
XX3031	New Resistor		XX3030
XX3040	Integrated Circuit		XX1010
XX3041	Item to Delete		XX1010 (Do not assign an organization for XX3041)

2. Using the Master Items window

1. Query all of your items. Choose view and select query by example, enter.
2. Enter XX% and from the menu bar choose view and select query by example, run.
3. Query all Pentium computers.
4. Query all of your items in the organization that your instructor assigned. **(N) Organization Items**, verify that your items are in the assigned organization.

3. Using (N) View item detail, view one or more of your items (displays the Find Item Information window).

1. Enter your query and choose the Attributes button. What group does the engineering item belong to? What is the value?

4. Try to define your items using an Oracle Inventory responsibility that your instructor assigns. What is the result?

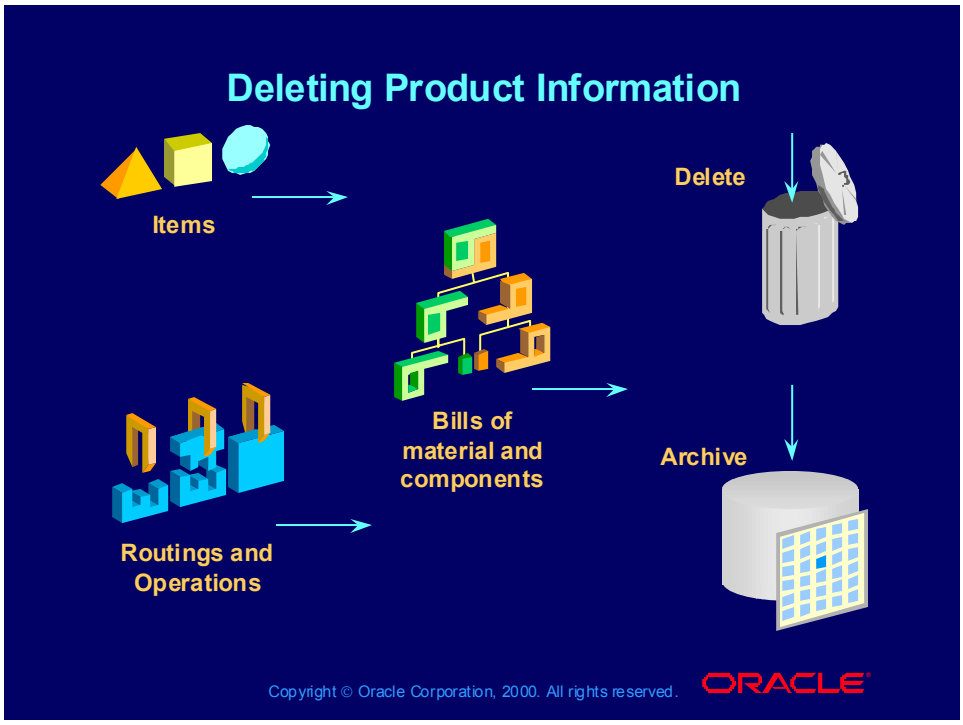
Repeat steps 1-3. Although in step 1 add PR at the end of the numbers to differentiate them from the item numbers in Oracle Engineering e.g., XX1000 = XX1000PR.

Agenda

Agenda

- Using Oracle Applications Help
- Creating engineering items
- Copying from item templates
- Searching for engineering items
- Viewing item information and revising item attributes
- Enabling organization assignments
- Creating item catalog groups
- Creating cross references, relationships and documents
- Creating deletion groups

Deleting Product Information

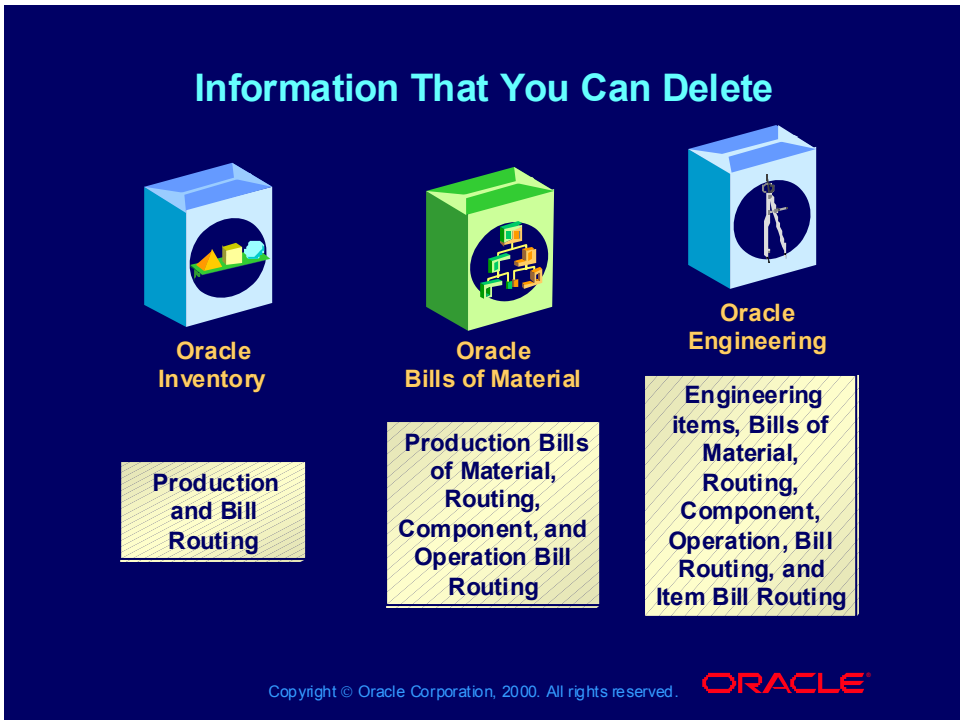


Deletion Groups

When you decide that product information is no longer useful, or input incorrectly, you can delete or archive it.

- If you delete information, you remove it from the active data storage area and you cannot:
  - Manipulate or view it on forms.
  - Retrieve it again by any means.
- If you archive information, you store deleted information in another storage area of the database. Oracle Applications provides no functions for you to:
  - View the archived information.
  - Restore the archived information to the active data storage area.

Information That You Can Delete



Information That You Can Delete

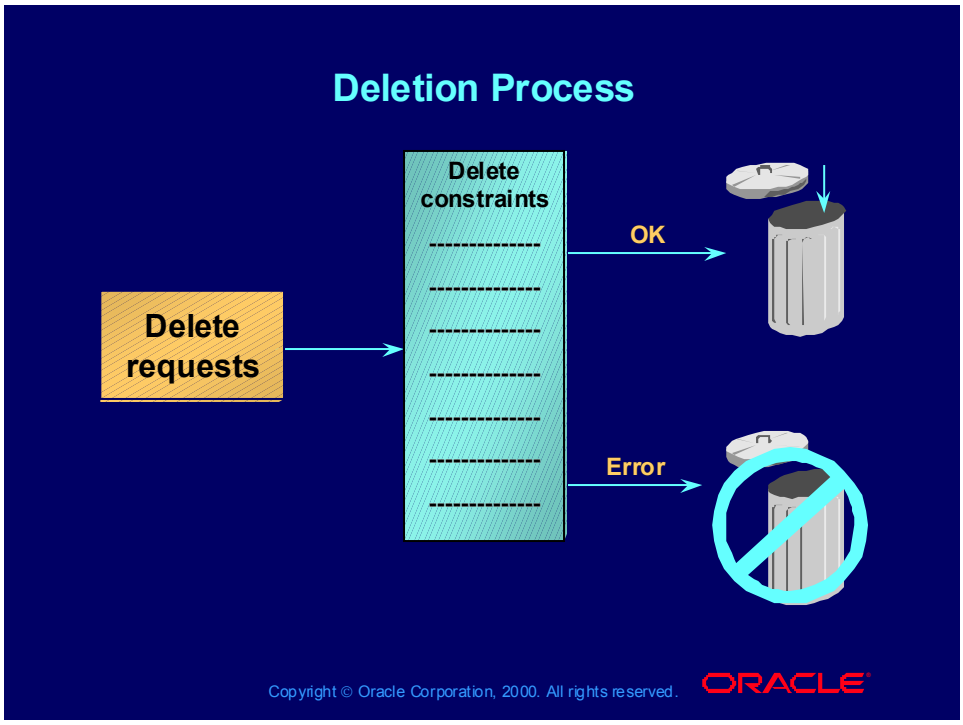
Set up groups of entities to check, delete and optionally archive. Entities can include items, bills of material, components, routings, or operations.

What entities you can delete depends on what Oracle application you are currently using and what applications you have installed.

- If you are using Oracle Bills of Material, you can delete only bills, routings, components, and operations.
- If you are using Oracle Engineering, you can delete any engineering entity except ECOs.
- If you are using Oracle Inventory and you do not have Bills of Material installed, you can only delete manufacturing items.
- If you are using Inventory and you do have Bills of Material installed, you can delete only items, bills, and routings.

Using Oracle Engineering, you can delete all of the information types that you can delete using Oracle Inventory and BOM, but for engineering data only. In addition, you can delete engineering change order information.

Deletion Process



Deletion Process

Deleting physically removes information from the database tables. Deleted bill or routing information can be archived to database tables. (You cannot archive item-level information.) You can then write custom programs to report on the archived data. Summary information is saved for all deletion groups. You can report on deletion groups.

Several deletion constraints are installed with BOM. However, you can define custom deletion constraints. If what you are attempting to delete does not pass deletion constraints, it is not deleted. For example, you can define a constraint that prevents you from deleting a bill of material for an assembly that has an item status of active.

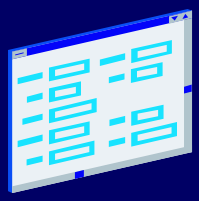
When you delete an entire bill, you delete all the components for the assembly along with their reference designators and substitute items. When you delete a routing, all operations are deleted. For both bills and routings, any links to attachments are severed.

Oracle Work in Process reflects any changes to the bills or routings using the delete functionality only if you re-explode the bill or routing in Work in Process.

Deletion Group Details

Deletion Group Details

- Engineering Deletion Group window
  - Group name, type, description, last submitted, and archive enable box.
  - Entities to delete: Details and Results tab.
    - Details
      - Item, description, organization, type, alternative
    - Results
      - Item, description, status, date



(N) Prototypes > Items > Delete Groups

(Help) Oracle Bills of Material > > Bills of Material > Deleting Items

Deletion Group Details and Results

Deletion Group Details and Results

- The Error button reviews why the deletion failed (constraints defined in setup).
- The delete Group button submits the deletion group to the concurrent manager.
- The Check Group button verifies whether any deletion constraints are violated.

Errors

Change Responsibility: (N) Oracle BOM > Delete Groups (B) Errors

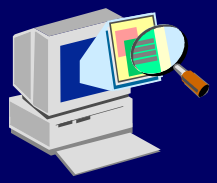
(Help) Oracle Bills of Material > Reports and Processes > Delete Items Report

For Reviewing History and Purging ECOs

For Reviewing History and Purging ECOs

How?

- By submitting a request to view information about deletion groups.
  - Selecting the request or request set to be submitted.
  - Defining a submission schedule
  - Providing completion options



Change Responsibility: (N) Oracle Bills of Material > Reports > Delete Groups

In Engineering: (N) ECOs > Delete

(Help) Oracle Bills of Material > Reports and Processes > Delete Items Report

Review Question

What is the correct deletion process?

1. Press the Check Group button and acknowledge that you deleted the correct item.
2. Archive the request, create a delete group, and then delete the item.
3. Create the delete group, add items to the group, save the delete group, check group for deletion constraints violations, and submit for deletion.
4. Create request delete group, request identifies delete constraints, and the item goes in the trash.
5. Create request delete group, archive the request, and identify the item.

Answer to Review Question

Answer to Review Question

What is the correct deletion process?

1. Press the Check Group button and acknowledge that you deleted the correct item.
2. Archive the request, create a delete group, and then delete the item.
3. Create the delete group, add items to the group, save the delete group, check group for deletion constraints violations, and submit for deletion.
4. Create request delete group, request identifies delete constraints, and the item goes in the trash.
5. Create request delete group, archive the request, and identify the item.

Review Question

Creating documents in the Documents window is much like creating an attachment in the Attachment window, but with the addition of:

1. Better functionality, saving ability, and easy of use.
2. Security, usage, and effective date information.
3. Multi tasking, help references, and visibility.
4. Windows, folders, and opening and collapsing trees.
5. Security, sequencing, and effective date information.

Answer to Review Question

Answer to Review Question

Creating documents in the Documents window is much like creating an attachment in the Attachment window, but with the addition of:

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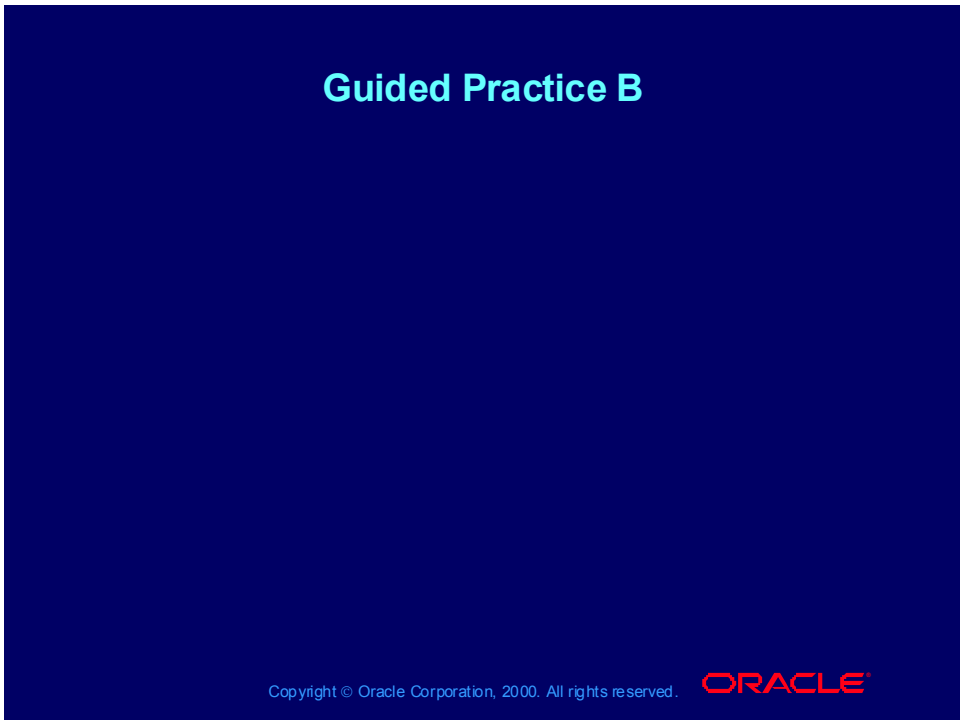
2. Security, usage, and effective date information.
3. Multi tasking, help references, and visibility.
4. Windows, folders, and opening and collapsing trees.
5. Security, sequencing, and effective date information.

Summary

Summary

In this lesson, you should have learned how to:

- Create engineering items
- Copy from item templates
- Search for engineering items
- View item information and revise item attributes
- Enable organization assignments
- Create item catalog groups
- Create cross references, relationships and documents
- Create deletion groups



1. Create a deletion group component XX3010 from subassembly XX2010 (N) Prototypes > Delete Group

1. Enter XXDELETE as the group.
2. Enter XXDELETE group as the description.
3. Select item as the type.
4. Select XX3041 as the item from the LOV.
5. The description, organization and type will default.
7. Choose the disk icon to save.

2. Check the delete group for constraint violations (seeded or user defined) (N) Prototypes > Delete Group (B) Check Group button

1. Record request number.
2. From the menu bar choose view and select requests.
3. Choose the Find button (verify that the request is completed normal) close window.
4. Re-query your deletion group.
5. Choose the Results tab and verify that the status is OK.

3. Perform the deletion (N) Prototypes > Delete Group (B) Delete Group button

1. Record request number.
2. From the menu bar choose view and select requests.
3. Choose the Find button (verify that the request is completed normal) close window.
4. In the Master Item window re-query your item and verify that it was deleted.

4. Try deleting another item that you created. Was there any deletion constraints?

R11i Creating Bills of Material

Chapter 2

Creating Bills of Material

Release 11*i*

ORACLE

Agenda

Agenda

- Using Online Help
- Overview of Bills of Material
- Creating Bills of Material
- Transferring Product Information
- Performing Mass Changes
- Summary of Bills of Material

Component Objectives

Component Objectives

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

- Create bills of material
- Copy and change bills of material
- Compare bills of material
- Transfer engineering product information to production
- Copy engineering product information to production
- Perform a mass change operation

Agenda

Agenda

- **Using Online Help**
- Overview of Bills of Material
- Creating Bills of Material
- Transferring Product Information
- Performing Mass Changes
- Summary of Bills of Material

Using Oracle Applications Help Within a Window

Using Oracle Applications Help Within a Window

Any window launched from the Oracle Navigator will link to online help. Select Help—>Window Help from the menu bar. Oracle Applications Help displays detailed information about the window you opened, including step-by-step instructions for entering information in each field in the window.

Note: The Library topic contains help for products.

ORACLE

Help Note

You can launch Oracle Help using the toolbar "?" icon only from a window that is open from the Navigator. If you launch Oracle Help from a window that is opened via the menu bar, a button, or pop up window, you will receive a http://404 - no data found error.

Searching Oracle Applications Help

Searching Oracle Applications Help

1. From any window within an Oracle Application select Help—>Window Help from the menu bar.
2. The Oracle Applications Help window is displayed.
3. Enter your search criteria, enclosed within quotation marks, in the Find field and click Find.
4. Select a topic to view detailed information.

Note: Select Search Instructions for help when searching Oracle Applications Help.

Agenda

Agenda

- Using Online Help
- **Overview of Bills of Material**
- Creating Bills of Material
- Transferring Product Information
- Performing Mass Changes
- Summary of Bills of Material

Product Overview

The Oracle engineering products are Oracle Bills of Material and Oracle Engineering.

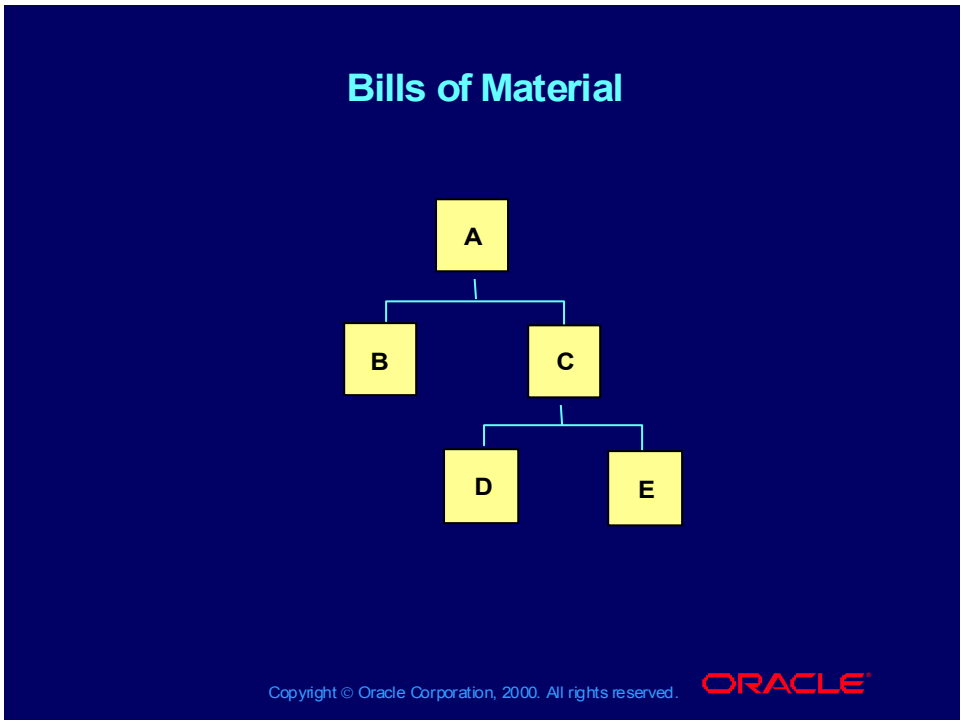
Use Oracle Bills of Material to:

- Create and maintain production bills of materials
- Create and maintain production resources, departments, routings, and lead times
- Perform mass changes
- Delete product information
- Maintain the workday calendar

Product Overview

Use Oracle Engineering to:

- Create and maintain engineering items
- Create and maintain engineering bills of materials
- Create and maintain engineering routings
- Transfer engineering product information to production
- Process engineering change orders
- Perform mass changes
- Delete product information

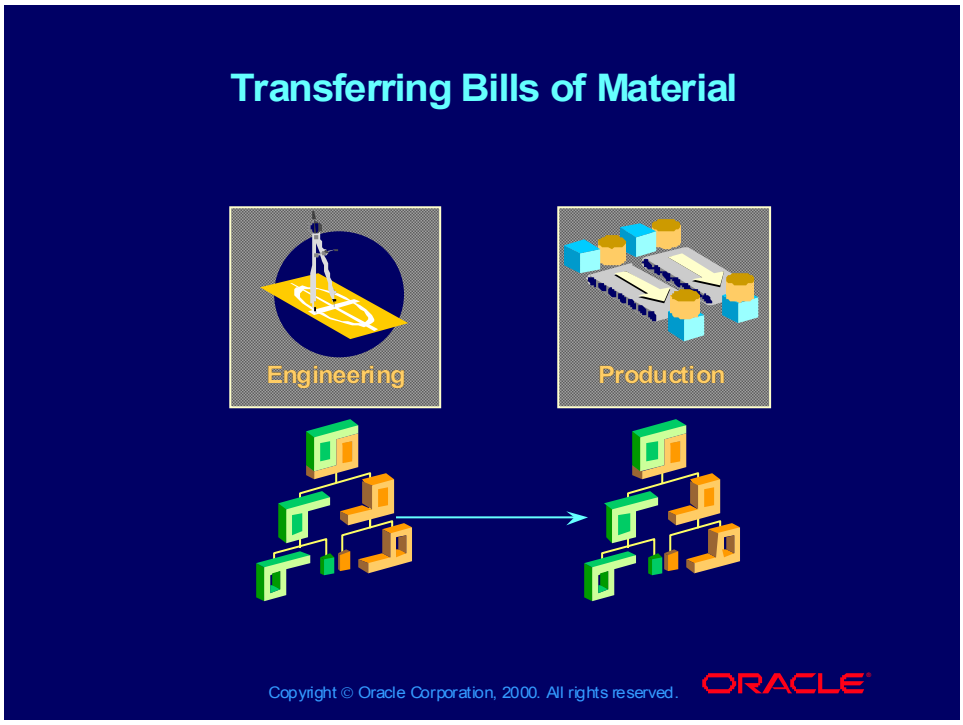


Specify Components of BOM

You use bills of material to specify the component items that you use to:

- Manufacture assemblies and subassemblies
- Configure sales orders
- Explode aggregate forecasts
- Calculate standard cost

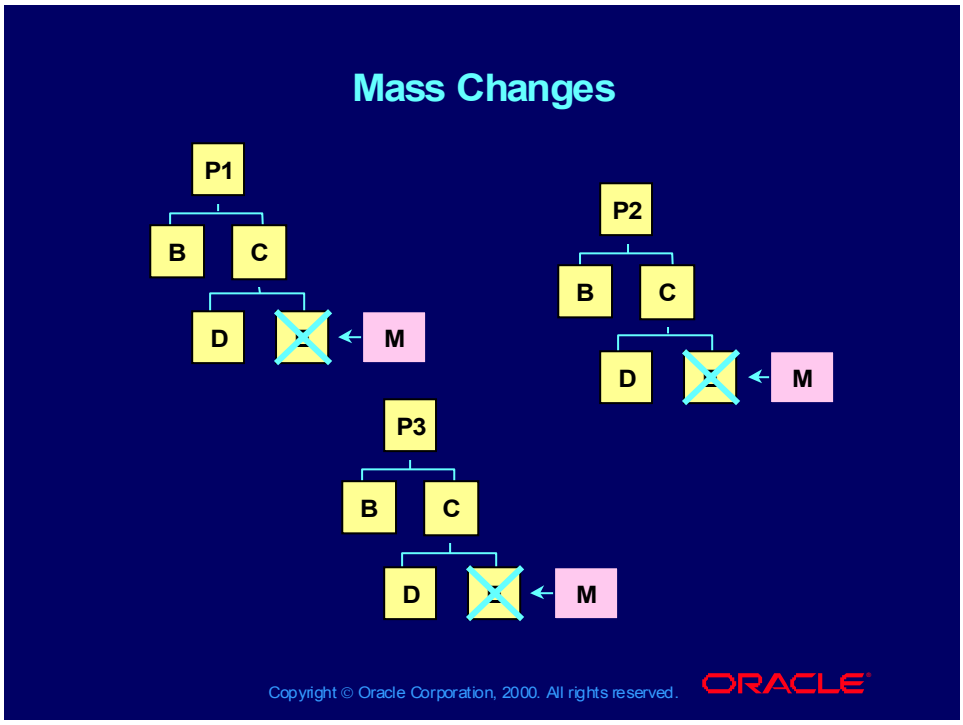
Transferring Bills of Material



Transferring Product Information

When you decide that engineering information is ready for production, you transfer the product information—items, bills of material, and routings— from engineering to manufacturing.

Mass Changes



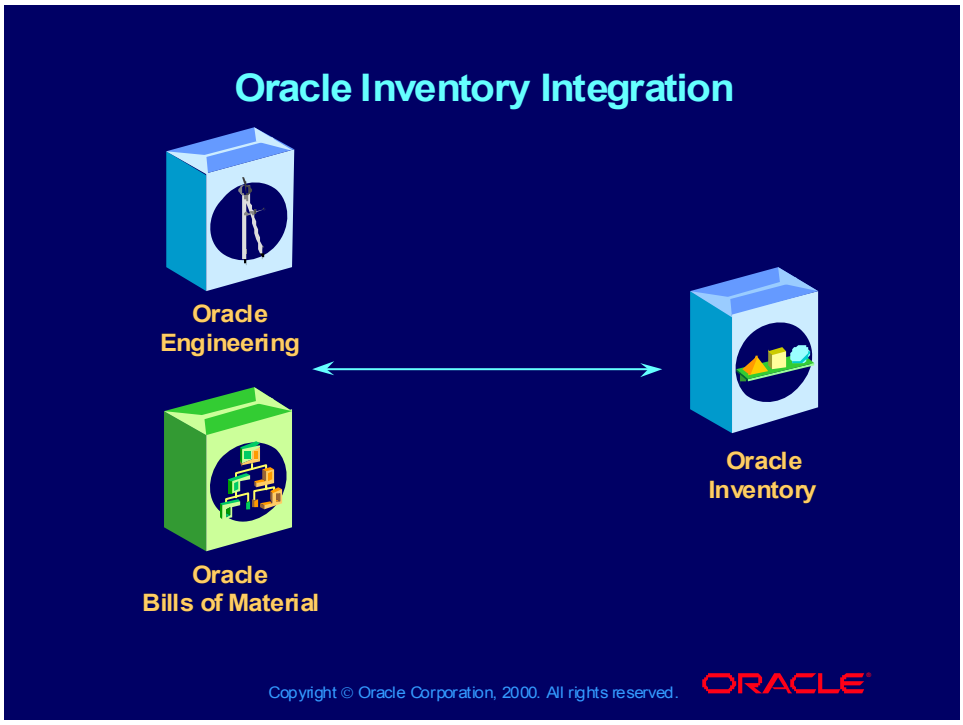
Mass Changes

Using mass changes, you can perform the same change to multiple bills of material. You cannot use the mass change functionality with routings. When you make mass changes to bills of material, you can perform the following actions:

- Change information about an existing component
- Add a component
- Replace one component with another
- Disable a component

You can search for all bills of material that contain the component that you want to change, replace, or delete.

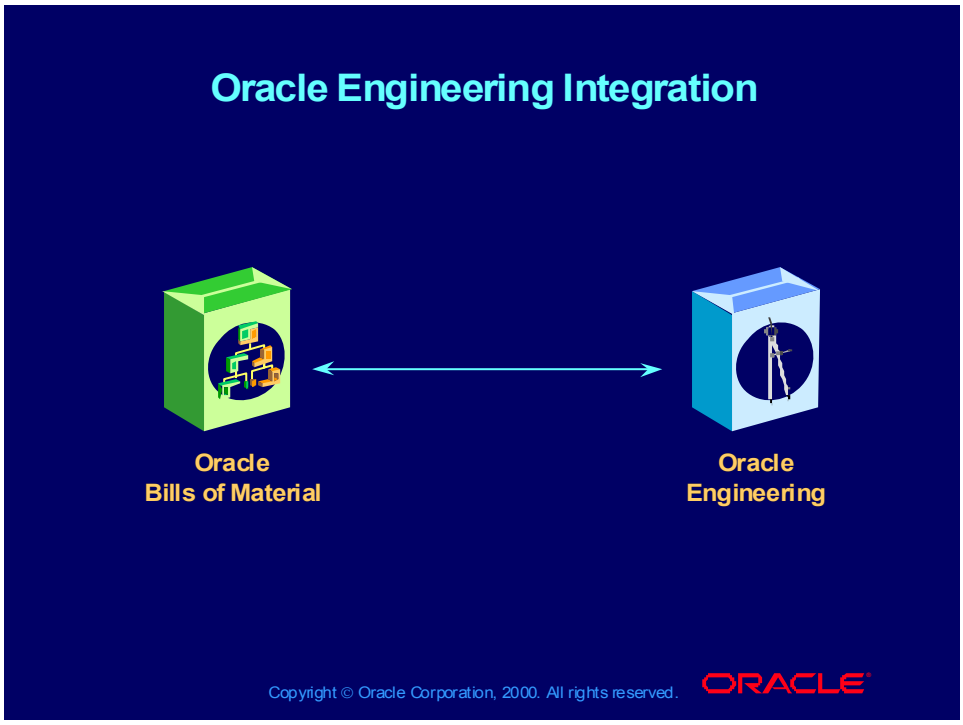
Oracle Inventory Integration



Oracle Inventory Integration

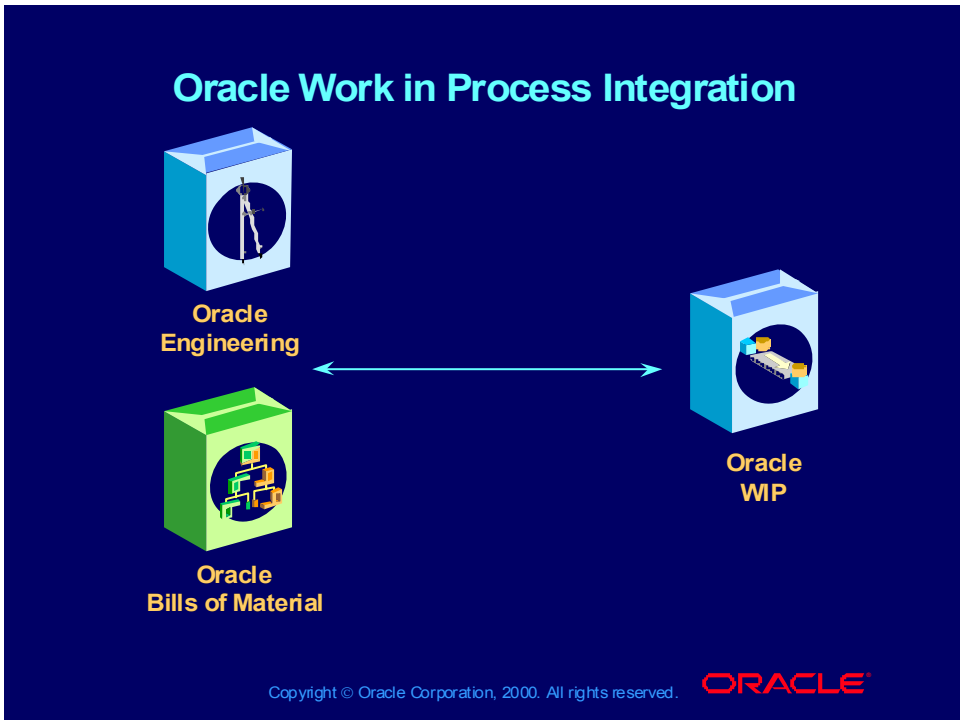
You can use items that are defined using Oracle Inventory as both assemblies and components of bills of material.

Oracle Engineering Integration



Oracle Engineering Integration

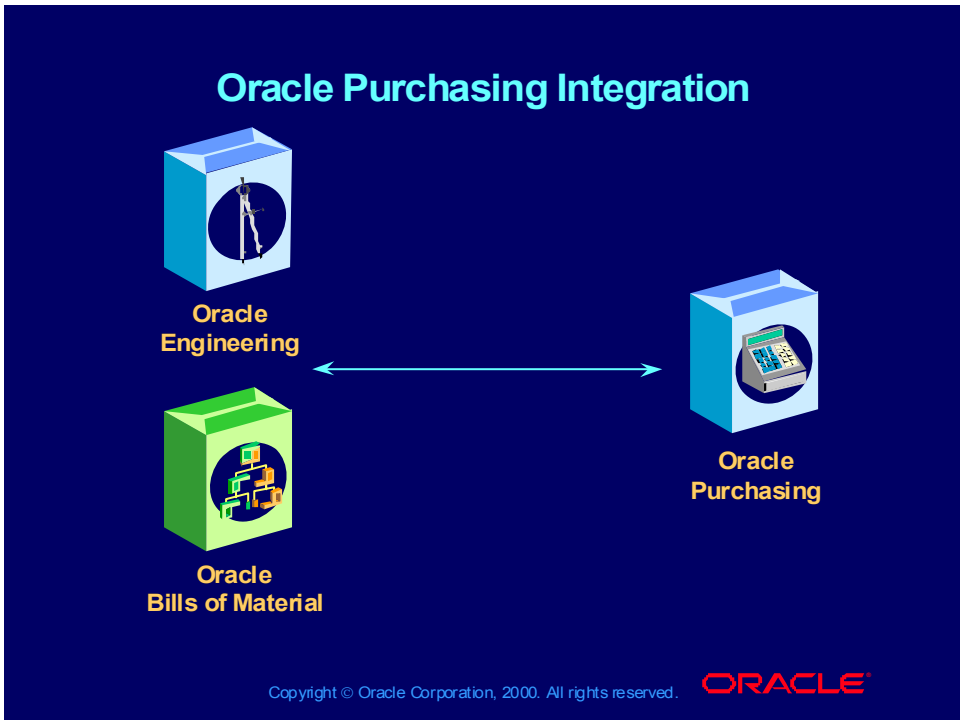
You can use items that are defined using Oracle Engineering as both assemblies and components of engineering bills of material.



Oracle Work In Process Integration

When you create discrete jobs and repetitive schedules, Oracle Work In Process bases the pick list on the bill of material of the assembly.

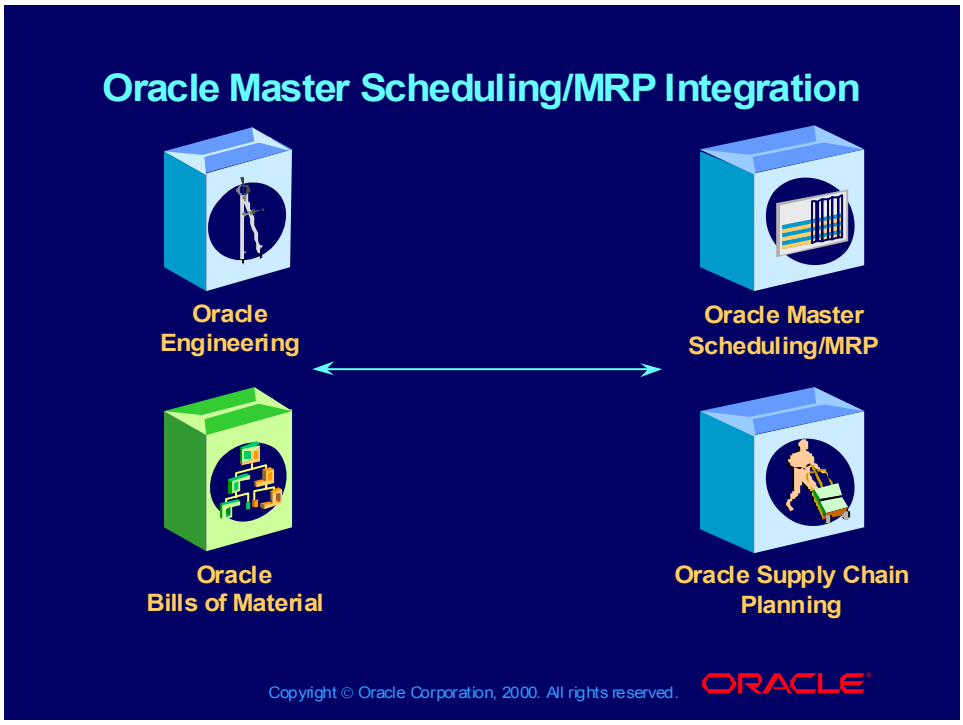
Oracle Purchasing Integration



Oracle Purchasing Integration

You can purchase engineering items.

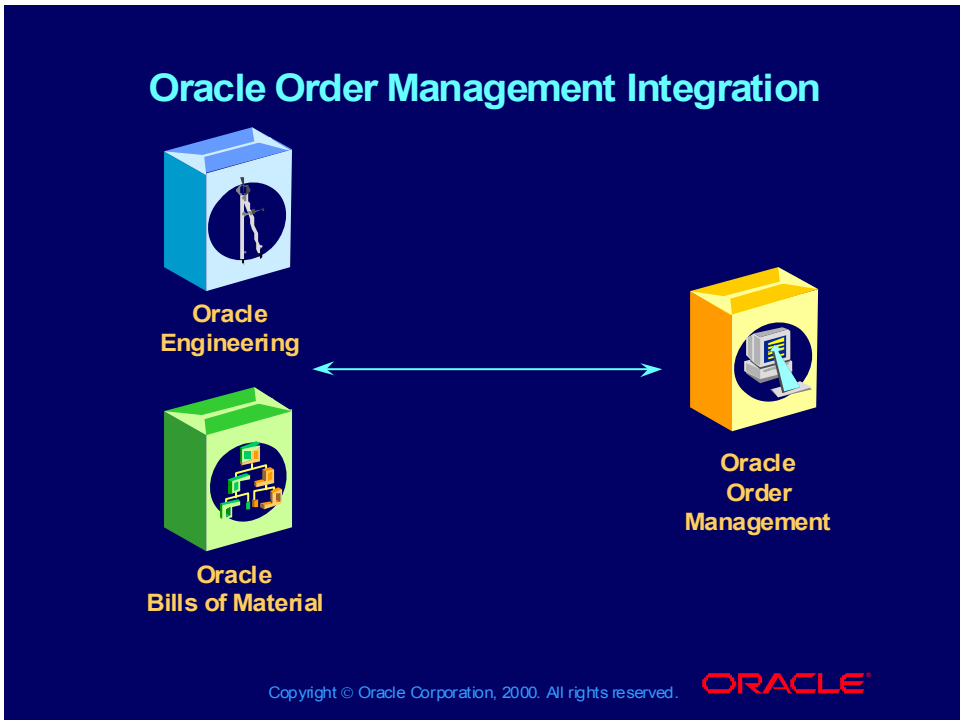
Oracle Master Scheduling/MRP Integration



Oracle Master Scheduling/MRP and Oracle Supply Chain Planning Integration

The requirements explosion passes demand from bill of material assemblies to bill of material components.

Oracle Order Management Integration



Oracle Order Management Integration

When your customer orders configure-to-order items, Oracle Order Management uses bills of material to offer choices.

The assemble-to-order processes use model and option class items and bills of material to create configured items and bills of material unique to a sales order line.

Agenda

Agenda

- Using Online Help
- Overview of Bills of Material
- **Creating Bills of Material**
- Transferring Product Information
- Performing Mass Changes
- Summary of Bills of Material

Objectives

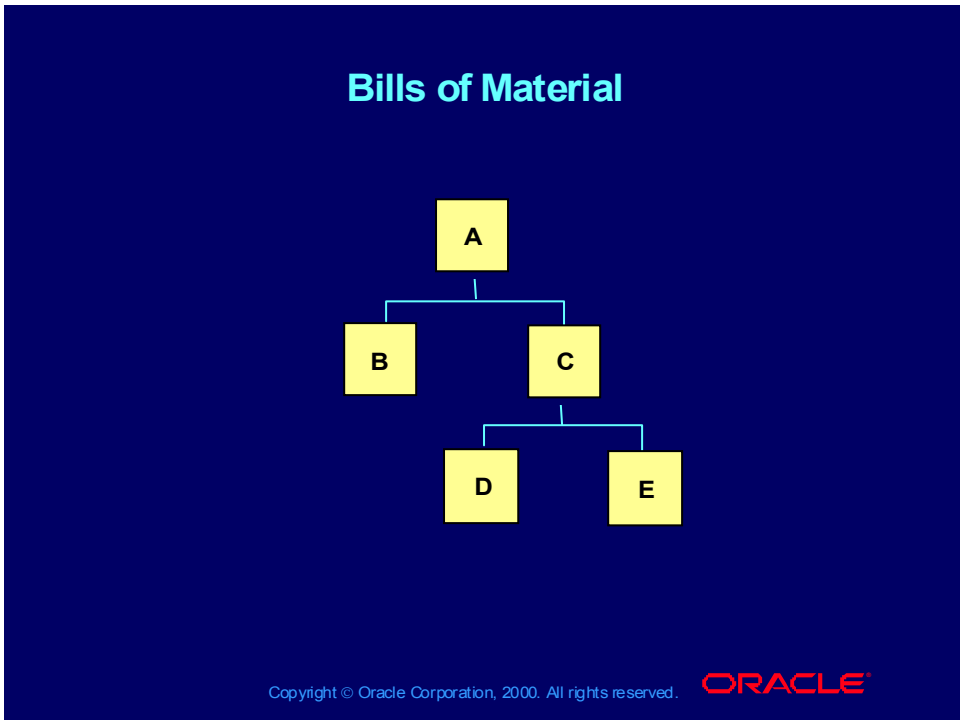
After completing this section, you should be able to do the following:

- Create bills of material
- Create alternate bills of material
- Copy bills of material
- Compare bills of material

Overview

Use bills of material to specify the component items that you use to:

- Manufacture assemblies and subassemblies (STD)
- Configure sales orders (Model)
- Explode aggregate forecasts (Planning)
- Calculate standard cost (STD)



Specify Components of BOM

You use bills of material to specify the component items that you use to:

- Manufacture assemblies and subassemblies
- Configure sales orders
- Explode aggregate forecasts
- Calculate standard cost

Engineering and Manufacturing Bills of Material

Engineering bills of material are bills of material that your engineering function creates and are not ready for production. *Manufacturing bills of material* are bills of material that you use in production. You create engineering bills of material in Engineering and you create manufacturing bills of material in Inventory. They differ only in the following ways:

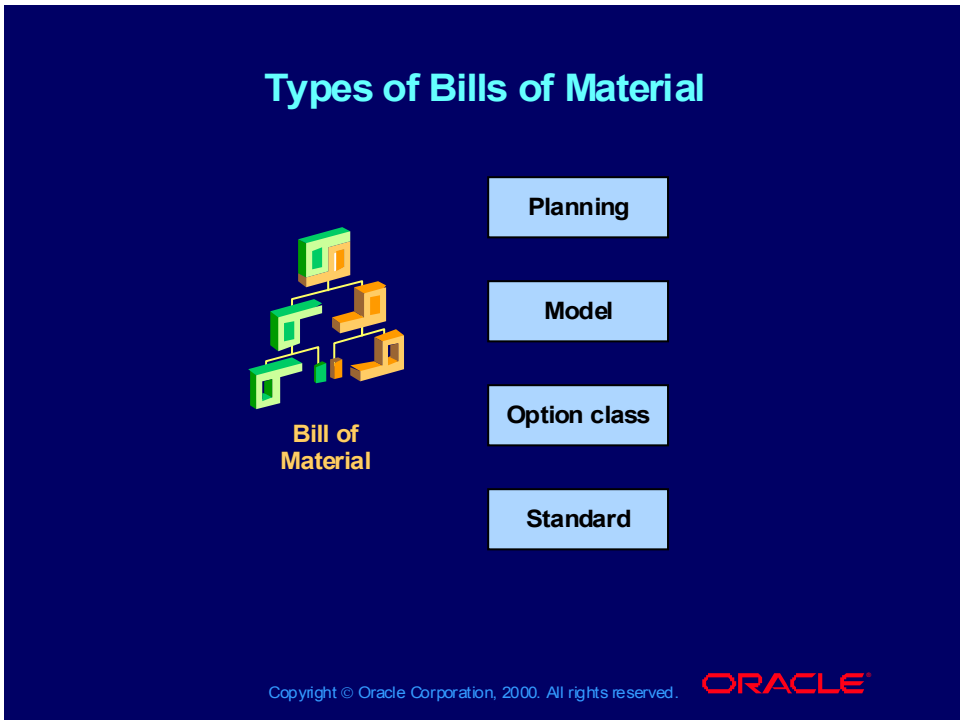
- Engineering bills of material have the check box for the bill of material attribute Engineering preselected.
- Manufacturing bills of material have not preselected the check box for the item attribute Engineering.

The forms that you use to create and change engineering and manufacturing bills of materials are identical. They differ only in the following ways:

- You access them through different navigation paths.
- They have different form titles.

- You can create and change engineering bills of material using the Oracle Engineering forms. You can create and change manufacturing bills of material using the Oracle Bills of Material forms.
- You can use engineering and manufacturing items as components in engineering bills of material. You can only use manufacturing items as components in manufacturing bills of material.
- When your engineering bills of material are ready for production, you can transfer or copy them to Oracle Bills of Material as manufacturing bills of material. When you transfer a bill of material, the engineering bill of material becomes a manufacturing bill of material. When you copy a bill of material, the engineering bill of material remains and you create a production bill of material with a different assembly item number.

Types of Bills of Material



Standard and Option Class Types of Oracle BOM

Oracle Engineering and Oracle Bills of Material use the following four types of bills of material, each of which consists of one level of components:

Standard

Use standard bills of material to specify components that you use to manufacture items. For example, you make tomato sauce from tomatoes and oil. The standard BOM will also establish standard cost.

Model

Use model bills of material to specify classes of options from which your customers can choose when ordering configurable items.

Planning

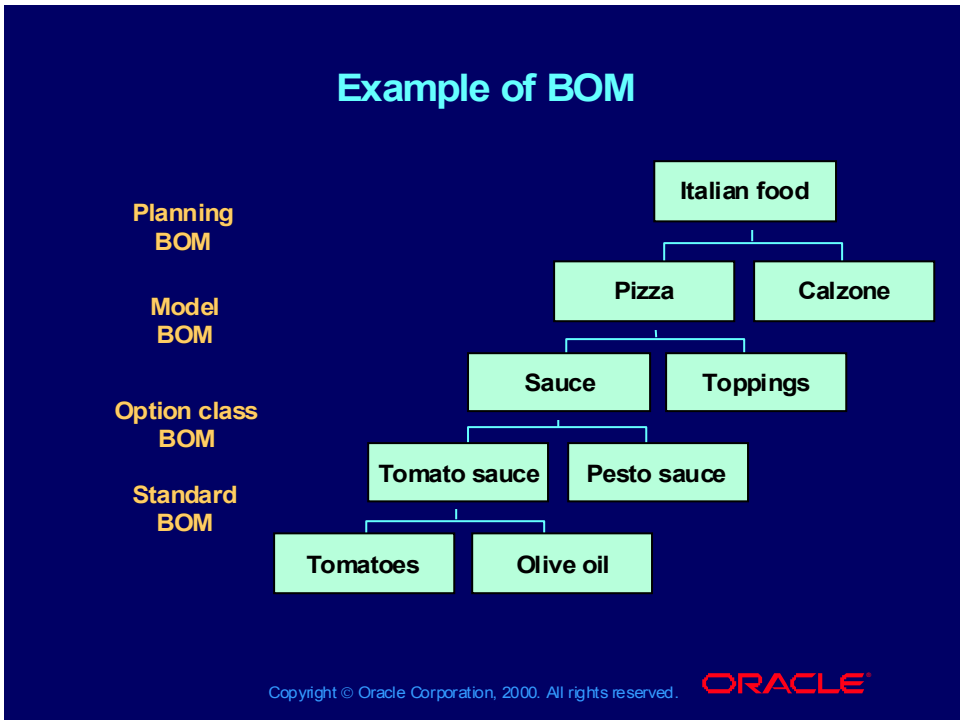
Use planning bills of material to specify items that belong to the same product line.

Option class

Use option class bills of material with model bills of material to specify families of options from which you customers can choose when ordering configurable items.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Bill of Material Types

Example of BOM

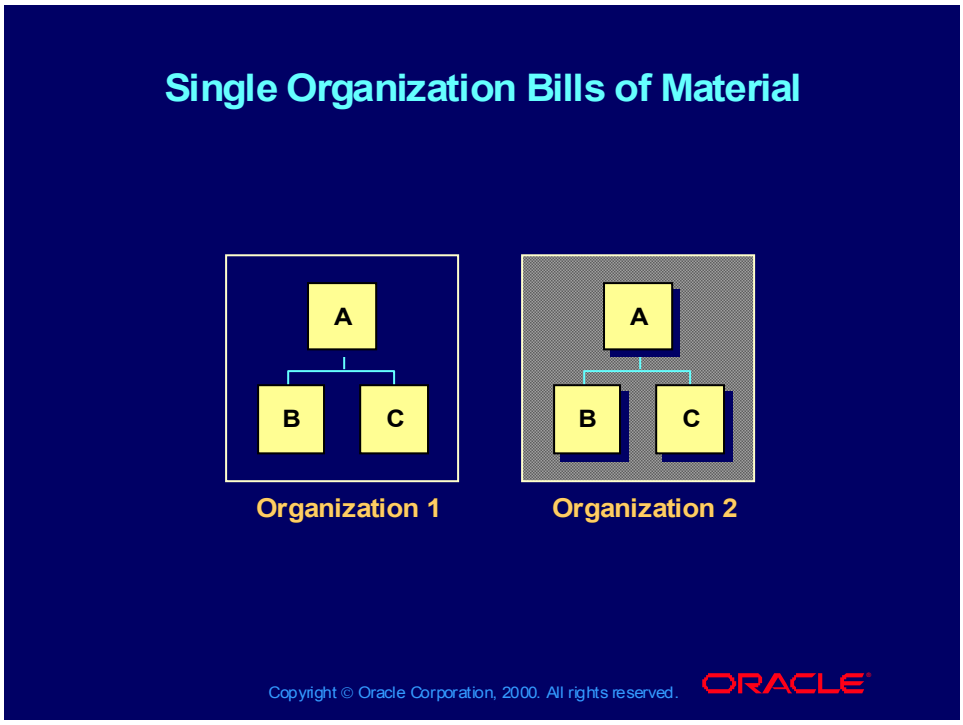


Connecting Multiple Bills of Material

The bills of material above show:

- A planning bill of material for Italian foods containing items pizza and calzone as components
- Two model bills of material for pizza and calzone (Pizza contains the option class components sauce and toppings.)
- Two option class bills of material for sauce and toppings (Sauce contains standard components tomato sauce and pesto sauce.)
- Two standard bills of material for tomato sauce and pesto sauce (Tomato sauce contains standard components tomato and oil.)

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Components



Single Organization Bills of Material

You create items in the master organization and assign them to the manufacturing and distribution organizations in which you use them.

However, you create bills of material in each organization that uses them.

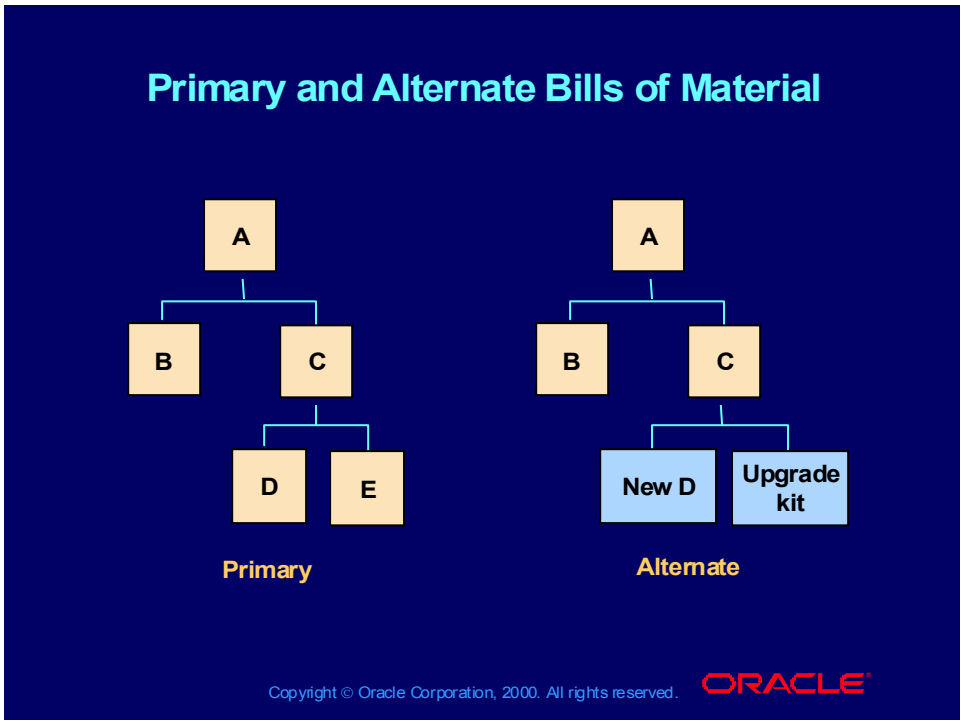
Bills of material are always and only single organization entities. You can share the bill of material or copy it across organizations.

You could

- Create a bill of material for item A in organization 1 with components item B and item C.
- Create a bill of material for item A in organization 2 with components item B and item C.

You usually create bills of material in the organization that uses them for manufacturing and use the copy bill of material or common bill of material to create them in other organizations that need them.

Primary and Alternate Bills of Material



Primary and Alternate Bills of Material

Each item that has a bill of material has a primary bill of material. If you create other bills of material for standard and planning items, you refer to them as alternate bills of material.

A primary bill is a list of the components you most frequently use to build a product.

An alternate bill is another list of components for the same basic assembly.

Do not create alternate bills of material for model and option class bills of material because you cannot choose alternate bills of material when you configure an order.

You identify each alternate bill of material by naming it. For example, you create the primary bill of material to use when you manufacture the item. Create another bill of material to use when you rework the item. Name the alternate bill of material Rework.

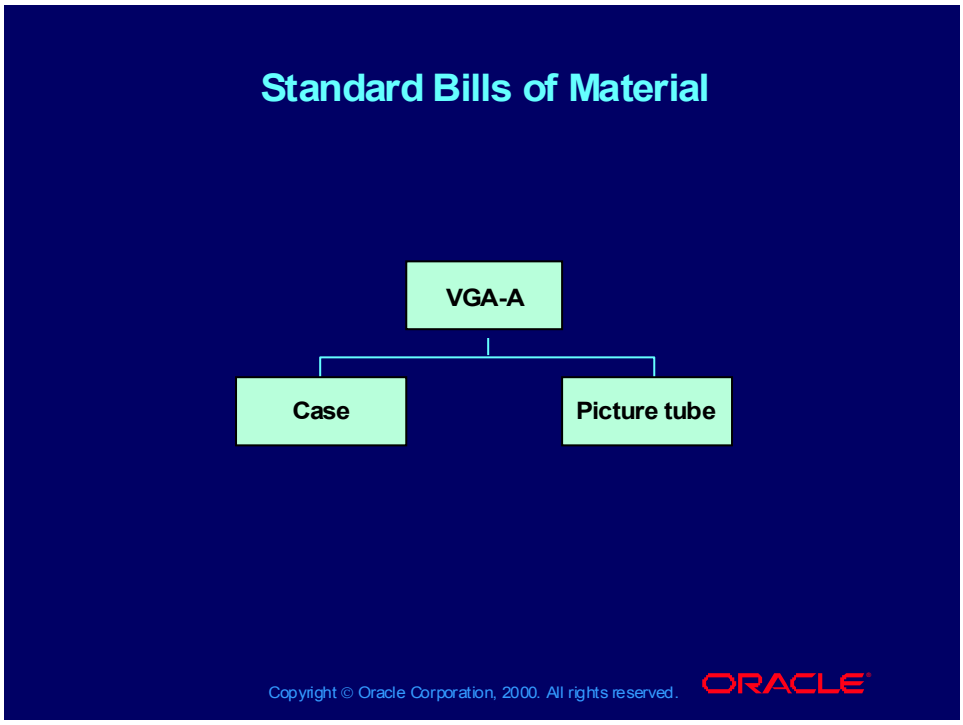
- You can create as many alternate bills of material as you need for any item.
- You must add the name of an alternate bill of material to a list before you use it.

Uses in other Oracle Applications

Other Oracle manufacturing applications use primary and alternate bills of material in the following ways:

- Oracle material planning uses the primary bill of material when it determines the amount of each item that you need. APS will use alternates to help planning when constraints are encountered.
- When setting the standard cost of a make item, Oracle Cost Management can use the primary bill of material. Costs can be rolled up from the primary or from any selected alternate (it is a roll up parameter).
- When you create discrete jobs and repetitive schedules in Oracle Work in Process, you can specify which bill of material it should use when creating the pick list. If you use an alternate bill of material, you may automatically create a variance.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Primary and Alternate Bills of Material



Creating Standard BOM

Use standard bills of material to specify the components that you use to manufacture items.

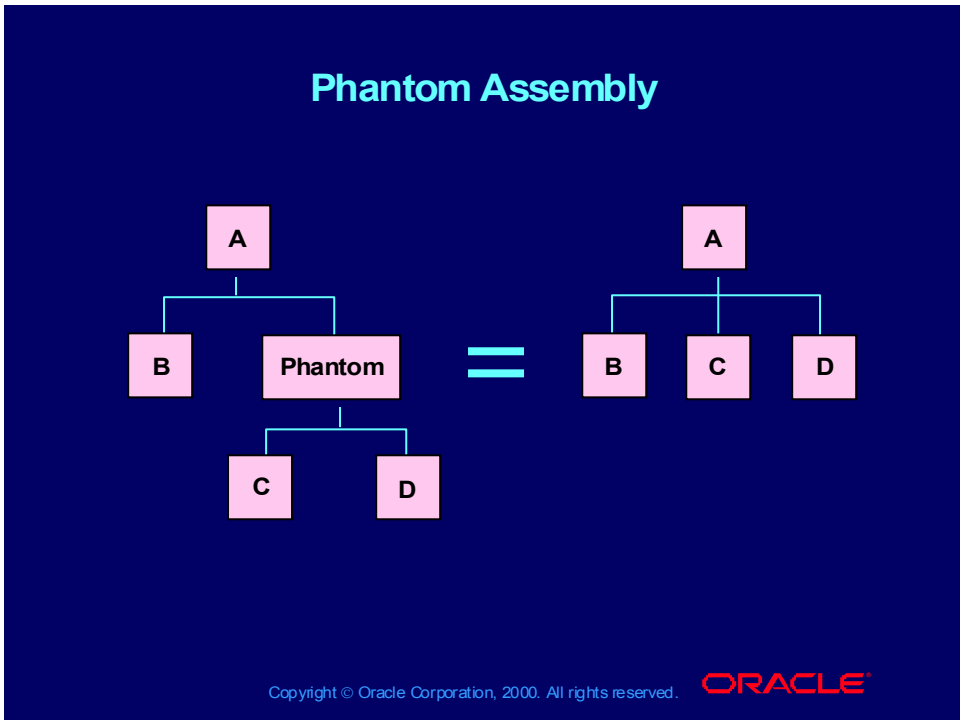
You can order standard items on customer orders and build standard items on discrete jobs and repetitive schedules. Select Customer Ordered, Customer Orders Enabled, Internal Ordered, Internal Orders Enabled, and Build WIP in item attributes.

A *kit* is a standard item that you typically do not build. You pick and ship the components when your customer orders the item. Select item attributes Customer Ordered, Customer Orders Enabled, Internal Ordered, and Internal Orders. Clear Build in WIP item attribute.

If the assembly BOM Item Type item attribute value is Standard, you can use those items with BOM Item Type item attribute value of Standard as components.

A standard bill of material is not the same as a standard operation.

Phantom Assembly



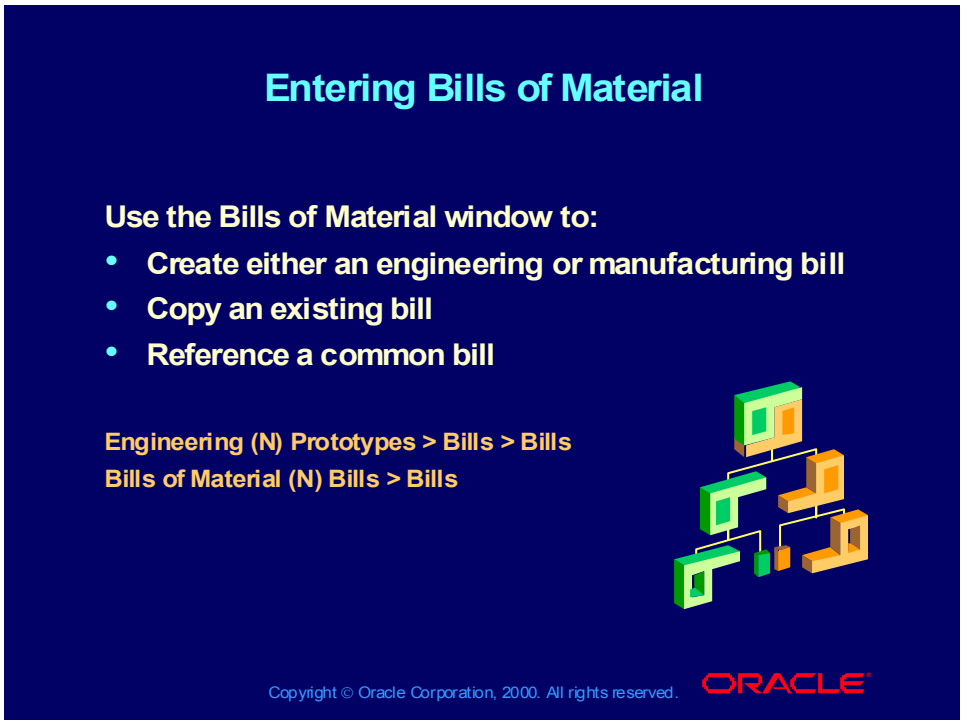
Phantom Assemblies in Bills of Material

Phantom assemblies are components in a bill of material that usually represent a nonstocked subassembly. That is, you may create the phantom assembly in the manufacturing process, but you do not hold the subassembly in inventory to use in a later manufacturing process.

Typically in Oracle applications, processes that detect a phantom assembly (for example, a discrete job pick list) ignore the phantom assembly and substitute the components for the phantom assembly. Although you may stock a phantom subassembly, processes that detect a phantom assembly do not detect its presence in inventory and continue to substitute the components for the phantom.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Phantoms

Entering Bills of Material



Entering Assembly Bill of Material Information

1. Enter the item number. The item must have its BOM Allowed item attribute selected.
2. If you are creating an alternate bill of material, enter the alternate name.
3. You must first enter alternate names in the Alternates form. If you are creating the primary bill of material, leave this field blank.
4. For model and option class bills of material, choose Elements and assign item catalog descriptive elements for the assembly.

Entering Component Bill of Material Information: Main

Item Seq: Defaults from the personal profile value BOM: Component Sequence Item Increment. The item sequence uniquely identifies each component record.

Operation Seq: The routing step in which you use the component. If the item has a primary routing, it defaults to the first routing step. If the item does not have a primary routing, it defaults to 1. Use this field if you perform material planning by operation sequence or if you want Oracle Work in Process to lower the inventory balance of discrete job and repetitive schedule components when you backflush at the completion of an operation. A routing must exist before this field can contain meaningful values.

Component: The item must have its BOM Allowed item attribute selected. Note the Item Description, Revision, and UOM.

Quantity: The amount of the component that you need to make one assembly.

Entering Component Bill of Material Information: Effectivity

Effectivity Dates From: This is the first date you use the component to make the assembly.

Effectivity Dates To: This is the last date that you will use the component to make the assembly. If you leave this field clear, you use this component to make this assembly indefinitely.

ECO: Use this field to view an engineering change order number.

Entering Component Bill of Material Information: Component Details

Yield: Use for standard bills of material. Enter the percentage by which you want Oracle Material Planning to overplan the component to account for expected loss. The number should represent the percentage of components that will survive the build process.

Include in Cost Rollup: Use for standard bills of material. Select the check box to include the material cost of this component in the standard cost of the assembly.

Entering Component Bill of Material Information: Material Control

Use the following choices with standard BOM when you want to have WIP lower the inventory balance of a discrete job and repetitive schedule.

Phantom: Use Phantom to instruct Oracle applications to substitute the components of this item, for the item when working with this item.

Push: Use when the component should be charged at the beginning of the assembly or operation. This will lower your inventory at the same time. A component that must be explicitly issued (pushed) from inventory to the discrete job (or repetitive schedule).

Operation Pull: Use if you want to decrease component inventory automatically when you complete the routing step in which you use the component. You must have indicated the backflush operation in the Operation Sequence field.

Assembly Pull: Use if you want to decrease component inventory automatically when you complete a discrete job and repetitive schedule.

Vendor: Use to indicate that you will not lower the inventory balance because your supplier will provide the material.

Bulk: Use to indicate that you will not lower the inventory balance because these are expense items.

Subinventory: Use for standard bills of material. Indicate the Subinventory from which you want Push issues to occur and from which you want Pull issues to occur. Enter a value only if you want to override the values in the component item definition.

Locator: Use for standard bills of material. Indicate the Locator from which you want Push issues to occur and from which you want Pull issues to occur. Enter this field only if you have indicated that the component is under Locator control and if you want to override the values in the component item definition.

Entering Component Bill of Material Information: Shipping

Shippable: Select this check box to indicate that the component of a configure-to-order item is shippable.

Include on Ship Docs: Select this check box to indicate that the component of configure-to-order item should show on Oracle Order Entry documents.

Required to Ship: Select this check box to indicate that you must include this component of a pick-to-order item in the first shipment of the pick-to-order item.

Required for Revenue: Select this check box to prevent invoicing for the pick-to-order item until you ship this component.

Entering Component Bill of Material Information: Comments

Enter your comments in the Comments field to describe how you use the component in the assembly.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Creating a Bill of Material

Using Substitute Components

Use the Substitute Components window to:

- Assign any number of substitute items to each bill component

Engineering (N) Prototypes > Bills > Bills (B) Substitutes
Bills of Material (N) Bills > Bills (B) Substitutes

Entering Component Bill of Material Information: Substitute Components

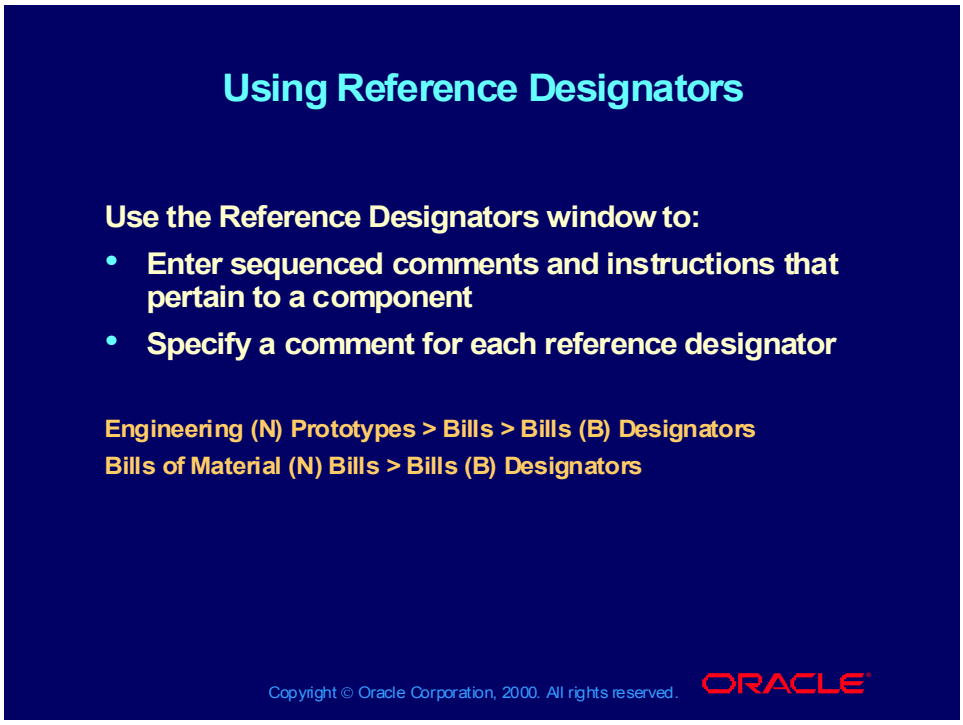
The following information is for reference and is displayed on several reports; the non-APS planning and manufacturing processes do not use the information. (APS will consider substitute components when attempting to plan around constraints).

Substitute Component: Enter the item numbers of items that can be substituted for this component.

Quantity: Enter the usage quantity of items that can be substituted for this component.

Note: Substitute items are used for reference only and are not used for planning.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Assigning Substitute Components



Using Reference Designators

Use reference designators to specify comments or instructions about how to use more than one of the same component in the same assembly. For example, the designators may refer to balloon numbers on a drawing.

Entering Component Bill of Material Information: Reference Designators

Qty Related: Select this check box to indicate that you can create only as many reference designators as the usage of the component in the assembly.

Reference Designator: Enter the reference designators or choose Add Range to create a range of reference designators automatically.

Delete Range: Select this button to delete an existing range of reference designators.

Add Range

In Oracle Engineering: (N) Prototypes—>Bills—>Bills (B) Designators—>Add Range

In Oracle Bills of Material: (N) Bills—>Bills (B) Designators—>Add Range

Adding a Range of Reference Designators

1. Enter a Prefix and a Suffix.
2. Enter the Starting Value and either the Number of Values or the Ending Value.
3. Click the Add button.

Delete Range

In Oracle Engineering: (N) Prototypes—>Bills—>Bills
(B) Designators—>Delete Range

In Oracle Bills of Material: (N) Bills—>Bills
(B) Designators—>Delete Range

Deleting a Range of Reference Designators

1. Enter a Prefix and a Suffix.
2. Enter the Starting Value and either the Number of Values or the Ending Value.
3. Click the Delete button.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Creating Reference Designators

Bill Details

Bill Details

Use the Bill Detail window to:

- **Enter a description of the bill of material or view a specific common bill of material**

Engineering (N) Prototypes > Bills > Bills (B) Bill Details

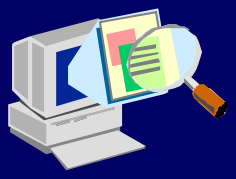
Bills of Material (N) Bills > Bills (B) Bill Details

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Creating a Bill of Material

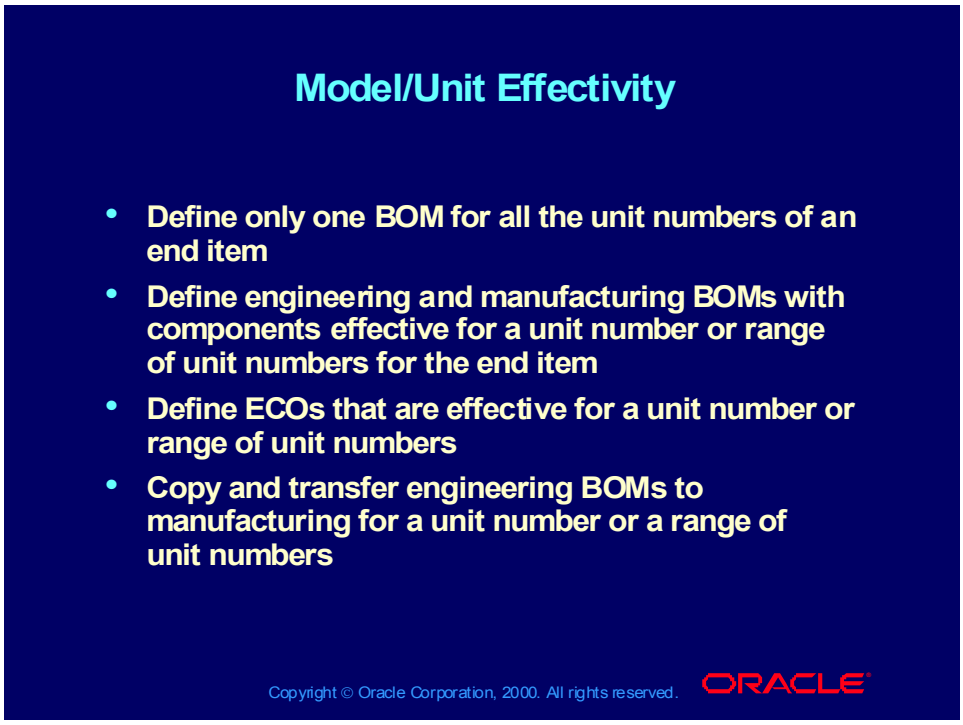
Demonstration

Demonstration

This demonstration shows you how to create a new bill of material.



Model/Unit Effectivity



Model/Unit Effectivity

Unit Effectivity is a method of defining product structure, where components are specified as effective for an end-item unit or a range of end-item units. This feature is used in a high engineering manufacturing environment such as aerospace and defense industries. Unit Effectivity is generally used for high dollar or critical assemblies. You would usually have unit effectivity at top levels of BOM and date effectivity at lower levels of BOM.

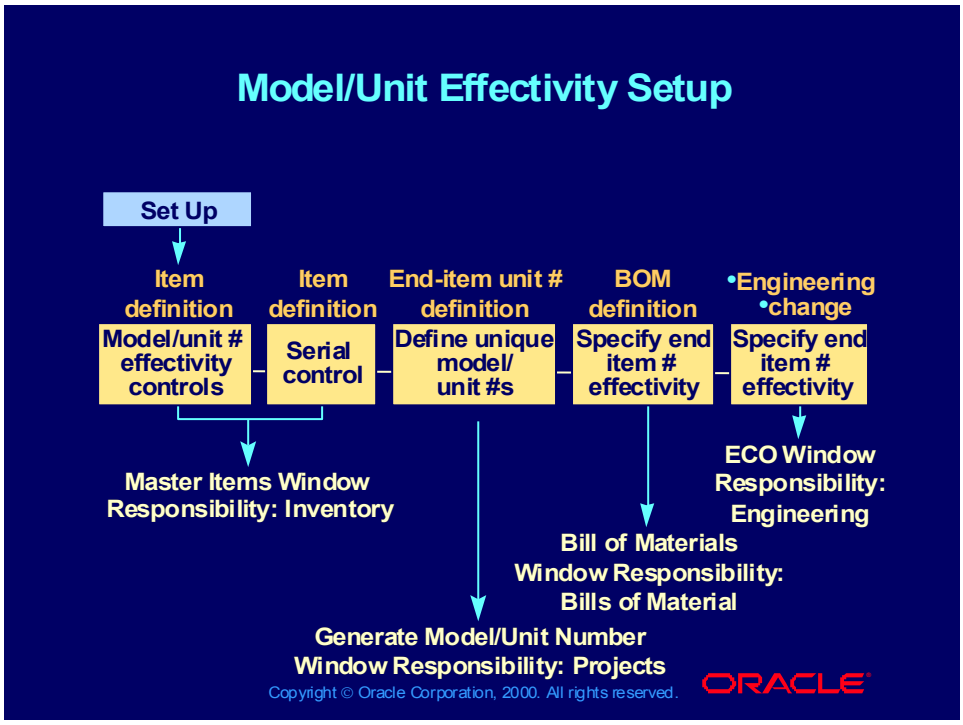
This gives your business an alternative to date effectivity. You can define, plan, and produce unit effective BOMs and implement unit-effective ECOs. In addition to date effectivity, you can now define component effectivity for a range of unit numbers. During planning and production, the system “explodes” the unit-effective BOMs based on the unit number in the demand. The system also takes unit-effective ECOs into account during these processes. For example, you can use all available components before implementing the ECO.

Note

Model/Unit Effectivity is not available unless Oracle Project Manufacturing is also installed

(Help) Oracle Manufacturing Applications >
Oracle Project Manufacturing > Model/Unit Effectivity

Model/Unit Effectivity Setup



Setup Steps for Model/Unit Effectivity

The slide shows the steps needed to set up model/unit effectivity and the responsibilities for the windows that you will use.

The item needs to be defined Serial Controlled on the Inventory page.

The item effectivity control needs to be defined Model/Unit Number on the BOM page.

Implementing Considerations for Model/Unit Effectivity

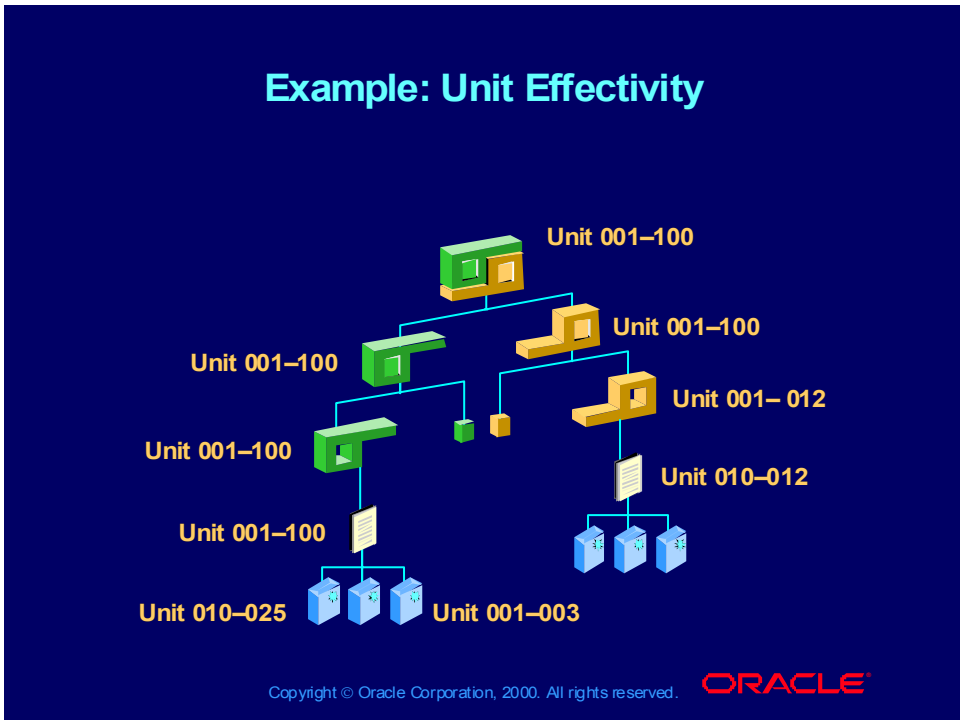
You should ask the following questions to decide whether to implement model/unit effectivity.

- Does your business need to track your production by unit or date effectivity?
- Does your business need to plan, procure, or store by unit number?

When you plan by unit number, you are restricted to the master demand schedule MDS and the MDS creates demand for the material requirement plan (MRP). You can manually change the MDS if necessary. Forecasts are not permitted for a model/unit effectivity item.

(Help) Oracle Manufacturing Applications >
Oracle Project Manufacturing > Model/Unit Effectivity >
Generating Model/Unit Numbers

Example: Unit Effectivity



Model/Unit Effectivity

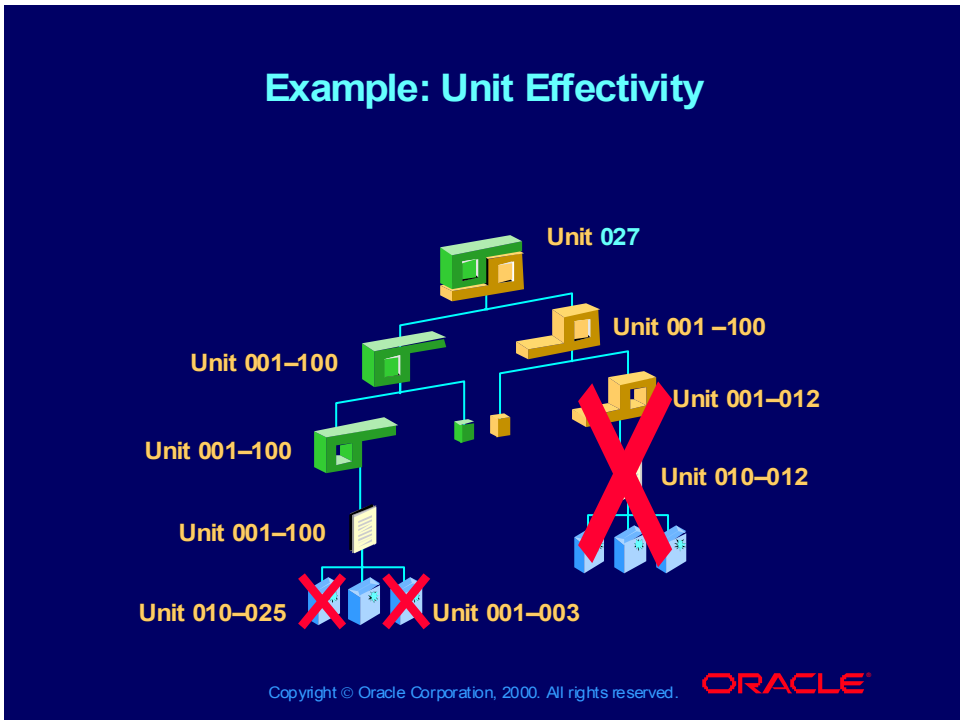
Unit Effectivity introduces the concept of bills that are effective by an end-item unit number, as opposed to an effectivity by date. This example shows a unit-effective BOM (for simplicity we did not include date-effective components). The next slides illustrate the effectivity for certain unit numbers.

When defining a unit-effective BOM, you can have components with date effectivity and unit effectivity. When defining a date-effective BOM all components must be date effective; you cannot have components with unit effectivity.

If your parent has model/unit effectivity, you can have date- and unit-effective child components. If your parent has date effectivity, you can only have date-effective child components; you cannot have unit-effective child components.

(Help) Oracle Manufacturing Applications >
Oracle Project Manufacturing > Model/Unit Effectivity >
Model/Unit Effectivity - An Example

Example: Unit Effectivity



Model/Unit Effectivity: Unit 027

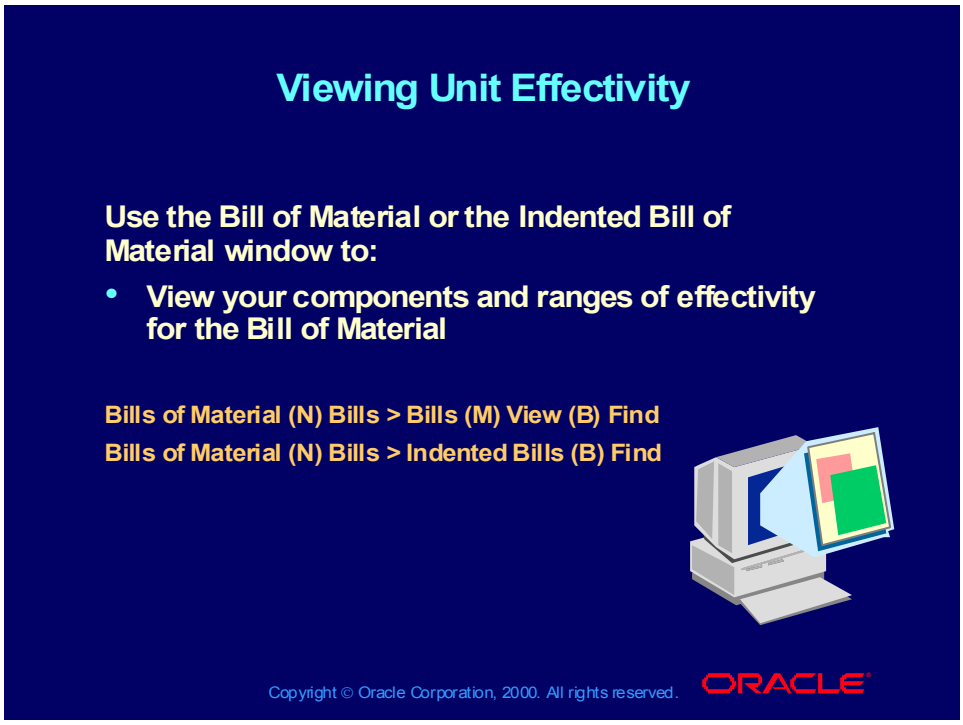
This example shows the requirements to build Unit 027. You can see that the components blocked out are the components needed for units 010–025, units 010–003, and units 001–012. All other components are needed to build Unit 027.

Model/unit effectivity allows discrete control over product structure change and less additions of a part numbers, as well as separating product structure from the schedule.

Note: You should still follow the “form/fit/function” rules that you have set up for your business needs.

The model/unit effectivity feature requires that you have Oracle Project Manufacturing installed, and it should be used in project-oriented manufacturing and with low-volume schedules. This feature can also be used by nonproject-oriented manufacturing, but you will still need to have Oracle Project Manufacturing installed in order to use the feature.

Viewing Unit Effectivity



Bills of Material: Effectivity

Use this window to view your components and ranges of effectivity for the BOM. This example shows you one level of the BOM and the new tab, Unit Effectivity.

You can have a quantity of more than 1pc for each unit. You would specify quantity on the sales order. Each quantity requires a unique serial number.

Indented Bills of Material: Effectivity

Use this window to look at your indented BOMs. The new tab, Unit Effectivity, shows you the effectivity control for each component in the family tree and either the date or model/unit From and To values that you have designated for that component.

Practice 1-1 Overview

Practice 1-1 Overview

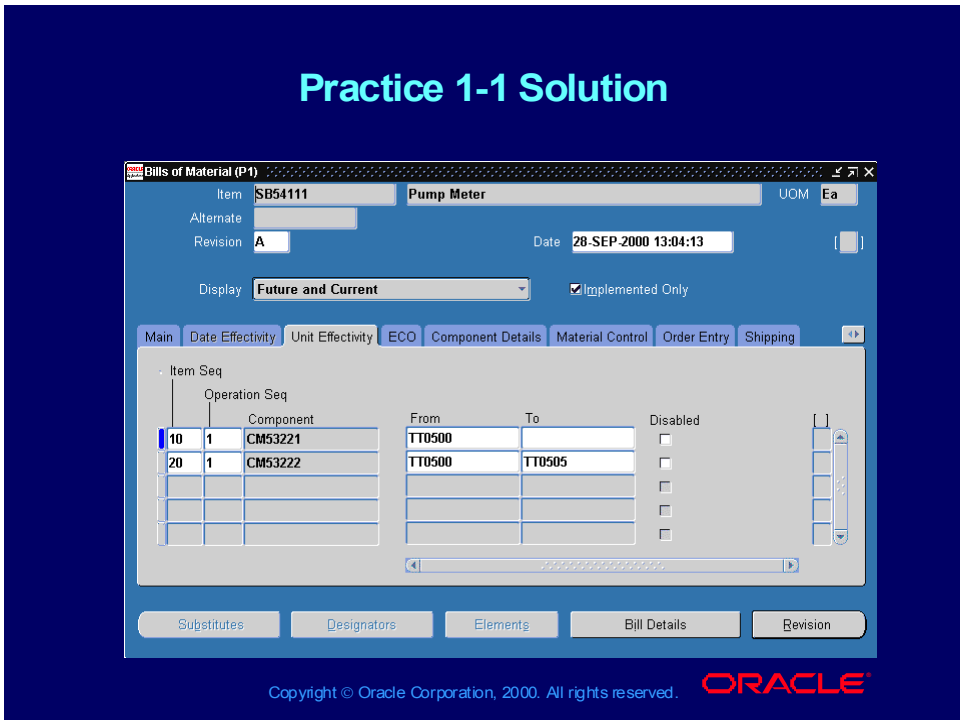
This practice covers the following topics:

- Reviewing a BOM that is model/unit effective
- Viewing the effective components for each unit

Practice 1-1

This practice allows you to view a Bill of Material that has model/unit effectivity set up.

1. Find BOM number SB54111 in the organization P1 Atlanta.
2. Go to the Unit Effectivity information and review which components will be used for each unit.



Practice 1-1 Solution

Part 1

Find BOM number SB54111 in the organization P1 Atlanta.

(N) Bill of Material: Bills—>Bills

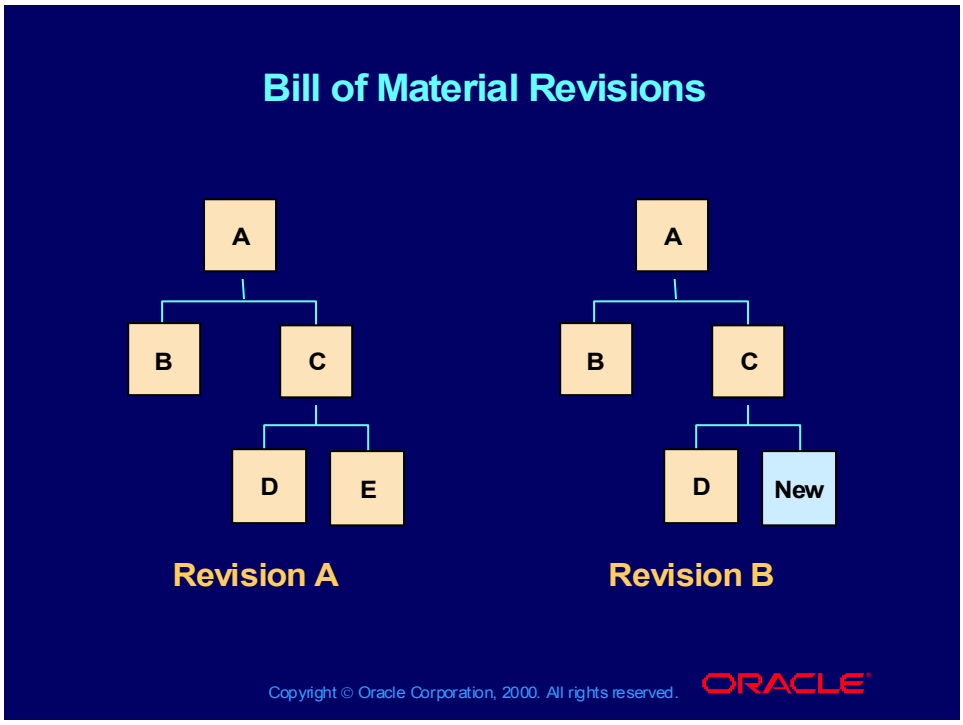
1. To find the bill of material for the Pump Meter, choose View, then Find. Type in Item SB54111 and click the Find button.

Part 2

Go to the Unit Effectivity information and review which components will be used for each unit.

1. Click on the Unit Effectivity tab to review the information.

Bill of Material Revisions



Bills of Material: Revisions

A *bill of material revision* is an item revision and might indicate that the components of an item have changed. You do not have to use item revisions when you change bills of material, however, in some industries; it is best to create a new item revision when you change a bill of material. Oracle Engineering and Oracle Bills of Material date stamp and time stamp all changes that you make to bills of material, whether or not you identify the change by increasing the revision.

The bill of material revision is the same as the item revision. There is no separate bill of material revision.

Item Revisions

Item Revisions

Use the Item Revisions window to:

- Define an item revision by entering a revision identifier and effective date

Engineering (N) Prototypes > Bills > Bills (B) Revision
Bills of Material (N) Bills > Bills (B) Revision

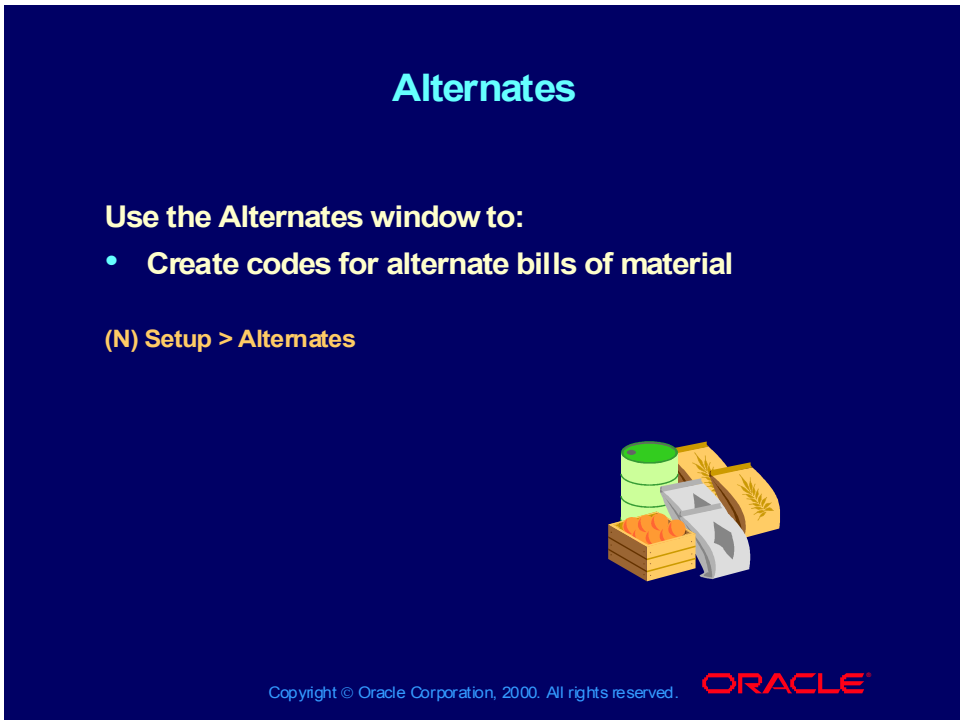
Entering Item Revisions

Revision: Enter a new Revision Identifier. You can use up to three alphanumeric characters.

Effective Date: Enter the date the revision becomes effective.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Defining Item Revisions

Alternates



Alternates

Use this form to create codes for alternate bills of material and for alternate routings.

An alternate bill describes an alternate list of component items that produce an assembly.

You can use an alternate code for as many item numbers as you want. You can use the same alternate code for both a bill of material and a routing for the same assembly.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Setting Up > Creating Alternates

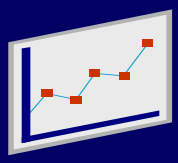
Adding Attachments

Adding Attachments

Use the Attachments window to:

- **Add attachments to the bill of material**

Engineering (N) Prototypes > Bills > Bills (M) View > Attachments
Bills of Material (N) Bills > Bills (M) View > Attachments



(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Attaching Files

Changing Attachments

Changing Attachments

Use the Bill Documents window to:

- **Create and change bill of material attachments**

Engineering (N) Prototypes > Bills > Documents
Bills of Material (N) Bills > Documents

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Defining Bill or Routing Operation Documents

Document Management Integration

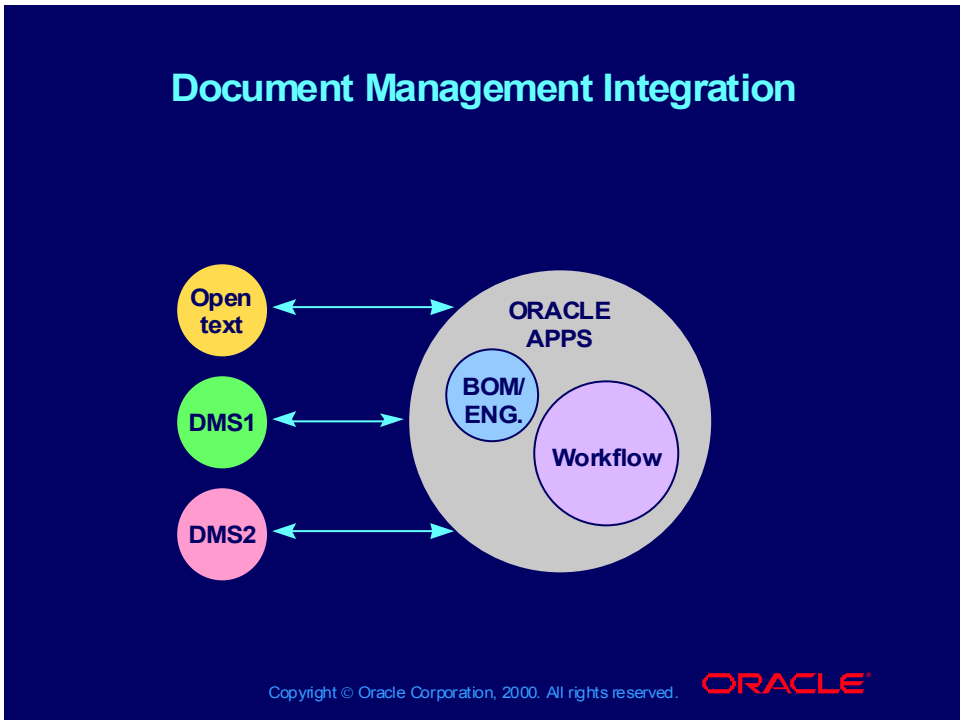
- Complements existing "attachment" feature
- Bridges the gap between product design and production processes
- Allows engineering-controlled document versions to be attached to items, ECOs, and BOMs
- Integrates with third party systems to:
  - Capture and manage "unstructured" product information
  - Document vaulting capabilities: Register, check-in, check-out, secured access
  - Version control and history tracking
  - Document viewing

Features of Document Management Integration

The Document Management Integration feature enables you to reference formal engineering-controlled document versions to items, engineering change orders (ECOs), and bills of material (BOMs). This feature is organization specific.

Product information management has long been considered critical in managing product design and changes in many industries, including automotive, utilities, aerospace, and defense. With release 11*i*, Oracle Engineering offers a suite of capabilities aimed at bridging the gap between product design and production process.

For more information reference the *Oracle Workflow User's Guide Release 11i*.

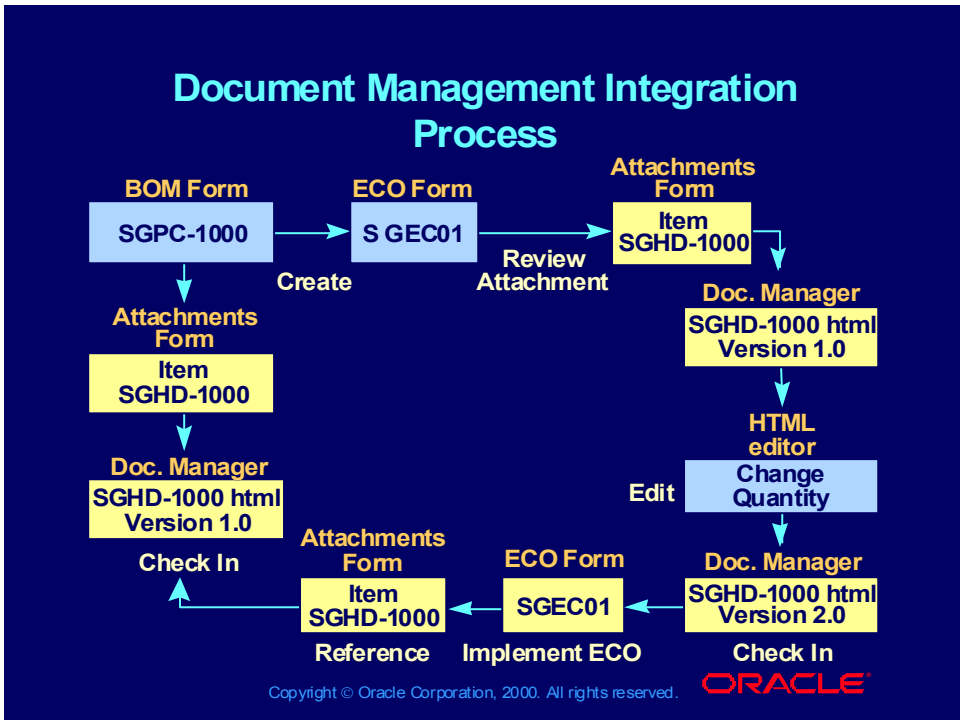


Document Management Integration

Oracle Document Management Integration supports multiple document vaults. It is integrated with Oracle's Workflow and Internet documents. These Internet documents will change to Oracle 8*i* File Server (FS) format. This integration works with third-party data management systems (DMS), for example open text.

This feature is organization specific and cannot be used for information between organizations.

The document management process will take advantage of any of your seeded or created workflows.



Document Management Integration Process

The flow diagram above depicts a sample business flow for a typical ECO process. This business flow illustrates a number of the key integration points between Oracle Applications and document management systems. The following steps are the processes involved with an ECO in the example above.

Create a BOM #5000 with SGPC-1000 as the final assembly product.

Reference a new file SGHD-1000.pdf to BOM item SGHD-1000 identified in BOM #5000. Check file into document management system.

Create ECO SGECO1 to change the quantity of item SGHD-1000 from the existing quantity of 1 each to 2 each.

Modify Mark-up Specification Document SGHD-1000.html to reflect the quantity change. Check in and update the new version of document.

Attach the Marked-up Document to ECO SGECO1 and Modified (new version) document to item SGHD-1000.

Attach document SGECO1.html to a report for the changes made. Oracle Engineering updates the BOM and implements the ECO.

Notify individuals using Oracle Workflow Notification that SGECO1 has been implemented with the changes that were made.

ECO Business Flow

One of the keys to the success of the integration between applications and document management is utilization of native user interface APIs that are provided by the document management tools. This includes functions such as searching for a document using keyword and content searches, moving documents between folders, looking at the metadata that defines a document, and so on.

Additionally, you can use the document management functionality to capture and manage “unstructured” product information.

Reference New Documents

You can reference a local file stored on your file system as a new document. Once registered, the document can now be managed by the document management system. You can also use folders to navigate through and organize your documentation.

View Documents

You can view documents in a number of formats supported by the underlying document management system.

Display Document History

You can also view a document’s history and status information, for example, the document’s number, state, and size, and whether it is locked and if so by whom.

Copy Documents

You can copy a document and place it on your local file system without locking it. This facilitates concurrent storing of up-to-date product information.

Check Out Documents

You can also lock documents so that no other user can check in new versions while you hold the lock. Using this feature, you can create a copy of the document on your local file system.

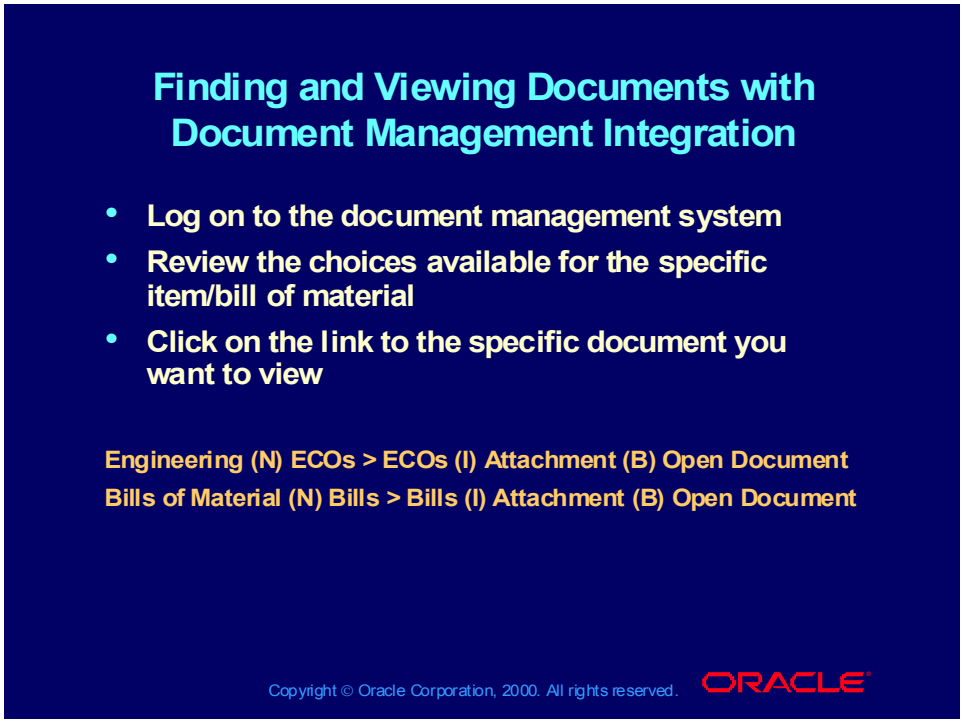
Check In Documents

You can move a new version of a document from your local system into a vault controlled by the document management system, and then release your lock on it. This feature is also supported for compound documents.

View Document Properties

You can view a variety of document properties that define the document and its status.

Finding and Viewing Documents with Document Management Integration



Finding Documents with Document Management Integration

The Document Management Integration feature complements the existing attachment feature, where attachments are a "static" source of information. You can use this feature to capture unstructured, engineering-controlled, document versions to items, ECOs, and BOMs.

When you click the Data Type tab and select Document Reference, a screen opens for you to log on to the document management system (not shown). After logging in you see the choices available for the specific item/BOM, as well as a variety of icons available for activities in the document management system. These choices are detailed in *Oracle Workflow User's Guide Release 11i*.

When you add a new reference, and select the Data Type field for Document Reference, a caution window opens asking if your document downloaded properly. You do not answer this question at this time. When you have finished all document activities and close the document management system, you click either Yes or No.

Viewing Specific Documents

Click on the link to the specific document you want to view.

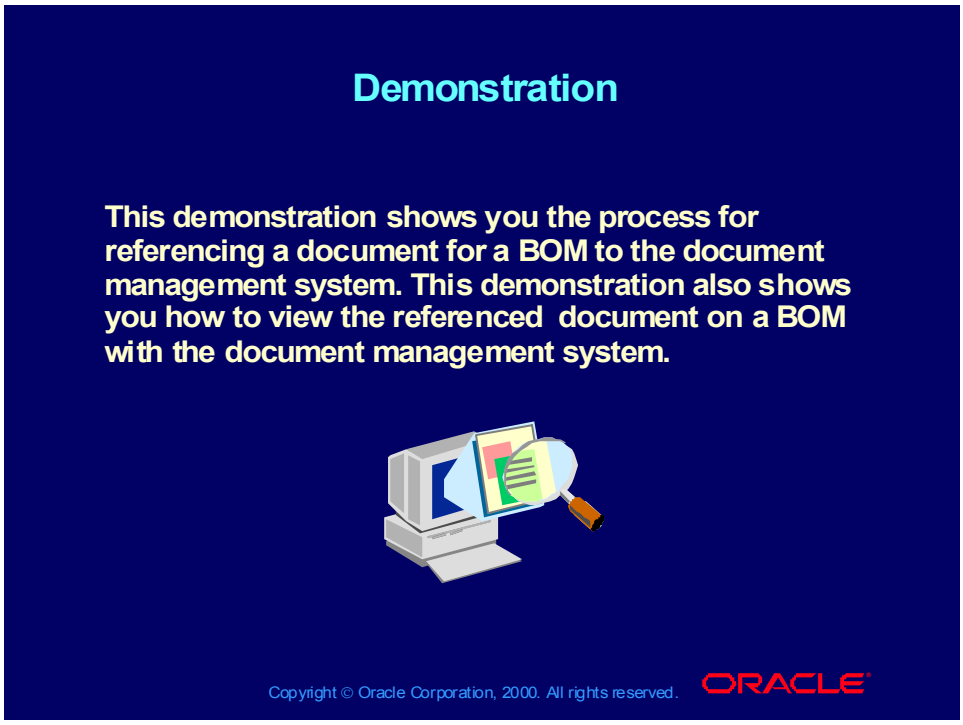
The Document Management Integration feature supports multiple document vaults within Oracle Engineering and BOM. You can use this navigation path to view third-party document management vendors through any browser that you have set up in your organization.

Setup and Implementation Considerations

The Document Management Integration feature integrates with the Oracle Workflow product and does not have any specific setup or implementation considerations in the Oracle Engineering and Bills of Material application.

You can review a complete set of Oracle Workflow setup and implementation steps for the document management system in the *Oracle Workflow User's Guide Release 11i*.

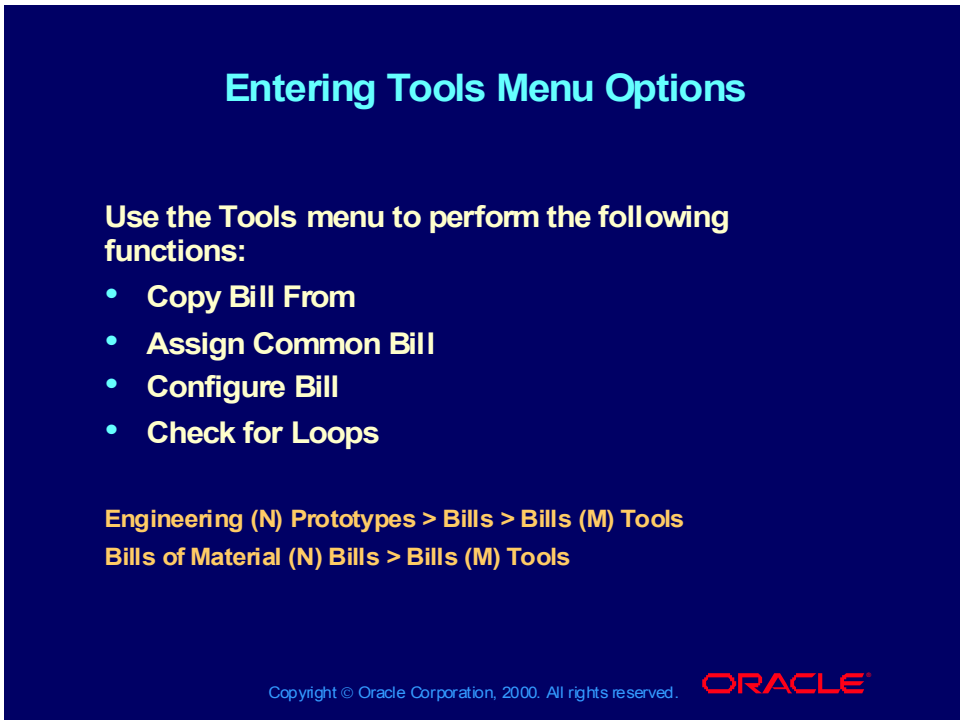
Demonstration



Document Management Demonstration Script

1. Find the BOM for item number SB10299.
2. Click on the Attachments icon.
3. Select Document Reference from list of values in the file Type field.
4. A dialog box is displayed stating the following: “Has the file been uploaded successfully?” Do not click either the “Yes or No” buttons. A browser window will be launched.
5. Enter a username and password for Livelink.
6. Click the Add Item icon.
7. Enter the name of the document: Item Spec.
8. Enter a description for the document: Item SB10299 specifications.
9. Select the file you want to add by clicking on the Browse button or directly entering the path where the file is located on your machine.
10. Select the Enterprise container in the Create In field. It should have defaulted automatically; if not, click the Browse Livelink button to select the container.
11. Click the Add Item button.
12. The document will be referenced on the BOM SB10299 and now can be checked in and out from the document management system.

Entering Tools Menu Options



Tools Menu Options

Use the Tools menu to perform the following functions:

Copy Bill From: Use to copy components of another assembly to this assembly.

Assign Common Bill: Use to reference the components of another assembly as the components of this assembly.

Configure Bill: Use to launch the ATO processes.

Check for Loops: Use to check for bill of material loops in the multilevel bill of material for this assembly.

Rollup Costs: Use to calculate the cost of this assembly.

Rollup Lead Times: Use to calculate the lead times for this assembly.

Indented Bills: Use to view the multilevel bill of material for this assembly.

Item Where Used: Use to view assemblies which contain the specified component.

Bill Compare: Use to compare the components of two bills of material.

Routings: Use to enter or view the routing for this assembly.

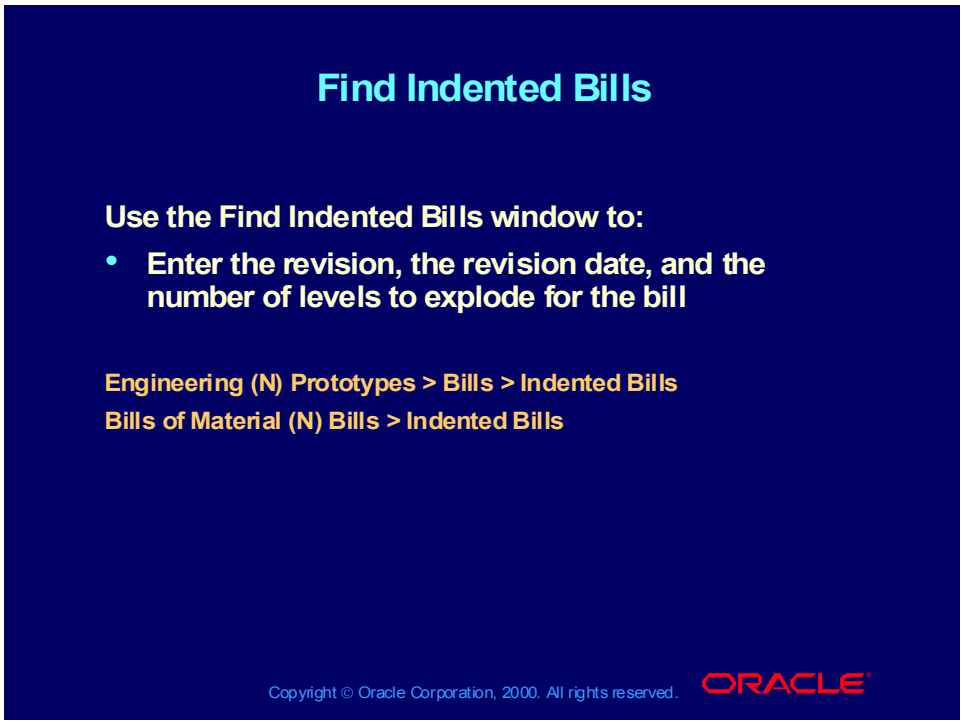
Find ECO Schedules: Use to view engineering change orders.

View On-Hand Balances: Use to view inventory balances.

Item Details: Use to view item information.

Item Costs: Use to view item costs.

Find Indented Bills



Find Indented Bills

Use this form to enter parameter information you want to view on an indented bill of material.

- Enter the revision, the revision date, and the number of levels to explode for the bill
- Select a Display option: All, Current, or Future and Current components effective as of the revision date you specify
- Select a sort option for each level of the bill, by operation sequence then item sequence, or item sequence then operation sequence
- Indicate whether to see costing information, and if so, enter the cost type

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Viewing an Indented Bill of Material

Indented Bills of Material

Use the Indented Bill of Material window to:

- **Display the structure of a manufacturing or engineering item**

Engineering (N) Prototypes > Bills > Indented Bills (B) Find
Bills of Material (N) Bills > Indented Bills (B) Find

Viewing Indented Bills of Material

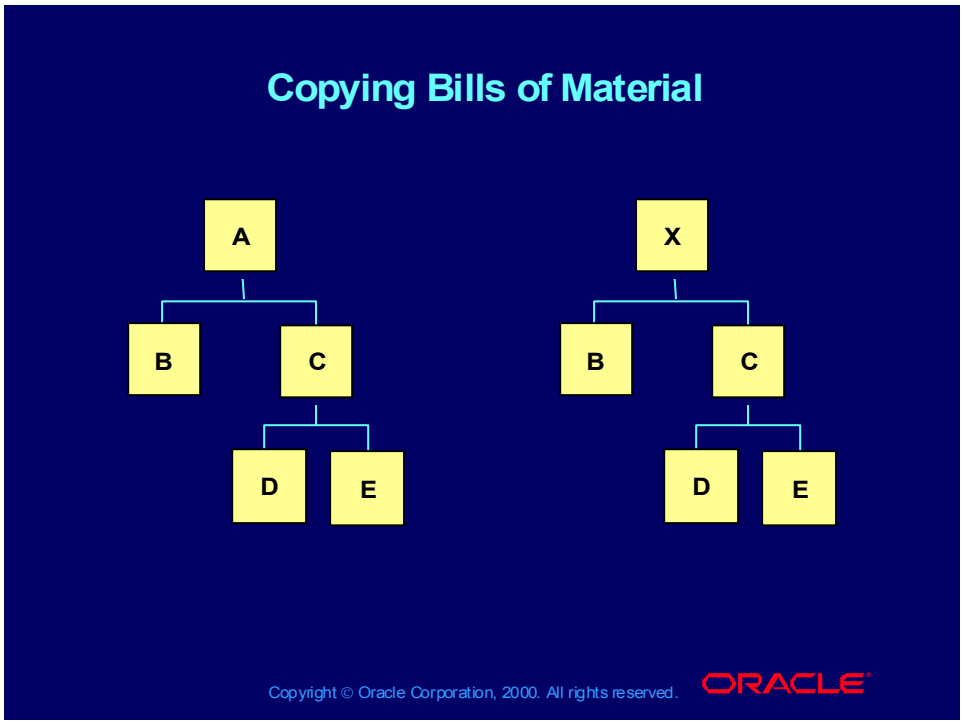
Use this form to view an indented bill of material. An indented bill of material is a bill of material that is exploded through many lower levels. You can choose the number of lower levels that you want to see—up to 60—both by setting the personal profile value BOM: Default Bill of Material Levels and by choosing a value when you request the indented bill of material.

Item numbers preceded by a plus sign (+) have components; double-click the Item number to view the components.

If lower-level components already appear, a minus sign (-) precedes their assembly item number. To remove the components from view, double-click the item number or click the double minus sign "--" icon.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Viewing an Indented Bill of Material

Copying Bills of Material



Using the Copying Feature

You can save time when you create bills of material by using the Copy feature. Several of the items that you manufacture, sell, or plan have similar bills of material. If you want to create similar, alternate bills of material for an item, you use the Copy Bills of Material feature.

You create a bill of material by copying from these areas:

- The same or a different item number.
- The primary or an alternate bill for that item number.
- The same or a different organization.

The item from which you copy retains its components. The item to which you copy contains the same components as the item from which you copy.

You can change anything on the copied bill of material except the item number.

The assembly and components must exist in the organization from which you are copying. After you copy, the two bills of material are no longer related. If you change one bill of material, you will not see the same change in the other bill of material. Once you create a copied bill of material, you must use the Bill of Material Delete function to delete it.

Copy Bill

Copy Bill

Use the Copy Bill window to:

- Copy a bill from your current organization or from another organization that shares your same item master organization
- Copy any revision of a primary or alternate bill
- Modify your new bill as necessary

Engineering (N) Prototypes > Bills > Bills (M) Tools > Copy Bill From

Bills of Material (N) Bills > Bills (M) Tools > Copy Bill From

Copy Bill

Enter the organization, item number, alternate designator, and revision or date of the item whose components you want to copy as components of this item.

Note

In Oracle Engineering: (N) Prototypes—>Bills—>Bills
(M) Tools—>Copy Bill from… (B) Copy—>Save

In Oracle Bills of Material: (N) Bills—>Bills
(M) Tools—>Copy Bill from… (B) Copy—>Save

Review the results of the copy to verify copy success.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material >
Bills of Material > Defining a Bill of Material >
Copying Bill and Routing Information

Finding Bills to Compare

Finding Bills to Compare

Use the Find Bills to Compare window to:

- Enter selection criteria for Bill 1 and Bill 2
- Check comparison criteria check boxes for the attributes to compare the bills on

Engineering (N) Prototypes > Bills > Comparison
Bills of Material (N) Bills > Comparison

Find Bills to Compare

Use this form to enter information about two bills of material that you want to compare.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Comparing Bills of Material

Comparing Bill Components

Comparing Bill Components

Use the Bill Components Comparison window to:

- **Compare any two bills. For example, compare the primary to an alternate bill, the same bill across organizations, or the current revision of an item to a future revision**

Engineering (N) Prototypes > Bills > Comparison (B) Compare
Bills of Material (N) Bills > Comparison (B) Compare

Bill Components Comparison

Use this form to view information about the components of two bills of material. Refer to the selected column “1” or column “2” values to determine which components appear in each bill of material.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Comparing Bills of Material

Requesting Bills of Material Comparison Report

Use the Report Bill of Material Comparison window to:

- Request a report comparing two bills of material

(N) Reports > Comparison

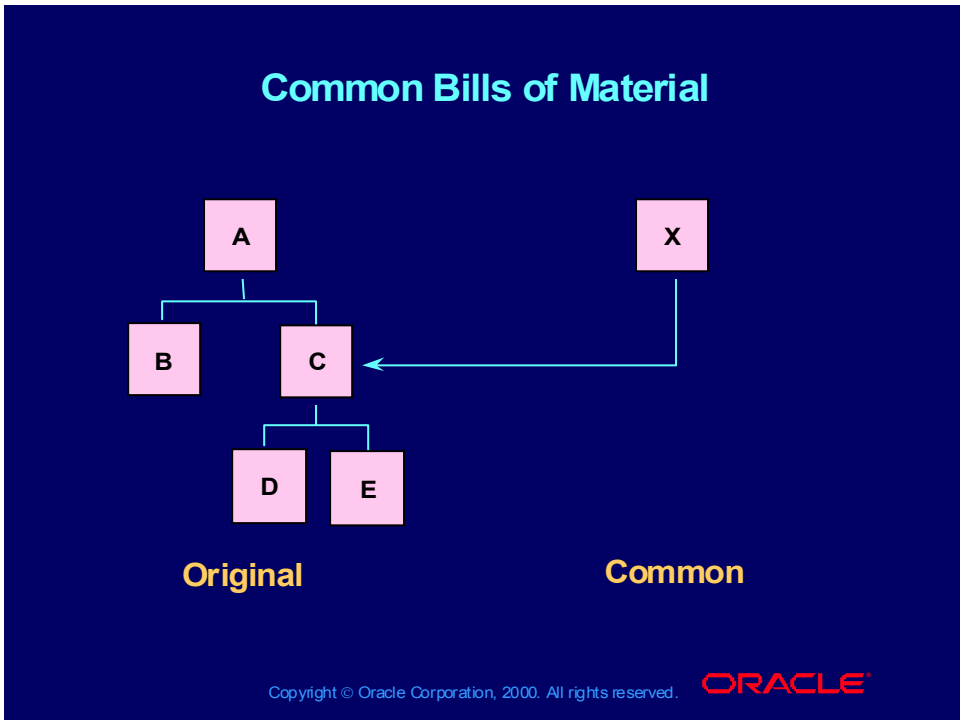
Requesting Bills of Material Comparison Report

In Oracle Engineering and Oracle Bills of Material:

(N) Reports—>Comparison

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Reports and Processes

../ Bill of Material Comparison Report



When to Use Common Bills of Material

If you need to have identical bills of material for the same item in more than one organization or use separate items in the same organization, use the Common Bills of Material feature. You create a Common Bills of Material by referencing these areas:

- The same or a different item number
- The primary or an alternate bill for that item number
- The same or a different organization

The item that you reference contains the components. The item that is referencing does not contain components; it contains a link to the referenced item and organization bill of material. Any function that uses or views the bill of material for the referencing item will use or view the bill of material of the referenced item.

When you use common bills of material, you lose the ability to make organization-specific bill of material changes.

You cannot change anything on the bill of material for the item that is referencing; it has no components.

If the bill of material of the referenced item has been changed and then you use or view the bill of material for the item that is referencing, you will use or view the new components of the referenced item.

The assembly and components must exist in the organization from which you are making the reference.

Common Bill

Use the Common Bill window to:

- Share bills of material that exist in your manufacturing organizations with your item master organization

Engineering (N) Prototypes > Bills > Bills (M) Tools > Assign Common Bill

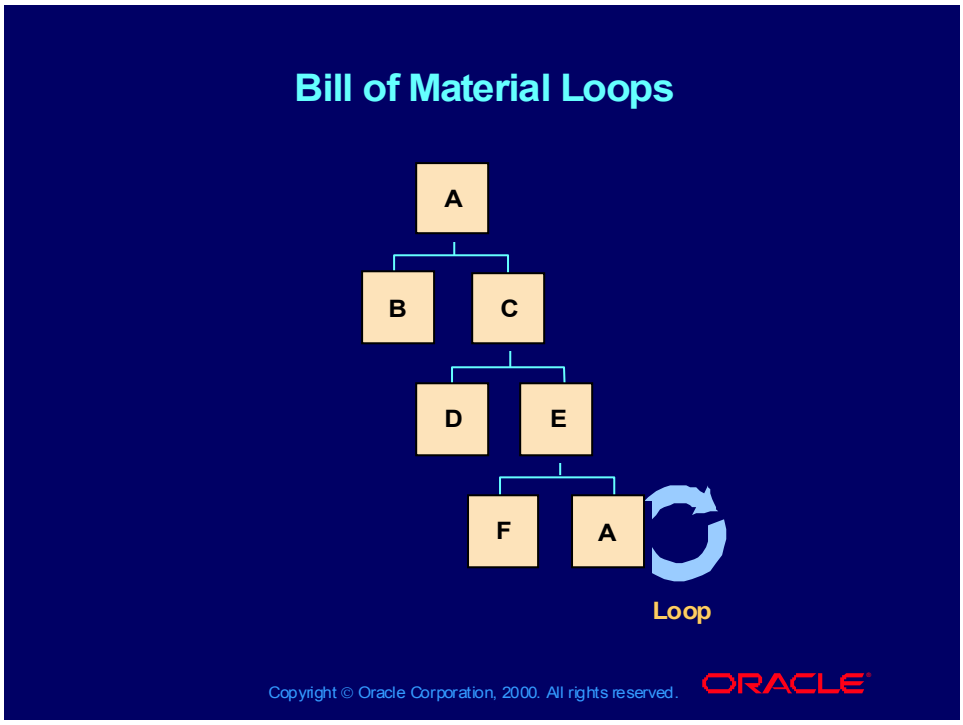
Bills of Material (N) Bills > Bills (M) Tools > Assign Common Bill

Assigning Common Bill

Enter the organization, item number, and alternate designator of the item whose components you want to reference as components of this item.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Referencing Common Bills and Routings

Bill of Material Loops



Checking for Bill of Material Loops

In Oracle Engineering: (N) Prototypes—>Bills—>Bills (M) Tools—>Check for Loops

In Oracle Bills of Material: (N) Bills—>Bills (M) Tools—>Check for Loops

Review the note and correct any bill of material loops that the loop check reports.

A *bill of material loop* is a situation in which a multilevel bill of material contains the same item as the top assembly and as a component. Because you create multilevel bills of material one level at a time, you can inadvertently create a bill of material loop. Processes that detect a bill of material loop usually fail entirely or refuse to process the multilevel bill of material containing the loop.

You can detect bill of material loops by taking these actions:

- Request the Check for Loops concurrent process.
- Wait for a concurrent process that uses bills of material to fail entirely or refuses to process the multilevel bill of material containing the loop.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Checking for Bill Loops

Requesting Bills of Material Reports

Requesting Bills of Material Reports

Use the Engineering Bill Reports or Bill of Material Reports window to:

- **Request reports showing bill of material information**

(N) Reports > Bills

Reports

In Oracle Engineering and Oracle Bills of Material: (N) Reports—>Bills

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Reports and Processes

../ Bill of Material Comparison Report
../ Bill of Material Listing Report
../ Bill of Material Loop Report
../ Bill of Material Structure Report
../ Bills of Material Parameters Report
../ Consolidated Bill of Material Report

Finding Item WhereUsed

Finding Item WhereUsed

Use the Find Item WhereUsed window to:

- **Enter the item, the revision, the revision date, and the number of levels to implode for the bill of material**

Engineering (N) Prototypes > Bills > Item WhereUsed

Bills of Material (N) Bills > Item WhereUsed

Find Item WhereUsed

Use this form to specify the component whose assemblies you want to view. For example, if you are proposing a change to a component in multiple bills of material, you can see the number of assemblies that you would effect.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Viewing Item Usages

Viewing Item WhereUsed

Viewing Item WhereUsed

Use the Item WhereUsed window to:

- **View an imploded list of all the using assemblies for a specified component**

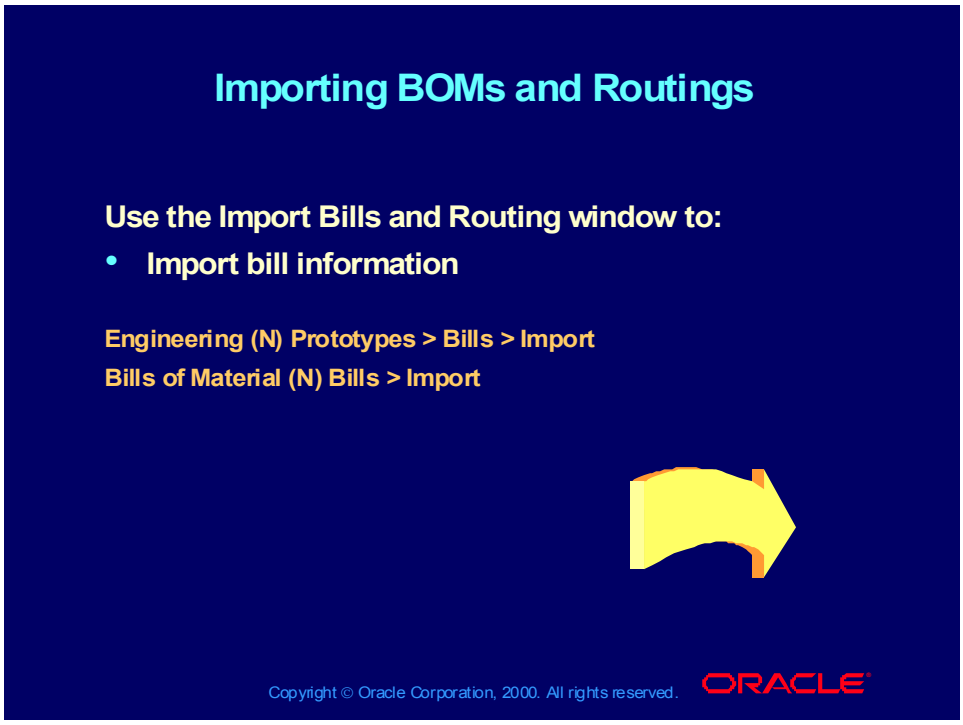
Engineering (N) Prototypes > Bills > Item WhereUsed (B) Find

Bills of Material (N) Bills > Item WhereUsed (B) Find

Item WhereUsed

Use this form to view the assemblies in which a component appears. Use the Query function to find WhereUsed information for the assemblies.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Viewing Item Usages

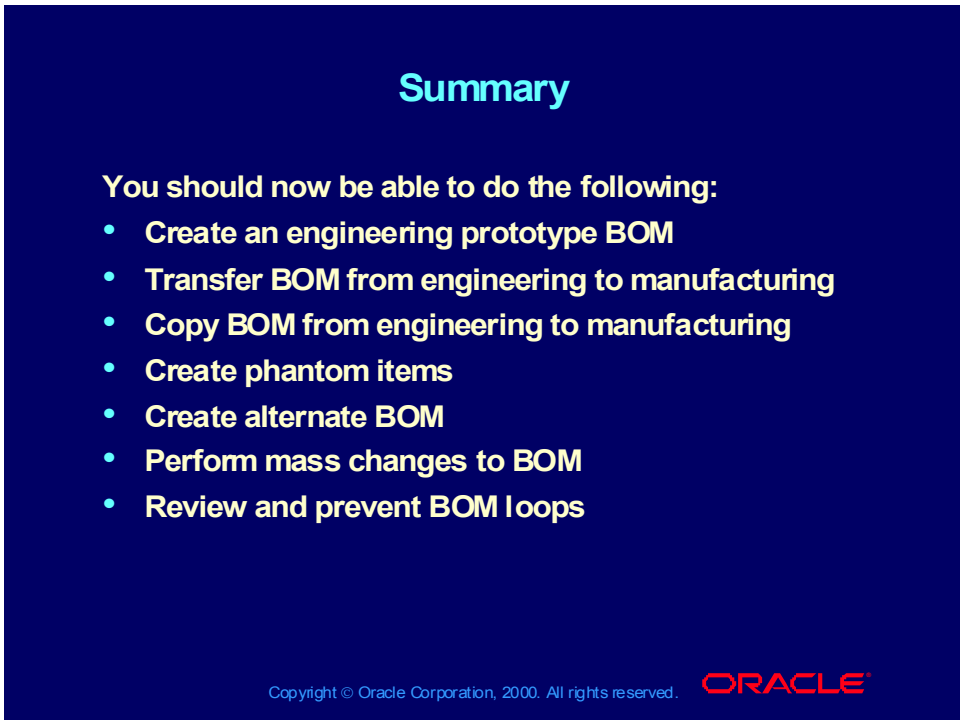


Importing BOMs and Routings

Use this form to create and change bills of material from information that you have provided to interface tables in electronic format. Refer to the *Oracle Applications Manufacturing Implementation Guide* for information about the open interface process and file formats.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Importing Bills and Routings

Summary



BOM Summary

You use bills of material to specify the component items that you need to complete these tasks:

- Manufacture assemblies and subassemblies
- Configure sales orders
- Explode aggregate forecasts
- Calculate standard cost

Engineering bills of material are bills of material that your engineering function creates and are not ready for production. *Manufacturing bills of material* are bills of material that you use in production. The forms that you use to create engineering and manufacturing bills of material are identical.

When your engineering bills of material are ready for production, you can transfer or copy them to Oracle Bills of Material as manufacturing bills of material.

- Phantom items are components in a bill of material that usually represent a nonstocked subassembly.
- You create items in the master organization and assign them to the manufacturing and distribution organizations in which you use them. However, you create bills of material in each organization that uses them.
- Each item that has a bill of material has a *primary bill of material*. If you create other bills of material for standard and planning items, you refer to them as *alternate bills of material*.

- Use *copy* and *common bills* of material to reduce bill of material creation and maintenance time.
- A *bill loop* is a situation in which a multilevel bill of material contains the same item as both the top assembly and as a component.
- You use *mass change functionality* to make the same component change in multiple bills of material.
- You use *reference designators* to specify comments or instructions about how to use more than one of the same component in the same assembly.

Practice 2-1 Overview

Practice 2-1 Overview

This practice covers the following topics:

- Creating an item by copying an existing item
- Creating a new BOM by copying an existing BOM
- Creating an alternate BOM for an item in an organization
- Enabling an item in a second organization and copying a BOM from the first organization

Practice 2-1

1. Use the following table to create engineering items. Assign the items to the organization your instructor specifies. Your instructor will assign item templates that correspond to the values in the “Template Type” column of the table. XX represents your team.

Item Number/Description		Template Type	Copied Item
XX1000	Pentium Computer	Finished Good	
XX1010	17" Monitor	Purchased	
XX1020	101 Keyboard		XX1010
XX1030	Mouse		XX1010
XX1040	CPU Chassis	Subassembly	
XX2010	Motherboard		XX1040
XX2011	New Motherboard		XX2010
XX2020	Serial Board		XX1010
XX2030	1.6GB Hard Drive		XX1010
XX2040	3.5 Disk Drive		XX1010
XX3010	Blank Board		XX1010
XX3020	586 133mHz IC		XX1010
XX3030	Resistor		XX1010
XX3031	New Resistor		XX3030
XX3040	Integrated Circuit		XX1010

2. Create the three bills of material structures.

3. Create item (XX)3031 by copying item (XX)3030.

4. Create item (XX)2011 by copying item (XX)2010.

5. Create a new BOM for (XX)2011 by copying (XX)2010. Add component (XX)3031 for 20PC and disable (XX)3030 for 20PC.

6. View an indented BOM for item (XX)1000.

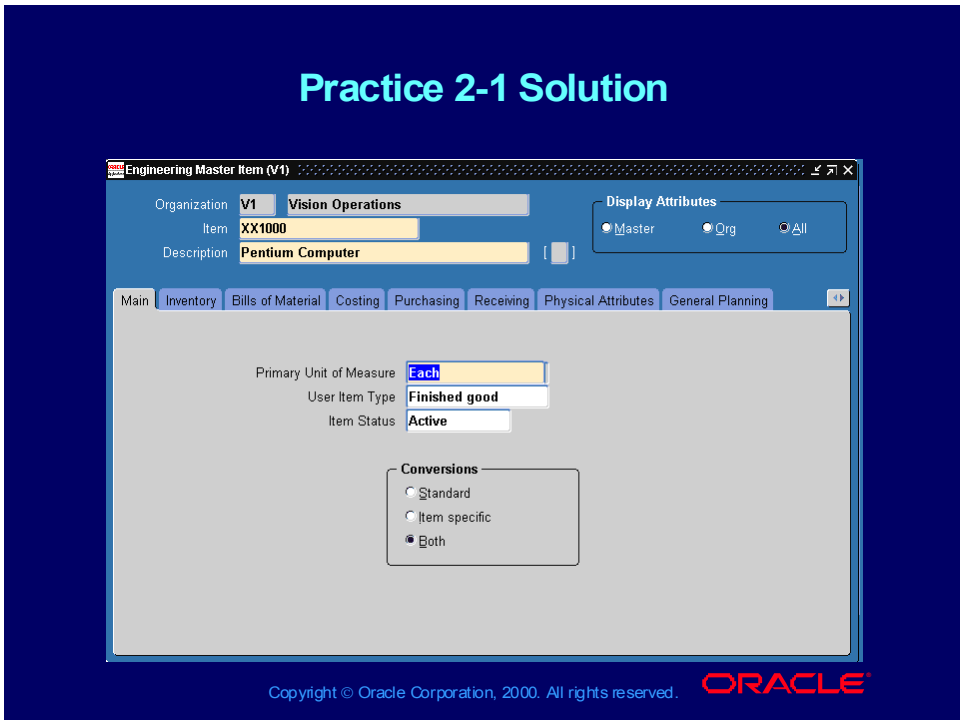
7. View a detailed BOM for XX1000 and explode the subassembly.

8. Compare BOM (XX)2010 to BOM (XX)2011.

9. Create an alternate name called (XX)Sub for a substitute part.

10. Create an alternate BOM for item (XX)2010 using alternate name (XX)Sub. Disable your (XX)3010 and add another team's (XX)3010 in your alternate BOM.

11. Enable (XX)2010 in a second organization that your instructor will assign. Copy its BOM from the organization in which you have already created it.

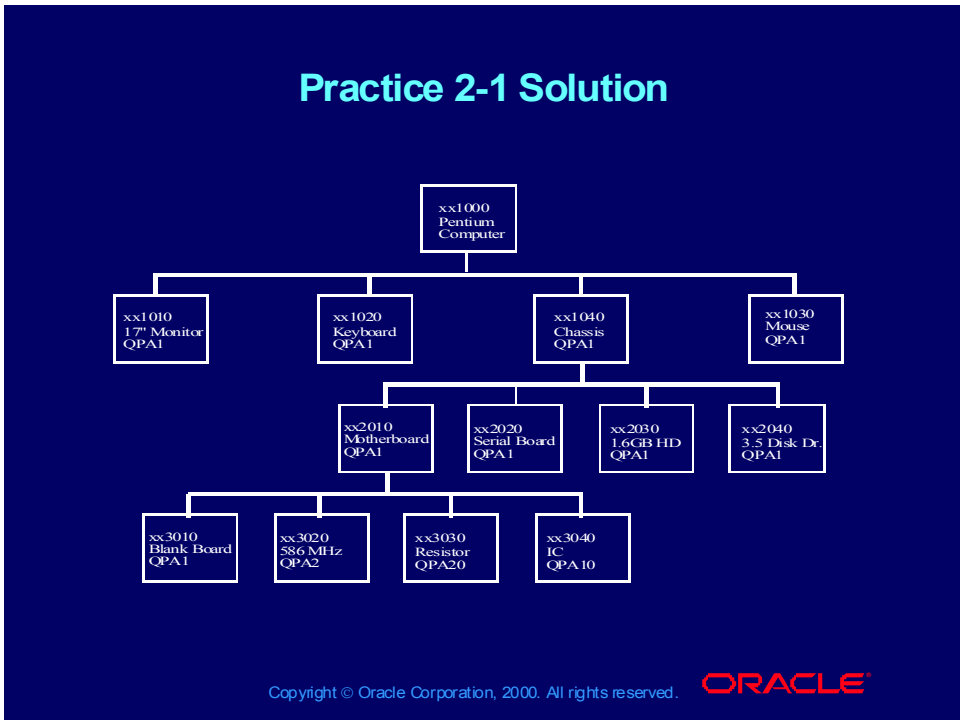


Practice 2-1 Solution

1. Use the following table to create engineering items. Assign the items to the organization that your instructor specifies. Your instructor will assign item templates that correspond to the values in the Template Type column of the table. XX represents your team.

Engineering (N) Prototypes—>Items—>Master Items

Item Number/Description		Template Type	Copied Item
XX1000	Pentium Computer	Finished Good	
XX1010	17" Monitor	Purchased	
XX1020	101 Keyboard		XX1010
XX1030	Mouse		XX1010
XX1040	CPU Chassis	Subassembly	
XX2010	Motherboard		XX1040
XX2020	Serial Board		XX1010
XX2030	1.6GB Hard Drive		XX1010
XX2040	3.5 Disk Drive		XX1010
XX3010	Blank Board		XX1010
XX3020	586 133mHz IC		XX1010
XX3030	Resistor		XX1010
XX3040	Integrated Circuit		XX1010



Practice 2-1 Solution (continued)

2. Create the three bills of material structures.

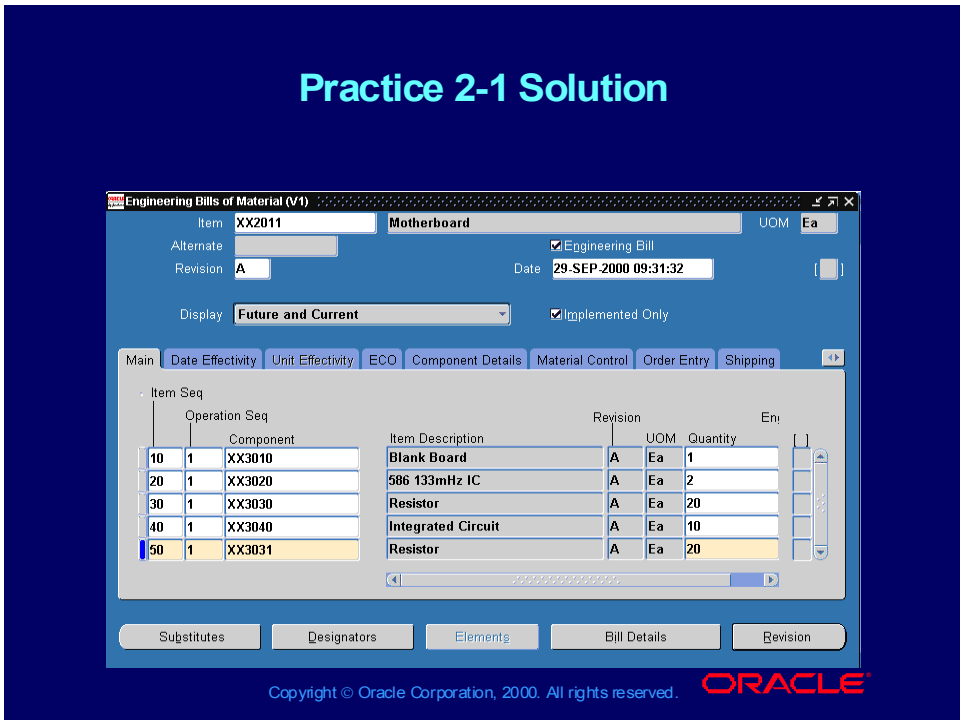
Engineering (N) Prototypes—>Bills—>Bills

3. Create item XX3031 by copying item XX3030.

Engineering (N) Prototypes—>Items—>Master Items (M) Tools—>Copy from

4. Create item XX2011 by copying item XX2010.

Engineering (N) Prototypes—>Items—>Master Items (M) Tools—>Copy from

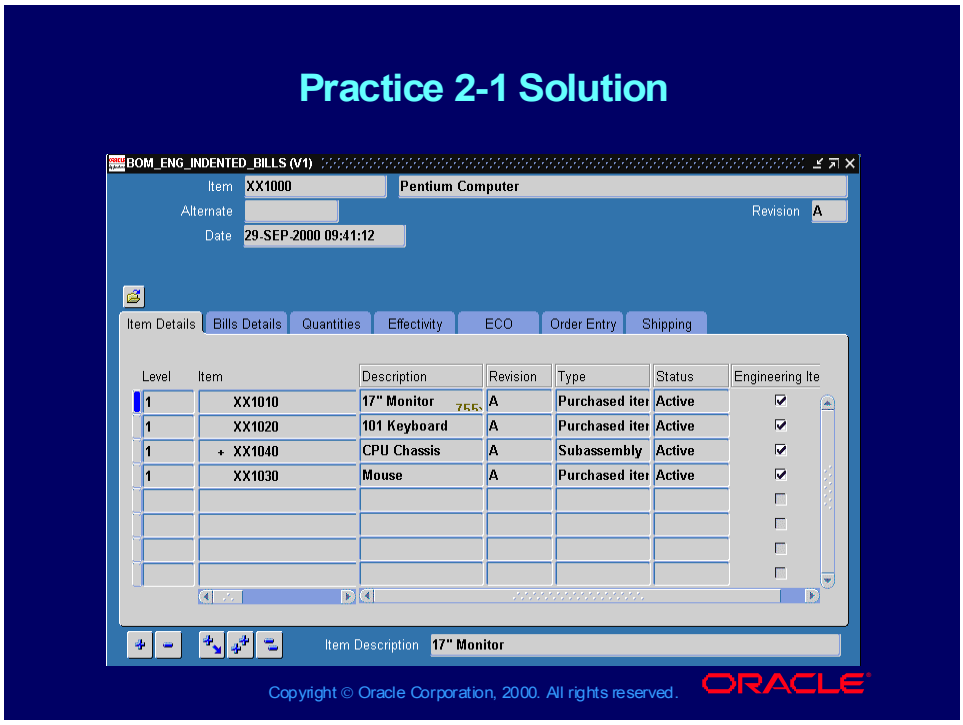


Practice 2-1 Solution (continued)

5. Create a new BOM for (XX)2011 by copying (XX)2010. Add component (XX)3031 for 20PC and disable (XX)3030 for 20PC.

(N) Prototypes—>Bills—>Bills (M)Tools—>Copy Bill from

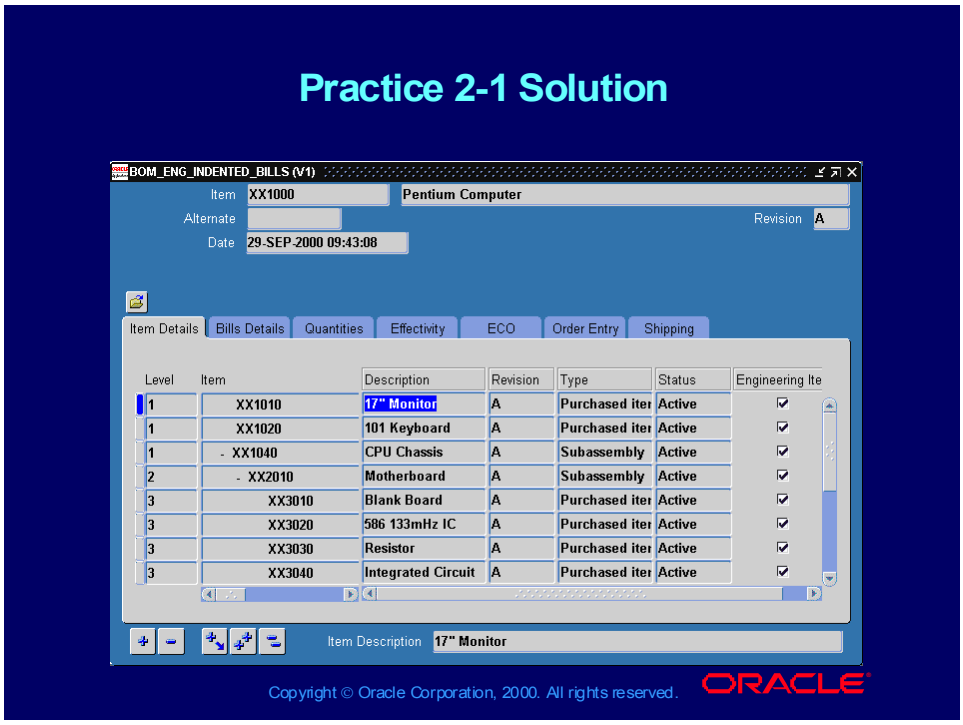
(N) Prototypes—>Bills—>Bills



Practice 2-1 Solution (continued)

6. View an indented bill of material for item XX1000.

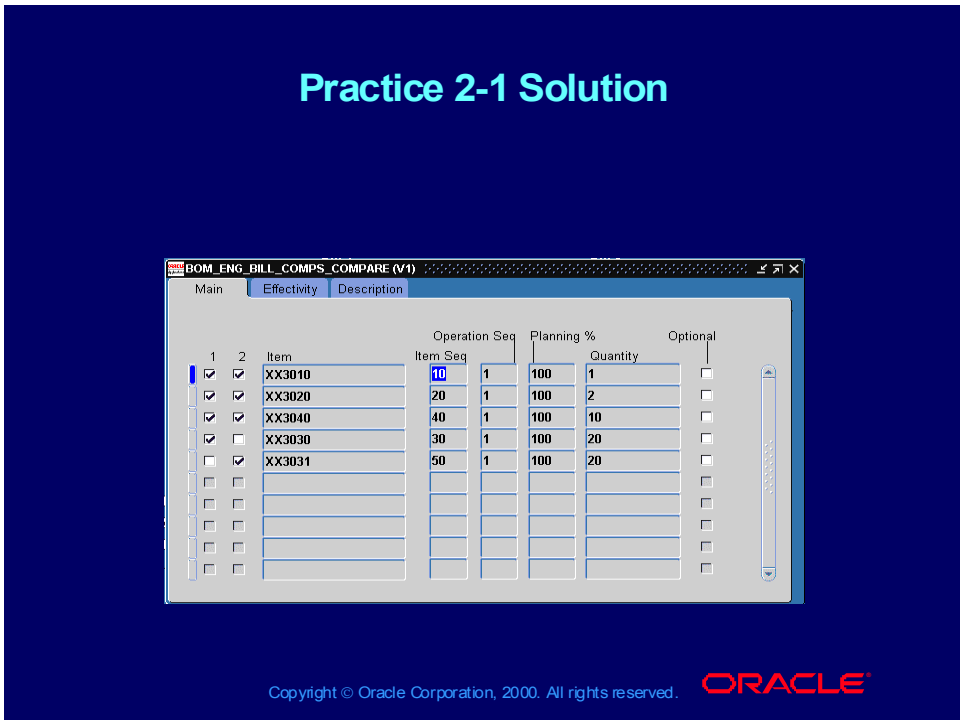
Engineering (N) Prototypes—>Bills—>Indented Bills



Practice 2-1 Solution (continued)

7. View a detailed bill of material for XX1000 and explode the subassembly.

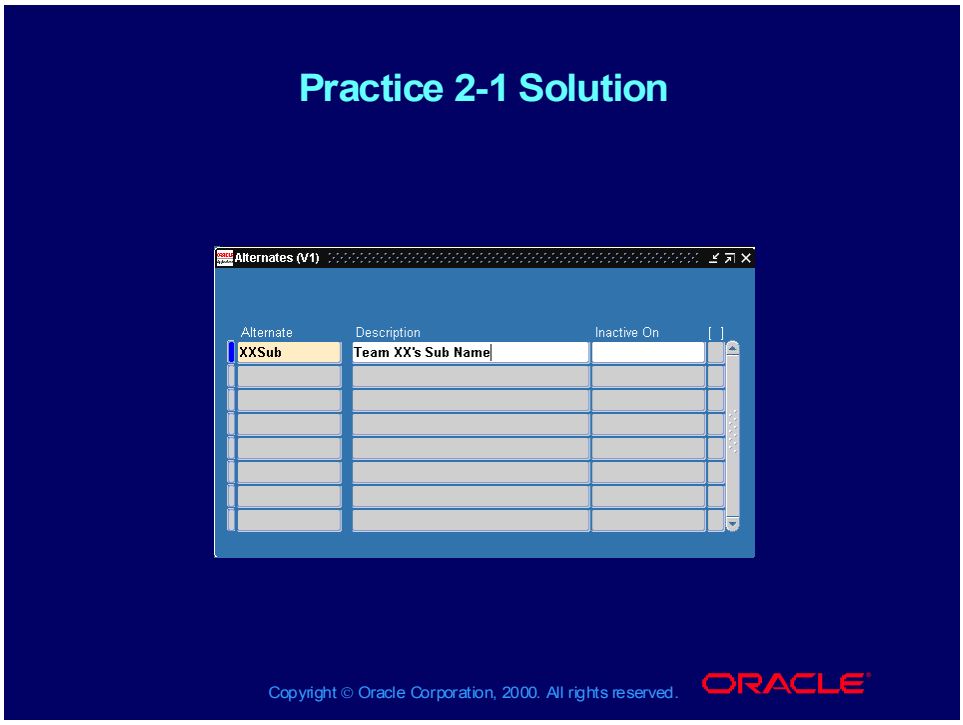
(N) Prototypes—>Bills—>Indented Bills (M)Tools—>Expand All



Practice 2-1 Solution (continued)

8. Compare BOM XX2010 to BOM XX2011.

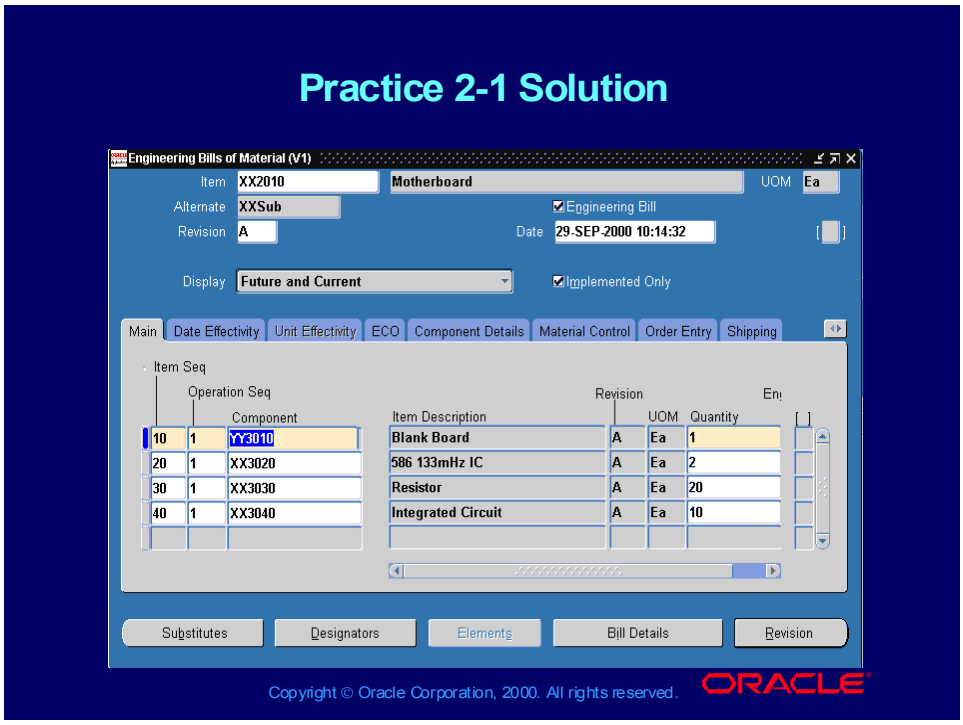
Engineering (N) Prototypes—>Bills—>Comparison



Practice 2-1 Solution (continued)

9. Create an alternate name called (XX)Sub for a substitute part.

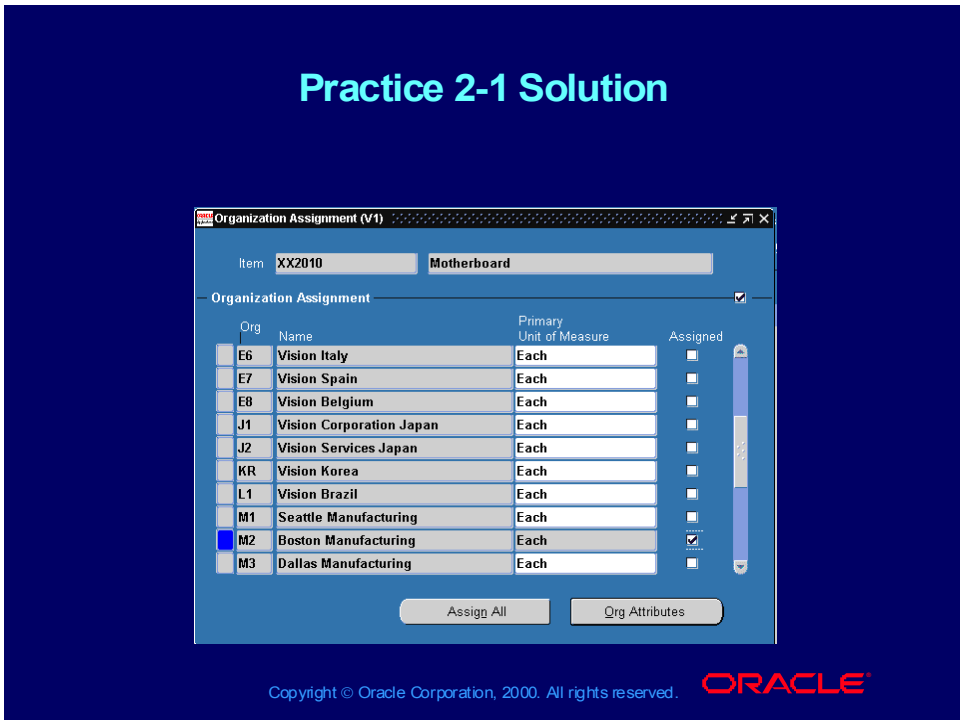
Bills of Material (N) Setup—>Alternates



Practice 2-1 Solution (continued)

10. Create an alternate BOM for item (XX)2010 using alternate name (XX)Sub. Disable your (XX)3010 and add another team's (XX)3010 in your alternate BOM.

Engineering (N) Prototypes—>Bills—>Bills

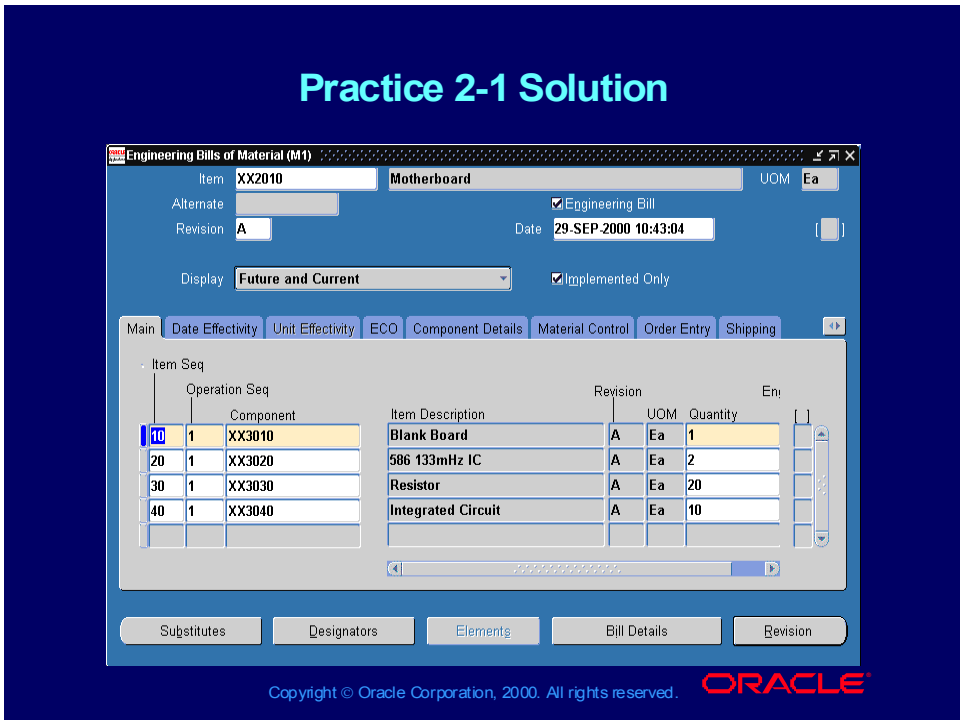


Practice 2-1 Solution (continued)

11. Enable XX2010 in a second organization that your instructor will assign. Copy its bill of material from the organization in which you have already created it.

Engineering (N) Prototypes—>Items—>Master Items

(M) Tools—>Organization Assignment



Practice 2-1 Solution (continued)

(N) Prototypes—>Bills—>Bills (M) Tools—>Copy Bill from

Your BOM should look like this in your new organization. Remember to save your work.

Agenda

Agenda

- Using Online Help
- Overview of Bills of Material
- Creating Bills of Material
- **Transferring Product Information**
- Performing Mass Changes
- Summary of Bills of Material

Objectives

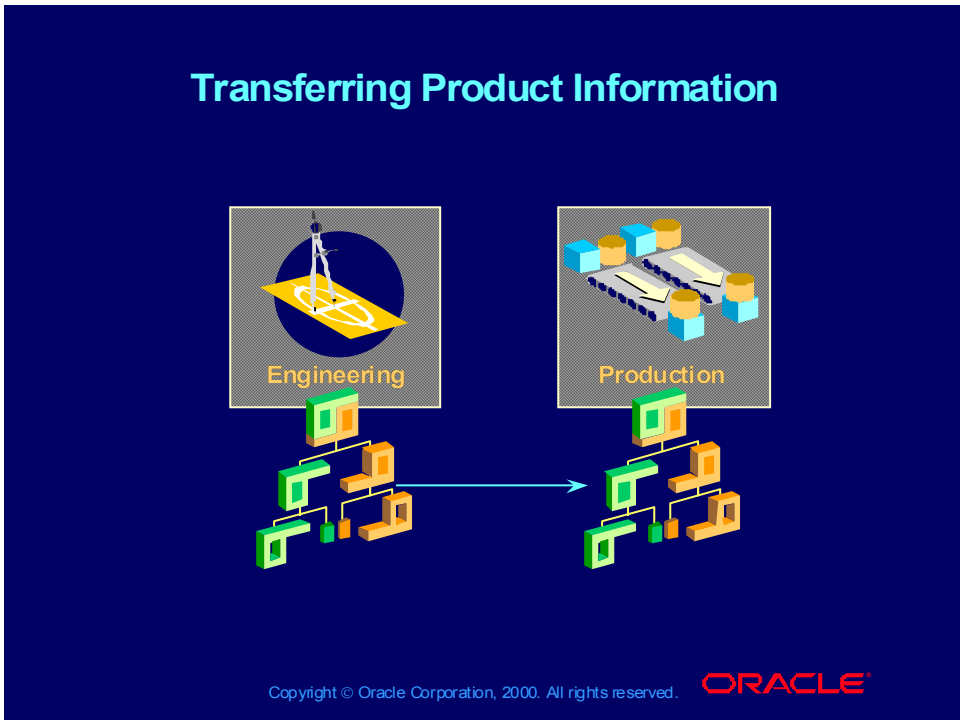
After completing this section, you should be able to do the following:

- Transfer engineering product information to production
- Copy engineering product information to production

Overview

- When you decide that engineering information is ready for production, you transfer the product information (items, bills of material, and routing) from engineering to manufacturing.
- Transferring removes the information from the engineering side and adds it to the manufacturing side.
- Copying leaves the information in the engineering side and creates a new item, BOM, and routing on the manufacturing side.

Transferring Product Information



Transferring Product Information

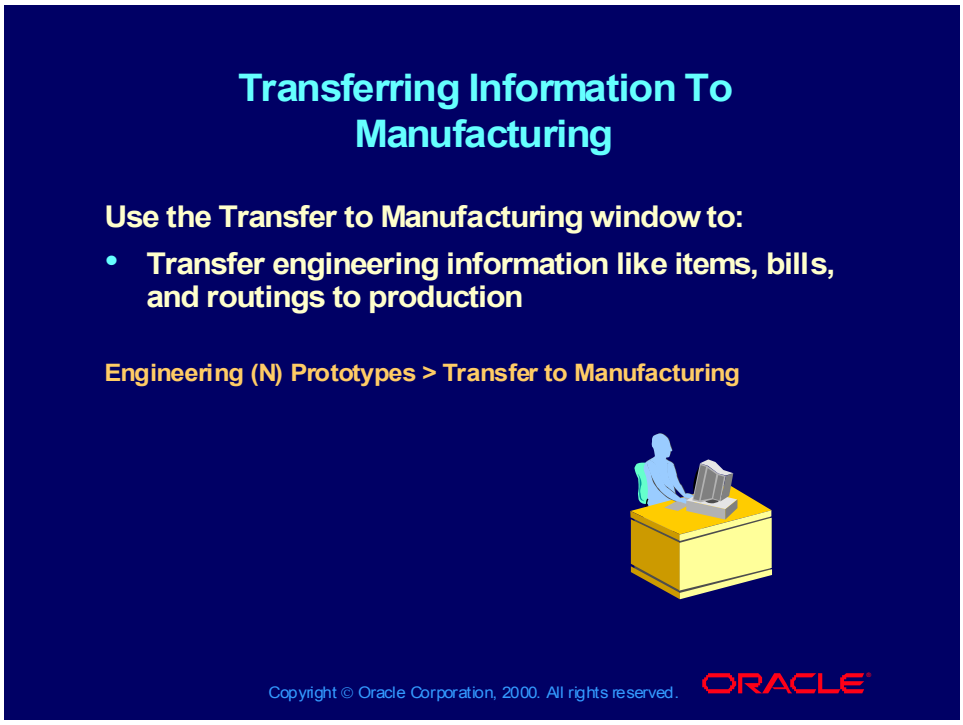
When you decide that engineering information is ready for production, you transfer the product information—items, bills of material, and routings— from engineering to manufacturing.

When you transfer engineering information, you transform the engineering item into a manufacturing item and the engineering item ceases to exist.

When you copy engineering information, you save the engineering information and copy it to manufacturing as another item number.

The transfer and copy sequence is a one-way process. You cannot transfer or copy product information from manufacturing to engineering.

Transferring Information To Manufacturing



Transfer to Manufacturing

Transferring Product Information to Manufacturing: Revision

Use this form to transfer engineering information like items, bills, and routings to production.

1. Enter the number of the item that you want to transfer.
2. Select the structures—item, bill, and routing—that you want to transfer.
3. If you want the transfer event to mark a change in item and routing revisions, enter the new revisions.
4. You must transfer from the lowest subassembly and continue up to the finished good or end item.

Manufacturing: Alternates

If you want to transfer a specific alternate item, then you select the specific alternate name you want to transfer. If you leave the alternate product information blank, the primary and all alternate BOMs will transfer.

Manufacturing: ECO, Description

1. If the transfer occurs because of a documented change order, you may indicate the engineering change order (ECO) number. The ECO number will only transfer if you increase the revision of the item or the routing.
2. Select Transfer.

(Help) Oracle Manufacturing Applications > Oracle Engineering >
Engineering Prototype Environment >
Transferring or Copying Engineering Items

Transferring Information: Transfer Details

Transferring Information: Transfer Details

- Transfer bills of material and routings that you reference in common bills of material and routings before transferring the bills of material that contain the reference
- If you transfer an assembly bill of material and have not transferred the component items in the bill of material, the transfer process will transfer the component item information before transferring the bill of material

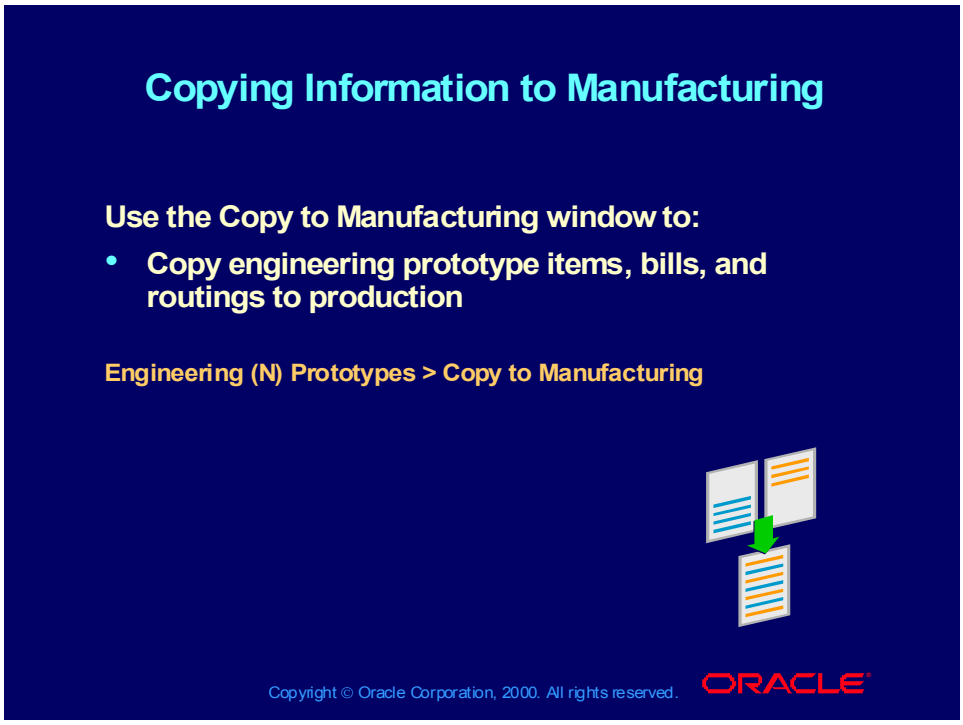
Transferring Product Information to Manufacturing: Transfer Details

1. Select Implemented Only to prevent transfer of bill of material information that is waiting for implementation from an engineering change order.
2. Future and Current transfers all components that are effective on and after the date and time in the Effective Date field.
3. The All button transfers all components.
4. Select “OK.”

Hints

Use this feature to reduce data entry when you transfer engineering information. The item transfer occurs at the organization level.

Copying Information to Manufacturing



Copy to Manufacturing

Use this form to copy engineering prototype information—items, bills, and routings—to production.

1. Enter the number of the item from which you want to copy.
2. Select the structures—item, bill, or routing—that you want to copy.
3. If you want the copy event to mark a change in item and routing revisions, enter the new revisions.

Manufacturing: Alternates

If you want to copy a specific alternate, then you select an alternate item, routing, or BOM that already exists in engineering.

Manufacturing: Descriptions

1. If the copy occurs because of a documented change order, you may indicate the engineering change order (ECO) number. The ECO number will only transfer if you increase the revision of the item on the routing.
2. Select copy.

Manufacturing: Manufacturing Items

1. Enter the item number and description of the new production item number.
2. Select Copy.

(Help) Oracle Manufacturing Applications > Oracle Engineering >
Engineering Prototype Environment >
Transferring or Copying Engineering Items

Copying Information: Transfer Details

Copying Information: Transfer Details

- If you copy an assembly bill of material and have not transferred the component item in the bill of material, the BOM structure will not copy the component item.

Transfer Details

1. Select Implemented Only to prevent copying of bill of material information that is waiting for implementation from an engineering change order.
2. Select Future and Current to copy all components that are effective on and after the date and time in the Effective Date field.
3. Select “All” to copy all components.
4. Select OK.

Review Question

Review Question

True or False

- **Transferring and copying engineering data is organization specific.**

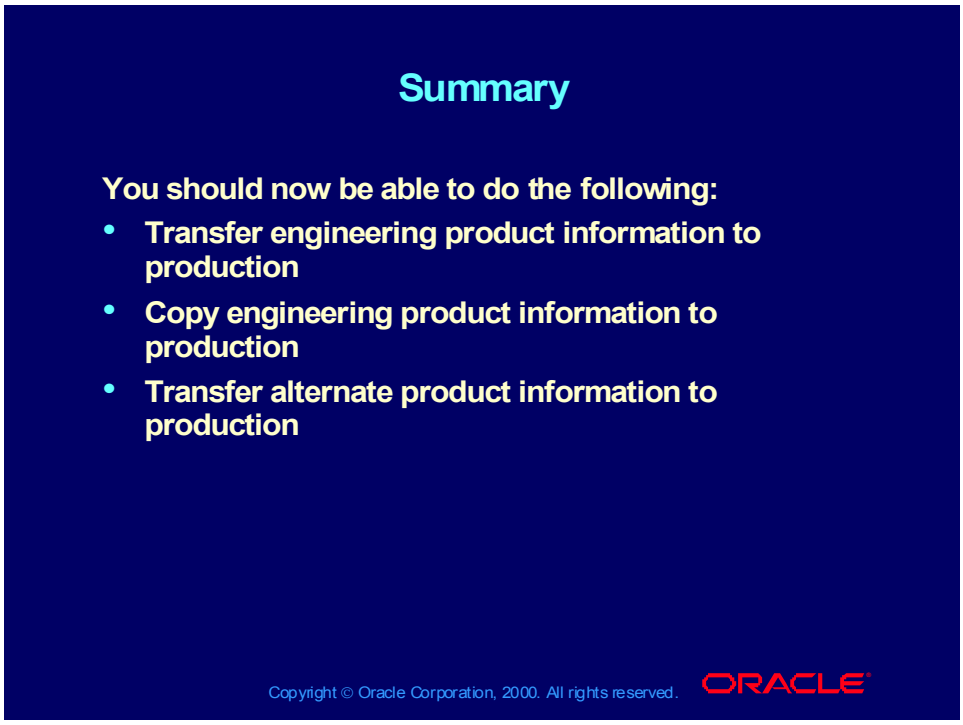
Answer to Review Question

True or False

- **Transferring and copying engineering data is organization specific.**

  True

  You can only transfer or copy an engineering item, bill, or routing to manufacturing within the same organization.



Summary

When you decide that engineering information is ready for production, you transfer the product information—items, bills of material, and routings— from engineering to manufacturing.

When you transfer engineering information, you transform the engineering item into a manufacturing item. The original engineering item ceases to exist.

When you copy engineering information, you save the engineering information and copy it to manufacturing as another item number.

Practice 3-1 Overview

Practice 3-1 Overview

This practice covers the following topics:

- Transferring engineering items
- Copying engineering items
- Reviewing your entries

ORACLE

Practice 3-1

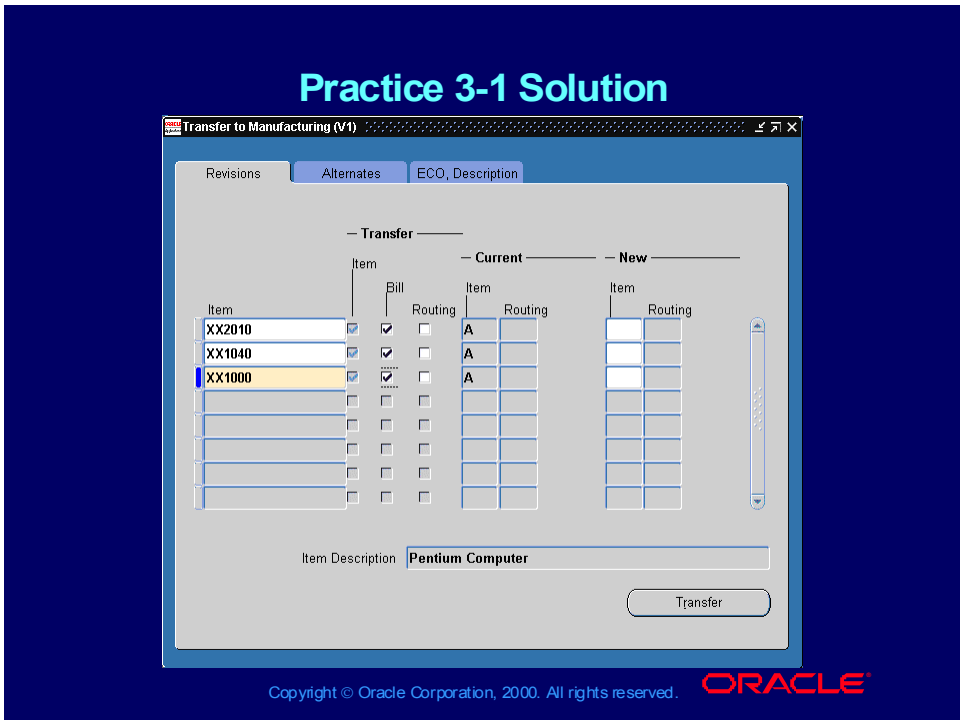
1. Transfer BOMs for item numbers XX2010, XX1040, and XX1000 from engineering to production.

Note: XX represents your team.

2. To verify the transfers, view XX1000 on the following forms and indicate whether or not you are able to use each form to see the items:

- Oracle Inventory Master Items
- Oracle Engineering Master Items
- Oracle Inventory View Item Attributes
- Oracle Engineering View Item Attributes
- Oracle Bills of Material
- Oracle Engineering Bill of Material
- Oracle Bills of Material Indented Bills
- Oracle Engineering Indented Bills

3. Copy item XX2011 and give it a new name using item number XX2022. View your results.

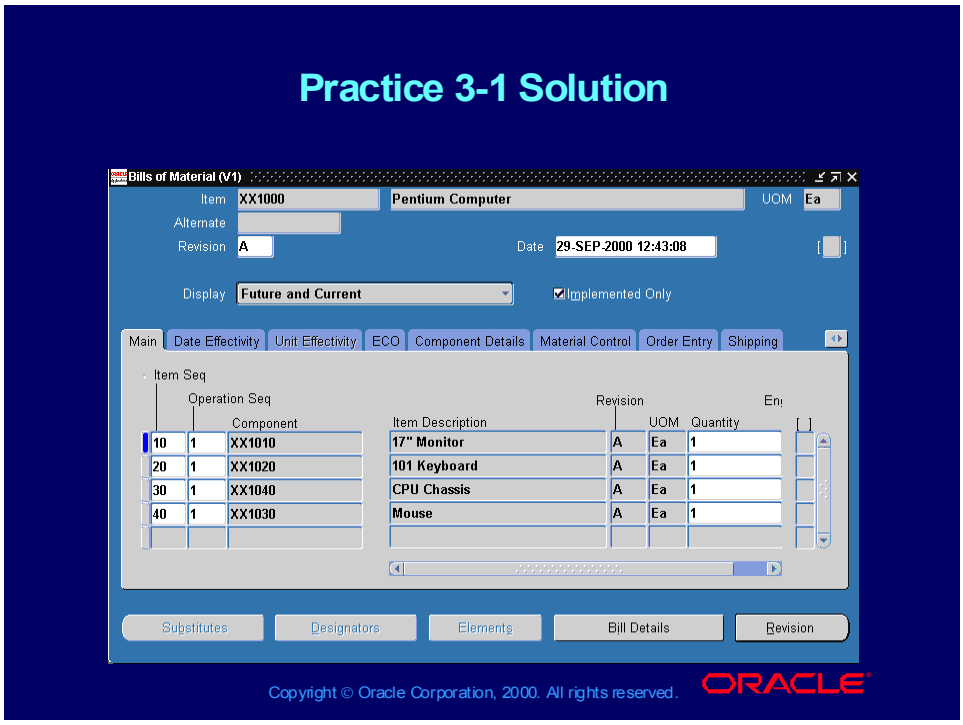


Practice 3-1 Solution

1. Transfer BOM's for item numbers XX2010, XX1040, and XX1000 from engineering to production.

Note: XX represents your team.

(N) Prototype—>Transfer to Manufacturing



Practice 3-1 Solution (continued)

2. To verify the transfers, view XX1000 on the following forms and indicate whether or not you are able to use each form to see the items:

Oracle Inventory Master Items

- **Inventory (N) Items—>Master Items; able to see the items**

Oracle Engineering Master Items

- **Engineering (N) Prototypes—>Items—>Master Items; not able to see the items**

Oracle Inventory View Item Attributes

- **Inventory (N) Items—>View Item Details; able to see the items**

Oracle Engineering View Item Attributes

- **Engineering (N) Prototypes—>Items—>View Item Details; able to see the items**

Oracle Bills of Material Bill of Material

- **Bills of Material (N) Bills—>Bills; able to see the items**

Oracle Engineering Bill of Material

- **Engineering (N) Prototypes—>Bills—>Bills; not able to see the items**

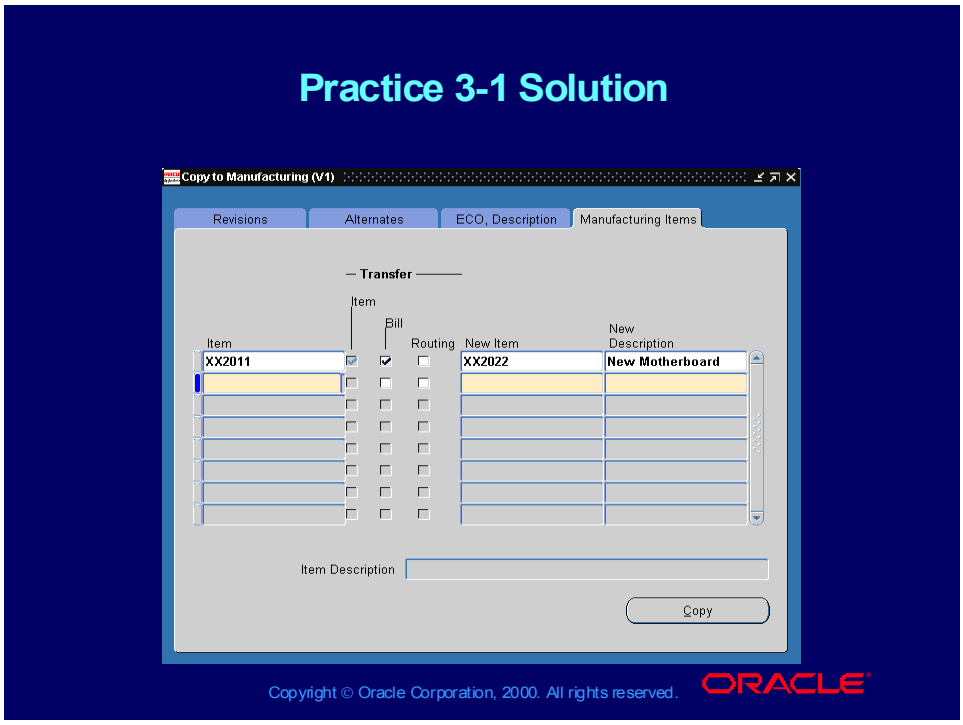
Oracle Bills of Material Indented Bills

- **Bills of Material (N) Bills—>Indented Bills; able to see the items**

Oracle Engineering Indented Bills

- **Engineering (N) Prototypes—>Bills—>Indented Bills; able to see the items**

Practice 3-1 Solution



Practice 3-1 Solution (continued)

3. Copy item XX2011 and give it a new name using item number XX2022. View your results.

Engineering (N) Prototype—> Copy to Manufacturing

Agenda

Agenda

- Using Online Help
- Overview of Bills of Material
- Creating Bills of Material
- Transferring Product Information
- **Performing Mass Changes**
- Summary of Bills of Material

Objectives

Objectives

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

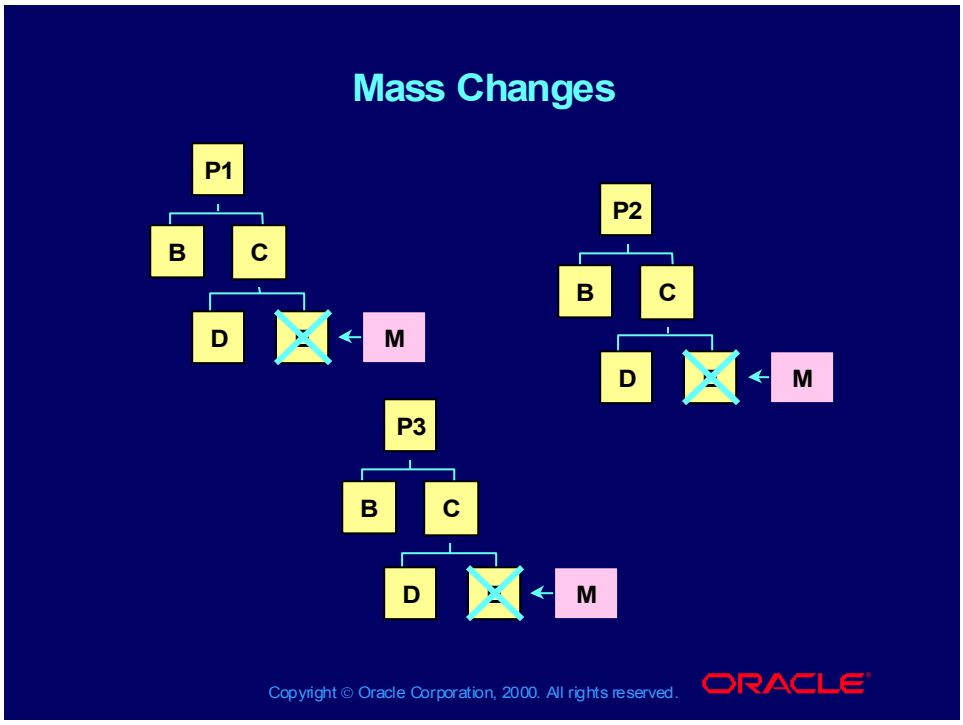
- Perform a mass change operation using Oracle Bills of Material
- Perform a mass change operation using Oracle Engineering
- Review entries for accuracy

Overview

Overview

- Using mass changes, you can perform the same change to multiple bills of material.
- You can search for all BOM that contain specific components that you want to change.
- You can review your entries and changes for accuracy and effectivity.

Mass Changes

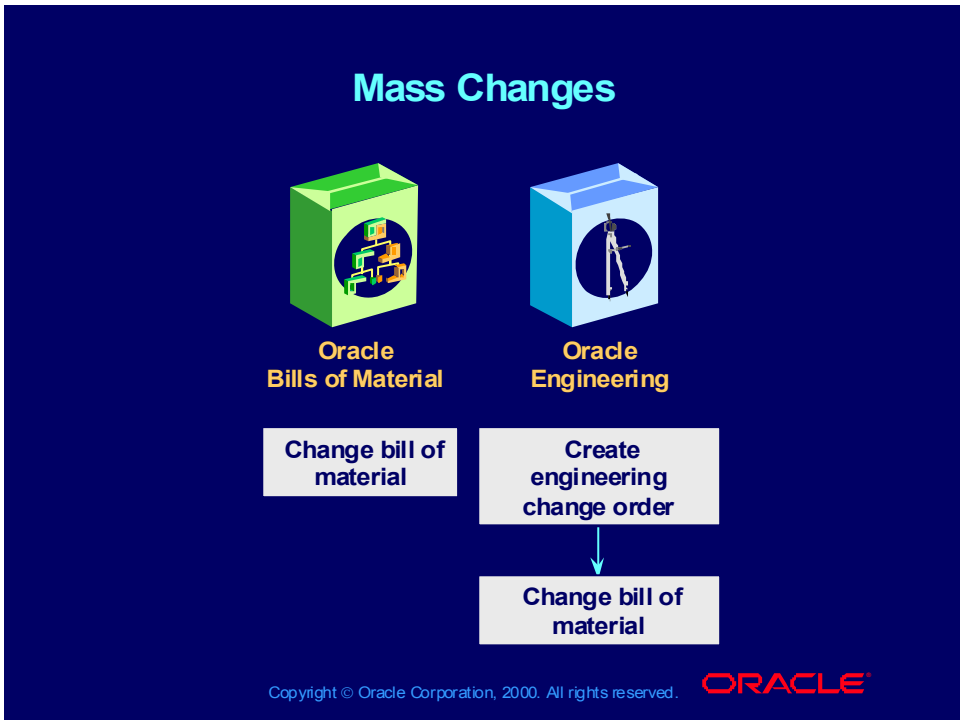


Mass Changes

Using mass changes, you can perform the same change to multiple bills of material. You cannot use the mass change functionality with routings. When you make mass changes to bills of material, you can perform the following actions:

- Change information about an existing component
- Add a component
- Replace one component with another
- Disable a component

You can search for all bills of material that contain the component that you want to change, replace, or delete.



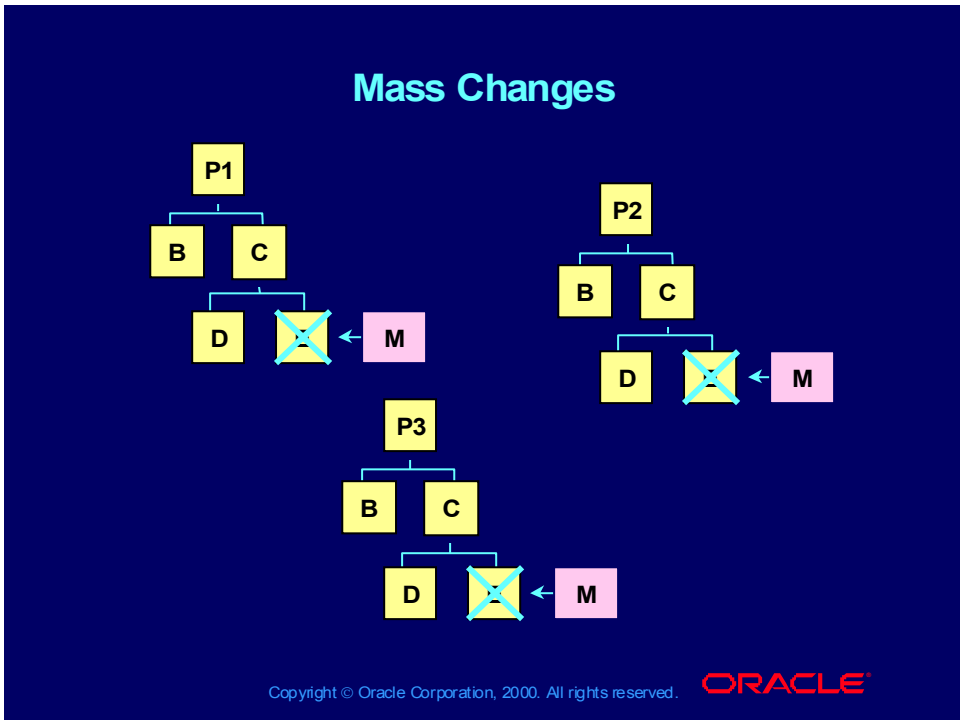
Mass Changes (continued)

You can use both Oracle Bills of Material and Oracle Engineering to perform mass changes.

You can perform mass changes in both engineering and production bills of material in Oracle Engineering and production bills of material in Oracle Bills of Material. However, you cannot make mass changes to a bill of material type—Standard, Option Class, Model, or Planning—if you do not have personal profile permission to change that bill of material type manually.

Depending on the application that you use, the mass change operates differently in the following ways:

- When you perform a mass change using Oracle Bills of Material, you change the bill of material immediately.
- When you perform a mass change using Oracle Engineering, you create an engineering change order. When you implement the engineering change order, you have changed the bills of material.



Mass Changes (continued)

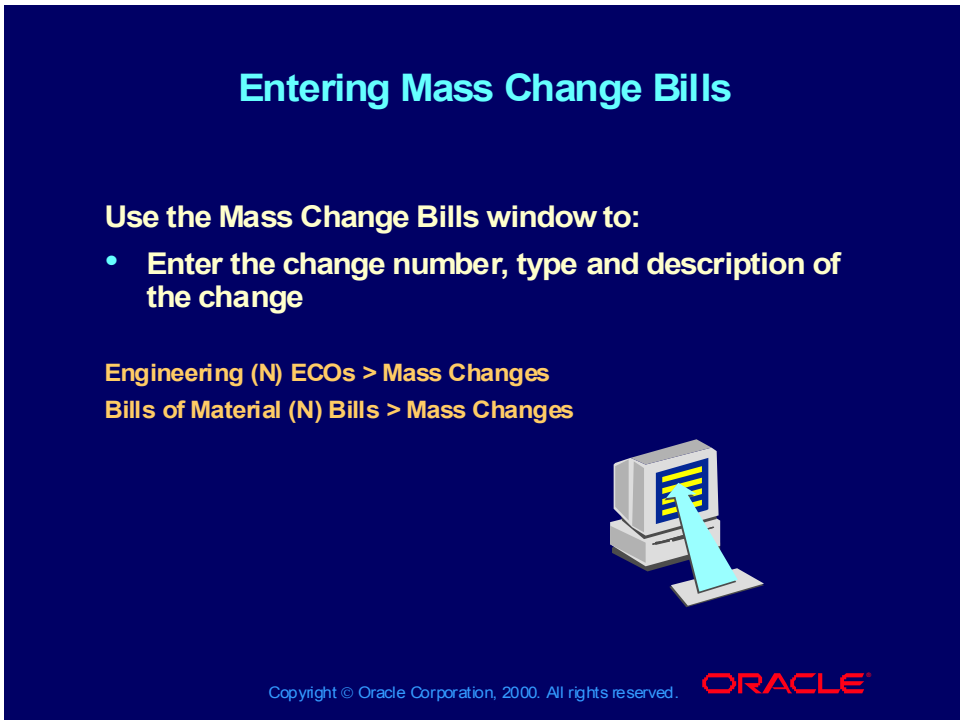
You can use the mass change functionality to make the same component change in multiple bills of material or to replace, delete, and update one or more component items in many bills of material at the same time.

Engineering lets you create an ECO based on your parent item and component criteria. A mass change ECO lists all assemblies that meet your search criteria as revised items, and assigns all component changes as revised components. You can manage and implement each revised item, or the entire ECO, the same way you maintain revised items you manually assign to an ECO.

Note: In Bills of Material, mass changes take place immediately. However, in Engineering, an ECO is created that must be implemented to take effect.

Perform mass changes in the bills of material as needed. Be sure to set ECO options.

Entering Mass Change Bills



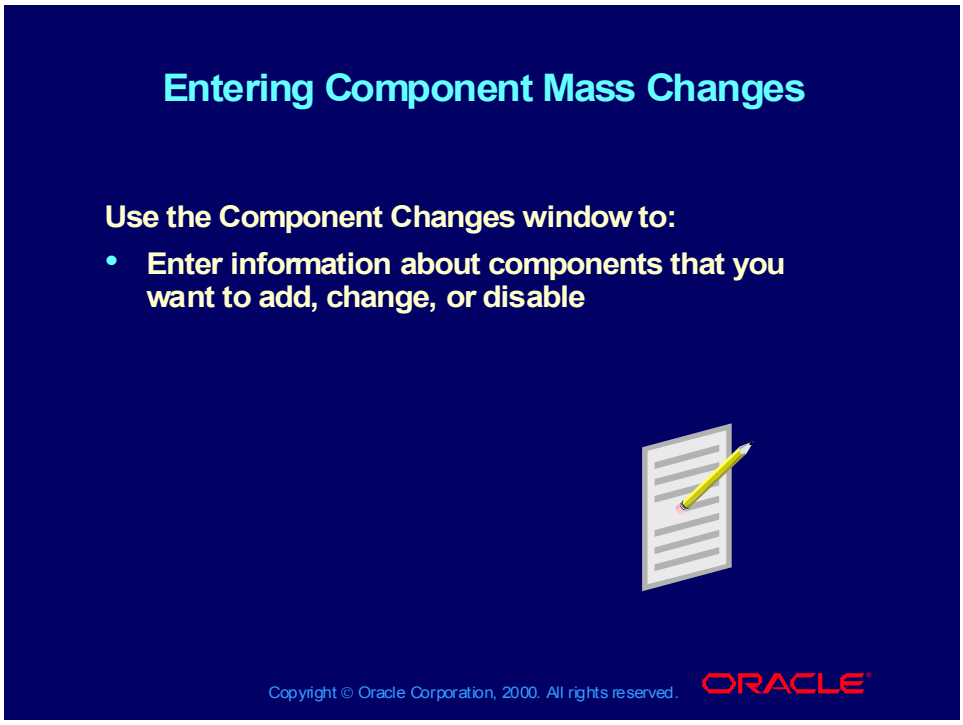
Component Changes

To create a mass change:

1. Enter the change number, type, and description of the change.
2. Indicate if the mass change process should increment the revision of the assemblies that it changes and update unreleased discrete jobs and repetitive schedules. Mass change will automatically update numerical revision numbers only.
3. Select the parent items whose bills of material you want to change.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Mass Changing Bills of Material

Entering Component Mass Changes



Component Changes: Main Region

Enter information about components that you want to add, change, or disable. The fields in this form are similar to those on the bills of material form.

Creating a Mass Change

Select Report to request a trial run of the mass change without actually updating the database or creating the engineering change order; or select Implement to request the database update or engineering change order creation, and then choose Submit.

Review the mass change report prior to implementing if using mass change through BOM. Implement the change after review.

Review ECO prior to implementing if using mass change through engineering. Implement the ECO after reviewing and approving.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Mass Changing Bills of Material

Review Question

Review Question

When performing a mass change, if you do not wish to replace the values for the Supply Type, Supply Subinventory, and Supply Locator fields, what must you do?

Answer to Review Question

When performing a mass change, if you do not wish to replace the values for the Supply Type, Supply Subinventory, and Supply Locator fields, what must you do?

You must enter the current value when executing a mass change. If you leave the Supply Type, Supply Subinventory, and Supply Locator fields blank when entering component changes, their values will be replaced by the blank (null) value when the mass change is executed.

Review Question

Review Question

True or False

- **You can undo a mass change.**

Answer to Review Question

True or False

- **You can undo a mass change.**

  False

  You can not undo a mass change. However, you can create another mass change to reverse the effects of a previous mass change.

Summary

You should now be able to do the following:

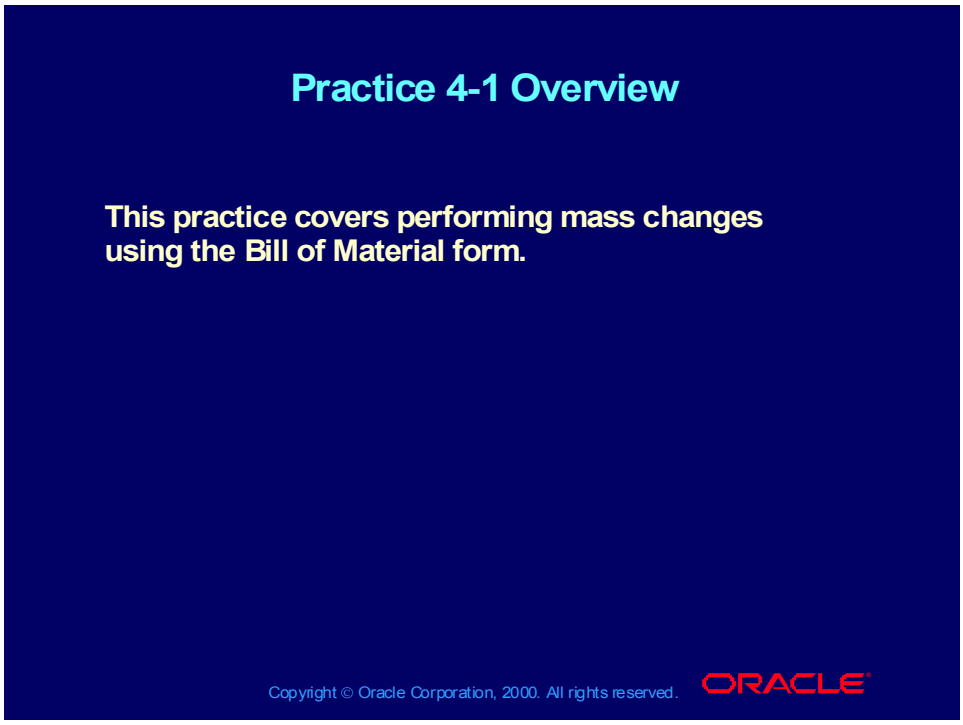
- Perform a mass change operation using Oracle Bills of Material
- Perform a mass change operation using Oracle Engineering
- Review entries for accuracy

Summary

Using mass changes, you can perform the same change to multiple bills of material. You can search for all bills of material that contain the component that you want to change, replace, or delete.

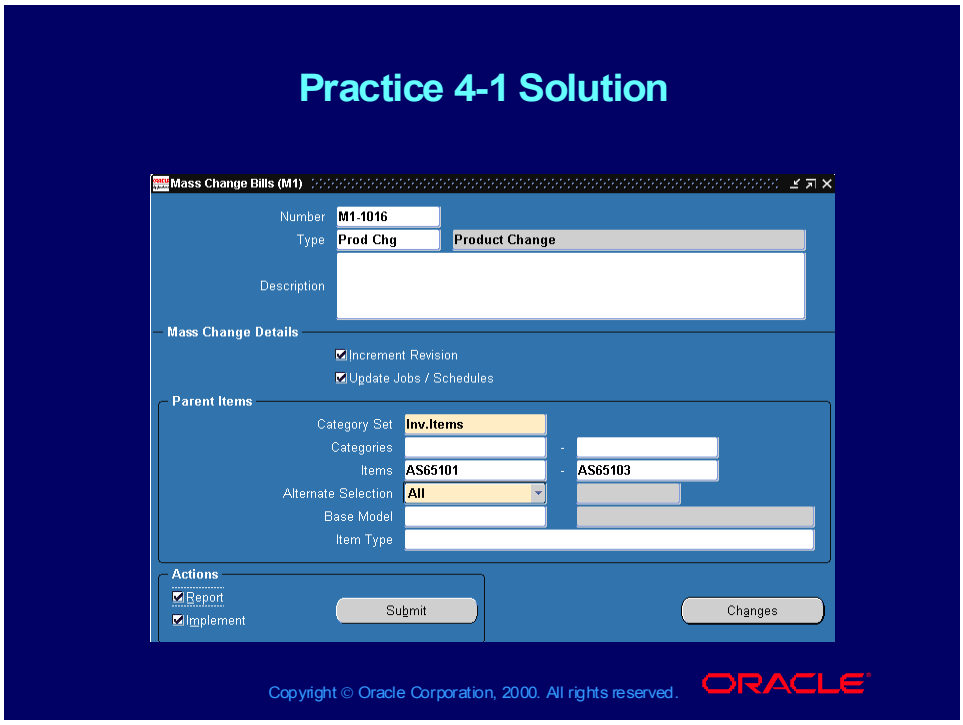
You can add, change, and disable components.

Practice 4-1 Overview



Practice 4-1

1. Perform a mass change operation on assemblies AS65101, AS65102, and AS65103 using the Oracle Bills of Material form.
2. Use the following information to complete the practice:
   - Type Prod Chg
   - Increment Revision Yes
   - Items: AS65101 - AS65103
   - Actions Report and Implement
3. Disable item CM51564, the Vision Pad Bag.
4. Submit the change.

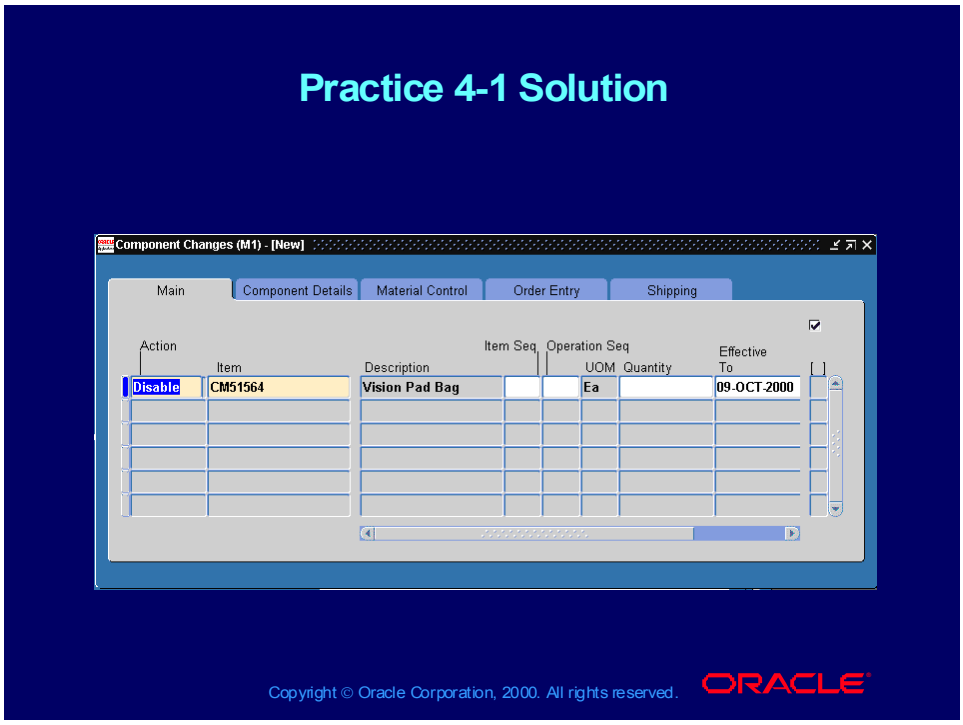


Practice 4-1 Solution

Perform a mass change operation on assemblies AS65101, AS65102, and AS65103 using the Oracle Bills of Material form.

(N) Bills—>Mass Changes

1. Enter the following information:
   - Type Prod Chg
   - Increment Revision Yes
   - Items: AS65101 - AS65103
   - Actions: Report and Implement
2. Choose the Changes button on the Mass Change Bills window.



Practice 4-1 Solution (continued)

Disable item CM51564, the Vision Pad Bag and submit the change.

(N) Bills—>Mass Changes

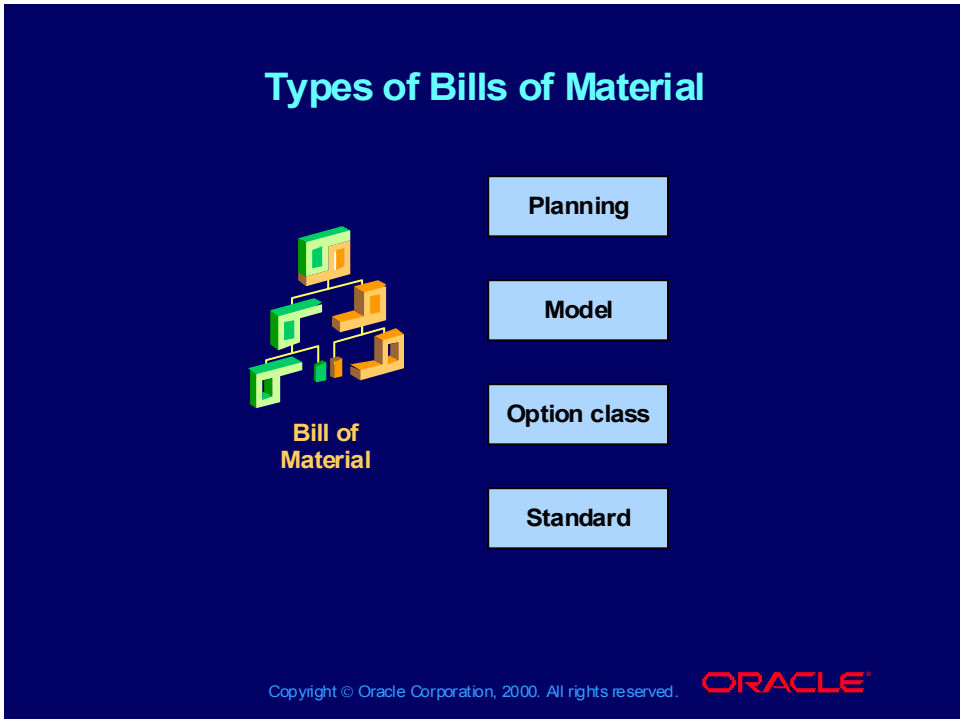
1. On the Component Changes form disable item number CM51564.
2. Choose the Submit button to launch the selected actions, Report and Implement.

Agenda

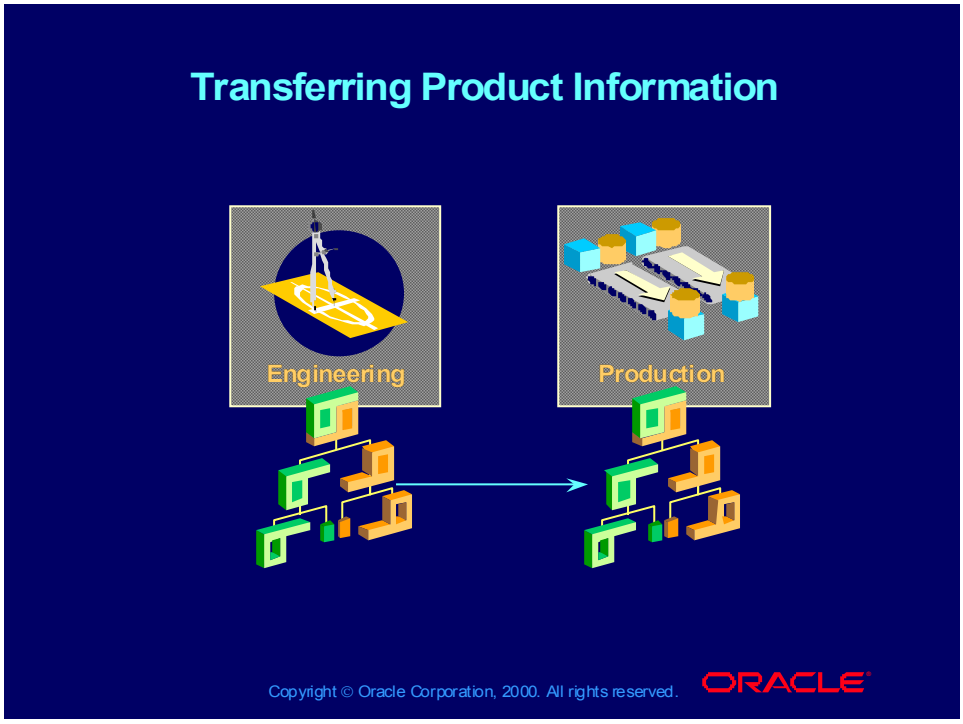
Agenda

- Using Online Help
- Overview of Bills of Material
- Creating Bills of Material
- Transferring Product Information
- Performing Mass Changes
- **Summary of Bills of Material**

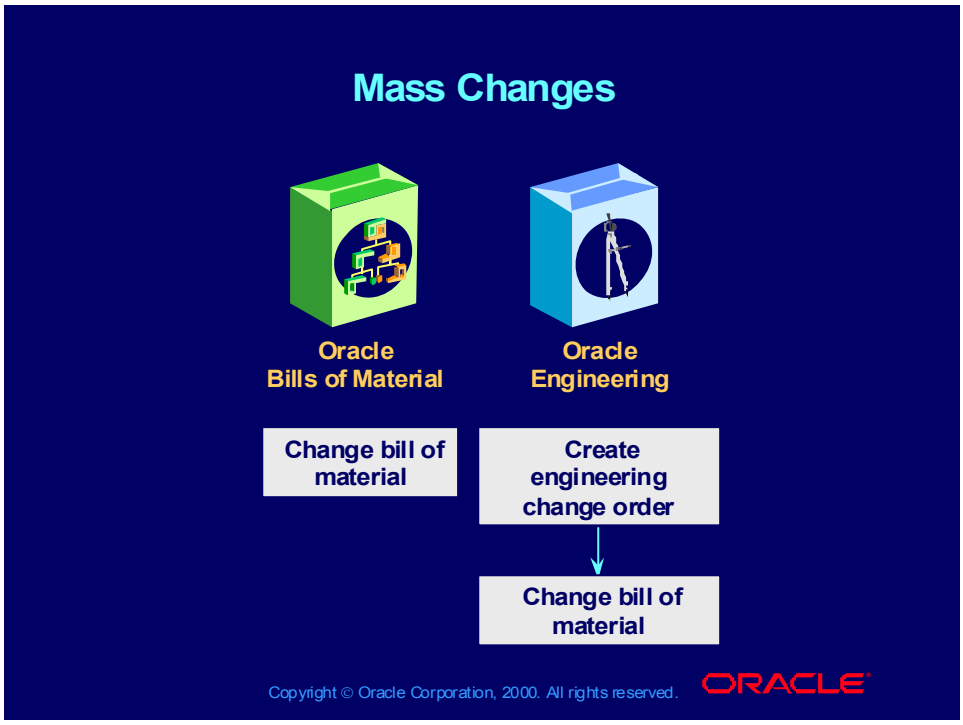
Types of Bills of Material



Transferring Product Information



Mass Changes



Summary

Summary

In this component, you should have learned how to:

- Create bills of material
- Copy and change bills of material
- Compare bills of material
- Transfer engineering product information to production
- Copy engineering product information to production
- Perform a mass change operation

Oracle Manufacturing - Create Routings Release 11i

Chapter 3

Oracle Engineering > Resources

Oracle Bills of Material > Resources

Oracle Engineering > Resource Costs

Oracle Bills of Material > Resource Costs

Oracle Engineering > Resource Overhead Associations

Oracle Bills of Material > Resource Overhead Associations

Oracle Bills of Material > Quick Codes (CRP_RESOURCE_GROUPS)

Oracle Bills of Material > Simulation Sets

Oracle Bills of Material > Department Classes

Oracle Bills of Material > Location

Oracle Engineering > Departments

Oracle Bills of Material > Departments

Oracle Engineering > Overhead Rates

Oracle Bills of Material > Overhead Rates

Oracle Engineering > Resources

Oracle Bills of Material > Resources

Oracle Engineering > Shifts

Oracle Bills of Material > Shifts

Oracle Engineering > Capacity Changes

Oracle Bills of Material > Capacity Changes

Oracle Engineering > Engineering Routings

Oracle Bills of Material > Routings

Oracle Engineering > Routing Revisions

Oracle Bills of Material > Routing Revisions

Oracle Engineering > Viewing Routings

Oracle Bills of Material > Viewing Routings

Oracle Engineering > Reports

Oracle Bills of Material > Reports

Oracle Engineering > Operation Resources

Oracle Bills of Material > Operation Resources

Oracle Engineering > Standard Operations

Oracle Bills of Material > Standard Operations

Oracle Engineering > Resources

Oracle Bills of Material > Resources

Oracle Engineering > Resource WhereUsed

Oracle Bills of Material > Resource WhereUsed

Oracle Engineering > Attachments

Oracle Bills of Material > Attachments

Oracle Engineering > Operation Documents

Oracle Bills of Material > Operation Documents

Oracle Engineering > Common Routing

Oracle Bills of Material > Common Routing

Oracle Engineering > Copy Routing

Oracle Bills of Material > Copy Routing

Oracle Engineering > Import Bills and Routings

Oracle Bills of Material > Import Bills and Routings

Oracle Engineering > Engineering Master Items

Oracle Engineering > Engineering Organization Items

Oracle Inventory > Master Items

Oracle Inventory > Organization Items

Oracle Engineering > Engineering Routings

Oracle Bills of Material > Routings

Oracle Engineering > Operation Resources

Oracle Bills of Material > Operation Resources

Oracle Engineering > Calculate Lead Times

Oracle Bills of Material > Calculate Lead Times

Oracle Engineering > Transfer to Manufacturing

Oracle Engineering > Copy to Manufacturing

Create Routings

Oracle Manufacturing Release 11*i*

Agenda

Agenda

- Introduction
- Overview
- Maintaining the workday calendar
- Defining resources and departments
- Creating routings
- Calculating lead times
- Transferring product information
- Summary

Agenda

Agenda

- **Introduction**
- Overview
- Maintaining the workday calendar
- Defining resources and departments
- Creating routings
- Calculating lead times
- Transferring product information
- Summary

Objectives

After completing this module, you should be able to:

- Maintain the workday calendar
- Define resources and departments
- Create routings
- Calculate lead times
- Transfer product information

Using Oracle Applications Help

Using Oracle Applications Help

1. Navigate to the Oracle Applications Navigator.
2. Select Help—>Window Help from the menu bar. The Oracle Applications Help window is displayed.
3. Enter your search criteria, enclosed within quotation marks, in the Help field and click Find. Oracle Applications Help displays a list of topics that meet your search criteria.
4. Click a topic to view detailed information.

Note: Click Search Instructions for help with searching Oracle Applications Help.

Using Oracle Applications Help Within a Window

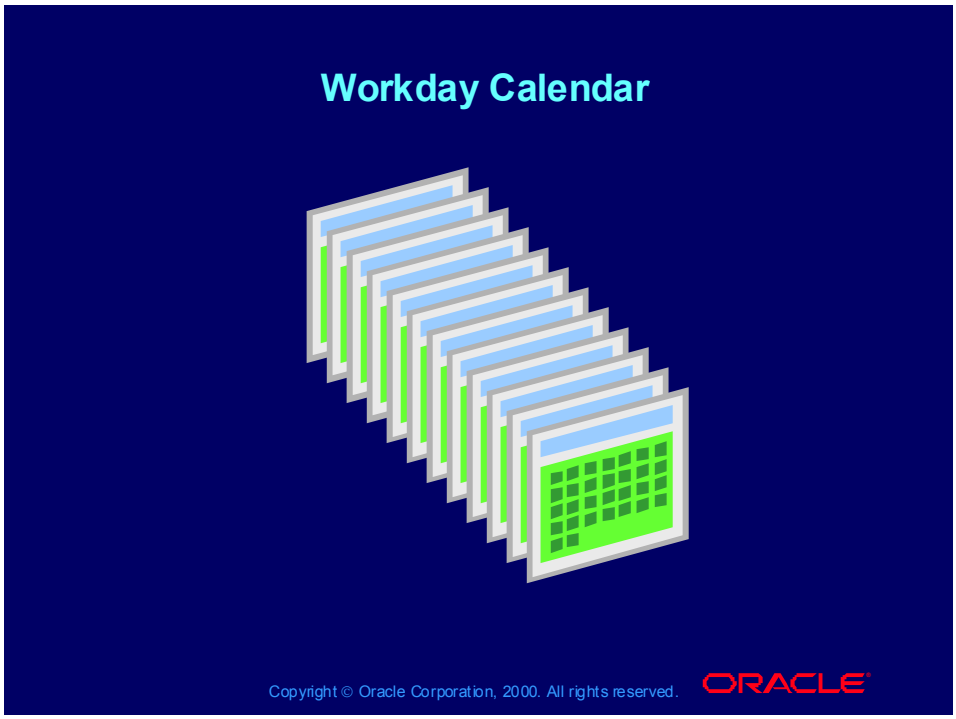
Using Oracle Applications Help Within a Window

1. Open a window in the application you are using.
2. Select Help—>Window Help from the menu bar. Oracle Applications Help displays detailed information about the window you opened, including step-by-step instructions for entering information in each field in the window.

Agenda

Agenda

- Introduction
- **Overview**
- Maintaining the workday calendar
- Defining resources and departments
- Creating routings
- Calculating lead times
- Transferring product information
- Summary



Workday Calendar

You use the workday calendar to specify to the Oracle manufacturing applications your workdays, your non-workdays, and your shifts.

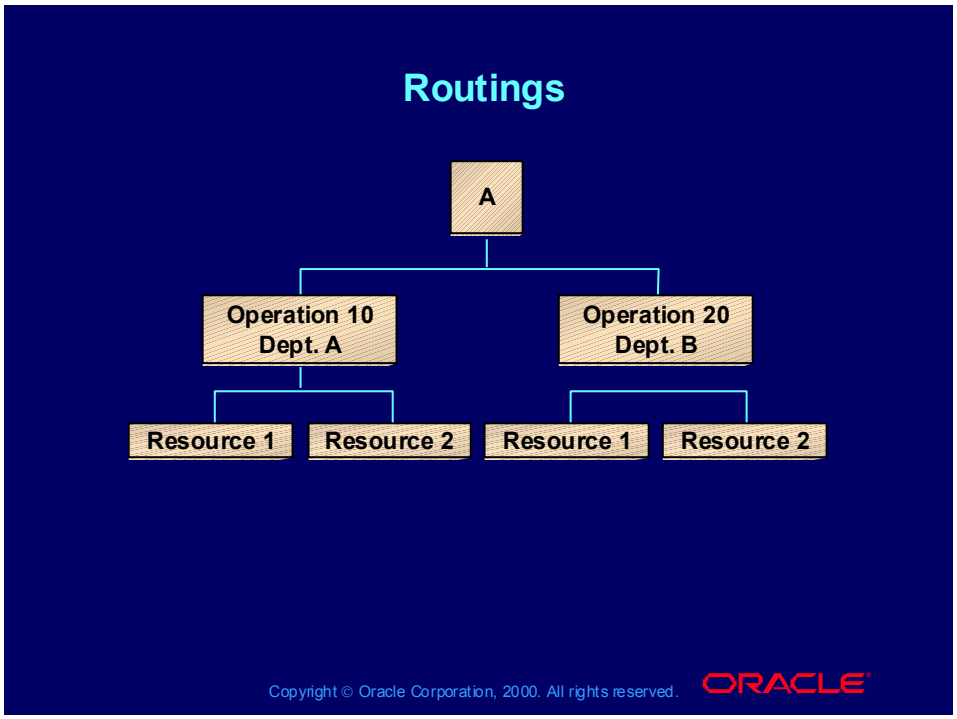
Workday exceptions make allowances for the days that will not conform to the workday pattern.

Shifts are the times when workers will be productive and do not include breaks, lunch or any other scheduled nonproductive time.

Resources and Departments

Resources are anything—except component material—required to manufacture, cost, and schedule products. Each costed resource can have any number of associated costs, including overhead cost. Once you assign resources to routings, other Oracle Applications use them for setting item standard costs, scheduling discrete jobs, and planning for capacity.

A *department* is a collection of resources designed to do certain tasks. A *department class* is a collection of departments.



Routings

You use routings to specify the resources and departments that you use to manufacture, cost, and schedule assembly items. You must create resources and departments before you create routings.

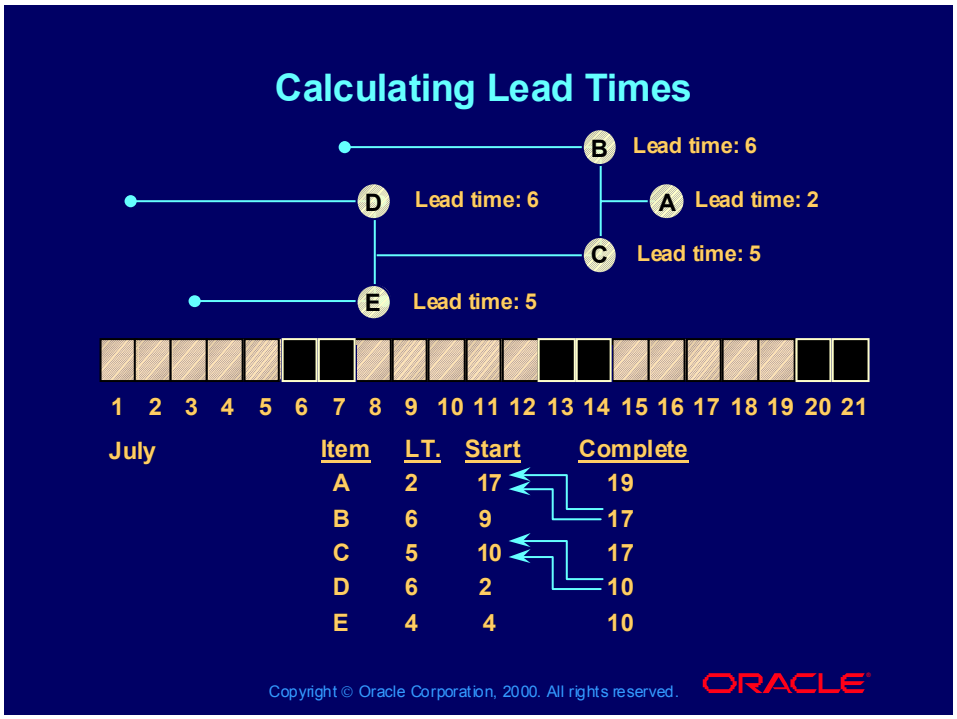
You assign department resources to an operation.

If you need to have identical routings for more than one item, you can use the common routings feature.

Create routings by copying an existing routing.

You can review the information you have entered with reports and view screens.

Calculating Lead Times

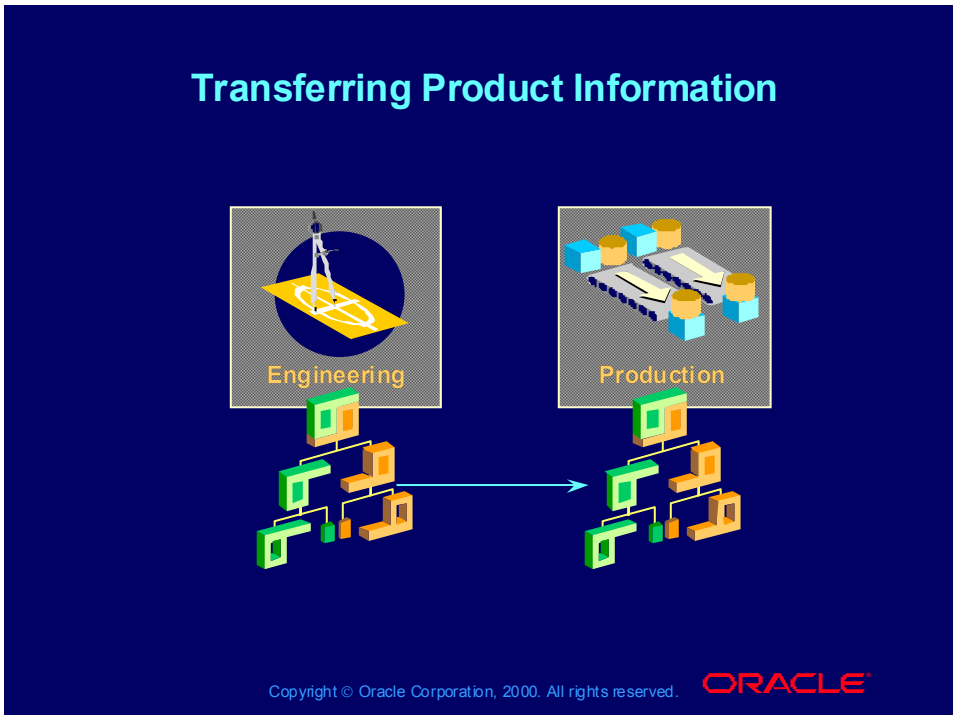


Lead Times

Lead times are item, operation, and operation resource attributes that refer to the amount of time you need to obtain or manufacture an item.

You can:

- Plan material and resources quickly and accurately.
- Establish appropriate planning time fences for products.
- Create purchase orders for material, accounting for vendor lead time.
- Schedule material to arrive at an operation where it is consumed.
- Schedule each resource at an operation where it is consumed.
- Promise accurate product shipment dates.



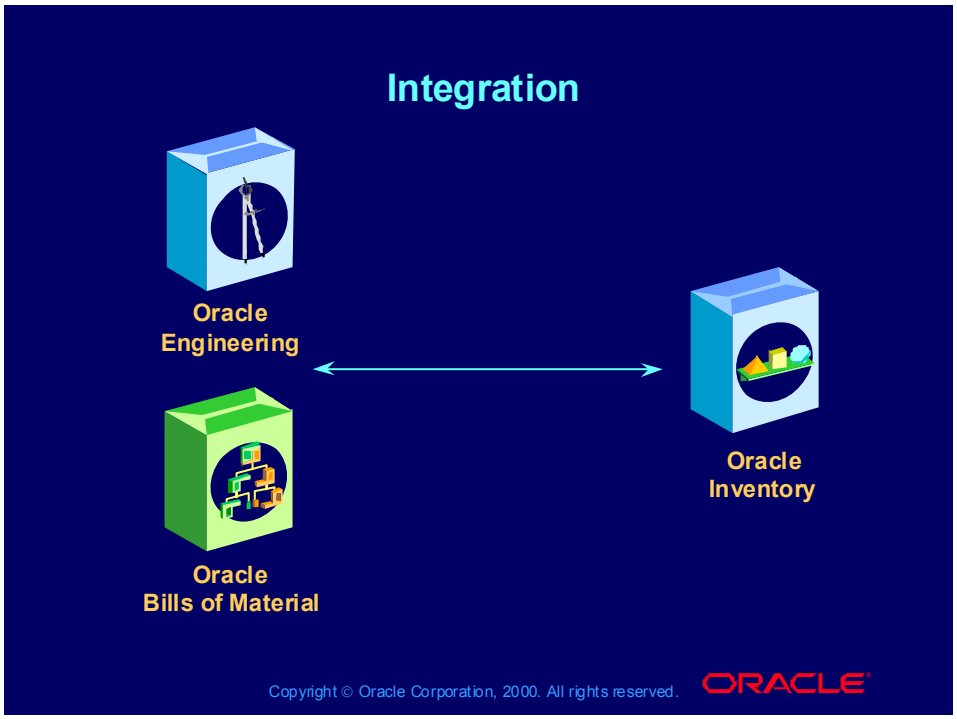
Transferring Product Information

When you decide that engineering information is ready for production, you transfer the product information (items, bills of material, and routing) from engineering to manufacturing.

Transferring removes the information from the engineering side and adds it to the manufacturing side.

Copying leaves the information in the engineering side and creates a new item, bill of material, and routing on the manufacturing side.

Integration

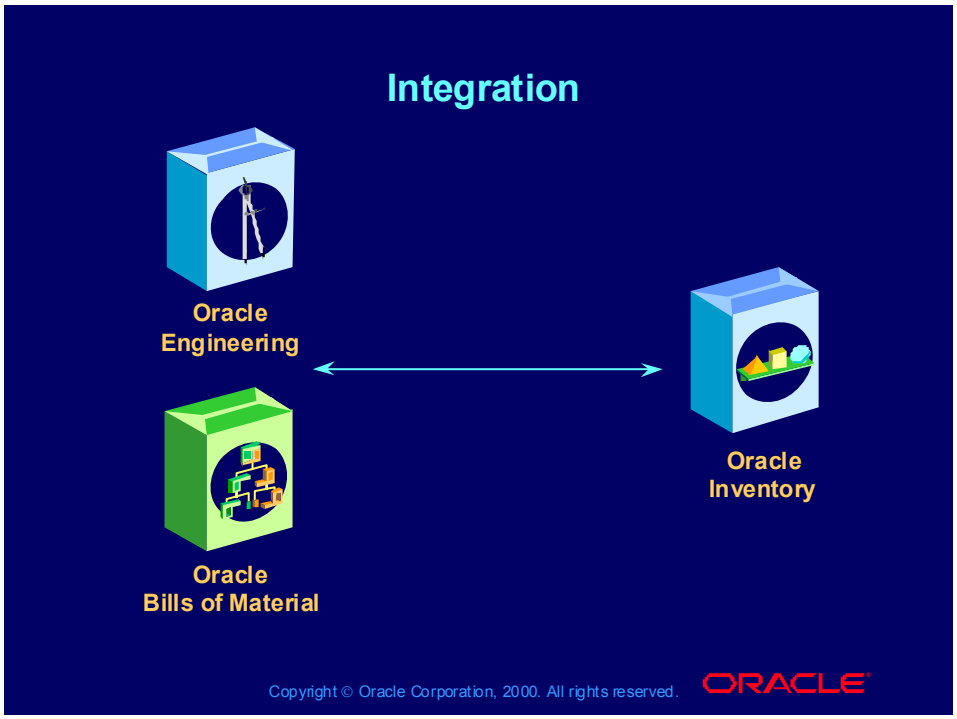


Integrating with Oracle Inventory

You can use items from Oracle Inventory as assemblies for engineering or bills of material routings.

Use lead times to perform reorder point planning.

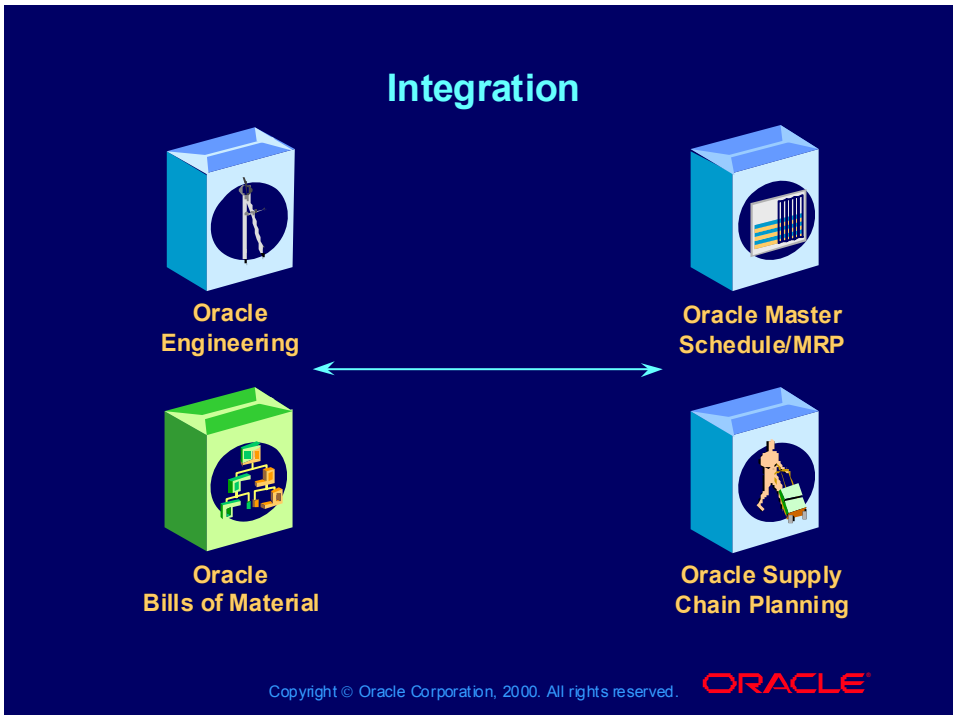
Integration



Integrating with Oracle Work in Process (WIP)

When you create discrete jobs and repetitive schedules, Oracle Work in Process (WIP) bases the operations list on the routings of the assembly.

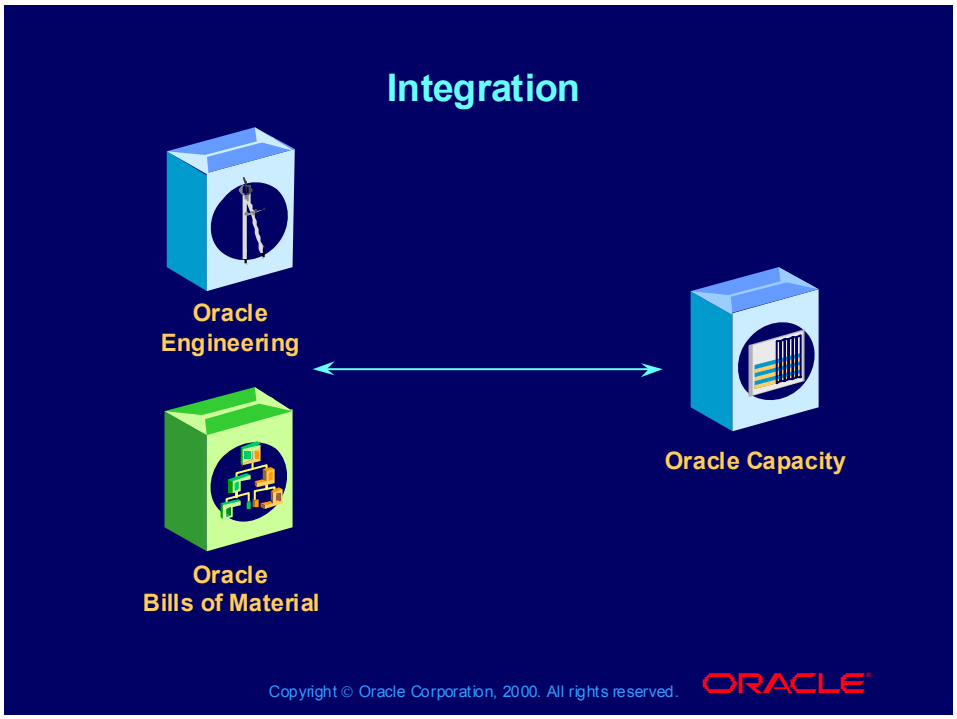
Discrete job detailed scheduling uses resource times from the routings of the assembly.



Integrating with Oracle Master Scheduling/MRP and Oracle Supply Chain Planning

The requirements explosion helps you use lead times for lead time offset and time fences.

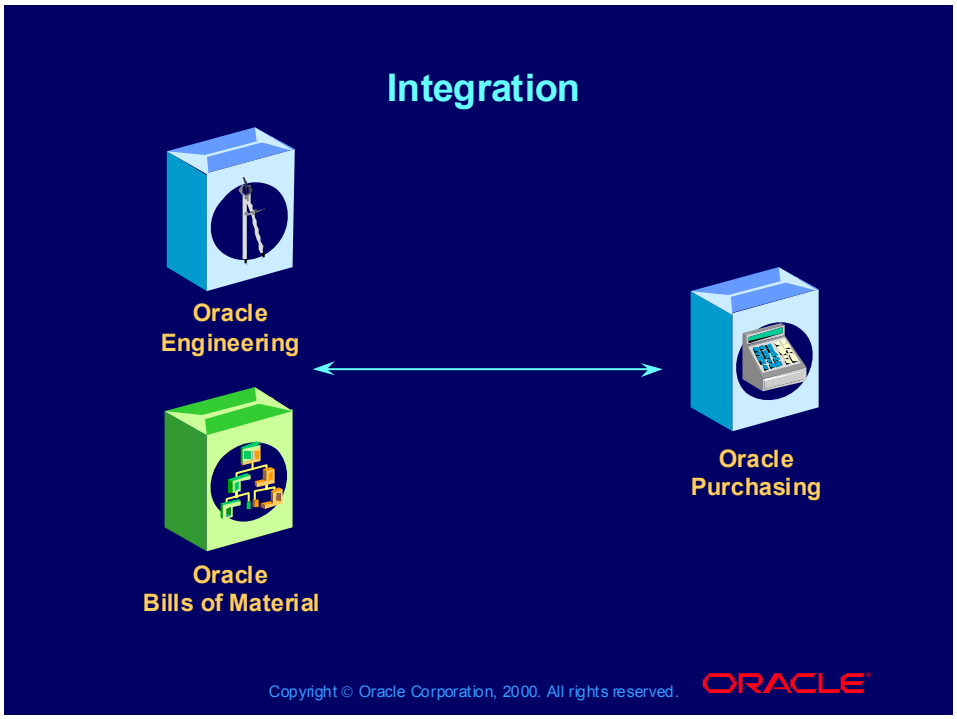
Integration



Integrating with Oracle Capacity

Capacity scheduling helps you use resource times from the routings of the assembly.

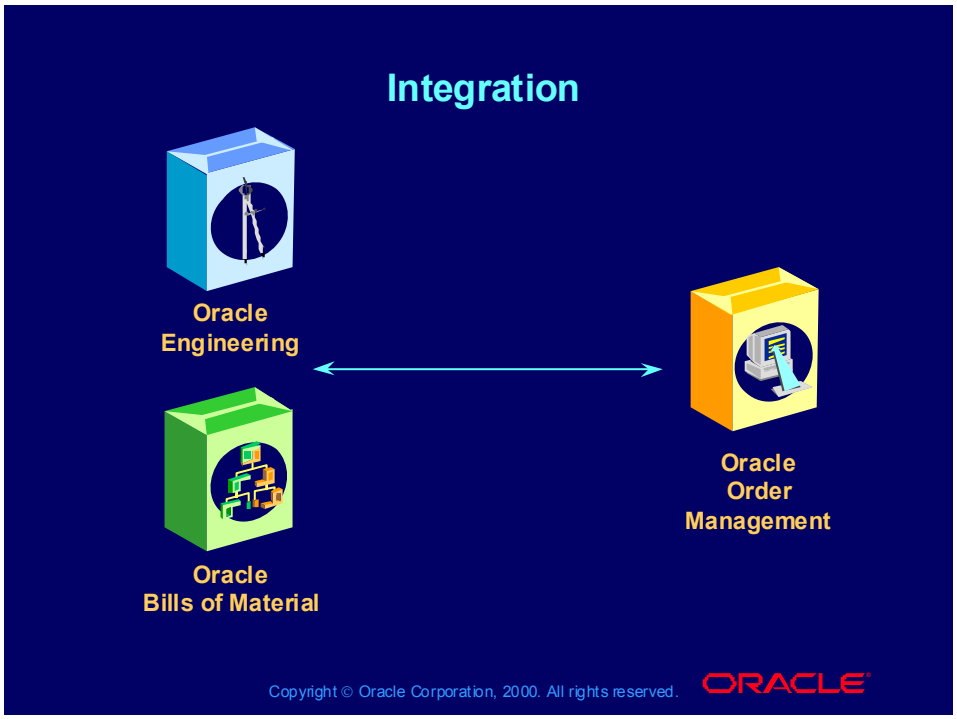
Integration



Integrating with Oracle Purchasing

Oracle Purchasing helps you use lead times for outside processing purchase requisitions and purchase orders.

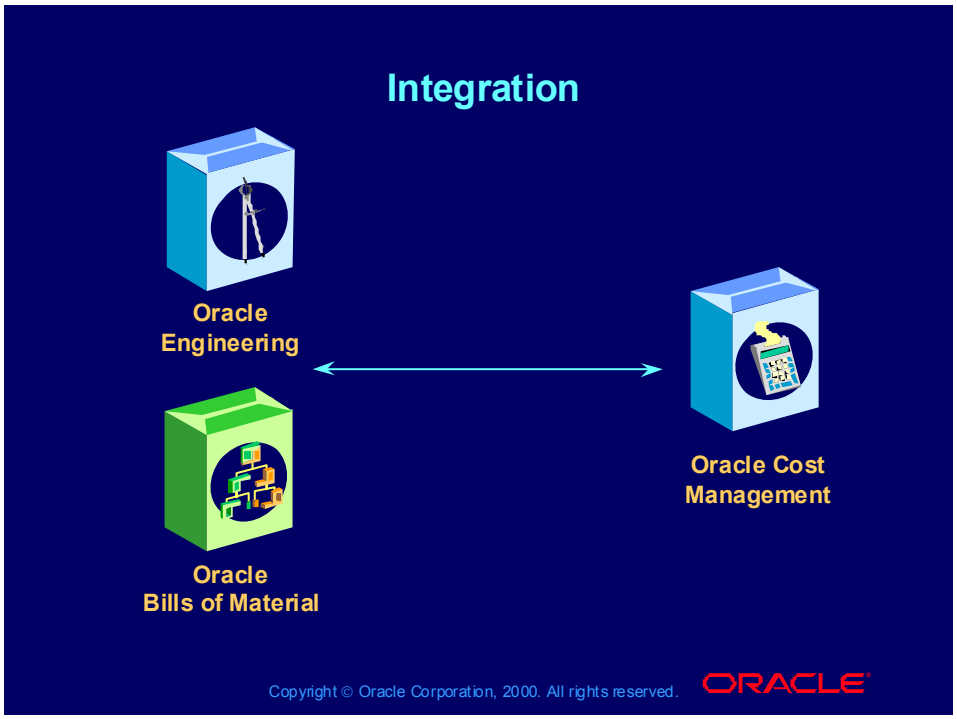
Integration



Integrating with Oracle Order Management

The assemble-to-order processes use model and option class routings to create configured routings that are unique to a sales order line.

Integration



Integrating with Oracle Cost Management

Oracle Cost Management helps you enter resource costs and overhead costs and department overhead costs for the cost rollup process to set standard costs.

Review Question

Review Question

What must you create before you create routings?

1. Resources and departments
2. Lead times and operations
3. Engineering information and lead times
4. Bills of material and resources

Answer to Review Question

What must you create before you create routings?

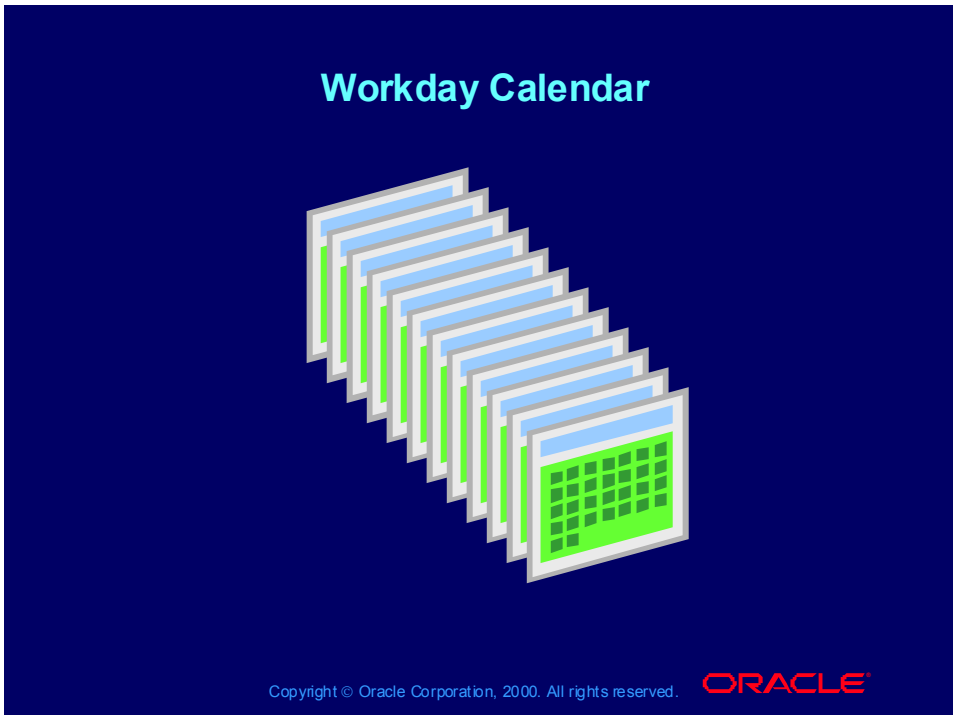
1. **Resources and departments**
2. Lead times and operations
3. Engineering information and lead times
4. Resources and bills of material

Agenda

Agenda

- Introduction
- Overview
- **Maintaining the workday calendar**
- Defining resources and departments
- Creating routings
- Calculating lead times
- Transferring product information
- Summary

Workday Calendar



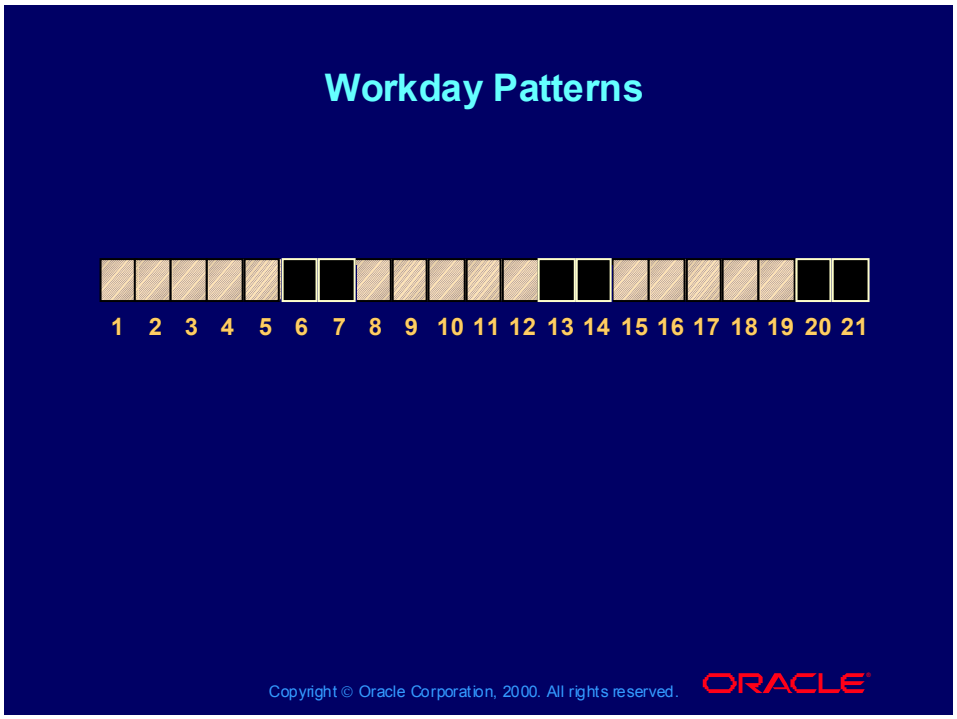
Workday Calendar

You use the workday calendar to specify to the Oracle manufacturing applications your workdays, your non-workdays, and your shifts. The workday calendar is different from the financial calendars.

To completely create a calendar, you need to:

- Create a calendar name and starting and completion dates
- Specify a general workday pattern
- Specify exceptions to the general workday pattern
- Specify shifts
- Specify a shift workday pattern if it is different from the general workday pattern
- Specify exceptions to any shift workday patterns
- Build the calendar

Workday Patterns

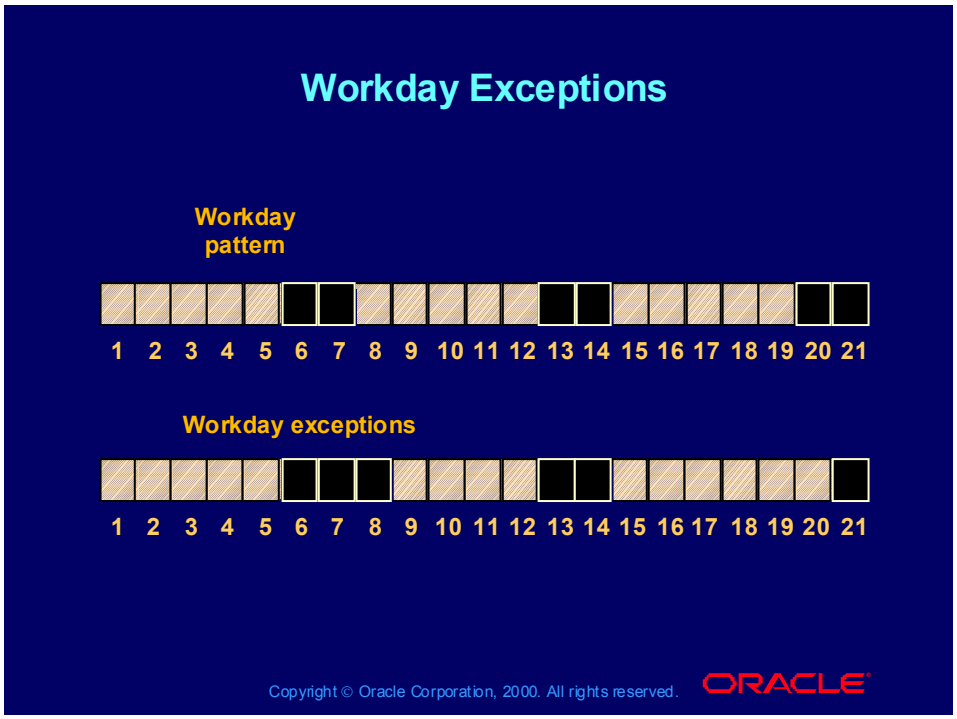


Workday Patterns

You specify the regular pattern of workdays *(days on)* and nonworkdays *(days off)*. The calendar build process denotes each day as a day on or a day off according to the workday pattern that you specify.

You must state a workday pattern for the plant. You can state a workday pattern for a specific shift.

Workday Exceptions



Workday Exceptions

You usually have exceptions to the regular workday pattern. Workday exceptions are:

- Specific days in the calendar that are days on according to the workday pattern but that are actually days off, such as holidays.
- Specific days in the calendar that are days off according to the workday pattern but that are actually days on, such as work on a weekend for the end of a quarter.
- You can state workday exceptions for the plant and for a specific shift. To specify exceptions, you can:
- View a graphical display of each month and select days that are exceptions
- Use a form to create a list of the exception days *(exception list)* for the calendar
- Copy exception lists from other calendars

Navigation Path

Navigation Path

Use the Exception Templates window to create workday exception templates.

In Oracle Bills of Material: (N) Setup > Exception Templates

(Help) Oracle Bills of Material > Workday Calendar > Creating a Workday Exception Template

Navigation Path

Navigation Path

Use the Workday Calendar window to create workday calendars.

In Oracle Bills of Material: (N) Setup > Calendars

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 3 (> Related Topics)

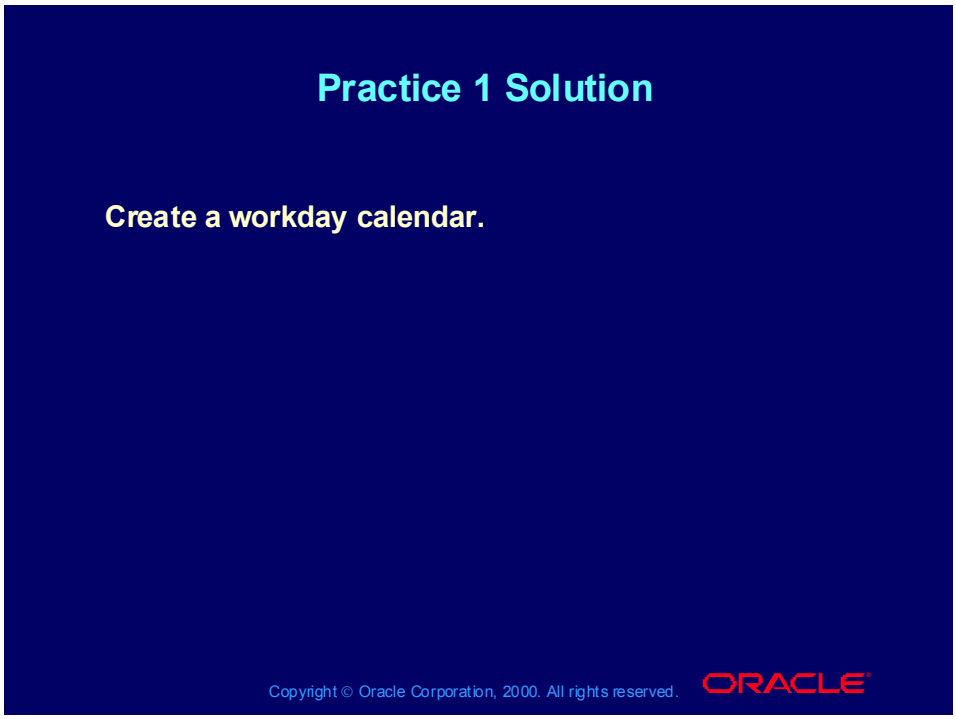
Practice 1 Overview

Practice 1 Overview

This practice covers creating a workday calendar.

Practice 1 Instructions

1. Create a workday calendar with a workday pattern and shifts that match your facility.
2. View the calendar months.
3. Apply exceptions to the calendar and view the exceptions if necessary.
4. Build the calendar.



Practice 1 Solution

1. Create a workday calendar with workday pattern and shifts that match your facility.

(N) Bills of Material > Setup > Calendars (B) Workday Pattern

(N) Bills of Material > Setup > Calendars (B) Shifts

2. View the calendar or shift months.

(N) Bills of Material > Setup > Calendars (B) Shifts (B) Dates

3. Apply exceptions to the calendar and view the exceptions if necessary.

(N) Bills of Material > Setup > Calendars (M) Tools > Exception Templates, then (B) Dates > Exception List or (B) Shifts (B) Dates > Exception List

To copy, use (N) Bills of Material > Setup > Calendars (M) Tools > Copy

4. Build the calendar.

(N) Bills of Material > Setup > Calendars (M) Tools > Build

Review Question

Review Question

Which entity is not part of the workday calendar process?

1. Build
2. Resources
3. Exceptions
4. Shifts

Answer to Review Question

Answer to Review Question

Which entity is not part of the workday calendar process?

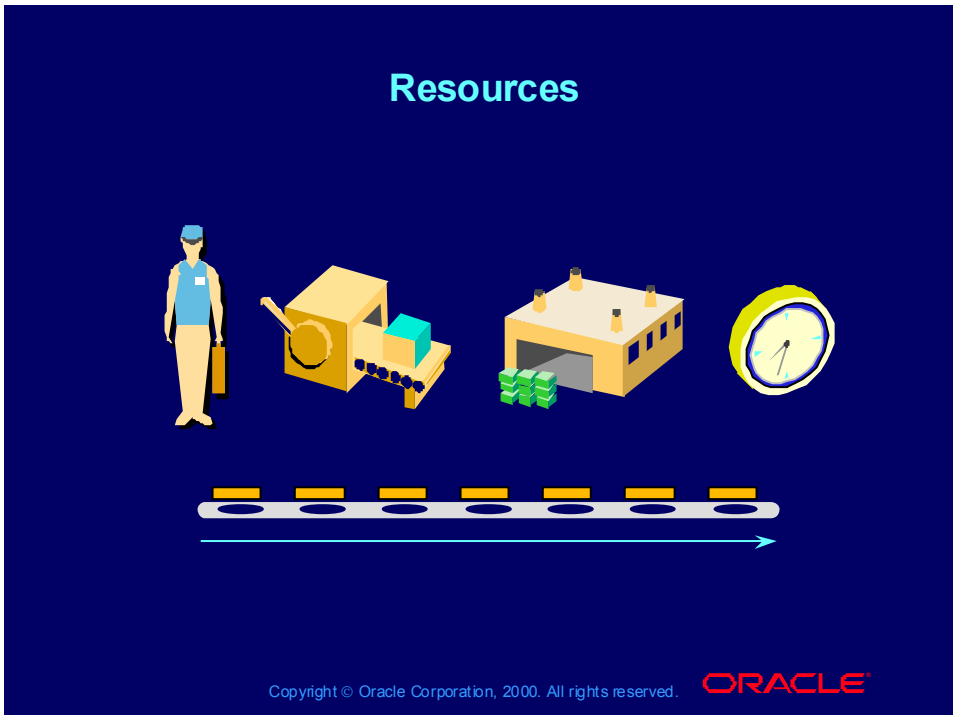
1. Build
2. **Resources**
3. Exceptions
4. Shifts

Agenda

Agenda

- Introduction
- Overview
- Maintaining the workday calendar
- **Defining resources and departments**
- Creating routings
- Calculating lead times
- Transferring product information
- Summary

Resources



Resources

Resources are anything—except component material—required to manufacture, cost, and schedule products. You identify resources, associate them with departments, state the resource work shifts. When you create routings, you as sign them to its operations. Once in the routings, the resources are used for setting item standard costs, scheduling discrete jobs, and planning for capacity.

For discrete manufacturing, resources include people (for example, a machinist), machines or tools (for example, a drill press), space (for example, a finished goods stockroom), and time (for example, queue time).

When you charge a resource, you add the cost of the resource to the cost of a discrete job or a repetitive schedule in Oracle Work in Process (WIP).

You can permanently adjust the availability of the resource by using the following factors:

· Utilization: The percent of time during which the resource is not performing work on a product as described in the manufacturing routings. The routings describe setup, run, and teardown times. For example, an employee who is present for eight hours each day attends a planning meeting for one-half hour at the beginning of each day and cleans up for one-half hour at the end of each day. The employee's utilization is seven hours of eight hours (7 / 8 * 100) or 87.5 percent.

· Efficiency: The percent of work that the resource can produce in a day in relation to the standard times. For example, an employee is

new and you expect that, for the first six months, the employee will be able to complete 75 percent of the work of more experienced

employees doing the same work. Since you set your standard times based on experienced employees, you indicate the new

employee's utilization at 75 percent.

Navigation Path

Navigation Path

Use the Resources window to define resources.

In Oracle Engineering: (N) Prototypes > Routings > Resources
In Oracle Bills of Material: (N) Routings > Resources
(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 7

Navigation Path

In Oracle Engineering: (N) Prototypes > Routings > Resources (B) Rates

In Oracle Bills of Material: (N) Routings > Resources (B) Rates

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 7

Navigation Path

Navigation Path

Use the Resource Overhead Associations window to specify the overhead charge type, cost, and resource overhead.

In Oracle Engineering: (N) Prototypes > Routings > Resources (B) Overheads

In Oracle Bills of Material: (N) Routings > Resources (B) Overheads

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 7

Navigation Path

Navigation Path

Use the Quick Codes (CRP_RESOURCE_GROUPS) window to define resource groups.

In Oracle Bills of Material: (N) Setup > Resource Groups

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 8

Navigation Path

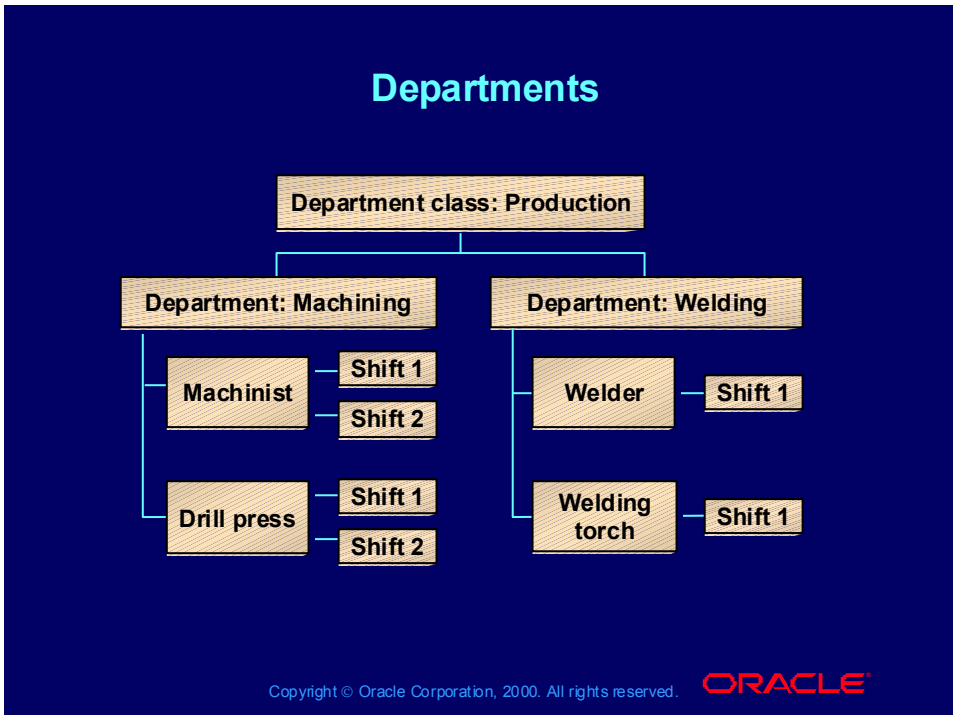
Navigation Path

Use the Simulation Sets window to define simulation sets.

In Oracle Bills of Material: (N) Setup > Simulation Sets

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 9

Departments



Departments and Department Classes

A *departments* is a collection of resources designed to do certain tasks. For example, you might group the drill presses and machinists into a department. Departments are also called *work centers*.

A *department class* is a collection of departments. For example, you might group the welding, machining, plating, and painting departments into the "manufacturing" department class, and you might group the unit test and final test departments into the "quality" department class.

Resources, Departments, and Shifts

You assign resources to one or more departments, and you can share resources with other departments.

A shift represents a period of time during which a resource is available for work. You specify the times for your shifts in the workday calendar. When you assign the resource to its department, you specify the shifts in which the resource is available.

Navigation Path

Navigation Path

Use the Department Classes window to define department classes.

In Oracle Bills of Material: (N) Setup > Department Classes

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 6

Navigation Path

Navigation Path

Use the Location window to define locations to use with outside processing items.

In Oracle Bills of Material: (N) Setup > Locations

(Help) Oracle Purchasing > Setting Up > Defining Locations

Navigation Path

Navigation Path

Use the Departments window to define departments.

In Oracle Engineering: (N) Prototypes > Routings > Departments

In Oracle Bills of Material: (N) Routings > Departments

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 11

Navigation Path

Navigation Path

Use the Overhead Rates window to associate overheads with departments.

In Oracle Engineering: (N) Prototypes > Routings > Departments (B) Rates

In Oracle Bills of Material: (N) Routings > Departments (B) Rates

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 14

Navigation Path

Navigation Path

Use the Resources window to assign resources to departments.

In Oracle Engineering: (N) Prototypes > Routings > Departments (B) Resources

In Oracle Bills of Material: (N) Routings > Departments (B) Resources

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 12

Navigation Path

Navigation Path

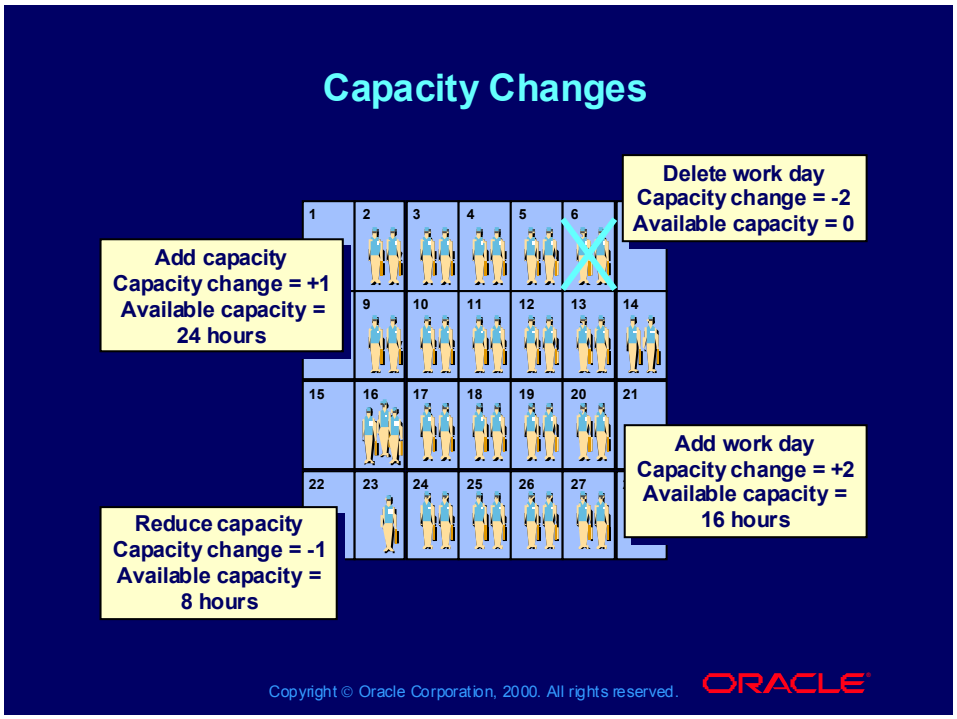
Use the Shifts window to specify resource shifts.

In Oracle Engineering: (N) Prototypes > Routings > Departments (B) Resources (B) Shifts

In Oracle Bills of Material: (N) Routings > Departments (B) Resources (B) Shifts

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 12

Capacity Changes

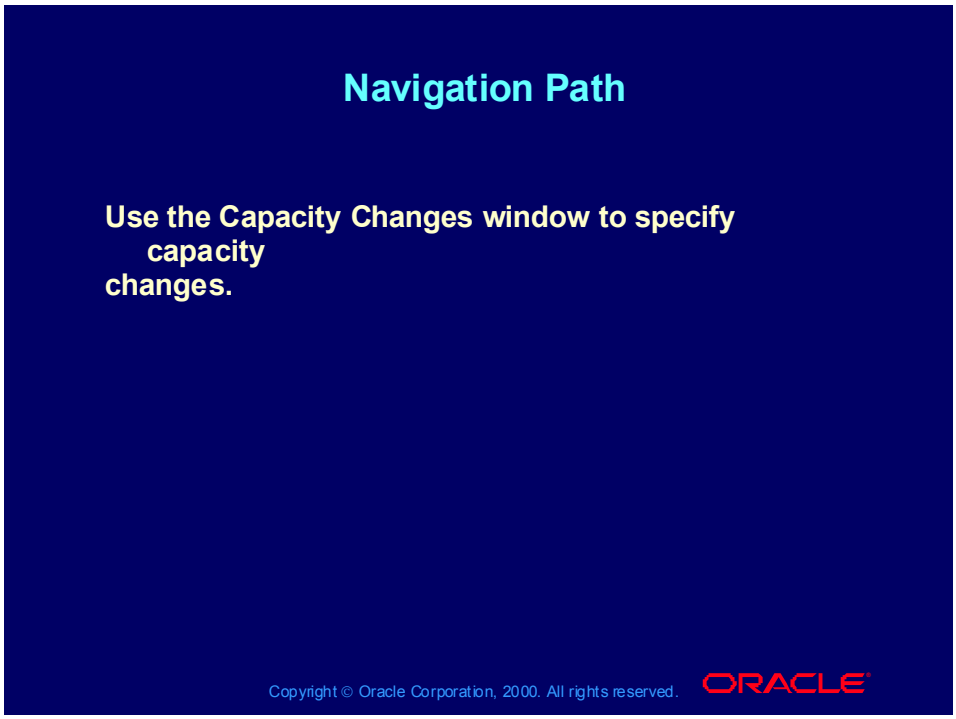


Capacity Changes

A *capacity change* is a temporary change to the available capacity of a resource—for example, work on a specific Saturday. You identify a capacity modification for a resource within a shift for a resource. When you plan capacity or detail schedule a resource that has capacity modifications, the planning and scheduling processes might schedule work on a different day than they would have scheduled the same work if there were no capacity change.

A *simulation set* is the label for a group of capacity changes needed for a specific purpose—for example, a vacation schedule or an end-of-quarter overtime schedule. You can simulate capacity changes by performing a capacity plan using a simulation set.

Navigation Path



In Oracle Engineering: (N) Prototypes > Routings > Departments (B) Resources (B) Shifts (B) Capacity Changes

In Oracle Bills of Material: (N) Routings > Departments (B) Resources (B) Shifts (B) Capacity Changes

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 12

Practice 2 Overview

Practice 2 Overview

This practice covers creating resources, department classes, and departments.

Practice 2 Instructions

1. Create a department class code XX-PCMFG with description PC Manufacturing Department Class.

2. Create resources using the following table:

Note: XX represents your team.

Resource	Description	Type
XXInserter	Auto Inserter	Machine
XXAssblr	Labor Grade 1	Person
XXTester	Tester	Person

Note: For each resource, use the following additional information:

•UOM: HR

•Autocharge: WIP Move

•Default Basis: Item

•Costed: Yes

•Standard Rate: Yes

•Absorption Account: Any account number

•Variance Account: Any account number

•Overheads: Do not enter

•Resource Costs: Do not enter

•3. Create departments using the following table:

•Department	Description	Resource Name	Capacity Units
•XX-AutoIns	Auto Insertion	XXInserter	1
•XX-ManAssy	Manual Assy	XXAssblr	10
•XX-Test	Testing	XXTester	3
•XX-PCFinal	PC Final Assy	XXAssblr	4
•XX-PCFinal	PC Final Assy	XXTester	2

•Assign departments to class XX-PCMFG

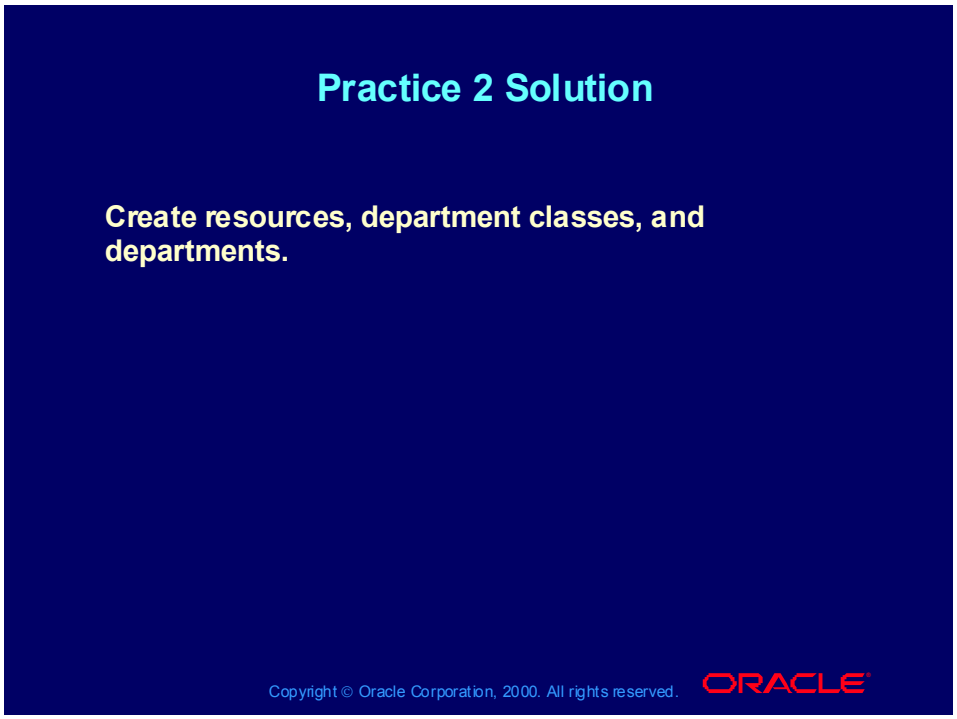
•**Note:** For each resource, use the following additional information:

•Class: XX-PCMFG

•Shared: No

•Available 24 Hours: No

•Assigned Shifts: 1



Practice 2 Solution

1. Create a department class code XX-PCMFG with description PC Manufacturing Department Class.

(N) Bills of Material > Setup > Department Classes

2. Create resources using the following table:

Note: XX represents your initials.

Resource	Description	Type
XXInserter	Auto Inserter	Machine
XXAssblr	Labor Grade 1 Person	
XXTester	Tester	Person

Note: For each resource, use the following additional information:

•UOM: HR

•Charge Type: WIP Move

•Default Basis: Item

•Costed: Yes

•Standard Rate: Yes

•Absorption Account: Any account number

•Variance Account: Any account number

•Overheads: Do not enter

•Resource Costs: Do not enter

•**(N) Engineering > Prototypes > Routings > Resources**

•3. Create departments using the following table:

•**Department**	**Description**	**Resource Name**	**Capacity Units**
•XX-AutoIns	Auto Insertion	XXInserter	1
•XX-ManAssy	Manual Assy	XXAssblr	10
•XX-Test	Testing	XXTester	3
•XX-PCFinal	PC Final Assy	XXAssblr	4
•XX-PCFinal	PC Final Assy	XXTester	2

•Assign departments to class XX-PCMFG.

•**Note:** For each resource, use the following additional information:

•Class: XX-PCMFG

•Share: No

•Available 24 Hours: No

•Assigned Shifts: 1

•**(N) Engineering > Prototypes > Routings > Departments**

Review Question

Which of the following Entity : Action pairs is not correct?

1. Resource : Assign to operation
2. Department class : Assign to department
3. Shift : Assign to resource
4. Capacity change : Assign to shift

Answer to Review Question

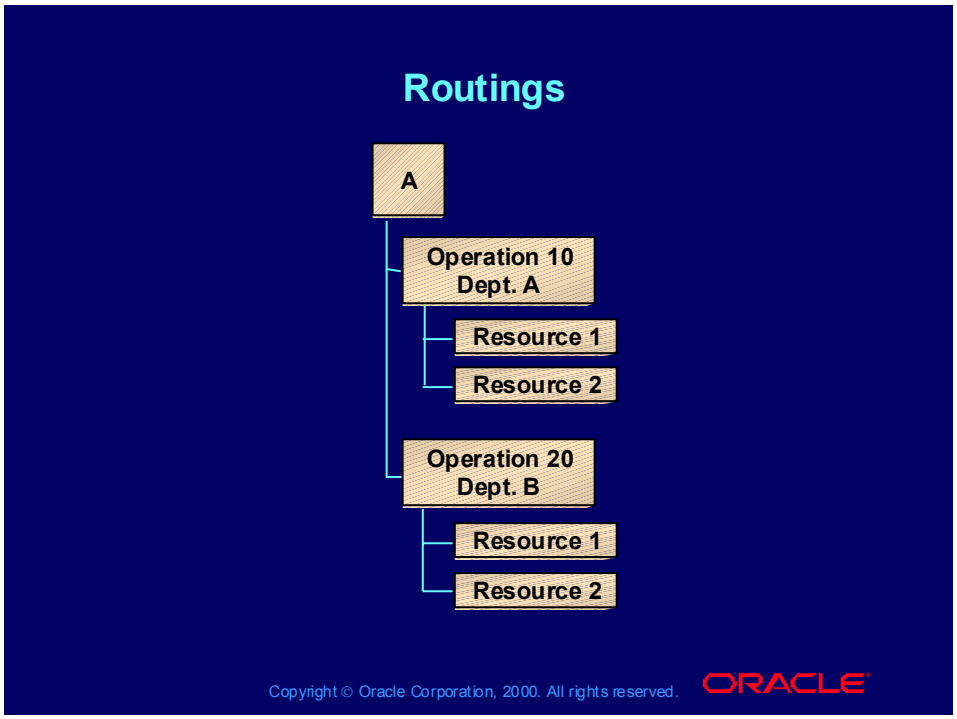
Which of the following Entity : Action pairs is not correct?

1. Resource : Assign to operation
2. **Department class : Assign to department**
3. Shift : Assign to resource
4. Capacity change : Assign to shift

Agenda

Agenda

- Introduction
- Overview
- Maintaining the workday calendar
- Defining resources and departments
- **Creating routings**
- Calculating lead times
- Transferring product information
- Summary



Engineering and Manufacturing Routings

You use routings to specify the process that you use to manufacture both discrete and repetitive assembly items. A routing consists of operation steps. Each operation step occurs at a department and contains resources that perform work, schedule time, or add cost to the assembly.

Engineering routings are routings that your engineering function creates. *Manufacturing routings* are routings that you use in production. You create engineering routings in Oracle Engineering and you create manufacturing routings in Oracle Inventory. They differ only in the following ways:

•Engineering routings have the routing Engineering attribute selected.

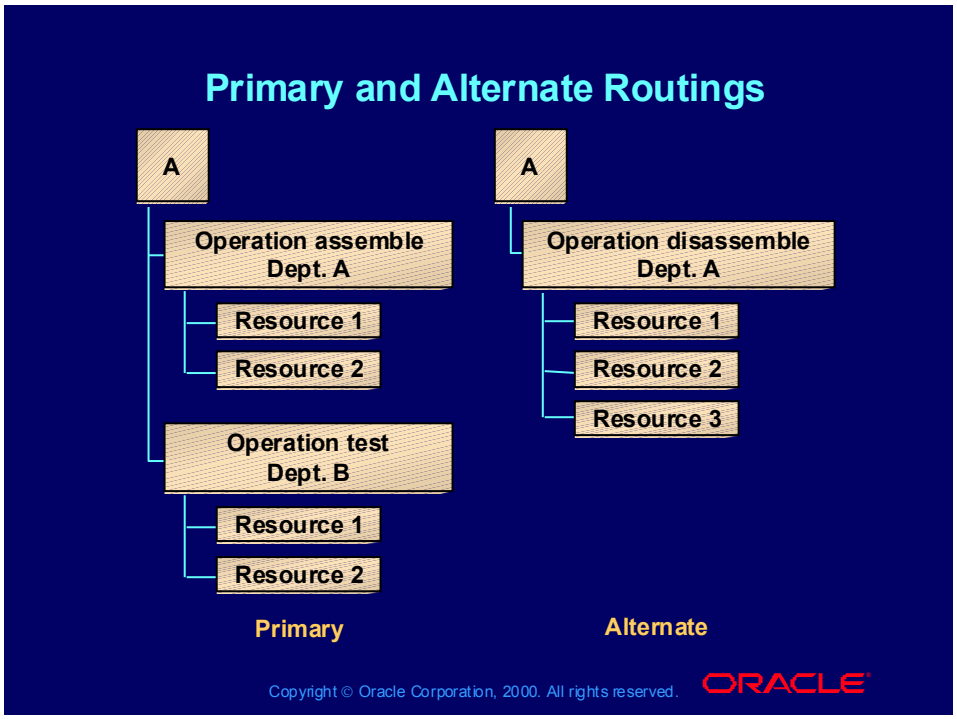
•Manufacturing routings have the routing Engineering attribute clear.

•You access the two through different navigation paths.

•They have different form titles.

•You create and change engineering routings using the Oracle Engineering forms; you create and change manufacturing routings using the Oracle Bills of Material forms.

Primary and Alternate Routings

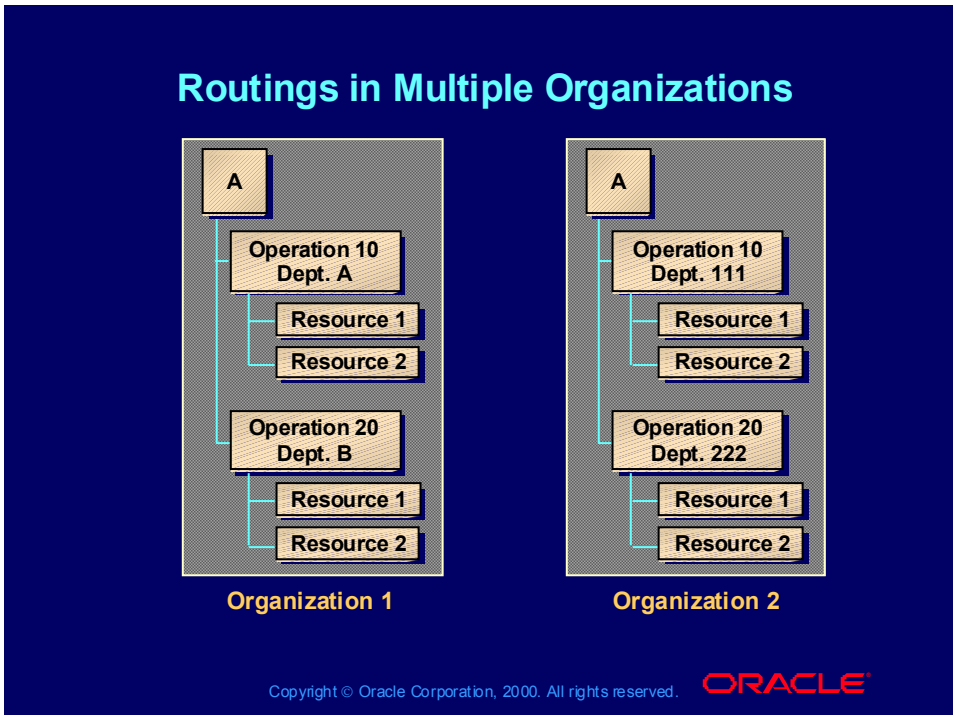


Defining Primary and Alternate Routings

Each item that has a routing has a primary routing. If you create other routings for items, you refer to them as *alternate routings.* You use alternate routings in the following ways:

- You identify each alternate routing by naming it. For example, you create a primary routing to use when you manufacture the item and you want to create another routing to use when you rework the item. Name the alternate routing Rework.
- You can create as many alternate routings as you need for any item. The alternate name must belong to the alternate list of values before you can use it.
- You must add the name of the alternate routing to the list before you use it.

When you create discrete jobs and repetitive schedules in Oracle Work in Process, you can specify which routing it should use when creating the operations list. If you use an alternate routing, you can automatically create a variance because standard cost is based on the primary routing.



Routings in Multiple Organizations

You create items in the master organization and assign them to the manufacturing and distribution organizations in which you use them. Within the assigned organization, you create routings.

Example

Creating a routing for item A in organization 1 with operation step 10 in department 111 and operation step 20 in department 222

Creating a routing for item A in organization 2 with operation step 10 in department 111 and operation step 20 in department 222

Creating a routing for item A in organization 3 with operation step 10 in department 333 and operation step 20 in department 444

Navigation Path

Navigation Path

Use the following windows to enter routings:

- Engineering Routings in Oracle Engineering
- Routings in Oracle Bills of Material

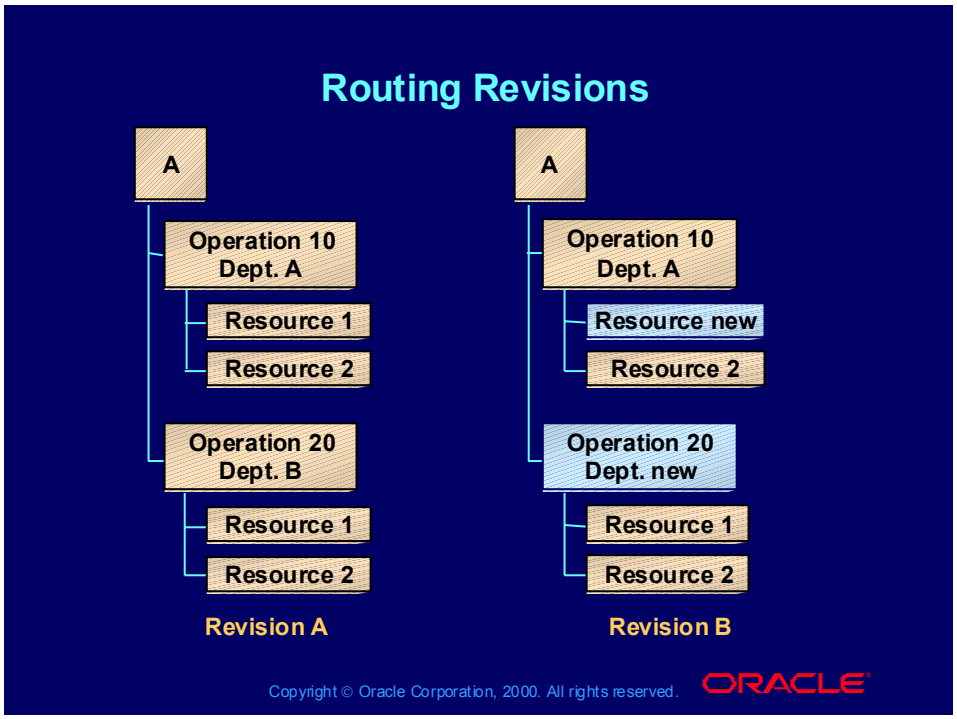
In Oracle Engineering: (N) Prototypes > Routings > Routings

In Oracle Bills of Material: (N) Routings > Routings

(Help) Oracle Bills of Material > Routings > Defining a Routing > Creating a Routing

(Help) Oracle Bills of Material > Routings > Defining a Routing > Assigning a Completion Subinventory and Locator

Routing Revisions



Defining Routing Revisions

A routing revision helps you indicate that the operations and resources of an item have changed. You do not have to use routing revisions when you change routings. Oracle Engineering and Oracle Bills of Material date stamp all changes that you make to routings when you increase the revision.

Navigation Path

Navigation Path

Use the Routing Revisions window to create routing revisions.

In Oracle Engineering: (N) Prototypes > Routings > Routings (B) Routing Revisions

In Oracle Bills of Material: (N) Routings > Routings (B) Routing Revisions

(Help) Oracle Bills of Material > Routings > Defining a Routing > Creating a Routing Revision

Navigation Path

Navigation Path

Use the Viewing Routings window to view routings.

In Oracle Engineering: (N) Prototypes > Routings > Routings
In Oracle Bills of Material: (N) Routings > Routings
(Help) <no help available>

Navigation Path

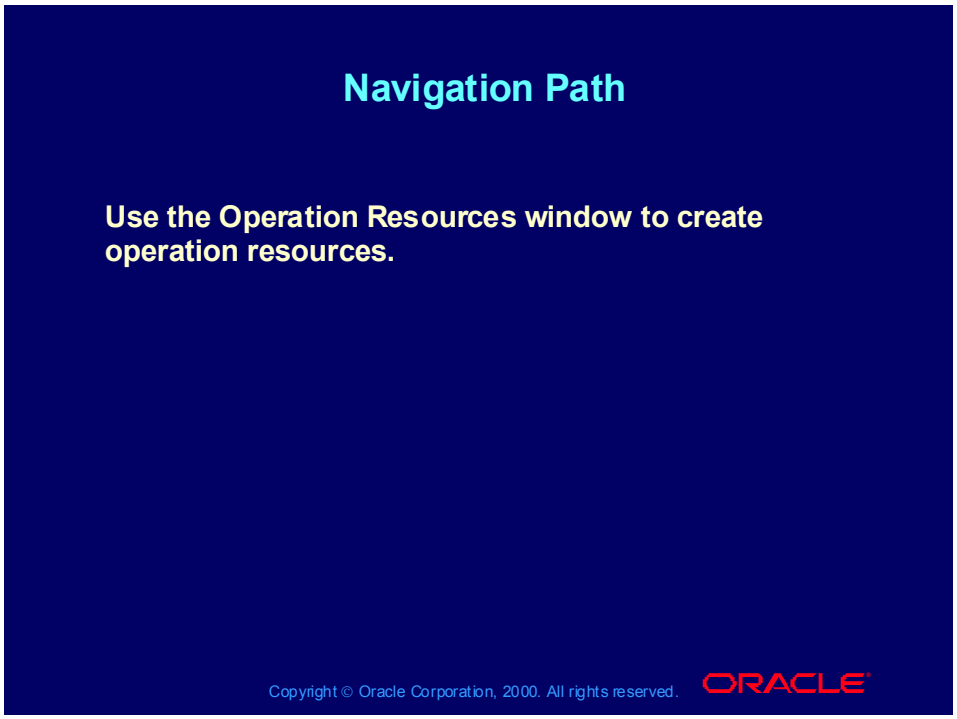
Navigation Path

Use the Reports window to request routing reports.

In Oracle Engineering and Oracle Bills of Material: (N) Reports > Routings

(Help) Oracle Bills of Material > Reports and Processes > ...

Navigation Path

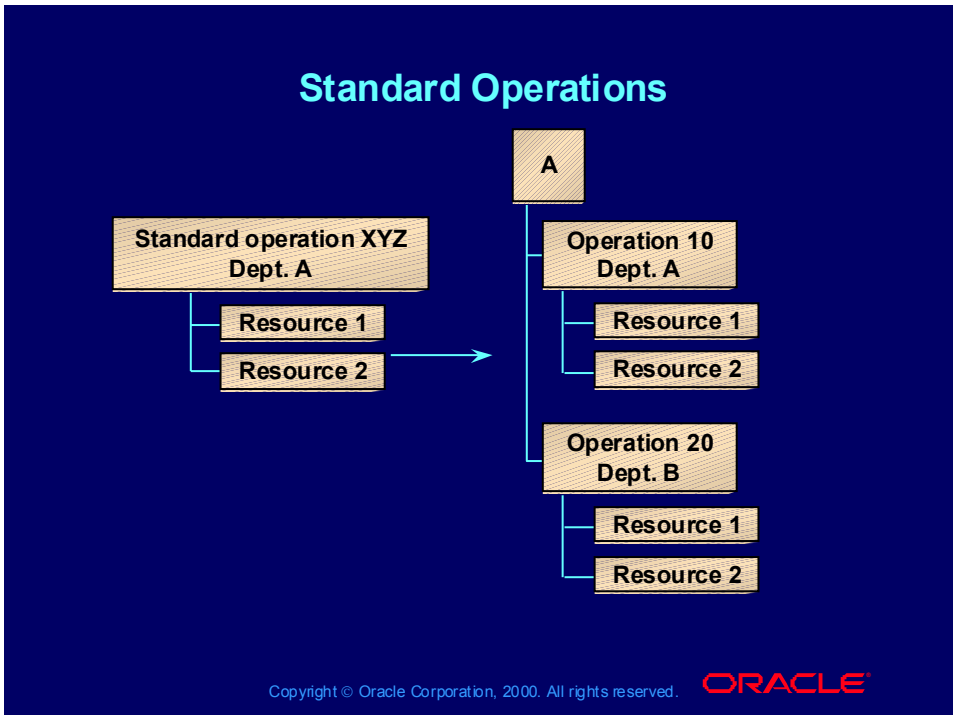


In Oracle Engineering: (N) Prototypes > Routings > Routings (B) Operation Resources

In Oracle Bills of Material: (N) Routings > Routings (B) Operation Resources

(Help) Oracle Bills of Material > Routings > Defining a Routing > Assigning Operation Resources

Standard Operations



Defining Standard Operations

A *standard operation* holds operation and resource information. Create a standard operation for an operation that you will use in many routings. As you create specific routings, you can copy standard operations to an operation. The operation and resource information will copy to the routing and you can change any of the information after the copying is complete.

A standard operation is not the same as a standard bill of material.

Navigation Path

Navigation Path

Use the Standard Operations window to create standard operations.

In Oracle Engineering: (N) Prototypes > Routings > Standard Operations

In Oracle Bills of Material: (N) Routings > Standard Operations

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 17

Navigation Path

Navigation Path

Use the Resources window to create standard operation resources.

In Oracle Engineering: (N) Prototypes > Routings > Standard Operations (B) Operation Resources

In Oracle Bills of Material: (N) Routings > Standard Operations (B) Operation Resources

(Help) Oracle Bills of Material > Setting Up > Setup Overview > Step 17

Navigation Path

Navigation Path

Use the Resource WhereUsed window to view the routings and operations that use a resource.

In Oracle Engineering: (N) Prototypes > Routings > Resource WhereUsed

In Oracle Bills of Material: (N) Routings > Resource WhereUsed

(Help) Oracle Bills of Material > Routings > Viewing Resource Usage

Navigation Path

Navigation Path

Use the Attachments window to add attachments to a routing.

In Oracle Engineering: (N) Prototypes > Routings > Routings (M) Edit > Attachments

In Oracle Bills of Material: (N) Routings > Routings (M) Edit > Attachments

(Help) Oracle Bills of Material > Routings > Defining a Routing > Attaching Files

Navigation Path

Navigation Path

Use the Operation Documents window to create and change routing attachments.

In Oracle Engineering: (N) Prototypes > Routings > Documents

In Oracle Bills of Material: (N) Routings > Documents

(Help) Oracle Bills of Material > Routings > Defining a Routing > Attaching Files > Related Topics > Defining Bill or Routing Operation Documents

Navigation Path

Navigation Path

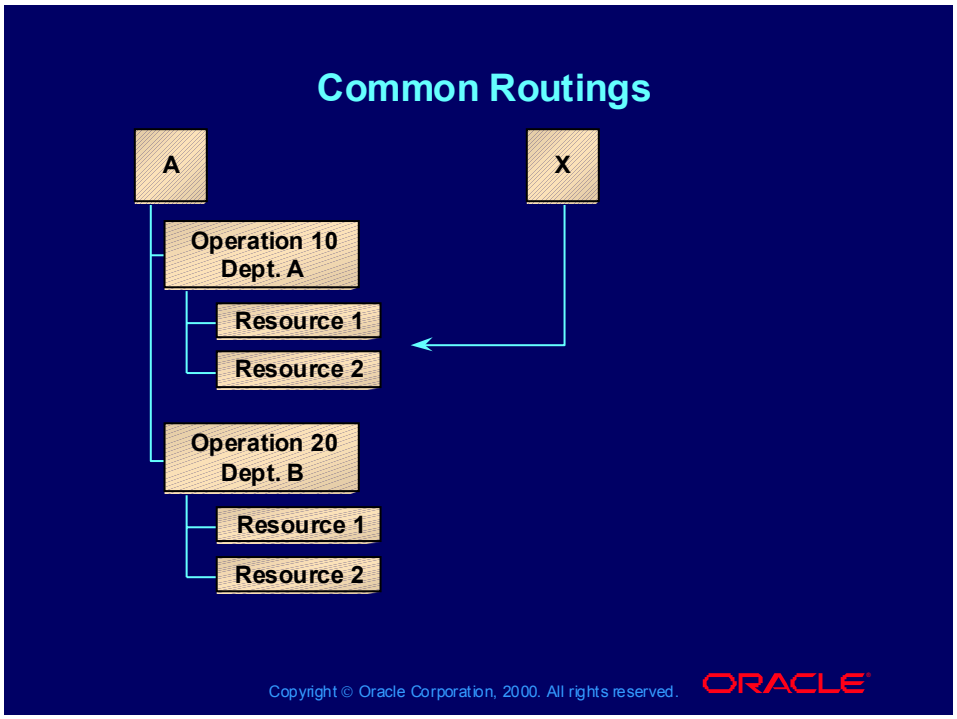
Use the Tools menu bar choice to perform a variety of routing functions.

In Engineering: (N) Prototypes > Routings > Routings (M) Tools

In Bills of Material: (N) Routings > Routings (M) Tools

(Help) Oracle Bills of Material > Routings > Routings Reference > Tools menu

Common Routings



Creating Common Routings

If you need to have identical routings for more than one item, you can save time and reduce the necessity for maintenance by using the *common routing* feature.

The routing you reference contains the operations and resources. The routing that is referencing does not contain operations and resources; it contains a link to the referenced routing. Any function that uses or views the referencing routing will use or view the routing of the referenced routing.

Make all changes to the original routing. The routings that reference the common routing will reflect the changes.

Navigation Path

Navigation Path

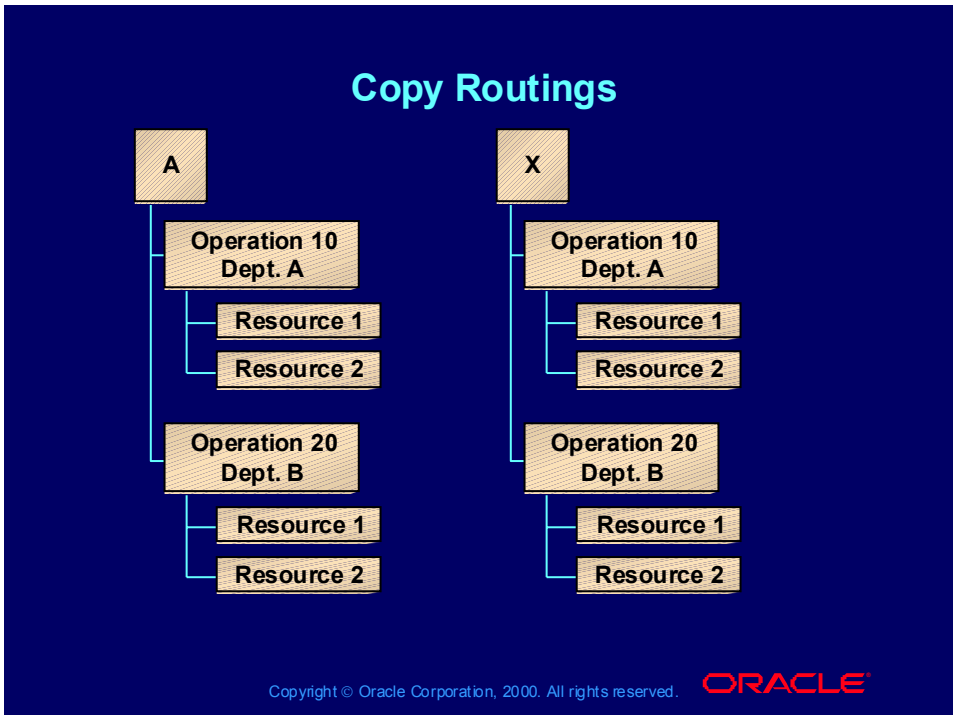
Use the Common Routing window to assign an item to a common routing.

In Oracle Engineering: (N) Prototypes > Routings > Routings (M) Tools > Assign Common Routing

In Oracle Bills of Material: (N) Routings > Routings (M) Tools > Assign Common Routing

(Help) Oracle Bills of Material > Routings > Defining a Routing > Referencing Common Bills and Routings

Copy Routings



Copy Routings

When you want to create similar, alternate routings for and item, you can save time creating routings by using the Copy Routing feature.

You create a routing by copying from:

The same or a different item number

The primary or an alternate bill for that item number

The item from which you copy retains its operations and resources. The item to which you copy contains the same operations and resources as the item from which you copy.

You can change anything on the copied routing *except* the item number and the operation number.

After copying, the two routings are no longer related. If you change one routing, you do not see the same change in the other routing.

Navigation Path

Navigation Path

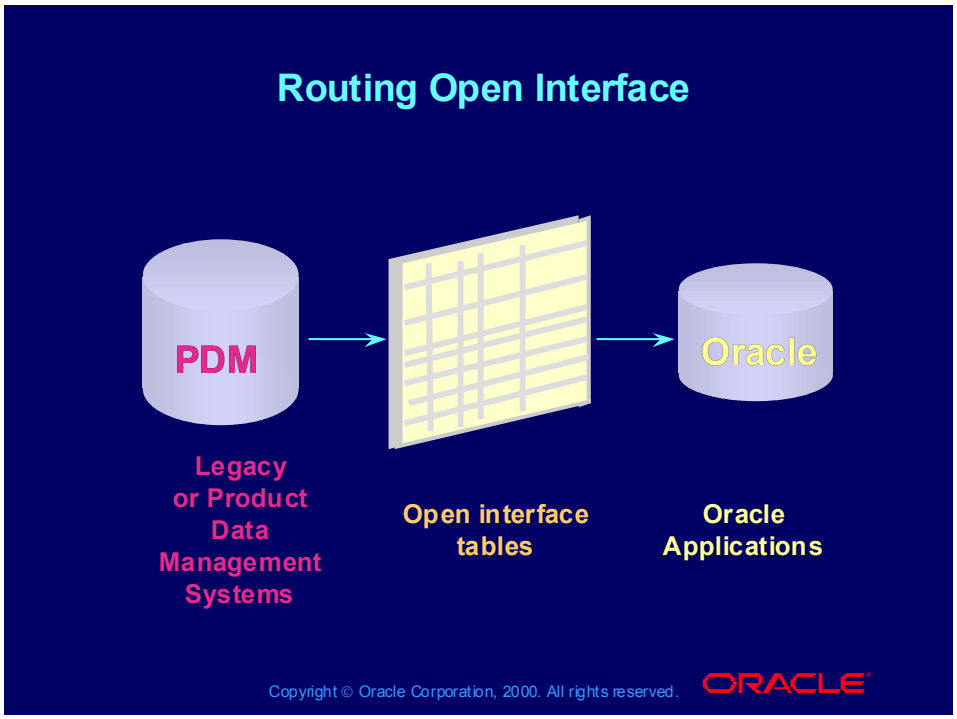
Use the Copy Routing window to copy the routing of one item as the routing of another item.

In Oracle Engineering: (N) Prototypes > Bills > Bills (M) Special > Copy Routing from

In Oracle Bills of Material: (N) Bills > Bills (M) Special > Copy Routing from

(Help) Oracle Bills of Material > Routings > Defining a Routing > Copying Bill & Routing Information

Routing Open Interface



Navigation Path

Navigation Path

Use the Import Bills and Routings window to create, update, and delete routing information from external systems.

In Oracle Engineering: (N) Prototypes > Routings > Import

In Oracle Bills of Material: (N) Routings > Import

(Help) Oracle Bills of Material > Routings > Importing Bills and Routings

Practice 3 Overview

Practice 3 Overview

This practice covers creating routings.

Practice 3 Instructions

1. Create a routing for item XX1000 using the following tables:

Note: XX represents your team.

Operation Sequence	Department	Description
100	XX-PCFinal	Assemble PC
200	XX-PCFinal	Test PC

Operation Sequence	Resource Sequence	Name	Usage Rate or Amount	Basis	Assigned Units
100	10	XXAssblr	0.25	Item	4
200	10	XXTester	0.5	Item	1

Note: For each resource, use the following additional information:

•UOM: HR

•Schedule: Yes

•2. Create a routing for item XX1040 using the following tables:

•Operation Sequence	Department	Description
•100	XX-PCFinal	Assemble CPU Chassis
•200	XX-PCFinal	Test CPU Chassis

•Operation Sequence	Resource Sequence	Name	Usage Rate or Amount	Basis	Assigned Units
•100	10	XXAssblr	0.5	Item	4
•200	10	XXTester	1	Item	1

•**Note:** For each resource, use the following additional information:

•UOM: HR

•Schedule: Yes

•3. Create a routing for item XX2010 using the following tables:

•**Operation Sequence**	**Department**	**Description**
•100	XX-AutoIns	Machine install components
•200	XX-ManAssy	Hand install components
•300	XX-Test	Test motherboard

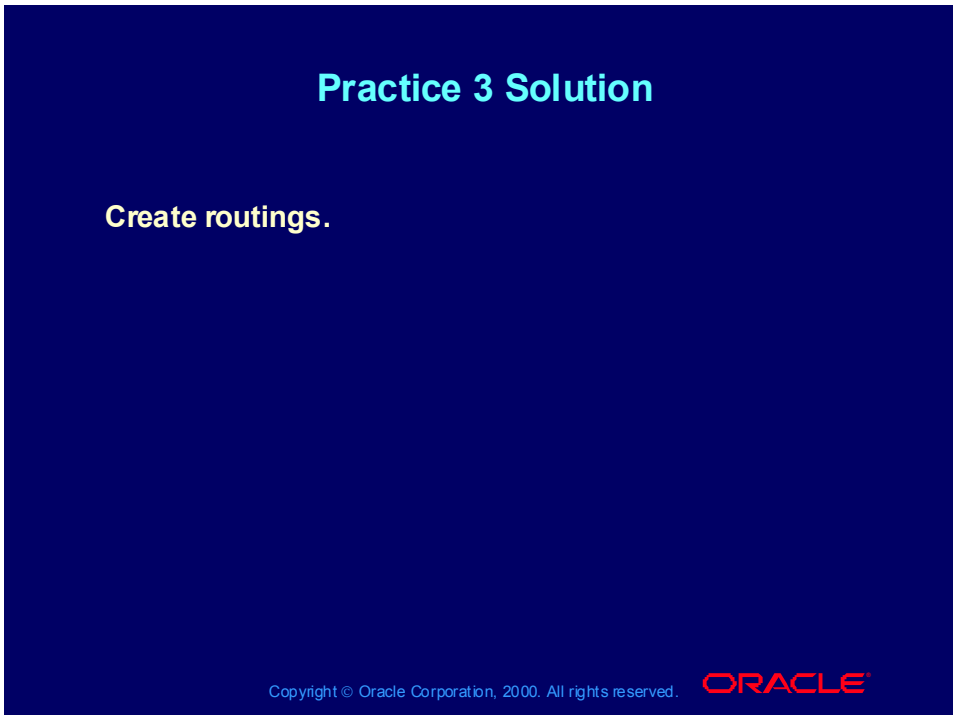
•**Operation Sequence**	**Resource Sequence**	**Name**	**Usage Rate or Amount**	**Basis**	**Assigned Units**
•100	10	XXInserter	2	Lot	1
•100	20	XXInserter	1	Item	1
•200	10	XXAsslbr	0.1	Item	10
•300	10	XXTester	2	Item	1

•**Note:** For each resource, use the following additional information:

•UOM: HR

•Schedule: Yes

•4. Return to your bill of material and assign routing operation sequences to your components.



Practice 3 Solution

1. Create a routing for item XX1000 using the following tables:

Note: XX represents your team.

Operation Sequence	Department	Description
100	XX-PCFinal	Assemble PC
200	XX-PCFinal	Test PC

Operation Sequence	Resource Sequence	Name	Usage Rate or Amount	Basis	Assigned Units
100	10	XXAssblr	0.25	Item	4
200	10	XXTester	0.5	Item	1

Note: For each resource, use the following additional information:

•UOM: HR

•Schedule: Yes

•(N) Engineering > Prototypes > Routings > Routings

•2. Create a routing for item XX1040 using the following tables:

•Operation Sequence	Department	Description
•100	XX-PCFinal	Assemble CPU Chassis
•200	XX-PCFinal	Test CPU Chassis

•Operation Sequence	Resource Sequence	Name	Usage Rate or Amount	Basis	Assigned Units
•100	10	XXAssblr	0.5	Item	4

•200	10	XXTester	1	Item	1

•**Note:** For each resource, use the following additional information:

•UOM: HR

•Schedule: Yes

•**(N) Engineering > Prototypes > Routings > Routings**

•3. Create a routing for item XX2010 using the following tables:

•**Operation Sequence**	**Department**	**Description**
•100	XX-AutoIns	Machine install components
•200	XX-ManAssy	Hand install components
•300	XX-Test	Test motherboard

•**Operation Sequence**	**Resource Sequence**	**Name**	**Usage Rate or Amount**	**Basis**	**Assigned Units**
•100	10	XXInserter	2	Lot	1
•100	20	XXInserter	1	Item	1
•200	10	XXAsslbr	0.1	Item	10
•300	10	XXTester	2	Item	1

•**Note:** For each resource, use the following additional information:

•UOM: HR

•Schedule: Yes

•**(N) Engineering > Prototypes > Routings > Routings**

•4. Return to your bill of material and assign routing operation sequences to your components.

•**(N) Engineering > Prototypes > Bills > Bills**

Review Question

Engineering and manufacturing routing differ in all of the following areas except one. Which one is it?

1. Engineering attribute
2. Navigation path
3. Form title
4. Operation numbers

Answer to Review Question

Engineering and manufacturing routing differ in all of the following areas except one. Which one is it?

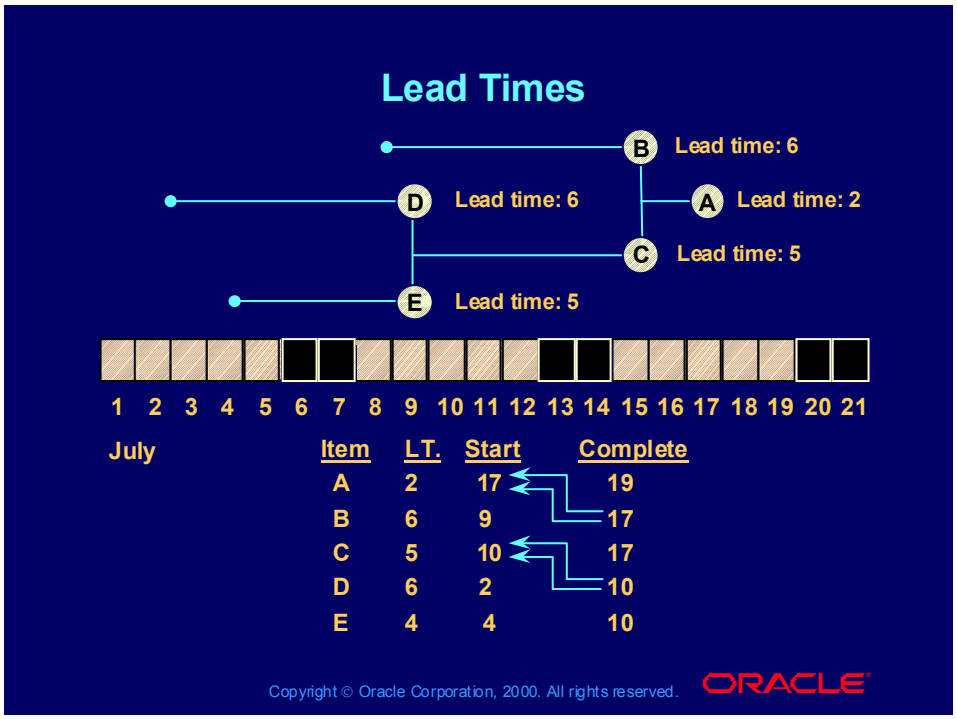
1. Engineering attribute
2. Navigation path
3. Form title
4. **Operation numbers**

Agenda

Agenda

- Introduction
- Overview
- Maintaining the workday calendar
- Defining resources and departments
- Creating routings
- **Calculating lead times**
- Transferring product information
- Summary

Lead Times



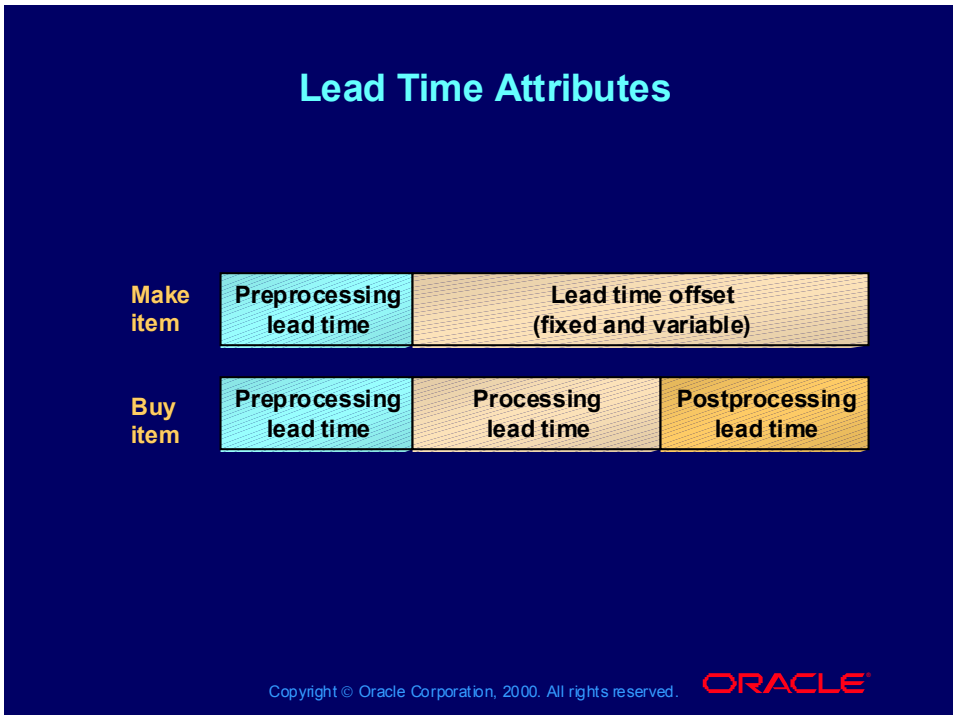
Lead Times

Plan material and resource requirements and determine requirement dates for available-to-promise calculations using dynamic lead times.

Dynamic Lead Time Offsetting: Estimate the start date of an order, an operation, or a resource based on order quantity, lead times, and the workday calendar.

Detailed Scheduling: Schedule jobs to the minute based on detailed resource availability and usages. Oracle Bills of Material calculates manufacturing lead times using detailed scheduling. Detailed scheduling is the most precise scheduling method in Oracle Manufacturing.

Lead Time Attributes



Lead Time Attributes

Preprocessing Lead Time: Represents the time required to release a purchase order or a job from the time you learn of the requirement.

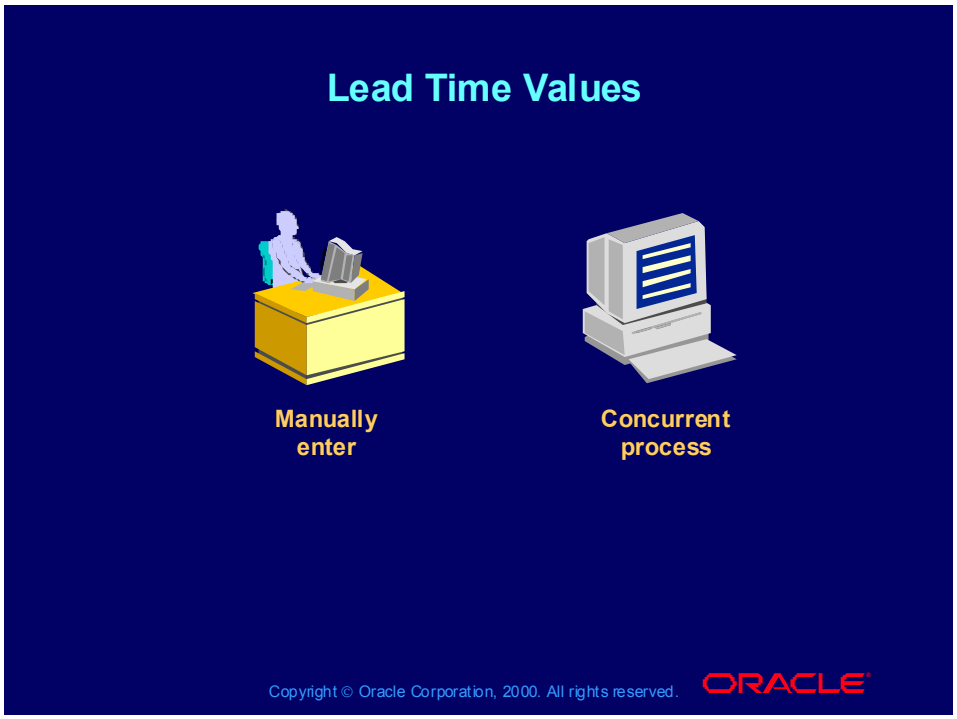
Postprocessing Lead Time: Represents the time to make a purchased item available in inventory from the time you receive it: you manually enter postprocessing lead time for each purchased item.

Processing Lead Time: Time required to procure or manufacture an item; processing lead time includes the fixed and variable portions of lead times.

Cumulative Manufacturing Lead Time: Total time required to make an item if you had all raw materials in stock but had to make all subassemblies level by level; Oracle automatically calculates this value.

Cumulative Total Lead Time: Total time required to make an item if no inventory existed and you had to order all the raw materials and make all subassemblies level by level; Oracle automatically calculates this value.

Lead Time Values

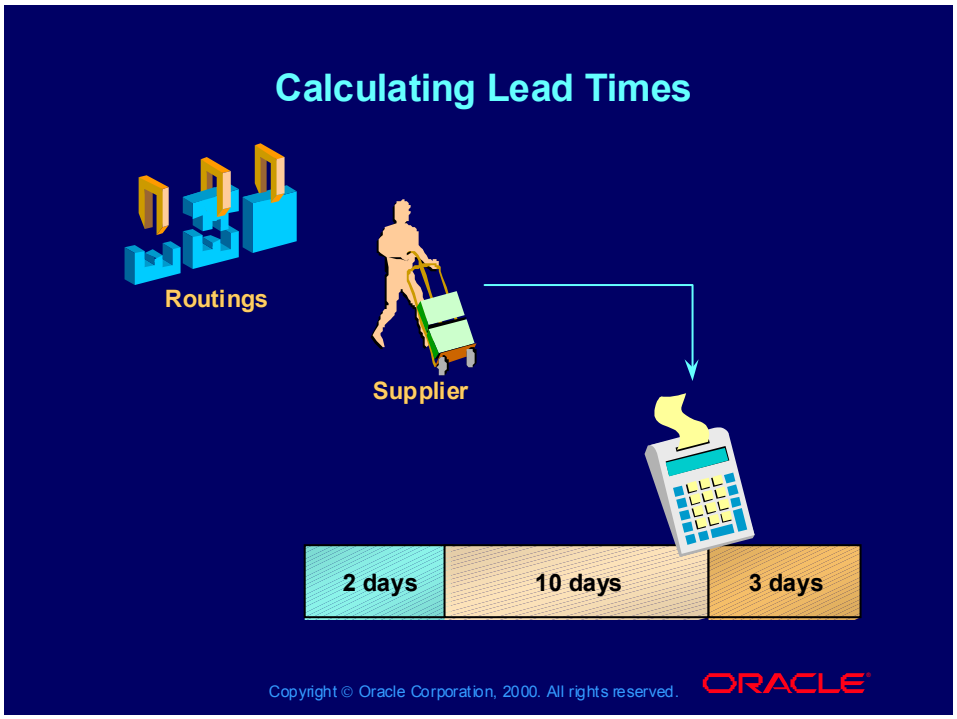


Assigning Lead Time Values

To assign values to lead time attributes, you can do either of the following:

- Manually enter them.
- For make items, start concurrent processes that calculate them. These processes replace values that you have manually entered with calculated values.

Calculating Lead Times



The Lead Time Calculation Process

Use the following process if you want Oracle Engineering or Oracle Bills of Material to calculate lead time information:

- For buy items, manually enter preprocessing, processing, and postprocessing attributes.
- For make items, enter routings and manually enter preprocessing and lead time lot size attributes.
- Start the concurrent process Calculate Manufacturing Lead Times, which calculates the fixed, variable, processing, lead time percentage, and offset percentage attributes.
- Start the concurrent process Roll Up Cumulative Lead Times, which calculates the cumulative manufacturing and cumulative total attributes.

Lead Time Lot Size

Lead Time Lot Size

Value Assigned	Attribute	Value for Lead Time Lot Size
YES	Fixed Order Quantity	Fixed Order Quantity
YES	Min-Max Order Quantity	Average Order Quantity
YES	Standard Lot Size	<none>

Lead Time Lot Size

Specify the quantity to use when calculating dynamic manufacturing lead times based on how you plan and cost the item.

Lead Time Lot Size Item Attribute

Schedule the first job in dynamic lead time calculations for the quantity of zero and to schedule the second job in dynamic lead time calculations for the lead time lot size.

No Lead Time Lot Size Assigned

You use default standard lot size, which defaults to the item's standard lot size attribute if there is no lead time lot size entered in the lead times region of this form. The default lead time lot size of "1" will default the item's lead time lot size to "1" if there is no standard lot size.

Value Assigned Attribute Value for Lead Time Lot Size

YES Fixed Order Quantity Fixed Order Quantity

YES Min-Max Order Quantity Average Order Quantity

YES Standard Lot Size None

Manufactured Item Lead Times

Attribute	Manually Assign	Auto Calculate	Lead Time Offset	Used for Time Fences
Preprocessing	YES			
Processing		YES		
Postprocessing				
Fixed		YES	YES	
Variable		YES	YES	
Cumulative Mfg		YES		YES
Cumulative Total		YES		YES
Lead Time Lot Size	YES			

Manufacturing Lead Times

Oracle Engineering computes the fixed and variable portion of manufacturing (processing) lead time using routings and detailed scheduling.

Calculate Processing Lead Time for Manufactured Items

Schedule one discrete job for a quantity of zero (fixed lead time), and a second discrete job for the lead time lot size quantity (variable lead time).

When computing processing lead time, engineering schedules all calendar days as workdays, regardless of days off or workday exceptions.

Fixed and Variable Lead Time

Fixed lead time is defined as the portion of time required to build an assembly that is independent of order quantity. Setup and teardown are examples of fixed lead time.

Variable lead time is defined as the time required to produce one additional unit of an assembly

Oracle Manufacturing uses an item's fixed lead time and variable lead time in dynamic lead time offset calculations.

Manufactured Item Lead Time Percentage

Manufactured Item Lead Time Percentage

Operation Sequence	Operation Description	Duration (1 LTLS)	Start Day	Lead Time Percentage
10	Assemble Chassis Base	5	1	0%
20	Mount Motherboard	3	6	50%
30	Package Product	2	9	80%

Reference Information

Processing Lead Time = 10 days

LTLS - Lead Time Lot Size

Manufacturing Lead Times (continued)

Oracle Manufacturing computes resource and operation offsets automatically when calculating Manufacturing Lead Time.

Operation Lead Time Percentage

Engineering automatically calculates the percentage of total manufacturing lead time required for previous operations, calculated from the start of a job to the start of an operation. You can override lead time percent calculations in the main region of the engineering routings window.

Schedule material to arrive when an operation requires it. Oracle Master Scheduling/MRP uses offsets to determine when an operation requires material.

Manufactured Item Resource Offsets

Manufactured Item Resource Offsets

Op Seq	Res Seq	Resource Description	Duration (1 LTLS)	Start Day	Offset Percentage
10	1	Assemble chassis	5	1	0%
20	1	Detailed system test	1	6	50%
20	2	Assemble	2	7	60%
30	1	Pack	2	9	80%

Reference Information

Op Seq = Operation Sequence

Res Seq = Resource Sequence

Processing Lead Time = 10 days

LTLS - Lead Time Lot Size

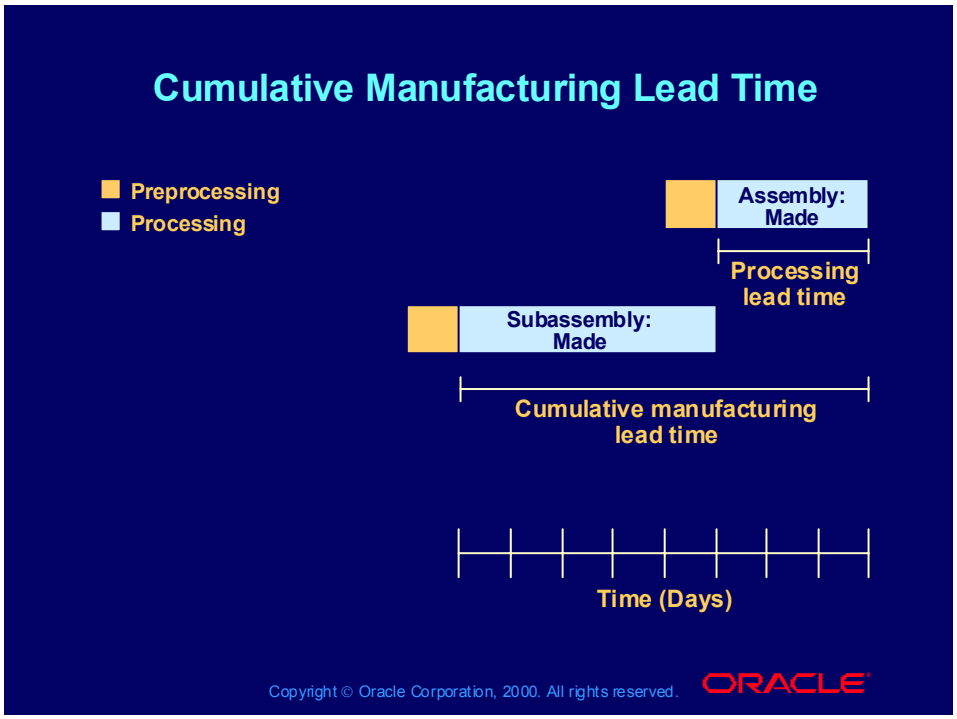
Resource Offsets

Oracle Engineering automatically calculates the percentage of total manufacturing lead time required for previous operations, calculated from the start of the job to the start time of a resource at an operation. You can override offset percentage calculations in the Resource zone of the Define Engineering routing form.

Schedule Resources

Schedule resources at an operation exactly when they are required. Oracle Capacity uses operation and resource offsets, as well as detailed usage information, to plan operation resources.

Cumulative Manufacturing Lead Time



Rollup Lead Times

Cumulative manufacturing lead time formula:

Cumulative manufacturing lead time = Manufacturing lead time for item + maximum [(Cumulative manufacturing lead time – Offset days of any component)]

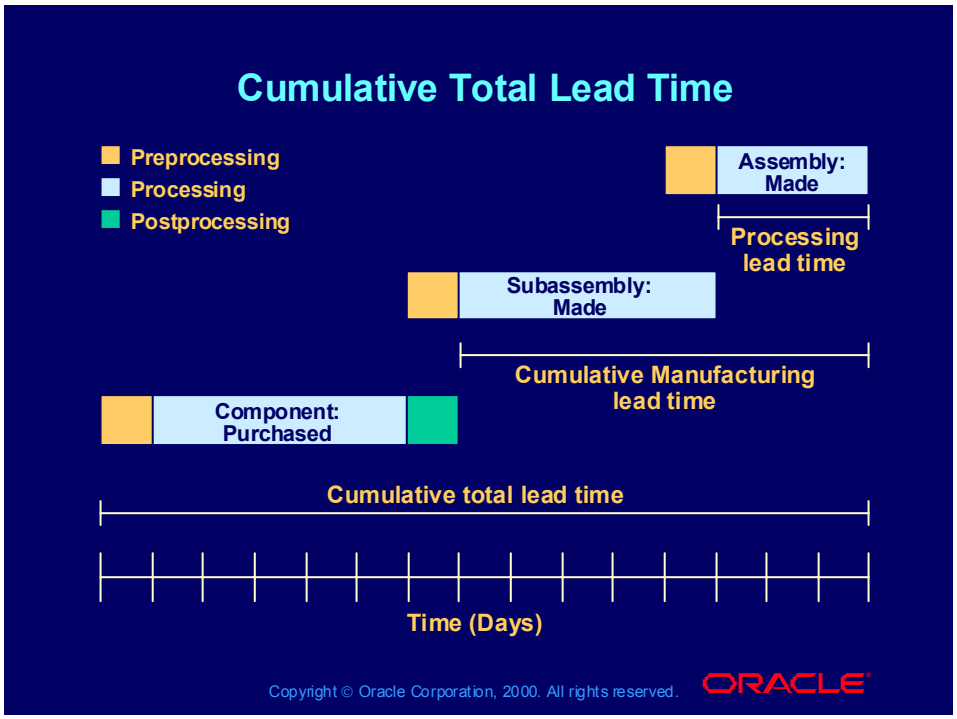
Set planning time fences for items based on cumulative manufacturing or cumulative total lead time.

Cumulative manufacturing lead time: The total time required to make an item if you had all raw materials in stock but had to make all subassemblies level by level. Engineering automatically calculates this value.

Cumulative total lead time: The total time required to make an item if no inventory existed and you had to order all the raw materials and make all the subassemblies level by level. Engineering automatically calculates this value.

Compute cumulative manufacturing lead time: Calculate the maximum component cumulative manufacturing lead time less operation offset. Cumulative manufacturing lead time for a purchased item is zero.

Cumulative Total Lead Time



Cumulative Total Lead Time Formula

Cumulative total lead time = Total lead time for item + Maximum [(Cumulative total lead time – Offset days for any component)]

Compute Cumulative Total Lead Time

Calculate an item's own total lead time plus the maximum value of cumulative total lead time operation offset for any component.

For cumulative calculations, include the postprocessing lead time for a purchased item.

Navigation Path

Navigation Path

Use the following windows to set lead time item attributes:

- Engineering Master Items and Engineering Organization Items in Oracle Engineering
- Master Items and Organization Items in Oracle Inventory

In Oracle Engineering:

•Engineering Master Items: (N) Prototypes > Items > Master Items

•Engineering Organization Items: (N) Prototypes > Items > Organization Items

•In Oracle Inventory:

•Master Items: (N) Items > Master Items

•Organization Items: (N) Items > Organization Items

•(Help) Oracle Inventory > Items > Item Attribute Descriptions > Lead Times Attribute Group

•(Help) Oracle Inventory > Items > Defining Items

Navigation Path

Navigation Path

Use the following windows to set routing lead time percentage:

- Engineering Routings in Oracle Engineering
- Routings in Oracle Bills of Material

In Oracle Engineering: (N) Prototypes > Routings > Routings

In Oracle Bills of Material: (N) Routings > Routings

(Help) Oracle Bills of Material > Routings > Defining a Routing > Creating a Routing

Navigation Path

Navigation Path

Use the Operation Resources window to set resource offset percentage.

In Oracle Engineering: (N) Prototypes > Routings > Routings (B) Operation Resources

In Oracle Bills of Material: (N) Routings > Routings (B) Operation Resources

(Help) Oracle Bills of Material > Routings > Defining a Routing > Assigning Operation Resources

Navigation Path

Navigation Path

Use the Calculate Lead Times window to request automatic lead time calculation.

In Oracle Engineering: (N) Prototypes > Routings > Lead Times

In Oracle Bills of Material: (N) Routings > Lead Times

(Help) Oracle Bills of Material > Lead Tine Management > Calculating Lead Times

(Help) Oracle Bills of Material > Lead Tine Management > Rolling Up Lead Times

Practice 4 Overview

Practice 4 Overview

This practice covers entering and calculating lead times.

Practice 4 Instructions

1.Enter lead times for your buy items using the following table:

Lot size for XXXX1000, XX1040, XX2010 is 100 pieces.

Item Number	Preprocessing LT	Processing LT	Postprocessing LT
XX1010	5	5	
XX1020	5	5	
XX1030	5	5	
XX2020	5	5	2
XX2030	5	5	
XX2040	5	5	
XX3010	5	10	2
XX3020	5	60	1
XX3030	5	5	
XX3040	5	30	1

2. Calculate lead time for items XX2010, XX1040, and XX1000.

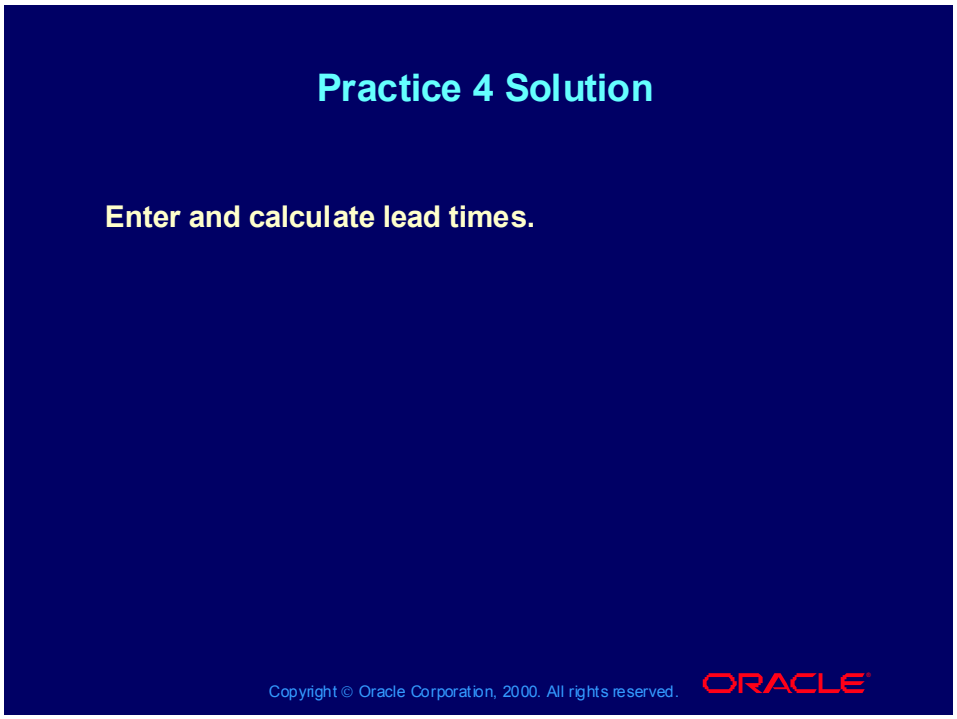
3. View fixed, variable, and processing lead times for items XX2010, XX1040, and XX1000.

Note

•One hour of lead time = 1/24 = 0.0416667 day

•Two hours of lead time = 2/24 = 0.0833333 day

•Four hours of lead time = 4/24 = 0.166666 day
•Eight hours of lead time = 8/24 = 0.333333 day
•Twelve hours of lead time = 12/24 = 0.5 day
•Twenty-four hours of lead time = 24/24 = 1 day
•4. Roll up lead time for item XX1000.
•5. View cumulative lead times for item XX1000.
•6. View indented bill of material for XX1000.



Practice 4 Solution

1. Enter lead times for your buy items using the following table:

(N) Engineering > Prototypes > Items > Master Items (M) Tools > Organization Assignment (B) Org Attributes (T) Lead Times

Lot size for XX1000, XX1040, XX2010 is 100 pieces.

Item Number	Preprocessing LT	Processing LT	Postprocessing LT
XX1010	5	5	
XX1020	5	5	
XX1030	5	5	
XX2020	5	5	2
XX2030	5	5	
XX2040	5	5	
XX3010	5	10	2
XX3020	5	60	1
XX3030	5	5	
XX3040	5	30	1

2. Calculate lead time for items XX2010, XX1040, and XX1000.

(N) Engineering > Prototypes > Routings > Lead Times

3. View fixed, variable, and processing lead times for items XX2010, XX1040, and XX1000.

(N) Engineering > Prototypes > Items > Master Items (M) Tools > Organization Assignment (B) Org Attributes (T) Lead Times

Note:

•One hour of lead time = 1/24 = 0.0416667 day

•Two hours of lead time = 2/24 = 0.0833333 day

•Four hours of lead time = 4/24 = 0.166666 day

•Eight hours of lead time = 8/24 = 0.333333 day

•Twelve hours of lead time = 12/24 = 0.5 day

•Twenty-four hours of lead time = 24/24 = 1 day

•4. Roll up lead time for item XX1000.

•**(N) Engineering > Prototypes > Routings > Lead Times**

•5. View cumulative lead times for item XX1000.

•**(N) Engineering > Prototypes > Items > Master Items (M) Tools > Organization Assignment (B) Org Attributes (T) Lead Times**

•6. View indented bill of material for item XX1000.

•**(N) Engineering > Prototypes > Bills > Indented Bills**

Review Question

If you want to automatically calculate the lead time of a manufactured item, which of the following lead times must you enter?

1. Preprocessing
2. Fixed
3. Postprocessing
4. Processing

Answer to Review Question

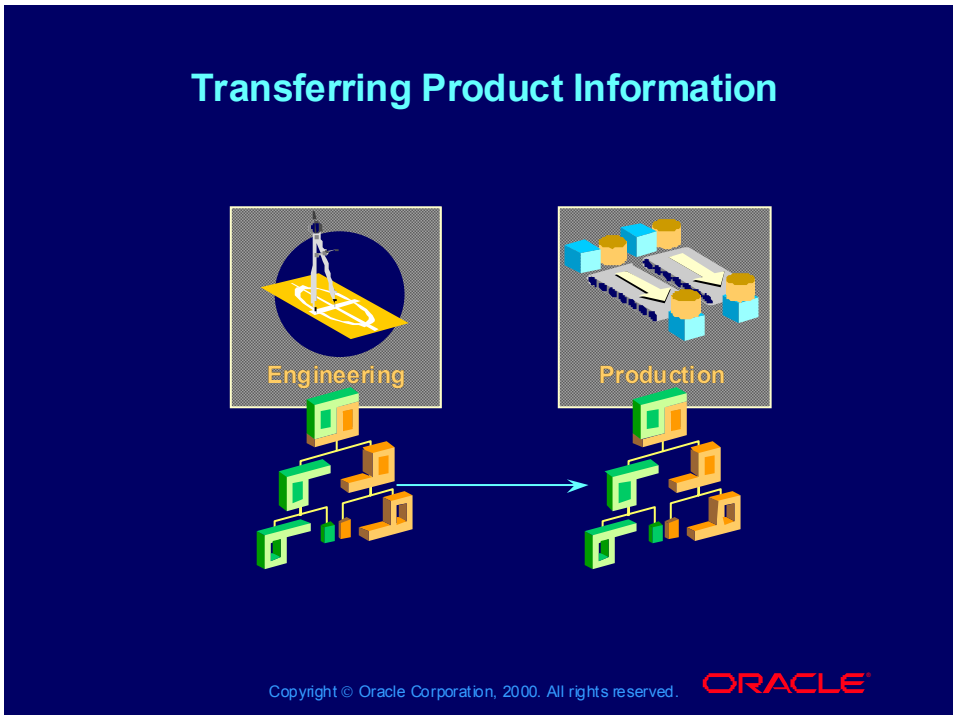
If you want to automatically calculate the lead time of a manufactured item, which of the following lead times must you enter?

1. **Preprocessing**
2. Fixed
3. Postprocessing
4. Processing

Agenda

Agenda

- Introduction
- Overview
- Maintaining the workday calendar
- Defining resources and departments
- Creating routings
- Calculating lead times
- **Transferring product information**
- Summary



Transferring Product Information

When you decide that engineering information is ready for production, you transfer the product information—items, bills of material, and routings— from engineering to manufacturing.

When you transfer engineering information, you transform the engineering item into a manufacturing item and the engineering item ceases to exist.

When you copy engineering information, you save the engineering information and copy it to manufacturing as another item number.

The transfer and copy sequence is a one-way process. You cannot transfer or copy product information from manufacturing to engineering.

Navigation Path

Navigation Path

Use the Transfer to Manufacturing window to transfer engineering prototype items, bills of material, and routings to production.

In Oracle Engineering: (N) Prototype > Transfer to Manufacturing

(Help) Oracle Engineering > Engineering Prototype Environment > Transferring or Copying Engineering Items

Navigation Path

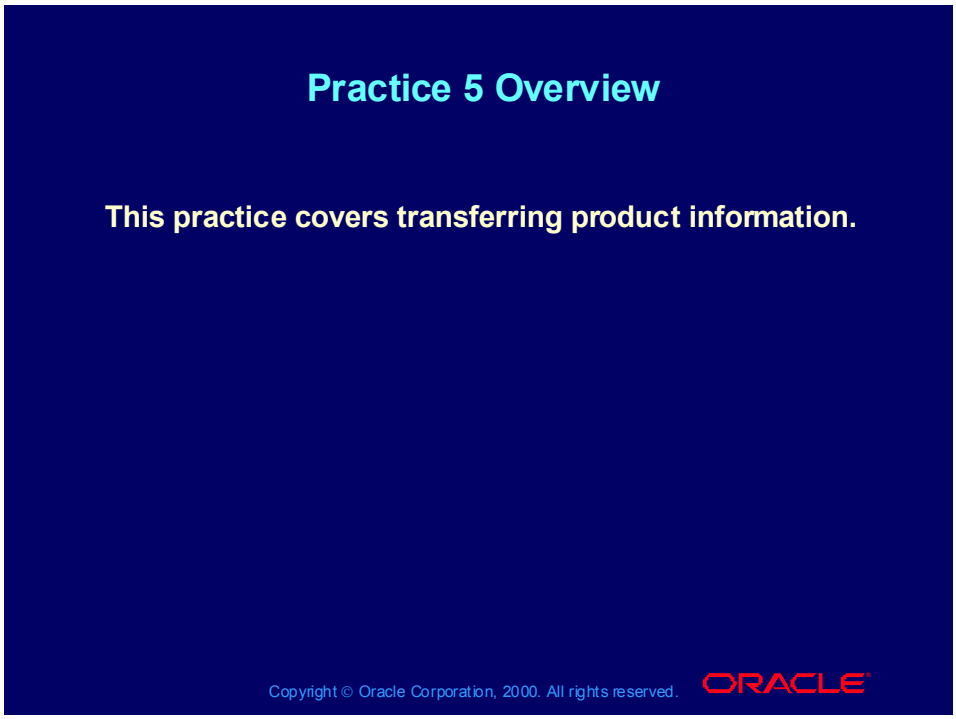
Navigation Path

Use the Copy to Manufacturing window to copy engineering prototype items, bills of material, and routings to production.

In Oracle Engineering: (N) Prototype > Copy to Manufacturing

(Help) Oracle Engineering > Engineering Prototype Environment > Transferring or Copying Engineering Items

Practice 5 Overview



Practice 5 Instructions

1. Transfer bills of material and routings for item numbers XX2010, XX1040, and XX1000 from engineering to production.

Note: XX represents your team.

2. To verify the transfers, view XX1000 on the following forms and indicate whether or not you are able to use each form to see the items:

•Oracle Inventory Master Items

•Oracle Engineering Master Items

•Oracle Inventory View Item Attributes

•Oracle Engineering View Item Attributes

•Oracle Bills of Material

•Oracle Engineering Bill of Material

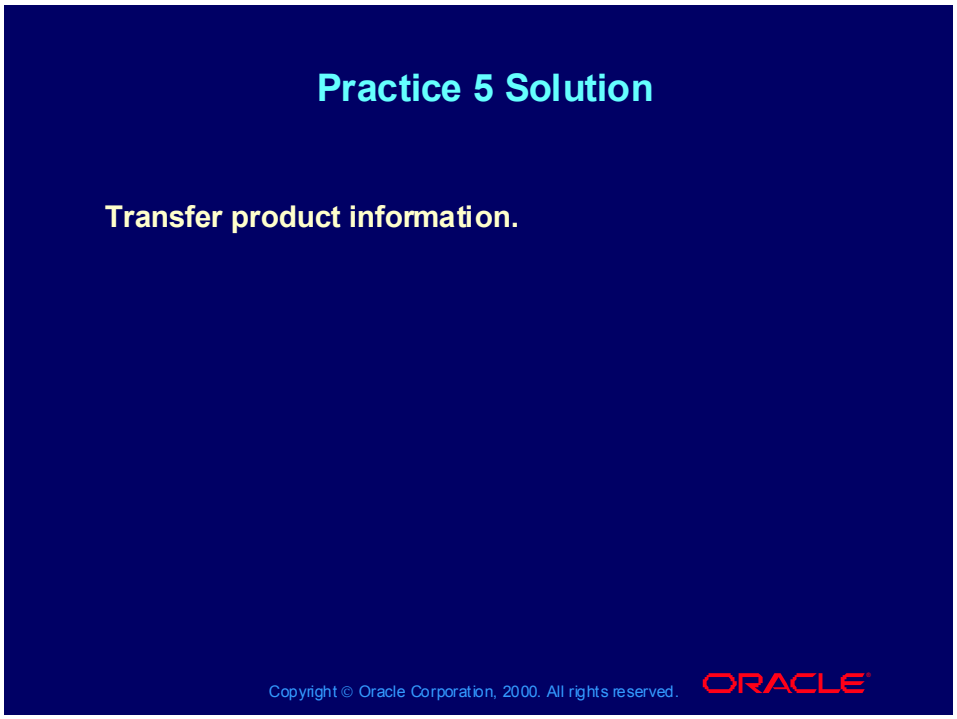
•Oracle Bills of Material Indented Bills

•Oracle Engineering Indented Bills

•Oracle Bills of Material Routings

•Oracle Engineering Routings

•3. Copy item XX2011 and give it a new name using item number XX2022. View your results.



Practice 5 Solution

1. Transfer bills of material and Routings for item numbers XX2010, XX1040, and XX1000 from engineering to production.

Note: XX represents your team.

(N) Engineering > Prototypes > Transfer to Manufacturing

2. To verify the transfers, view XX1000 on the following forms and indicate whether or not you are able to use each form to see the items:

•Oracle Inventory Master Items

•(N) Inventory > Items—>Master Items; not able to see the items

•Oracle Engineering Master Items

•(N) Engineering > Prototypes—>Items—>Master Items; able to see the items

•Oracle Inventory View Item Attributes

•(N) Inventory > Items—>Item Information; able to see the items

•Oracle Engineering View Item Attributes

• (N) Engineering > Prototypes—>Items—>View Item Details; able to see the items

•Oracle Bills of Material Bill of Material

•(N) Bills of Material > Bills—>Bills; able to see the items

•Oracle Engineering Bill of Material

•(N) Engineering > Prototypes—>Bills—>Bills; not able to see the items

•Oracle Bills of Material Indented Bills

•(N) Bills of Material > Bills—>Indented Bills; able to see the items

•Oracle Engineering Indented Bills

•(N) Engineering > Prototypes—>Bills—>Indented Bills; able to see the items

•Oracle Bills of Material Routings

•(N) Bills of Material > Routings—>Routings; able to see the items

•Oracle Engineering Routings

•(N) Engineering > Prototypes—>Routings—>Routings; not able to see the items

•3. Copy item XX2011 and give it a new name using item number XX2022. View your results.

•(N) Engineering > Prototype > Copy to Manufacturing

Review Question

In which of the following transfer functions does the engineering item remain?

1. Assign common routing
2. Transfer to manufacturing
3. Copy to manufacturing
4. Roll-up lead times

Answer to Review Question

In which of the following transfer functions does the engineering item remain?

1. Assign common routing
2. Transfer to manufacturing
3. **Copy to manufacturing**
4. Roll-up lead times

Agenda

Agenda

- Introduction
- Overview
- Maintaining the workday calendar
- Defining resources and departments
- Creating routings
- Calculating lead times
- Transferring product information
- **Summary**

Summary

In this module, you should have learned how to:

- Maintain the workday calendar
- Define resources and departments
- Create routings
- Calculate lead times
- Transfer product information

R11i - Managing Engineering Change Orders

Chapter 4

R11*i* - Managing Engineering Change Orders

ORACLE

Objectives

- After completing this lesson, you should be able to do the following:
  - Create engineering change orders
  - Recognize the effects of engineering change orders on bills of material
  - Approve, schedule, and implement engineering change orders
  - Understand the new ECO Business Object Interface

Agenda

Agenda

- Overview of Engineering Change Orders
- Engineering Change Order Life Cycle
- Engineering Change Order Business Object Interface
- Summary
- Practice

Lesson 1:
Overview of Engineering Change Orders

- **Overview of Engineering Change Orders**
- Engineering Change Order Life Cycle
- Engineering Change Order Business Object Interface
- Summary
- Practice

Overview

Overview

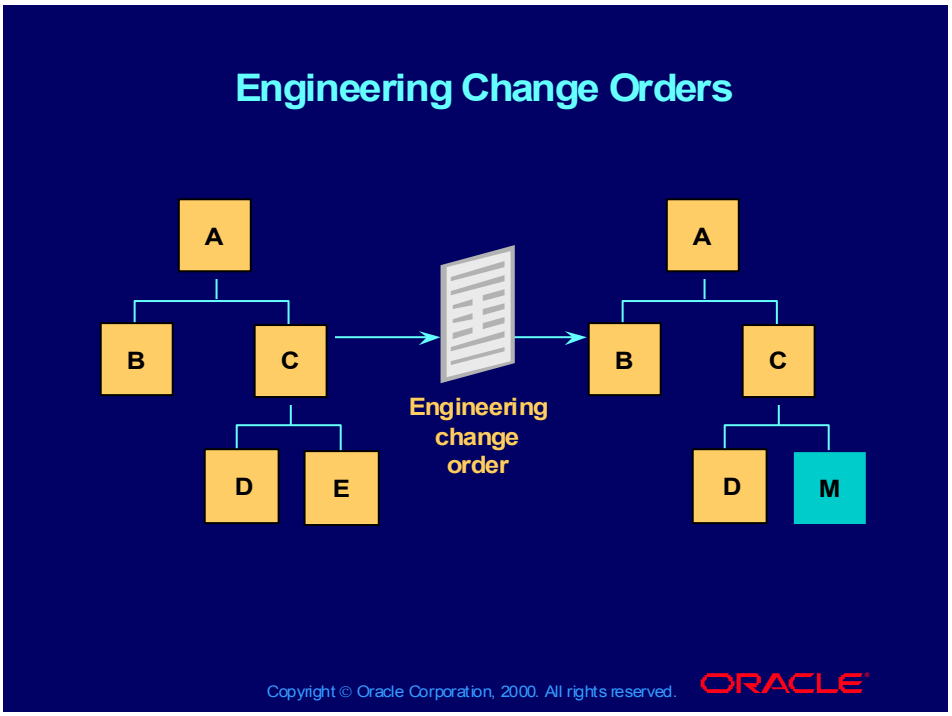
- An engineering change order (ECO) is an order to change bills of material.
- An engineering change order cannot be used to change routings.
- You can control the engineering change order approval process by using Oracle Workflow.
- You can track the components being discontinued, the new components being added, and their effectivity dates.
- You can also enter any information on substitution components.

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > Overview

… Engineering Change Orders > ECOs on Items and Bills

… Engineering Change Orders > ECO Access Control

Engineering Change Orders



Engineering Change Orders

- An engineering change order (ECO) is an order to change bills of material to add, change and delete components.
- You cannot use an ECO to change routings.
- ECO's can be used to change both engineering and manufacturing bills of material.
- ECO's can specify changes to one or more revised items.

Engineering Change Orders

- ECO's can be subjected to a review process, managed with either Oracle Engineering or Oracle Workflow.
- When implementing the ECO, you can force the ECO to increment the bill of material revision when it changes the revised item.
- Bills of material can be changed without ECO's using the Bills of Material Form. Or personal profiles can be set to prohibit direct updates without an ECO.

Lesson 2:
Engineering Change Order Life Cycle

- Overview of Engineering Change Orders
- ✓ **Engineering Change Order Life Cycle**
- Engineering Change Order Business Object Interface
- Summary
- Practice

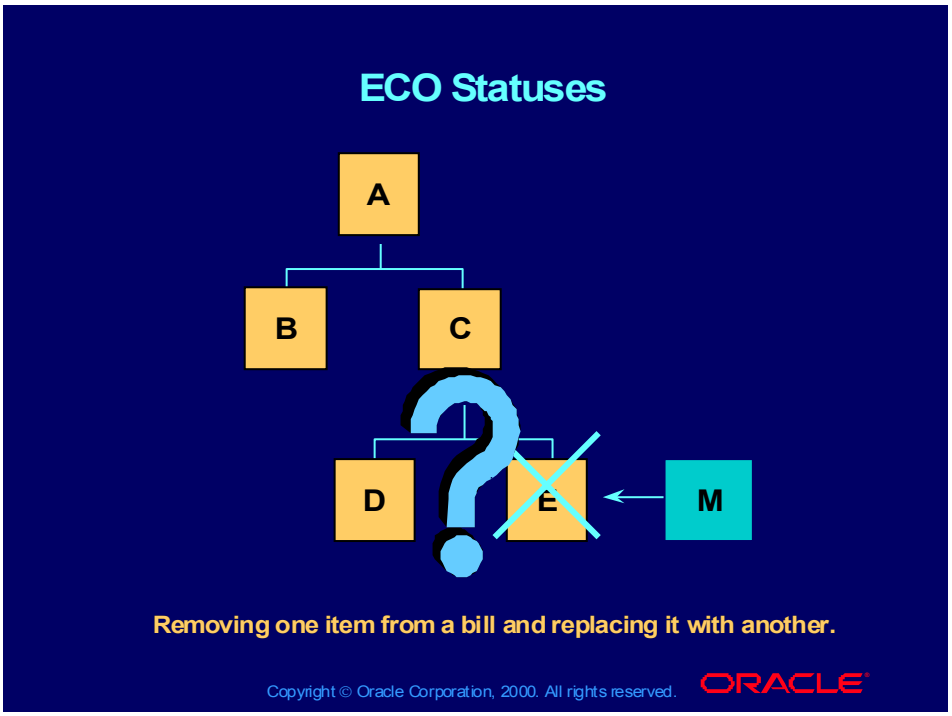
ECO Life Cycle

ECO Life Cycle

- When processing ECO's you typically follow a set pattern of action.
- These actions correspond to the ECO revised item statuses and ECO approval statuses.
- ECO revised item status refers to the overall status of the ECO and to the individual status of each revised item on the ECO.
- ECO approval status refers to the process of requesting and obtaining approval for the ECO from a list of approvers.

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > ECO Life Cycle

ECO Statuses



ECO Statuses

ECO Statuses

- ECO Approval Statuses
  - Not Ready - You are not ready to ask for approval
  - Ready to Approve - You are ready to ask the approvers to review
  - Approval Requested - Approvers have been asked to review
  - Approved - The decision has been made to approve the ECO
  - Rejected - The decision has been made to reject the ECO
  - Processing Error - An error occurred in the workflow approval process

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > ECO Statuses

… Engineering Change Orders > ECO Approval Process > ECO Approval Statuses

ECO Statuses

ECO Statuses

- ECO Revised Item Statuses
  - Open - You are preparing the information
  - Release - You can manually implement the change
  - Schedule - The implementation concurrent process implements the change
  - Implement - You have successfully changed the bill of material
  - Hold - You have temporarily decided not to implement a Released or Scheduled change
  - Cancel - you have permanently decided not to implement the change

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > ECO Revised Item Statuses

ECO Life Cycle - without Approval

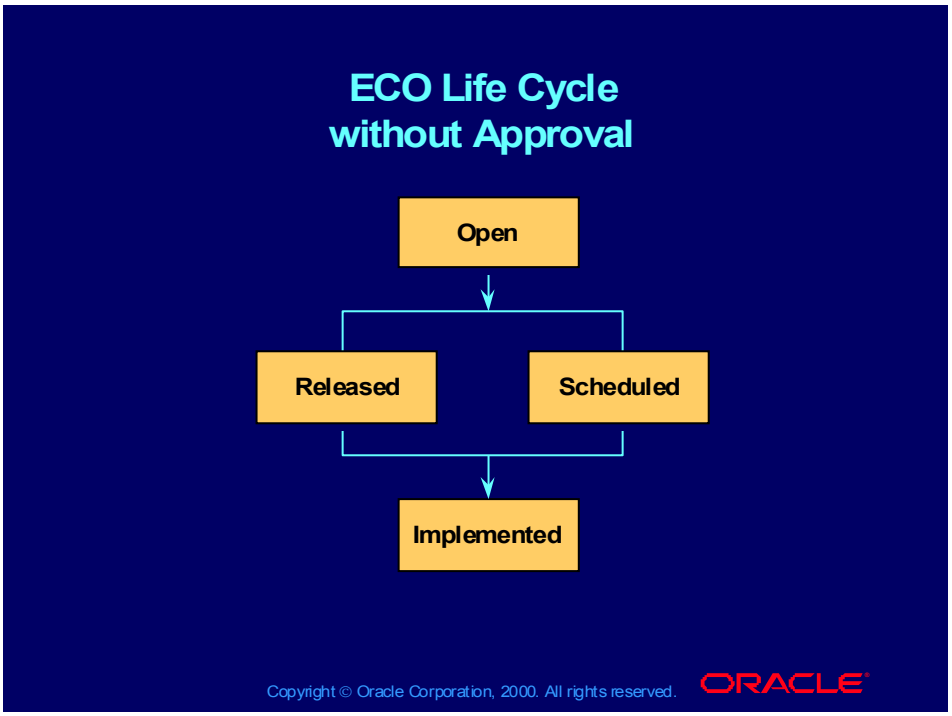
ECO Life Cycle - without Approval

To implement ECO's without an approval process:

- Enter the change information
  - ECO approval status = Approved
  - ECO revised item status = Open
- Implement the change
  - ECO approval status = Approved
  - ECO revised item status = Released or Scheduled (for manual or auto implementation)
- After the change is completed
  - ECO approval status = Approved
  - ECO revised item status = Implemented

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > ECO Approval Process > ECO Approvals

ECO Life Cycle without Approval



ECO Life Cycle - with Approval

ECO Life Cycle - with Approval

To implement ECO's with an approval process:

- Enter the change information
  - ECO approval status = Not Ready
  - ECO revised item status = Open
- Prepare the change information for review
  - ECO approval status = Ready to Approve
  - ECO revised item status = Open
- Send the information to the approvers
  - ECO approval status = Approval Requested
  - ECO revised item status = Open
- Change is not approved
  - ECO approval status = Rejected

ECO Life Cycle - with Approval

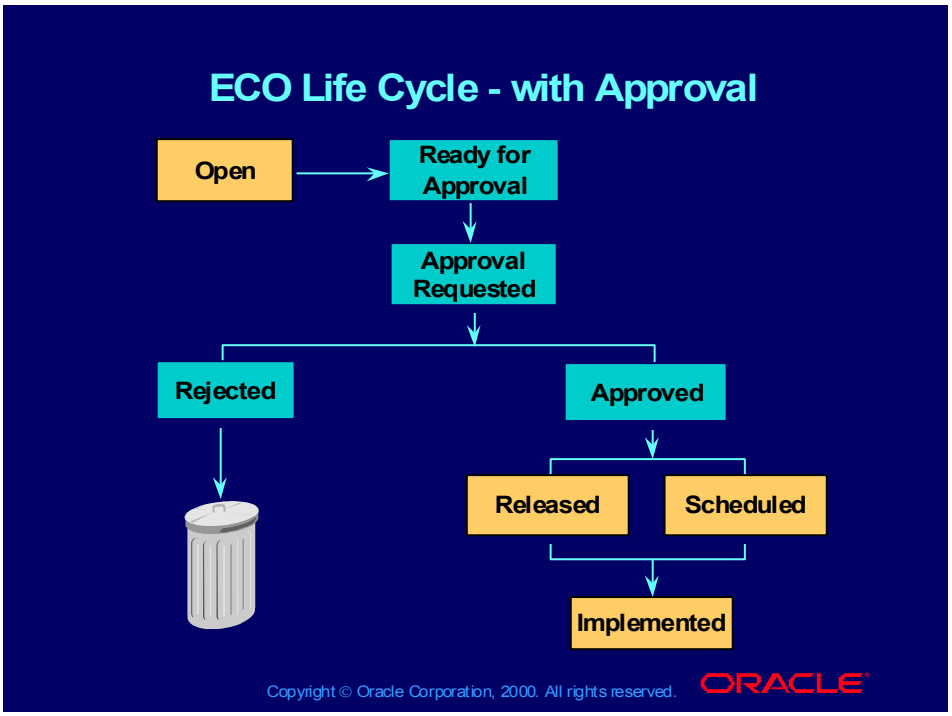
ECO Life Cycle - with Approval

Continued:

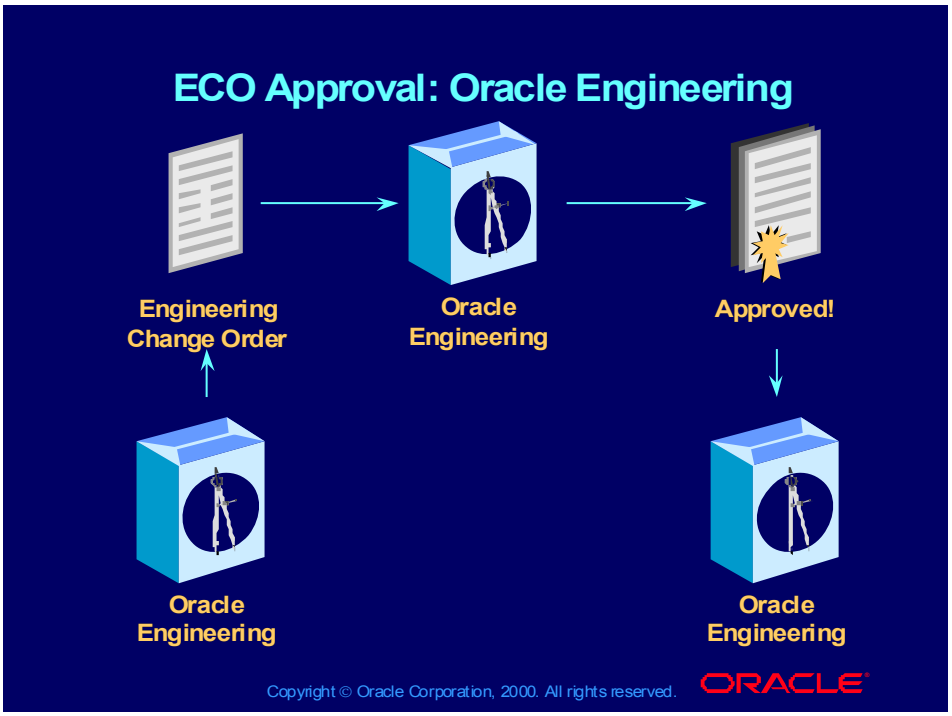
- ECO revised item status = Canceled

- Change is approved
  - ECO approval status = Approved
  - ECO revised item status = Open
- Implement the approved change
  - ECO approval status = Approved
  - ECO revised item status = Released or Scheduled (for manual or auto implementation)
- After the approved change is completed
  - ECO approval status = Approved
  - ECO revised item status = Implemented

ECO Life Cycle - with Approval



ECO Approval: Oracle Engineering



ECO Approval: Oracle Engineering

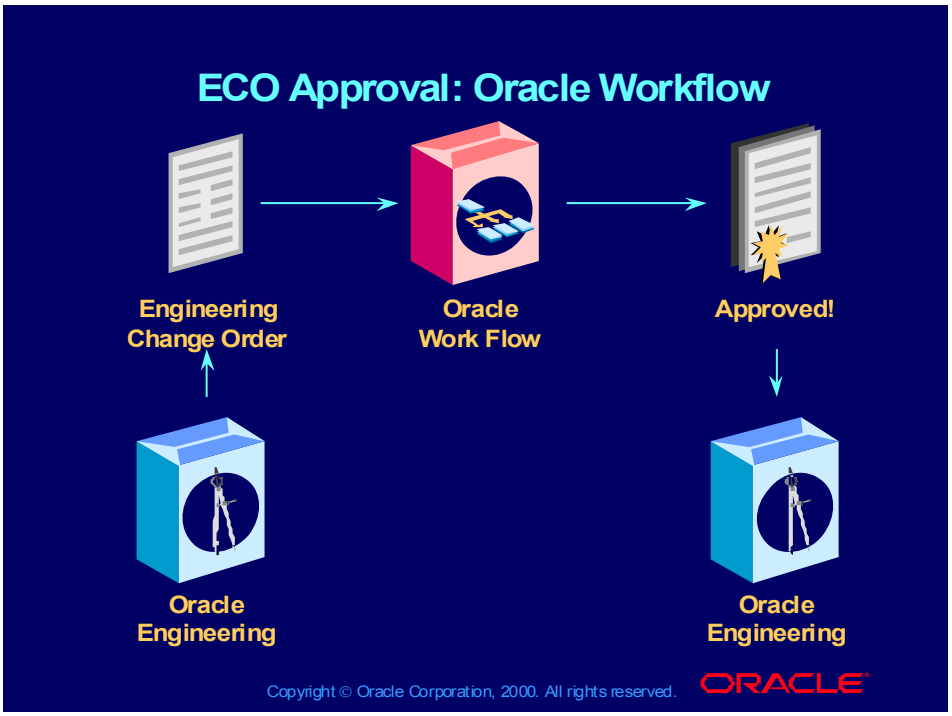
ECO Approval: Oracle Engineering

Managing the approval process using Engineering:

- Setup the approval process
  - Create approval lists
  - Assign an approval list to the ECO
  - Assign an ECO change type to the ECO (one not associated with an Oracle Workflow)
- The Oracle Engineering approval process steps
  - Set ECO approval status to: Approval Requested
  - Oracle Alert sends email to the reviewers
  - Each approver responds: approved/rejected
  - The responses are reviewed and the ECO approval status is set to Approved or Rejected

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > ECO Approval Process > Defining ECO Approval Lists

ECO Approval: Oracle Workflow



ECO Approval: Oracle Workflow

ECO Approval: Oracle Workflow

Managing the approval process using Workflow:

- Setup the workflow approval process
  - Create a workflow or use a seeded workflow for approval with processes to perform actions and notifications to contact employees for decisions
  - Assign an approvers list as a 'role' to the workflow notification activity
  - Assign the workflow to an ECO change type
  - Assign the ECO change type to the ECO

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > ECO Approval Process > Workflow for ECO Approvals

ECO Approval: Oracle Workflow

Continued:

- The Oracle Workflow approval process steps
  - Choose submit on the Engineering Change Orders form
  - The workflow notifies all employees in the role
  - Each approver responds: approved/rejected
  - Oracle Workflow tabulates the responses, makes an approval decision, performs follow up activities and returns control to Oracle Engineering.
  - If an error occurs the ECO approval status becomes: Processing Error

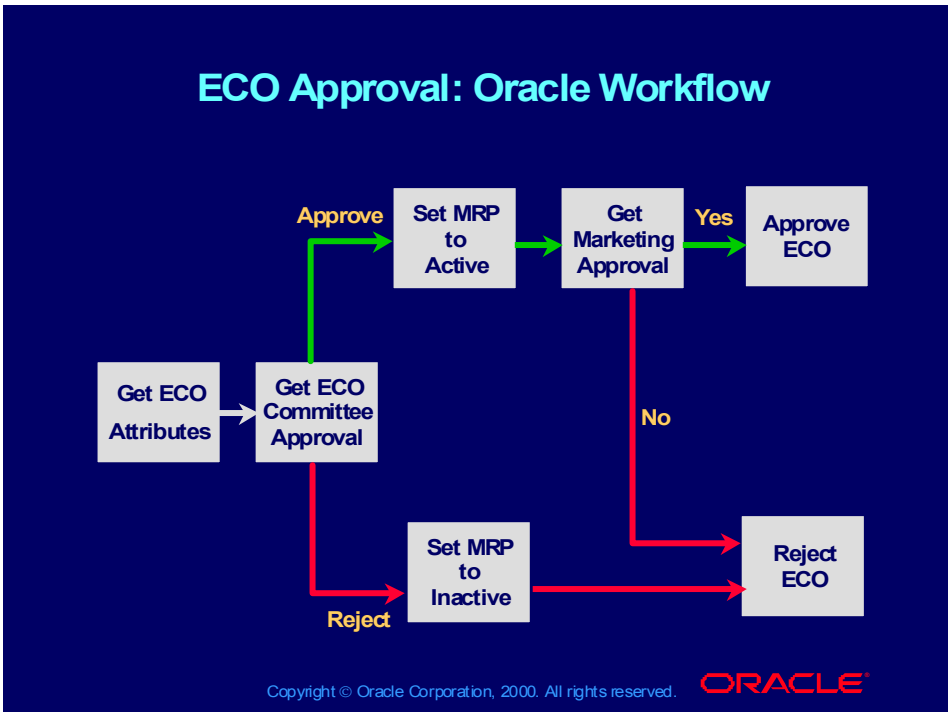
ECO Approval: Oracle Workflow

ECO Approval: Oracle Workflow

For example the standard approval processing workflow delivered in Oracle Engineering:

- Requires unanimous approval from the reviewers to approve the ECO
- Sets MRP Active to selected or clear
- Sets the ECO approval status to Approved or Rejected

ECO Approval: Oracle Workflow



Lesson 3: Engineering Change Order Business Objects Interface

Lesson 3: Engineering Change Order Business Objects Interface

- Overview of Engineering Change Orders
- Engineering Change Order Life Cycle
- ✓ **Engineering Change Order Business Object Interface**
- Summary
- Practice

ECO Business Object Interface Overview

ECO Business Object Interface Overview

- Oracle Engineering enables collaborative product design with your suppliers and customers. Release 11*i* improves the transfer of information with trading partners by incorporating the ECO Business Object interface.
- Using the ECO Business Object interface, you can simplify your access to Oracle Engineering ECOs through a common, flexible, and robust interface to meet your mission-critical business needs.

Help: Oracle Manufacturing Applications > Oracle Engineering > New Features in This Release

ECO Business Object Interface

Importing ECOs

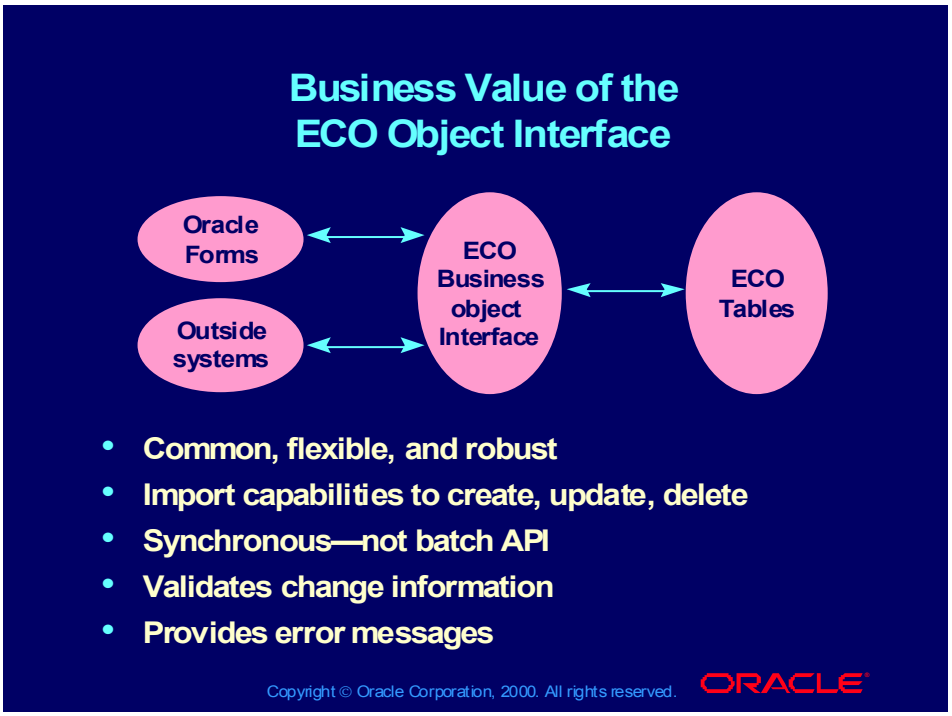
- **You can quickly import ECOs by using the new ECO Business Object interface from any external system, including the Product Data Management (PDM) system. Validation of all ECO information during import clearly identifies change problems, enabling the appropriate decision-makers to resolve errors.**

ECO Business Object Interface

Updating and Deleting ECOs

- **You can also use the ECO Business Object interface to update and delete existing ECO information.**

Business Value of the ECO Object Interface



Lesson 4: Summary

Lesson 4: Summary

- Overview of Engineering Change Orders
- Engineering Change Order Life Cycle
- Engineering Change Order Business Object Interface
- ✓ **Summary**
- Practice

Summary

Summary

- You should now be able to do the following:
  - Create engineering change orders
  - Recognize the effects of engineering change orders on bills of material
  - Approve, schedule, and implement engineering change orders
  - Understand the ECO business objects interface

Lesson 4: Practice

- Overview of Engineering Change Orders
- Engineering Change Order Life Cycle
- Engineering Change Order Business Object Interface
- Summary
- **Practice**

Practice Overview

Practice Overview

- Creating an ECO
- Reviewing changes
- Comparing current BOM and pending BOM
- Rescheduling the ECO
- Reviewing effects of pending changes

Practice Overview

Practice Overview

- Approving engineering change orders with Oracle Workflow
- Attaching a workflow process to the change type
- Approving an ECO
- Releasing an ECO
- Manually implementing the ECO

Practice Solution

Practice Solution

1. Change organizations to M1 Seattle Manufacturing

   (N) INV Change Organization

2. Create two Items for your team (XX):
   - Copy from AS10001 to make XX-10001
   - Copy from CM65478 to make XX-65478

   (N) ENG Prototypes > Items > Master Items (M)
   Tools > Copy From

3. Assign your new items to M1 Seattle Manufacturing

   (N) ENG Prototypes > Items > Master Items (M)
   Tools > Organization Assignment

Practice Solution

Practice Solution

4. Copy the Bill of Material from AS10001 to XX-10001

   (N) ENG Prototypes > Bills > Bills (M) Tools > Copy Bill from

5. Create an ECO as follows:
   - ECO: XX-100
   - Type: New Prod
   - Approval Status: Approved

   (N) ENG ECOs > ECOs
   - Revised Item: XX-10001
   - New Revision: B
   - Effective Date: Four weeks from today

   (N) ENG ECOs > ECOs (B) Revised Items

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > Defining an Engineering Change Order

… Engineering Change Orders > Defining ECO Revised Items

… Engineering Change Orders > Defining an ECO Revision

Practice Solution

Practice Solution

5. Create an ECO continued:
   - Disable Component: CM65478
   - Add Component: XX-65478

   (N) ENG ECOs > ECOs (B) Revised Items (B) Components
6. Review the pending changes on your bill of materials

   Note: Remember to uncheck the Implemented Only box before finding your bill

   (N) ENG Prototypes > Bills > Indented Bills

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > Defining Revised Components

Practice Solution

7. Review your new item revision for XX-10001:

   (N) ENG Prototypes > Items > Organization Items
   (M) Tools > Revisions

8. Compare the XX-10001 Current bill of material (Rev A) with the pending bill (Rev B)

   Note: Remember to uncheck both the Implemented Only boxes

   (N) ENG Prototypes > Bills > Comparison

9. Review your pending ECO schedule

   (N) ENG ECOs > Schedules

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > Viewing Item Revisions

Practice Solution

Practice Solution

10. Release the ECO

    (N) ENG ECOs > ECOs (M) Tools > Release

11. Reschedule your ECO to one week earlier

    (N) ENG ECOs > ECOs (M) Tools > Reschedule

12. Review the effect of the change to your pending bill of material and revision

    (N) ENG Prototypes > Bills > Indented Bills

    (N) ENG ECOs > ECOs (B) Revised Items (B) Revisions

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > Changing ECO Status

… Engineering Change Orders > Viewing ECO Approval Status

Practice Solution

Practice Solution

13. Manually implement your ECO

    (N) ENG ECOs > ECOs (M) Tools > Implement

14. Review the bill of material to see the effect of implementing the change

    (N) ENG Prototypes > Bills > Indented Bills

15. Create another ECO as follows:
    - ECO: XX-200
    - Type: New Prod
    - Priority: Standard

    (N) ENG ECOs > ECOs

Help: Oracle Manufacturing Applications > Oracle Engineering > Engineering Change Orders > Implementing ECOs

Practice Solution

15. Create another ECO continued:
    - Revised Item: XX-10001
    - New Revision: C
    - Effective Date: Four weeks from today

    (N) ENG ECOs > ECOs (B) Revised Items
16. Submit your new ECO to launch the workflow for approval

    (N) ENG ECOs > ECOs (B) Submit
17. Approve your ECO

    (N) ENG ECOs > Notification

Practice Solution

18. Review your ECO for Approval Status = Approved and MRP Active = selected

    (N) ENG ECOs > ECOs (B) Revised Items

19. Manually implement your ECO

    (N) ENG ECOs > ECOs (M) Tools > Implement

R11i, Creating Customized Bills of Material and Product Families

Chapter 5

R11*i*, Creating Customized BOMs and Product Families

ORACLE

Course Objectives

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

- Explain the concepts of planning, model, and option bills of material
- Describe the steps in creating product families

Agenda

Agenda

- Lesson 1: Creating customized bills of material
- Lesson 2: Creating product families

Lesson 1: Creating Customized Bills of Material

- **Lesson 1: Creating customized bills of material**
- Lesson 2: Creating product families

Lesson 1 Objectives

Lesson 1 Objectives

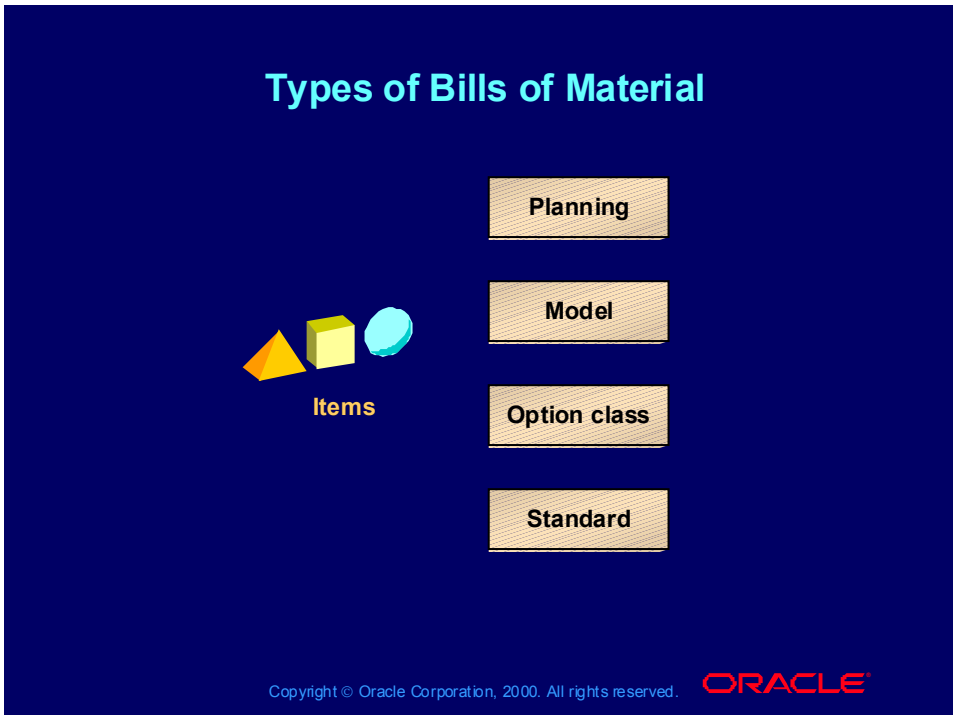
After completing this lesson, you should be able to manually create planning, model, and option class bills of material.

Lesson 1 Overview

You use bills of material to specify the component items that you use to:

- Manufacture assemblies and subassemblies
- Configure assemblies from sales order line items
- Explode aggregate forecasts
- Calculate standard cost

Types of Bills of Material



Types of Oracle Bills of Material

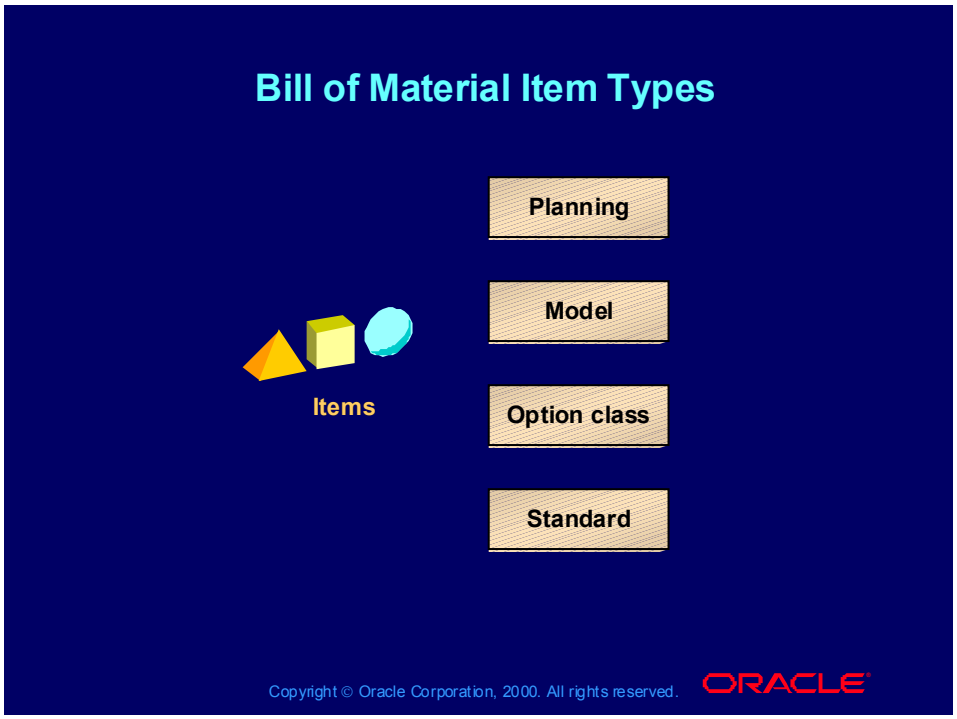
Planning: Use planning bills of material to specify items that belong to the same product line (similar to a *product family* which is discussed later). For example, a restaurant that sells Italian food sells pizza, which accounts for 70 percent of its Italian food business, and calzone, which accounts for 30 percent of its Italian food business. Refer to the assembly of a planning bill of material as a *product family*.

Model: Use model bills of material to specify classes of options from which your customers can choose when ordering configurable items. For example, a customer ordering a pizza must choose the type of crust, type of sauce, type of cheese, and toppings. Refer to the nonoptional components as *included items* or *mandatory components.*

Option Class: Use option class bills of material with model bills of material to specify families of options from which your customers can choose when ordering configurable items. For example, a customer ordering a pizza can choose pizza toppings from among sausage, pepperoni, onions, and mushrooms.

Refer to the optional components of an option class bill of material as *options* and the nonoptional components of an option class bill of material as *included items* or *mandatory components*.

Bill of Material Item Types



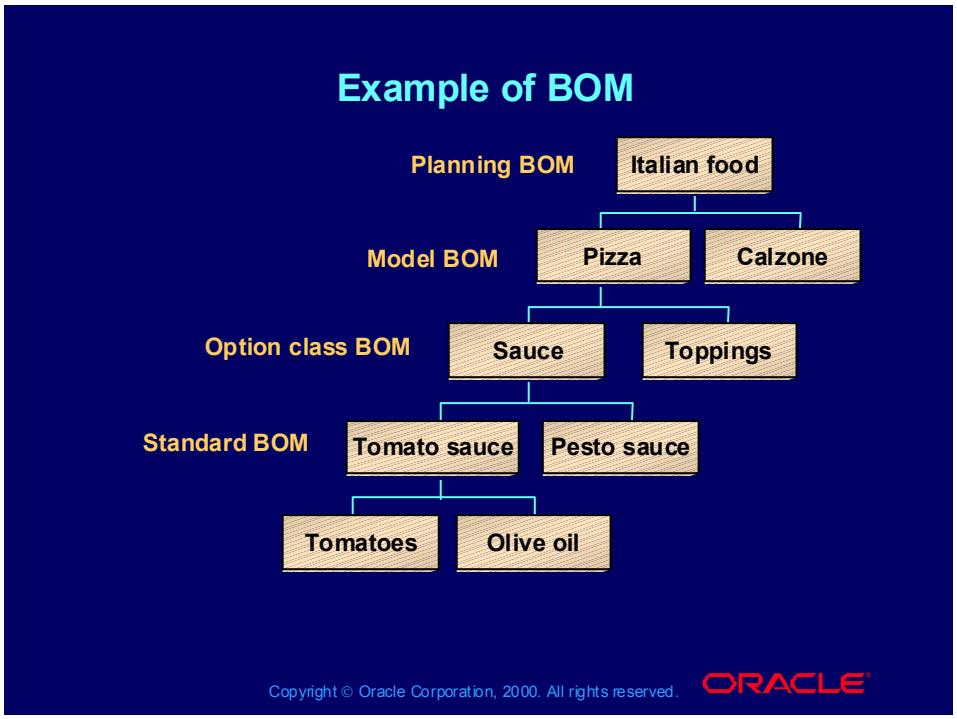
Creating Assembly Item Types of BOM

You must make sure that the assembly's *BOM Item Type* attribute in the item master specifies the bill of material type you wish to create. For example, to create a model bill of material, select Model from the drop down list as the value of the *BOM Item Type* item attribute.

Allowing Entry of Items on Bills of Material

You must select the BOM Allowed item attribute for both the assembly item and all of the component items from which you want to construct a bill of material. When you select the BOM Allowed item attribute, you can use the item as either an assembly or as a component of a bill of material. Before you can select the BOM Allowed item attribute, you must select the Inventory Item attribute.

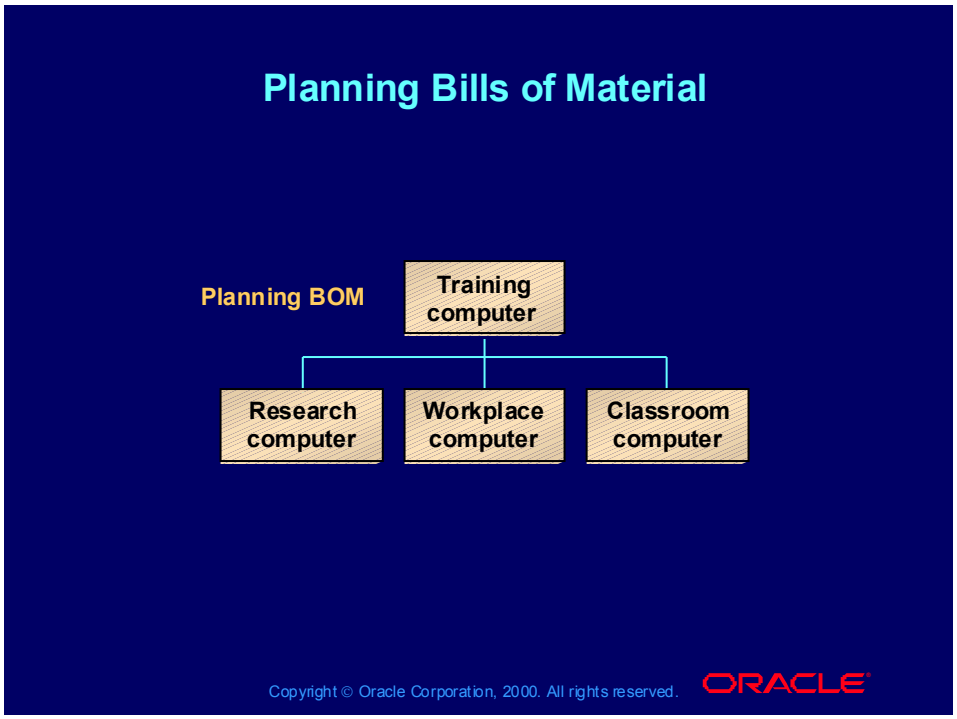
Example of BOM



Connecting Multiple Bills of Material

The bills of material shown in the slide include:

- A planning bill of material for Italian foods containing items pizza and calzone as components
- Two model bills of material for pizza and calzone (Pizza contains the option class components sauce and toppings.)
- Two option class bills of material for sauce and toppings (Sauce contains standard components tomato sauce and pesto sauce.)
- Two standard bills of material for tomato sauce and pesto sauce (Tomato sauce contains standard components tomato and oil.)



Specify Components for Planning BOM

Use planning bills of material to specify components that belong to the same product line.

You neither order nor build planning assemblies. Clear item attributes Customer Ordered, Customer Orders Enabled, Internal Orders Enabled, and Build in WIP.

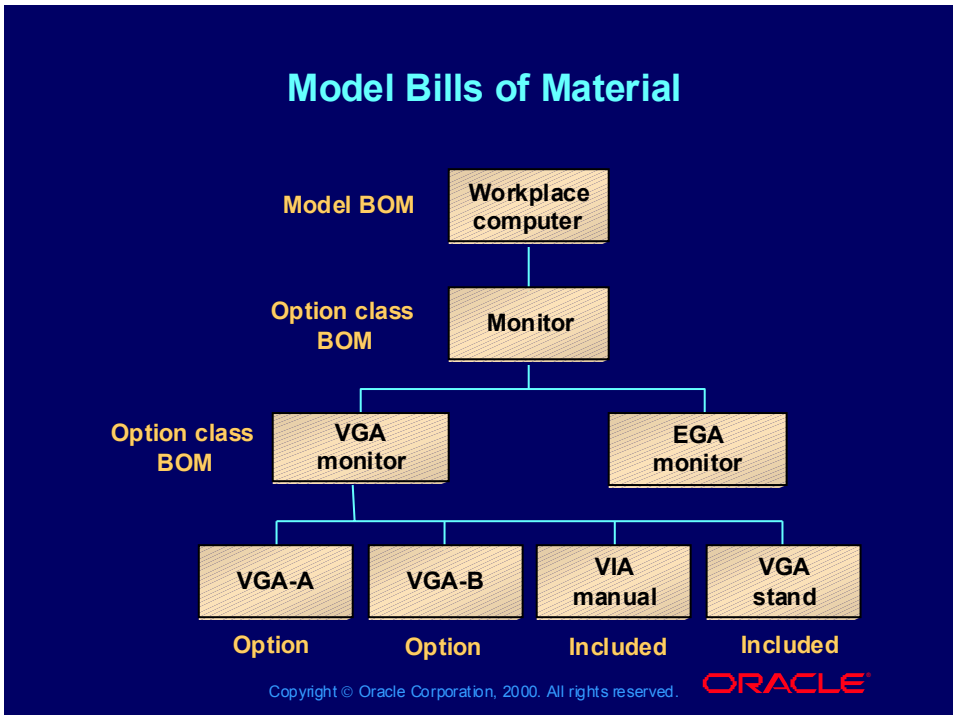
(Help) Oracle Manufacturing Applications > Oracle Inventory > Items >

Item Attribute Descriptions by Group > Main Attribute Group >

(link) Status Attributes and Item Status Control

You use planning bills for aggregate forecasting. Assign planning percentages, as well as quantities per assembly, to the components in proportion to their use in the assembly. The forecast explosion process allocates forecasts of the assembly to the components based on their planning percentages and their quantities per assembly.

If the top level item attribute BOM Item Type value is Planning, you can use those items with item attribute BOM Item Type value of Planning, Model, Option class, and Standard as components.



Specifying Classes for Model BOM

Use model bills of material to specify classes of options from which your customers can choose when they order configurable items.

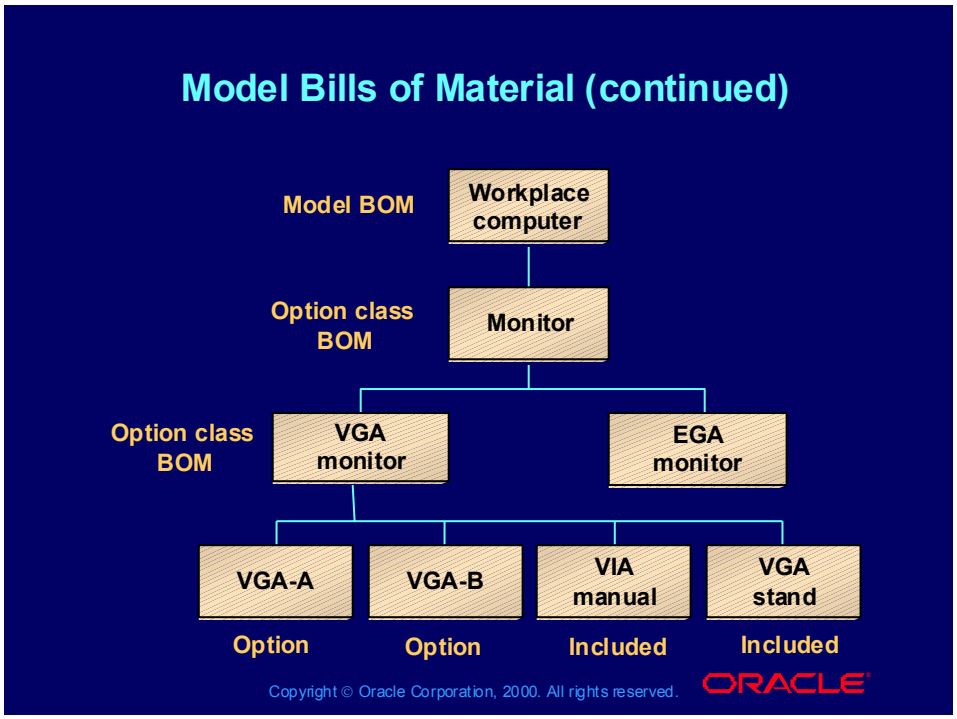
The two types of model bills of material are:

Pick-to-order: Your customer chooses options, and you pick and ship the components.

Assemble-to-order: Your customer chooses options, and you assemble the components before shipping.

In the example in the slide, each computer is made up of a monitor option class, cpu option class, and accessories option class.

Each monitor option class is made up of a VGA option class and a EGA option class. The VGA monitor option class has two options, VGA-A and VGA-B, and to components that are always included, the manual and the stand.



Model Bills of Materials

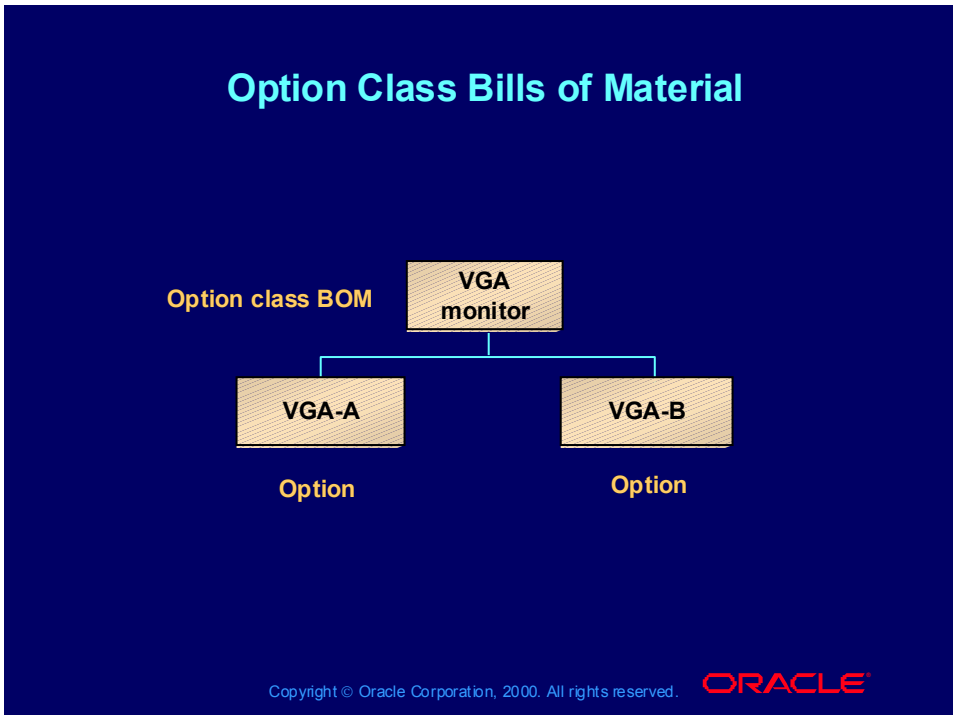
You do not build model assemblies; you assemble a configured item on a final assembly schedule. The configured item has a standard bill of material that contains only the options that the customer selected. Select Customer Ordered, Customer Orders Enabled, Internal Ordered, and Internal Orders Enabled item attributes. Clear the check box for the Build in WIP item attribute.

You use model bills of material for aggregate forecasting. Assign planning percentages to the components in proportion to their use in the model. The forecast explosion process allocates forecasts of the model to the components based on their planning percentages.

If the value of the assembly BOM Item Type item attribute is Model, you can use those items with a BOM Item Type item attribute value of Model, Option Class, and Standard as components.

Because Oracle Order Management uses model bills of material, you must also define them in the organization designated by profile option OE: Item Validation Organization.

Option Class Bills of Material



Rules for Setting Up Option Class Bills of Material

Use option class bills of material with model bills of material to specify families of options from which your customers can choose when ordering configurable items.

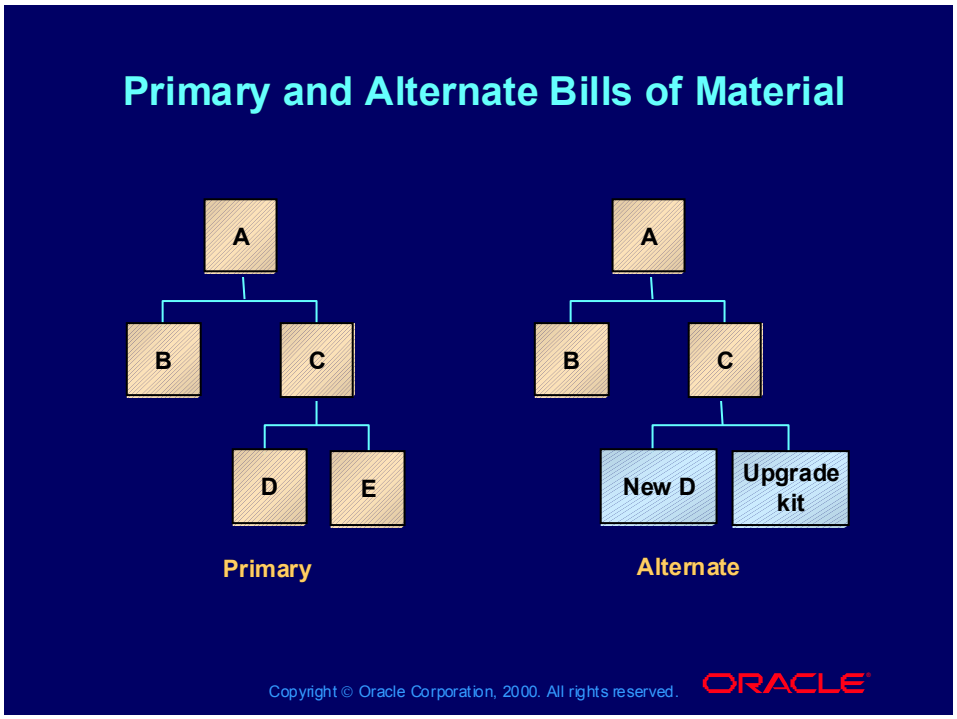
You neither order nor build option class assemblies; you order and build the options. You should clear Customer Ordered, Customer Orders Enabled, Internal Ordered, Internal Orders Enabled, and Build in WIP item attributes.

You use option class bills of material for aggregate forecasting. Assign planning percentages to the components in proportion to their use in the assembly. The forecast explosion process allocates forecasts of the assembly to the components based on their planning percentages.

If the assembly BOM Item Type item attribute value is Option Class, you can use those items with BOM Item Type item attribute value of Model, Option Class, and Standard as components.

Since Oracle Order Management uses option class bills of material, you must also define them in the organization designated by profile option OE: Item Validation Organization.

Primary and Alternate Bills of Material



Restriction

Do not create alternate bills of material for model and option class bills of material. You cannot choose alternate bills of material when you configure an order. Refer to the *Oracle Bills of Material User's Guide* for additional information.

Review Question

Which bill of material item types cannot be built?

a **Model**

b **Standard**

c **Planning**

d **Option Class**

Answer to Review Question

Answer to Review Question

Which bill of material item types cannot be built?

a **Model**

b Standard

c **Planning**

d **Option Class**

Bill of Material Data: Component Details

Bill of Material Data: Component Details

- Use the Planning % field for planning, model, and option class bills of material.
- Enter the percentage of assembly sales that this component usually contributes.
  - The planning percentages for all the components on a bill of material may total more than 100%.
  - Oracle Planning uses this percentage to calculate forecasts for the components from forecasts for the product family and model.

(N) Engineering > Prototypes > Bills > Bills (T) Component Details
(N) Bills of Material > Bills > Bills (T) Component Details
(Help) Oracle Manufacturing Applications > Oracle Engineering >
Engineering Prototype Environment >
Engineering Bills of Material and Routings >
(Related Topics) Creating a Bill of Material (Oracle Bills of Material Help) >
Planning Percent (Link) > Planning Percent Field
(Help) Oracle Manufacturing Applications > Oracle Bills of Material >
Defining a Bill of Material > Creating a Bill of Material >
Planning Percent (Link) > Planning Percent Field

Bill of Material Data: Order Entry

Bill of Material Data: Order Entry

- **Check ATP: Use for model and option class bills of material. Select the check box to indicate that the available-to-promise feature in Oracle Order Management should check the availability of this component when suggesting a promise date for a customer order. You can select this check box if you have selected the item attribute Check ATP for both the assembly and the component.**

(N) Engineering > Prototypes > Bills > Bills (T) Order Management

(N) Bills of Material > Bills > Bills (T) Order Management

(Help) Oracle Manufacturing Applications > Oracle Engineering > Engineering Prototype Environment >
Engineering Bills of Material and Routings >
(Related Topics) Creating a Bill of Material (Oracle Bills of Material Help) > (link) Check ATP
(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Creating a Bill of Material > (link) Check ATP

Bill of Material Data: Order Entry (continued)

- Optional: Used with model and option class bills of material. Select the component's check box to indicate that the customer placing a customer order can select this component as an option.

(Help) Oracle Manufacturing Applications > Oracle Engineering > Engineering Prototype Environment > Engineering Bills of Material and Routings > (Related Topics) Creating a Bill of Material (Oracle Bills of Material Help) > (link) Mutually Exclusive and Optional

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Defining a Bill of Material > Creating a Bill of Material > (link) Mutually Exclusive and Optional

Bill of Material Data: Order Entry (continued)

- Mutually Exclusive: Used with model and option class bills of material. This component applies if you have taken one of these actions:
  - Selected both Mutually Exclusive and Optional, a customer placing a customer order can choose no options or choose one, and only one, option.
  - Selected Mutually Exclusive and cleared Optional, a customer placing a customer order must choose one option only.

Bill of Material Data: Order Entry (continued)

- Cleared Mutually Exclusive and selected Optional, a customer placing a customer order can choose no options or any number of options.
- Cleared both Mutually Exclusive and Optional, a customer placing a customer order can choose any number of options, but must choose at least one option.

(N) Engineering > Prototypes > Bills > Bills (T) Order Management

(N) Bills of Material > Bills > Bills (T) Order Management

(Help) Oracle Manufacturing Applications > Oracle Engineering >
Engineering Prototype Environment >
Engineering Bills of Material and Routings >
(Related Topics) Creating a Bill of Material (Oracle Bills of Material Help) >
Mutually Exclusive and Optional (Link) Mutually Exclusive and Optional Fields
(Help) Oracle Manufacturing Applications > Oracle Bills of Material >
Defining a Bill of Material > Creating a Bill of Material >
Mutually Exclusive and Optional (Link) Mutually Exclusive and Optional Fields

Bill of Material Data: Order Entry (continued)

- Quantity Minimum: Used with model and option class bills of material to indicate the minimum number of the component that a customer placing a customer order must order.
- Quantity Maximum: Used with model and option class bills of material to indicate the maximum number of the component that a customer placing a customer order can order.

(N) Engineering > Prototypes > Bills > Bills (T) Order Management

(N) Bills of Material > Bills > Bills (T) Order Management

(Help) Oracle Manufacturing Applications > Oracle Engineering >
Engineering Prototype Environment >
Engineering Bills of Material and Routings >
(Related Topics) Creating a Bill of Material (Oracle Bills of Material Help) >
Minimum and Maximum Quantities (Link) >
Minimum and Maximum Quantity Fields
(Help) Oracle Manufacturing Applications > Oracle Bills of Material >
Defining a Bill of Material > Creating a Bill of Material >
Minimum and Maximum Quantities (Link) >
Minimum and Maximum Quantity Fields

Processing Assemble-to-Order

Processing Assemble-to-Order

- When your customers order configured items, you use Oracle Order Management to display model and option class bills of material from which they choose options.
- Use the Run Assemble to Order Processes form to create a unique item number and a unique standard bill of material, based on the model and option class bills of material for each configured sales order line.
- When the AutoCreate Configuration Items feature is used, Oracle generates either a WIP discrete order or schedule.
- A BOM and associated routing is created for the specific sales order.

(N) Bills of Material > ATO

(Help) Oracle Manufacturing Applications > Oracle Bills of Material >

Configure to Order >AutoCreate Configuration Items >

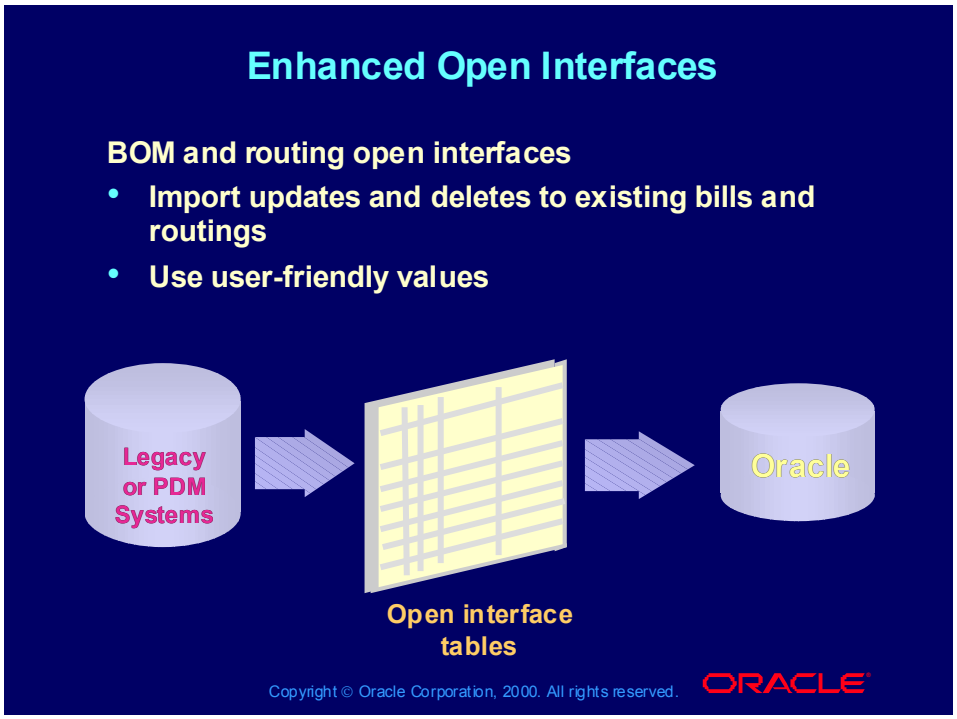
AutoCreating Config Items and Final Assembly Orders >

(link) AutoCreate Configuration Items and Final Assembly Orders

Note: The unique item number is comprised of the Numbering Segment and Numbering Method you selected in the Configuration Options setup parameters during implementation.

Note: If you have checked the BOM profile option to check for duplicate configurations, and one is found, the same assigned item number is used.

Enhanced Open Interfaces



Bills of Material Open Interface

Oracle Manufacturing integration tools are powerful, flexible tools with which you can capture data from other Oracle applications or your own applications, define necessary format conversions, and direct data to your Oracle Manufacturing products.

The bills of material open interface can:

- Update and delete BOM information including, bills and common bills, reference designators, and substitute components
- Update and delete BOM component information including, planning, cost rollup indicator, supply type, supply locator, and check ATP indicator
- Update and delete BOM component information including, model, option class information (optional, mutually exclusive, basis), min and max quantities, order information, and assembly components

Review Question

If you want the system to see if the component is available when suggesting the promise date for a customer order, you have to check the Check ATP item attribute for:

a **the component**

b **the assembly**

c **both**

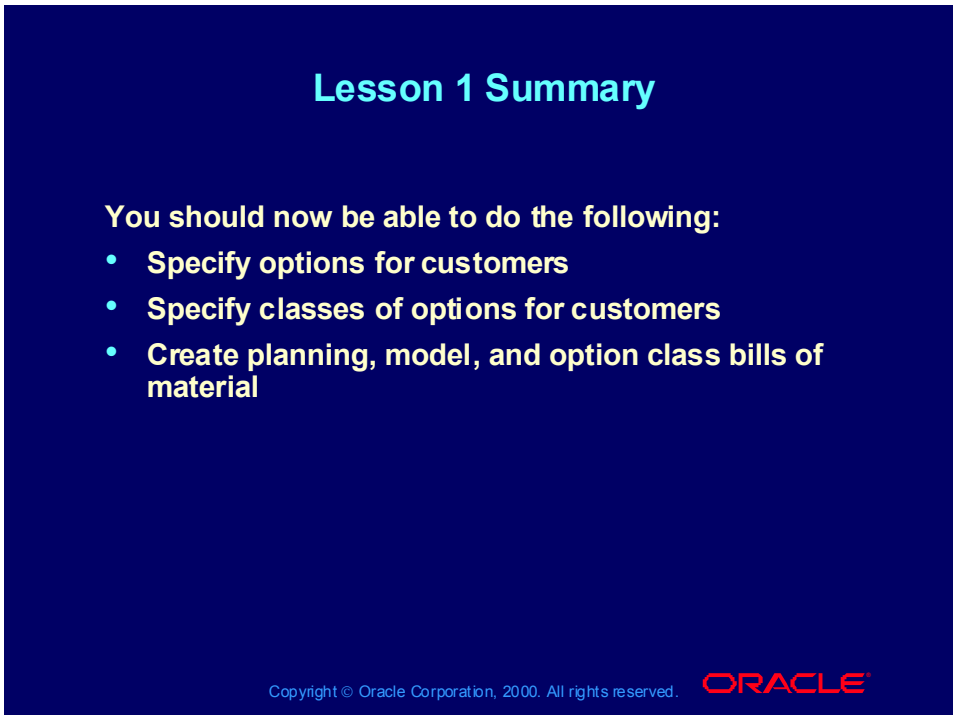
d **neither**

Answer to Review Question

If you want the system to see if the component is available when suggesting the promise date for a customer order, you have to check the Check ATP item attribute for:

a. the component
b. the assembly
c. **both**
d. neither

Lesson 1 Summary



Bills of Material Summary

To create each of the four types of bills of material, you use an assembly item with a corresponding item type, as follows:

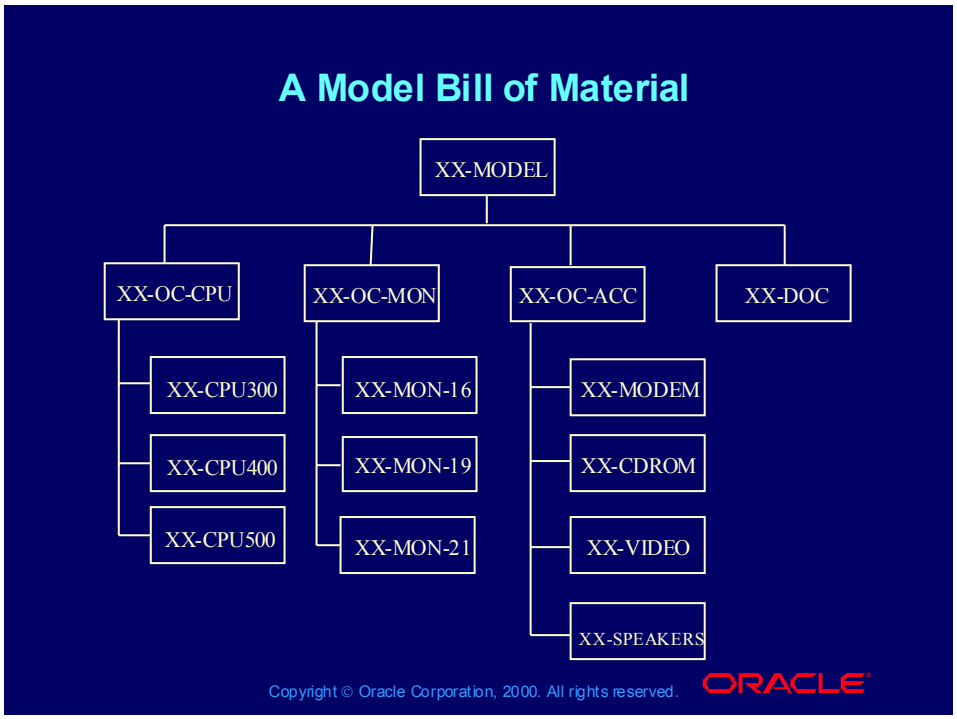
- Use *planning bills of material* to specify components that belong to the same product line.
- Use *model bills of material* to specify classes of options from which your customers can choose when ordering pick to order and configurable items.
- Use *option class bills of material* with model bills of material to identify the list of specific options from which your customers can choose when ordering pick to order and configurable items.
- Use *standard bills of material* to specify components that you use to manufacture items.
- • *A bill of material revision* indicates that one or more components of a parent have been added, changed, or deleted.
- • You use the *ATO processes* to create a unique item number and a unique standard bill of material based on the model and option class bills of material for each configured sales order line.

  Note: If you have checked the BOM profile option to check for duplicate configurations, and one is found, the same assigned item number is used.

Practice 1-1 Overview

Practice 1-1 Overview

- Entering marketing bills of material
- Specifying option classes for components
- Entering attribute fields for components
- Exploding forecasts for model item numbers



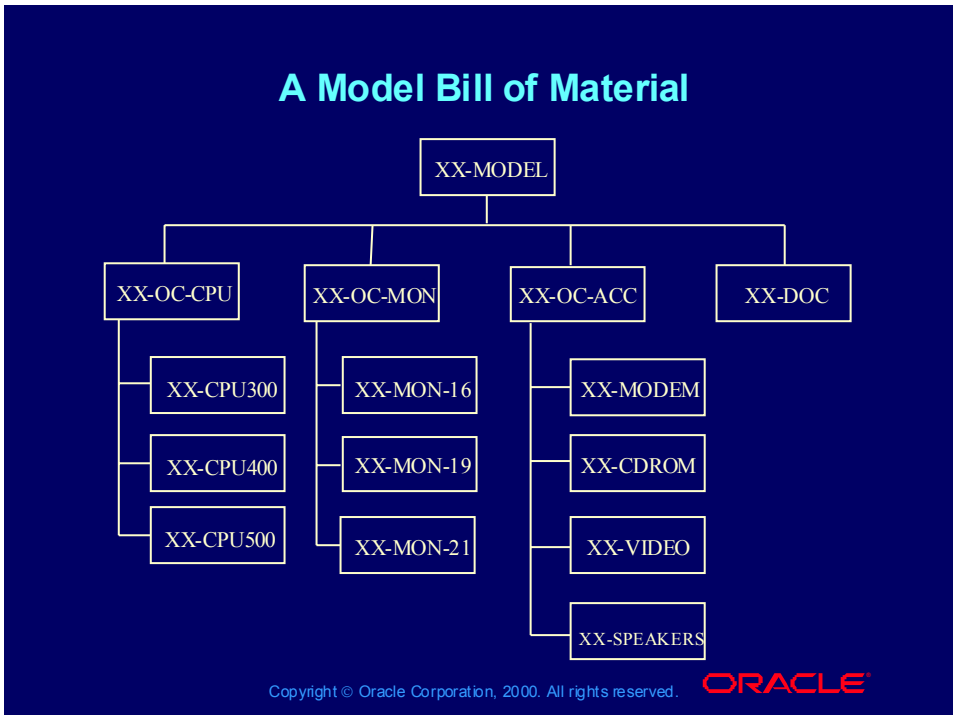
Build the PC Model Structure

The model is made up of a CPU, a monitor, accessories, and documentation. A customer can select from three CPUs, three monitors, and four accessories. The documentation is a standard item.

1 Create item numbers for all of the above items, using the descriptions and templates indicated below. Remember to enable these items in the shipping organization (M1).

1

Item Number	Description	Template
XX-MODEL	Model PC	PTO Model
XX-OC-CPU	CPU Options	PTO Option Class
XX-OC-MON	Monitor Options	PTO Option Class
XX-OC-ACC	Optional Accessories	PTO Option Class
XX-DOC	PC User's Guide	Finished Good
XX-CPU300	CPU 300 (low end CPU)	Finished Good
XX-CPU400	CPU 400 (mid range CPU)	Finished Good
XX-CPU500	CPU 500 (high end CPU)	Finished Good
XX-MON-16	16" Color Monitor	Finished Good
XX-MON-19	19" Color Monitor	Finished Good
XX-MON-21	21" Color Monitor	Finished Good



Build the PC Model Structure (continued)

1 Create item numbers for all of the above items, using the descriptions and templates indicated below. Remember to enable these items in the shipping organization (M1).

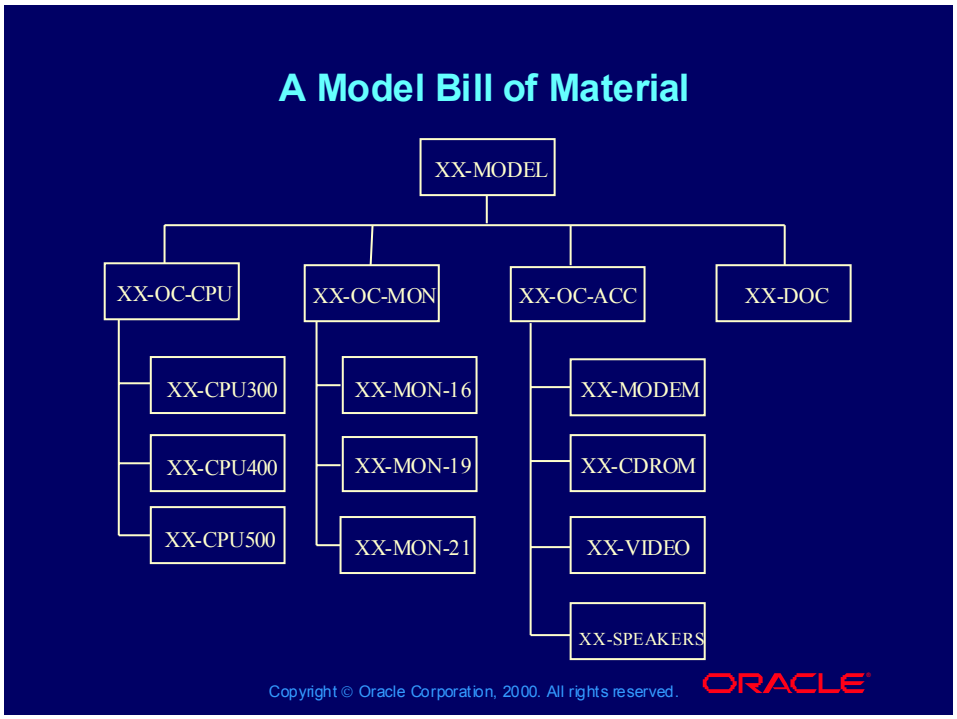
1

Item Number	Description	Template
XX-MODEM	Fax/Modem Card	Finished Good
XX-CDROM	CDROM Drive	Finished Good
XX-VIDEO	Video	Finished Good
XX-SPEAKERS	Pair of Whiz-Bang Speakers	Finished Good

2 Change your organization to the Vision Operations.

3 Create the BOM as shown above. Remember to set the order entry and shipping attributes for the option class and finished good components per the configuration rules below:

- Selection of a CPU and a Monitor is REQUIRED when ordering any XX-MODEL configuration.
- Selection of any accessory is OPTIONAL.
- The PC User's Guide is an INCLUDED item.



Build the PC Model Structure (continued)

The configurations rules (continued):

- The CPU options and the Monitor options are MUTUALLY EXCLUSIVE of each other. A customer can order only one CPU and only one Monitor, and they are REQUIRED for shipment and billing.
- Accessory options are MUTUALLY EXCLUSIVE of each other. So a customer does not have to order any of these, but if accessories are ordered, only one of each can be selected due to slot limitations on the CPU.
- If a customer orders the XX-CPU500, the XX-MODEM and the XX-CDROM cannot be selected since these options are included as part of the high end CPU.

Testing Your Model Bill of Material (optional)

Testing Your Model Bill of Material (optional)

Before you can enter a sales order for your model, every item that you created must be on a specified price list. Two rules to follow:

- **Place your model and option class items on the price list with a zero value.**
- **Enter very small price values for all other components.**

Enter an order for your XX-MODEL. Use the information in the note section for your order:

Entering an order

1 In the Order Information area, enter or select:

- Customer Name: Business World
- Order Type: Standard
- Accept all other defaults

2 In the Line Items area, enter or select:

- Line: accept the default
- Ordered Item: XX-MODEL
- Qty: 1

3 Select the Configurator tab (Your PTO model bill of material is displayed.)

4 Select what ever options you want.

4 **Note:** First time through, do not break any of the configuration rules.

5 Enter a second order; see what happens when you break one or more of your configuration rules.

Lesson 2: Creating Product Families

- Lesson 1: Creating customized bills of material
- **Lesson 2: Creating product families**

Lesson 2 Objectives

Lesson 2 Objectives

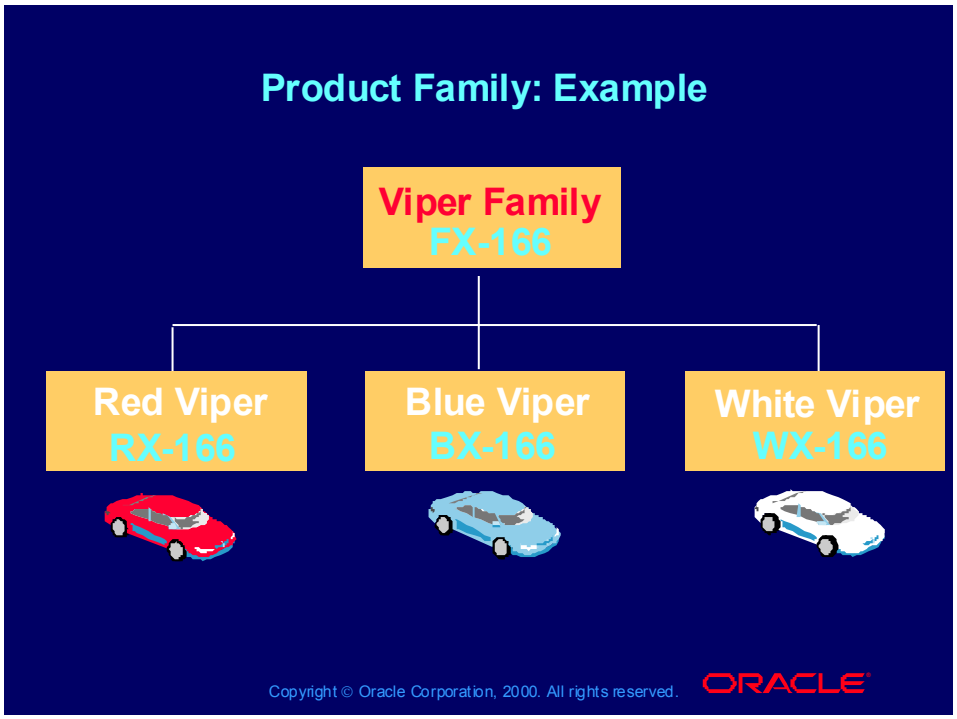
After completing this lesson you should be able to do the following:

- Group like items into product families
- Assign member items
- Control member item planning percentages with effectivity dates

Lesson 2 Overview

- A product family is a single-level BOM.
- You may apply the product family template to create your product family consistently.
- You must define the product family item and all the family members as items.
- If you do not assign planning percentages, the Oracle database will assign the default percentage of 100%.

Product Family: Example



Product Family

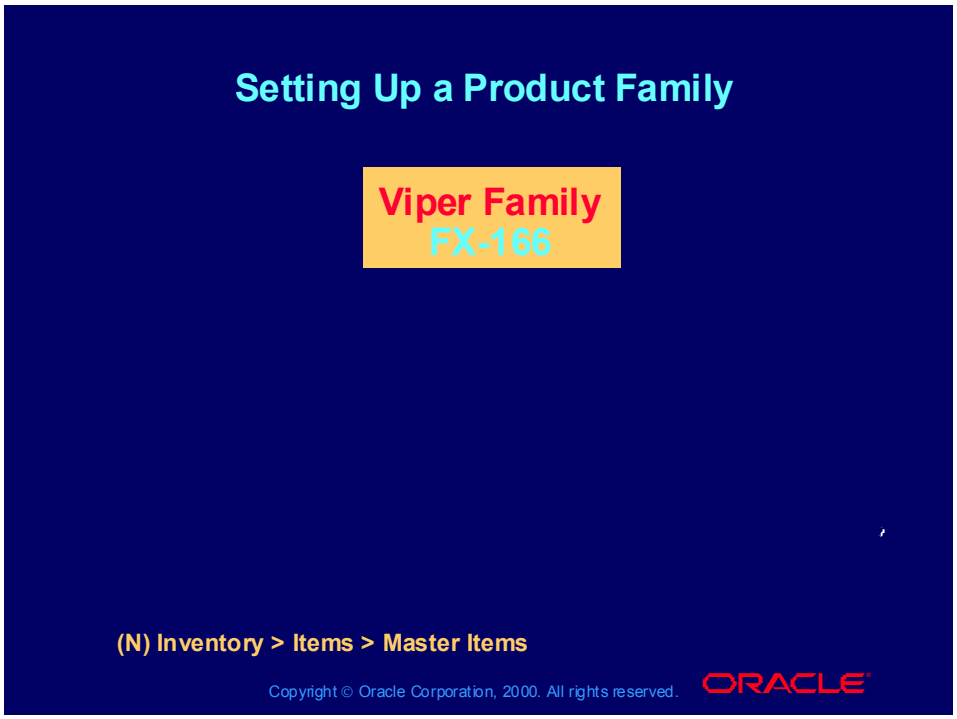
A product family is a grouping of products that are similar in resource usage, design, and manufacturing process. These similarities facilitate planning at an aggregate level. A product family cannot be structured under a Standard, Planning, Model, or Option Class bill of material. Consequently, a product family is a single-level bill of material. Members of a product family can belong to only one product family. You will be able to plan based on the planning percentages and effectivity of the product family members. Refer to the *Oracle Bills of Material User's Guide* for detailed information.

Note: You must make sure that the product family key flexfield structure is configured to match the system item structure. If the system item structure is changed, it should be reflected in the product family structure as well.

Product Family Items

- Product Family Items are defined in the master items form.
- They are created by using the predefined product family item template, or a template you have created for your company.
- This feature automatically creates product family categories for each product family item.
- Planning percentages can exceed 100%.

Setting Up a Product Family



To create a product family item:

1 Navigate to the Master Item form.

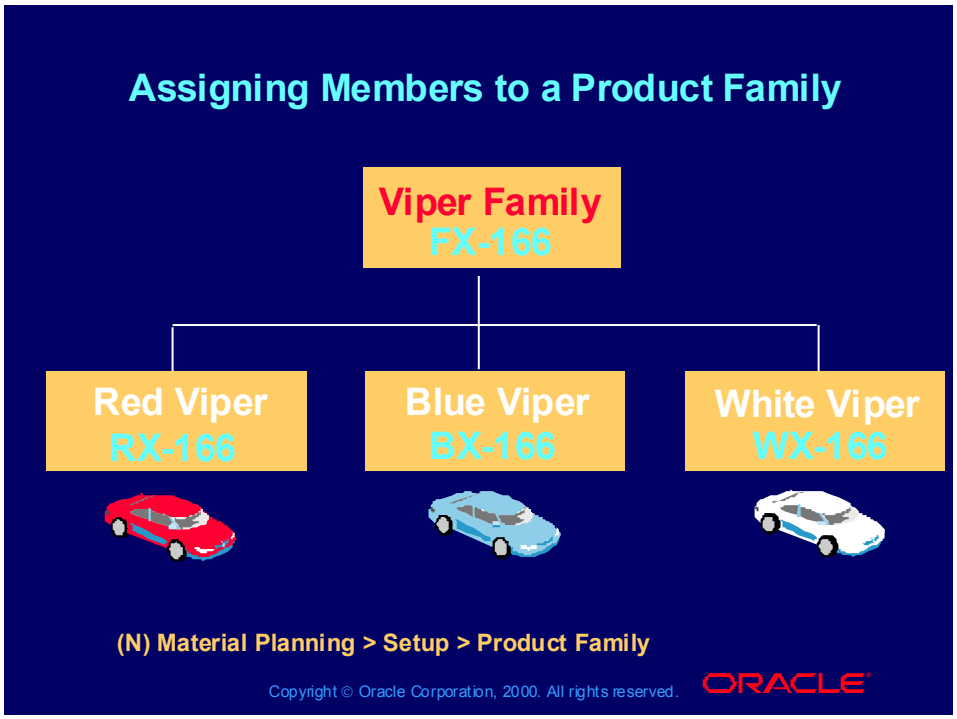
Note: If you are a Flow Manufacturing customer, select Product Family from the Flow Manufacturing window. The product family template is automatically applied.

2 Apply the product family template.

Note: You are not required to use the product family template. If you choose not to do so, make sure you define the correct product family attributes. Specifically, the item must be an inventory item and the BOM Item Type must be Product Family. The item must also be BOM allowed.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Creating a Product Family

Assigning Members to a Product Family



To assign family members:

1 Navigate to the Product Family form.

Note: If you are using Oracle Flow Manufacturing, you can select Product Family Members from the Flow Manufacturing menu.

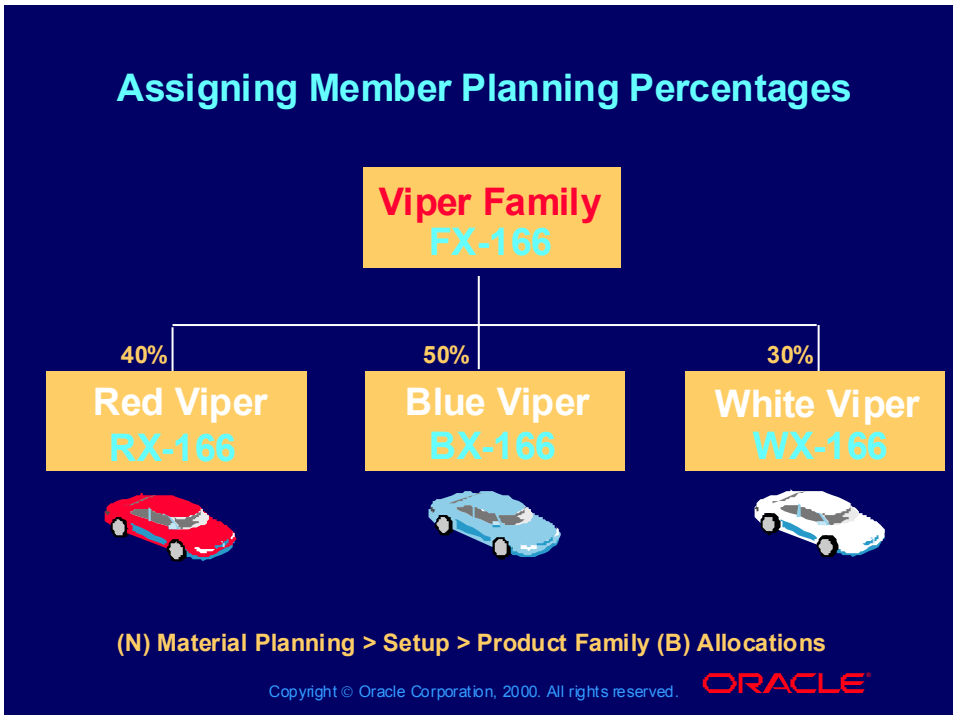
2 Select a product family item.

3 Select item members of the product family. The description, type, forecast control, and planning method for the member items are displayed for the items selected.

Note: When an item is included in a product family, it is automatically assigned to the same category as the family item.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Assigning Product Family Members

Assigning Member Planning Percentages



Assigning Percentages:

1 Navigate to the Allocations form.

2 For each selected product family member, enter the planning percentage.

3 Assign effectivity dates for the item.

Note: Effectivity dates cannot overlap.

4 Optionally, enter comments text.

5 Save your work.

Note: You cannot commit a record without assigning planning percentages. The default planning percent is 100. The default effectivity date is the system date.

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Assigning Product Family Members > Related Topics > Setting Planning Percentages for Product Family Members

and

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Bills of Material References > Planning Percent

Review Question

Which of the following statements are true?

a **A product family can be part of a model bill of material.**

b **Members of a product family cannot belong to more than one family.**

c **You cannot apply effectivity to a product family member.**

d **A product family is a single-level bill of material.**

Answer to Review Question

Which of the following statements are true?

a A product family can be part of a model bill of material.

b **Members of a product family cannot belong to more than one family.**

c You cannot apply effectivity to a product family member.

d **A product family is a single-level bill of material.**

Lesson 2 Summary

You should now be able to do the following:

- Group like items into product Families
- Assign member items
- Control member item planning percentages with effectivity dates

Practice 2-1 Overview

Practice 2-1 Overview

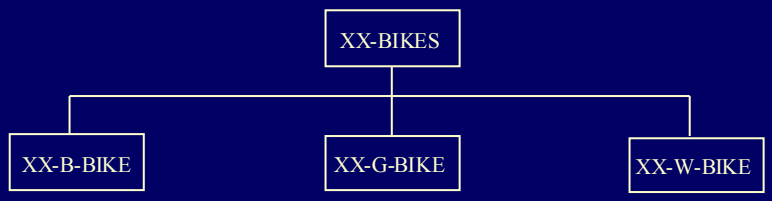
- Creating product families
- Creating product members
- Assigning members to product families

Practice 2-1

1. Create a product family called XX-BIKES with a description of Bikes Product Family.
2. Create family member items for the following:
   - XX-B-BIKE (Blue Bike)
   - XX-G-BIKE (Green Bike)
   - XX-W-BIKE (White Bike)
3. Assign members to the product family.
4. Assign planning percentages to your product family.

Practice 2-1 Solution

Practice 2-1 Solution



1 **Create a product family called XX-BIKES with a description of Bikes Product Family.**

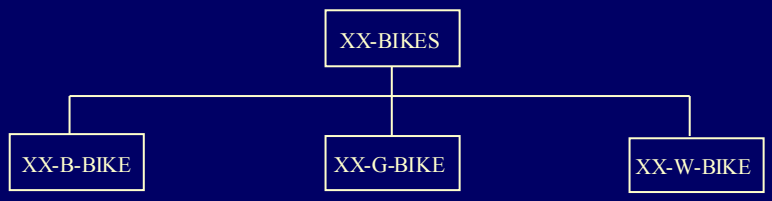
(N) Inventory > Items > Master Items

- **Copy from the item template named Product Family**
- **Save your work**

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Creating a Product Family

Practice 2-1 Solution

Practice 2-1 Solution



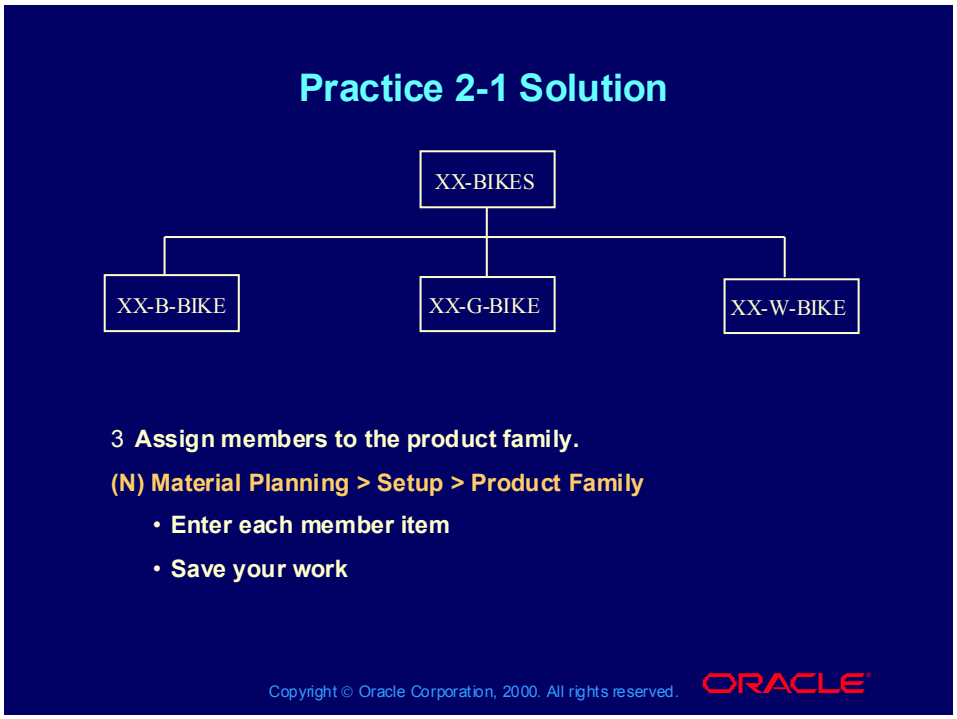
2 **Create family member items for the following:**

- **XX-B-BIKE (Blue Bike**
- **XX-G-BIKE (Green Bike)**
- **XX-W-BIKE (White Bike)**

(N) Inventory > Items > Master Items

- **Copy from the item template named Subassembly**
- **Save your work**

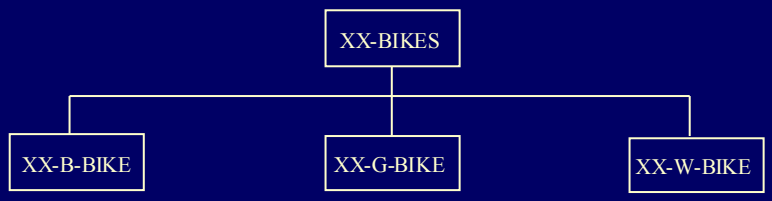
Practice 2-1 Solution



(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Assigning Product Family Members

Practice 2-1 Solution

Practice 2-1 Solution



4 **Assign planning percentages to your product family.**

(N) Material Planning > Setup > Product Family (B) Allocations

- **Enter each member's percentage**
- **Save your work**

(Help) Oracle Manufacturing Applications > Oracle Bills of Material > Bills of Material > Assigning Product Family Members > Related Topics > Setting Planning Percentages for Product Family Members

Course Summary

You should now be able to do the following:

- Explain the concepts with planning, model, and option bills of material
- Describe the steps in creating product families

R11*i* - Setting Up and Implementing Engineering

Chapter 6

R11*i* - Setting Up and Implementing Engineering

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Objectives

Objectives

After completing this course, you should be able to:

- Setup the Oracle Engineering module
- Identify implementation considerations
- Prepare to enter items, bills of material and routings
- Prepare to perform transfers, engineering changes, mass changes and deletions

Agenda

Agenda

- Product Overview
- Module setup
- Setup to enter Items and Bills of Material
- Setup to enter Routings
- Setup to perform Product Maintenance
- Summary

Lesson 1 - Product Overview

- **Product Overview**
- Module setup
- Setup to enter Items and Bills of Material
- Setup to enter Routings
- Setup to perform Product Maintenance
- Summary

Product Overview

Product Overview

- The Oracle engineering products are Oracle Bills of Material and Oracle Engineering.
- You use Oracle Bills of Material to:
  - Create and maintain production items
  - Create and maintain production bills of materials
  - Create and maintain production resources, departments, routings, and lead times
  - Perform mass changes
  - Delete product information
  - Maintain the workday calendar

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Product Overview

- You use Oracle Engineering to:
  - Create and maintain engineering items
  - Create and maintain engineering bills of materials
  - Create and maintain engineering resources, departments, routings, and lead times
  - Transfer engineering product information to production
  - Process engineering change orders
  - Perform mass changes
  - Delete product information

Lesson 2 - Module Setup

- Product Overview
- **Module setup**
- Setup to enter Items and Bills of Material
- Setup to enter Routings
- Setup to perform Product Maintenance
- Summary

Setup Overview

Setup Overview

Oracle Applications Implementation Wizard.

- Using the Wizard is optional.
- If implementing more than one Oracle Applications product, it is recommended that you use the Applications Implementation Wizard to coordinate setup steps.
- The Wizard guides you through setup for the applications you have installed.
- It suggests a logical sequence of steps that satisfy cross-product dependencies and reduces redundant steps.
- The wizard can also document your implementation for future reference and review, including your comments at each step.

Help: Oracle Manufacturing Applications > Oracle Engineering > Setting UP > Setup Overview

Setup Overview

Setup Overview

In addition to setting up Oracle Engineering you must set up the underlying Oracle applications technology. These steps are discussed in detail in other courses.

- Perform system wide setup tasks such as configuring concurrent managers and printers.
- Manage data security, which includes setting up responsibilities, and assigning users to one or more of these responsibilities
- Setup Oracle Workflow

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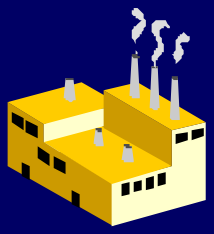
Related Application Setups

Related Application Setups

Before you setup Oracle Engineering you must complete the setup for the following:

- In Oracle Inventory
  - Defining items
- Oracle Bills of Material
  - Module setup



Setup Steps

Setup Steps

Step 1 - Set Profile Options (Required)

- Profile options control how Oracle Engineering manages access to and processes data.
- Profile options can be set at one or more of the following levels
  - site
  - application
  - responsibility
  - user
- Perform this step once for each entity (site, application, responsibility or user)

In Oracle Engineering: (N) Setup > Profiles

Setup Steps

Setup Steps

Step 2 - Enter Employee (Required)

- Define employees for your organization. ECO requestors and approvers must be defined as employees.
- If you have Oracle Human Resource Management Systems installed, enter employees there. If not, enter employees in Oracle Engineering.
- Perform this step once for each entity organization.

In Oracle Engineering:
(N) Setup > Employees

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Help: Oracle Manufacturing Applications > Oracle Engineering > Setting UP > Defining ECO Approval Lists

Setup Steps

Step 3 - Define Change Order Types (Optional)

- You can assign a change order type to your ECOs from a seeded list of change order types or you can define your own.
- You can create change order types for ECOs with manufacturing items or manufacturing and engineering items.
- If you skip this step, Oracle shipped change order types will be used as the default.
- Perform this step once per installation.

In Oracle Engineering: (N) Setup > Change Types

Help: Oracle Manufacturing Applications > Oracle Engineering > Setting UP > Defining ECO types

Setup Steps

Step 4 - Define ECO Departments (Optional)

- You can group users that use the ECO system into one or more departments within you inventory organization.
- You can restrict access to ECOs by ECO department.
- You can require an ECO department on all ECOs.
- You can change the ECO department as the ECO moves through multiple departments.
- Perform this step once per organization.

In Oracle Engineering: (N) Setup > ECO Departments

Help: Oracle Manufacturing Applications > Oracle Engineering > Setting UP > Defining ECO Approval Lists

Setup Steps

Step 5 - Define Autonumbering (Optional)

- You can define customized autonumbering for new ECOs and mass change orders.
- Autonumbering can be by user, organization or site.
- You can use the assigned autonumber or override the autonumber and assign your own number.
- Perform this step once per organization user.

In Oracle Engineering: (N) Setup > Autonumbering

Help: Oracle Manufacturing Applications > Oracle Engineering > Setting UP > Defining ECO Autonumbering

Setup Steps

Step 6 - Define Approval Lists (Optional)

- You can define lists of approvers required to review an ECO before it can be released.
- Oracle engineering can be used to notify people on the list with an alert, that an ECO requires their review.
- Note: Oracle Workflow can also be used to notify approvers; as well as tabulate and evaluate responses.
- Perform this step once per installation.

In Oracle Engineering: (N) Setup > Approval Lists

Help: Oracle Manufacturing Applications > Oracle Engineering > Setting UP > Defining ECO Approval Lists

Setup Steps

Setup Steps

Step 7 - Define Reasons (Optional)

- You can define reasons for engineering change orders using your own terminology.
- ECO Reasons are used for your reference only.
- If you skip this step, Oracle shipped reasons will be used as the default value.
- Perform this step once per organization.

In Oracle Engineering: (N) Setup > Reasons

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Help: Oracle Manufacturing Applications > Oracle Engineering > Setting UP > Defining ECO Reasons

Setup Steps

Step 8 - Define Priorities (Optional)

- You can define scheduling priorities for ECOs to describe the urgency of your ECO.
- Priorities are for your reference only.
- If you skip this step, Oracle shipped priorities will be used as the default value.
- Perform this step once per organization.

In Oracle Engineering: (N) Setup > Priorities

Help: Oracle Manufacturing Applications > Oracle Engineering > Setting UP > Defining ECO Priorities

Setup Steps

Setup Steps

Step 9 - Start AutoImplement Manager (Optional)

- If you automatically implement ECOs, you must specify the frequency that you want the AutoImplement Manager to run.
- Once the ECO has been released to the AutoImplement manager, you can automatically implement all scheduled ECO revised items with effective dates less than or equal to the current date.
- Perform this step once per organization.

In Oracle Engineering: (N) Setup > AutoImplement

Help: Oracle Manufacturing Applications > Oracle Engineering > Reports and Processes > Starting the AutoImplement Manager

Engineering Alerts

Engineering Alerts

Engineering includes two pre-coded alerts that you can use with or without customizing.

- ECO Approval Notification
  - Notifies all users on the ECO's approval list that an ECO requires their approval
- ECO Use Up Date
  - Notifies the ECO planner that a plan date for use-up item has changed

Review Question

Review Question

In order to implement Oracle Engineering you must do which of the following?

A. Run the Applications Implementation Wizard

B. Perform system wide setups

C. Setup and assign responsibilities to users

D. Setup Oracle Bills of Material

E. Setup Oracle Inventory

F. Setup Oracle General Ledger

G. Setup Oracle Workflow

Answer to Review Question

Answer to Review Question

In order to implement Oracle Engineering you must do which of the following?

A. Run the Applications Implementation Wizard

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D. Setup Oracle Bills of Material

E. Setup Oracle Inventory

F. Setup Oracle General Ledger

G. Setup Oracle Workflow

Lesson 3 - Setup for Items and Bills of Material

- Product Overview
- Module setup
- **Setup to enter Items and Bills of Material**
- Setup to enter Routings
- Setup to perform Product Maintenance
- Summary

Implementation Considerations

- How many levels will you structure your bills of material?
- Will you use phantoms?
- What item templates will you use?
- What item catalog groups will you use?
- Will you use engineering and production items with bills of material or only production items with bills of material?
- Will you use reference designators?

Implementation Considerations

- Who will be responsible for converting current bills of material? How will they accomplish the conversion?
- Who will be responsible for maintaining bills of material? What process will you use to request and approve bill of material changes?
- How will you use item revisions?
- What alternate bills of material will you use?
- Will you use copy and common bills?

Setup for Items and Bills of Material

Setup for Items and Bills of Material

- Setup Key Flexfields
- Setup Bills of Material Parameters
- Setup Personal Profiles
- Setup Security Functions
- Request BOM Setup Reports

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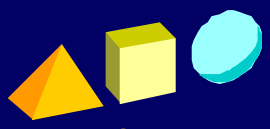
Key Flexfield Segments

Key Flexfield Segments

Use the Key Flexfield Segments form to create the item number flexfield.

In Oracle Engineering: (N) Setup > Flexfields > Key > Segments

In Oracle Bills of Material: (N) Setup > Flexfields > Key > Segments



Items

Segments Summary

Segments Summary

Use the Segments Summary form to specify the number and length of each item flexfield segment.

In Oracle Engineering: (N) Setup > Flexfields > Key > Segments (B) Segments

In Oracle Bills of Material: (N) Setup > Flexfields > Key > Segments (B) Segments

Parameters

Use the Parameters form to specify the Bill of Material parameters:

In Oracle Bills of Material: (N) Setup > Parameters

- Max Bill Levels: Enter the number of bill of material levels that the indented bill of material explosion should display.
- Inactive Status: Enter an Oracle Inventory item status to indicate the status that you assign to configured items that you want Oracle Bills of Material to delete.

Parameters

Use the Parameters form to specify the Bill of Material parameters: (continued)

In Oracle Bills of Material: (N) Setup > Parameters

- Numbering Segment: Enter the item number segment that you want to be unique for each configured item number.
- Numbering Method: Choose a button to specify the information that the ATO process should place in the unique segment of configured item numbers.

Personal Profile Values

Personal Profile Values

In the Personal Profile form set your choice for the personal profile option values in the User Value field.

In Oracle Engineering: (N) Setup > Profiles

In Oracle Bills of Material: (N) Setup > Profiles

- Component Item Sequence Increment: Indicates the value by which the bill of material form should increase the component sequence numbers.
- Default Bill of Material Levels: Indicates the number of bill of material levels that the indented bill of material explosion should display. This value defaults to the bill of material parameters.

Personal Profile Values

Personal Profile Values

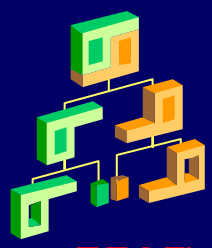
- Default WIP Supply Values for Components: Select "Yes" to instruct Oracle Work In Process to use values for WIP Supply Type, WIP Supply Subinventory, and WIP Supply Locator from the assembly item's bill of material when creating a work order or repetitive schedule pick list. Select No to instruct Oracle Work In Process to use values for WIP Supply Type, WIP Supply Subinventory, and WIP Supply Locator from the component item when creating a work order or repetitive schedule pick list.
- Model Item Access: Indicates whether the user can define and update bills of material for model and option class items.

Personal Profile Values

Personal Profile Values

Personal Profile Values: Bills of Material

- **Planning Item Access: Indicates whether a holder of this responsibility can define and update bills of material for planning items.**
- **Standard Item Access: Indicates whether a holder of this responsibility can define and update bills of material for standard items.**



Bills of Material

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Personal Profile Values

Personal Profile Values

Personal Profile Values: Configured Items

- **Check for Duplicate Configuration: Indicates that the ATO process should search for an existing configured item before creating a new item. For this feature to work, you must program the search method that you want the ATO process to use.**
- **Configuration Item Delimiter: Indicates the character that the ATO process should use to separate the order and line numbers in the item number segment of newly-configured items. The ATO process uses this delimiter when you indicate in the bill-of-material parameters to replace the base model's segment value with the order number/line number.**

Personal Profile Values

Personal Profile Values—Configured Items (continued)

- **Configuration Item Type: Indicates the item type that the ATO process should set on the new configuration items.**
- **Days Past Before Starting Cutoff of Order Entry Bills: Indicates the number of past days that Oracle Bills of Material should save versions of Order Entry bills of material in the pre-explosions table.**

Personal Profile Values

Personal Profile Values—Configured Items (continued)

- **Inherit Option Class Operation Sequence Number: Indicates whether to allow components on model bills to inherit operation information from parent items.**
- **Perform Lead Time Calculations: Indicates whether the ATO process should calculate lead times of newly-configurated items that it creates.**

Security Functions

Security Functions

- Security Functions are maintained by the System Administrator.
- There are two security functions in engineering Items:
  - Delete: Determines whether engineering items can be deleted from the Bills of Material window or the Routings window.
  - Revisions: Determines whether revisions for engineering items can be updated.

BOM Setup Reports

BOM Setup Reports

Use the BOM Setup Reports form to request setup reports.

In Oracle Bills of Material: (N) Reports >Setup > BOM Setup Reports

- Alternates Report
- Bills of Material Parameters Report
- Department Resources Report
- Workday Exception Sets Report

Reports

Review Question

Review Question

In order to implement Oracle Engineering you must do which of the following?

A. Run the Applications Implementation Wizard

B. Perform system wide setups

C. Setup and assign responsibilities to users

D. Setup Oracle Bills of Material

E. Setup Oracle Inventory

F. Setup Oracle General Ledger

Answer to Review Question

Answer to Review Question

Which of the following are not setup steps to implement items and bills of material?

A. Setup Item Categories Flexfield

B. Setup Bills of Material Parameters

C. Setup Personal Profiles

D. Setup Security Functions

E. Request BOM Setup Reports

Lesson 4 - Setup for Routings

- Product Overview
- Module setup
- Setup to enter Items and Bills of Material
- **Setup to enter Routings**
- Setup to perform Product Maintenance
- Summary

Implementation Considerations

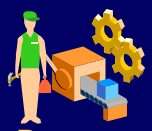
Implementation Considerations

- Will you use engineering and production routings or only production routings?
- Who will be responsible for converting current routings? How will they accomplish it?
- Who will be responsible for maintaining routings? What process will you use to request and approve routing changes?
- How will you use routing revisions?
- What alternate routings will you use?

Implementation Considerations

Implementation Considerations

- Will you use copy and common routings?
- What resources and departments will you use?
- How will you use capacity changes?
- Will you use standard operations?
- How will you determine lead times? Who will be responsible for converting, entering, and maintaining lead times? How will they accomplish it?



Resources

ORACLE

Setup for Routings

Setup for Routings

- Setup Locations
- Setup Personal Profiles
- Request BOM Setup Reports

ORACLE

Locations

Locations

Use the Location form to enter location information. You assign locations to departments that receive deliveries of outside processing items.

In Oracle Bills of Material: (N) Setup > Locations

Personal Profiles

Personal Profiles

In the Personal Profile form set your choice for the personal profile option values in the User Value field.

In Oracle Engineering: (N) Setup > Profiles

In Oracle Bills of Material: (N) Setup > Profiles

- Hour UOM: Indicates the unit of measure that represents an hour. You cannot schedule resources whose unit of measure is not in the same class as the hour unit of measure.
- Update Resource UOM: Indicates whether you can update the resource unit of measure.

BOM Setup Reports

BOM Setup Reports

Use the BOM Setup Reports form to request setup reports.

In Oracle Bills of Material: (N) Reports > Setup > BOM Setup Reports

- Alternates Report
- Bills of Material Parameters Report
- Department Resources Report
- Workday Exception Sets Report

Reports

ORACLE

Review Question

Review Question

Which of the following are not setup steps to implement routings?

A. Setup Locations

B. Setup Security Functions

C. Setup and assign responsibilities to users

D. Request BOM Setup Reports

Answer to Review Question

Answer to Review Question

Which of the following are not setup steps to implement routings?

A. Setup Locations

B. Setup Security Functions

C. Setup and assign responsibilities to users

D. Request BOM Setup Reports

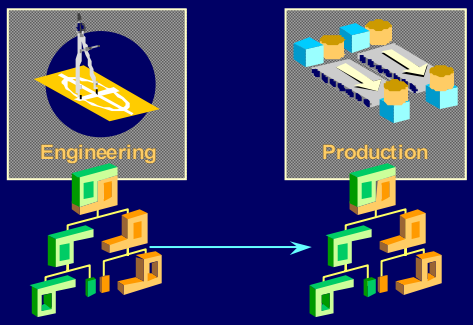
Lesson 5 - Setup for Product Maintenance

- Product Overview
- Module setup
- Setup to enter Items and Bills of Material
- Setup to enter Routings
- **Setup to perform Product Maintenance**
- Summary

Implementation Considerations

Implementation Considerations

- When and how will you transfer engineering product information to production information? Will you use the same item numbers or different item numbers between engineering items and production items?



Implementation Considerations

- Will you use ECOs? What ECO process will you use? Will you use an approval process and will it be the process in Oracle Engineering or in Oracle Workflow?
- Will you use the Use Up functionality? If not, how will you decide when to implement the change? How will you evaluate existing discrete jobs and repetitive schedules in light of an engineering change?

Implementation Considerations

- Will you use Oracle Engineering for performing mass changes? Will you use Oracle Bills of Material for performing mass changes?
- Will you delete and archive information or only delete? What information will you delete and archive? How often and who will delete and archive information? What delete constraints will you develop?

Setup for Product Maintenance

Setup for Product Maintenance

- Start AutoImplement Manager
- Define Deletion Constraints
- Set Personal Profiles
- Set Security Functions
- Request Setup Reports

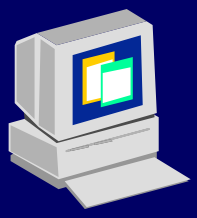
ORACLE

AutoImplement Manager

AutoImplement Manager

Use the Start AutoImplement Manager form to request the AutoImplement Manager to implement ECO revised items with status Scheduled whose schedule date is current or past.

In Oracle Engineering: (N) Setup > AutoImplement



Deletion Constraints

Deletion Constraints

Use the Deletion Constraints form to view the deletion constraints and to create your own deletion constraints.

In Oracle Engineering: (N) Setup > Delete Constraints

In Oracle Bills of Material: (N) Setup > Delete Constraints

Personal Profiles

Personal Profiles

In the Personal Profile form set your choice for the personal profile option values in the User Value field.

In Oracle Engineering: (N) Setup > Profiles

In Oracle Bills of Material: (N) Setup > Profiles

- Change Order Autonumbering: Indicates whether you can define ECO autonumbering for all users or for yourself only.
- ECO Department: Indicates the default department that Oracle Engineering uses when you define an ECO and restricts you to viewing and updating ECOs controlled by your department.

Personal Profiles

Personal Profiles

- ECO Revision Warning: Indicates whether to implement ECO revisions with pending lower level revisions. Regardless of your choice, Oracle Engineering issues a warning message when this situation occurs.
- Engineering Item Change Order Access: Indicates whether you can revise engineering items in ECOs.
- Mandatory ECO Departments: Indicates whether you must assign a department to each ECO.

Personal Profiles

- Model Item Change Order Access: Indicates whether you can revise model and option class items on ECOs.
- Planning Item Change Order Access: Indicates whether you can revise planning items on ECOs.
- Require Revised Item New Revision: Indicates whether you must assign a new revision to revised items on ECOs.
- Standard Item Change Order Access: Indicates whether you can revise standard items on ECOs.

Security Functions

Security Functions

- Security Functions are maintained by the System Administrator.
- There are nine security functions for engineering change orders:
  - Approvals: Determines whether you can submit or abort an ECO approval Workflow process.
  - Cancel: Determines whether you can cancel ECOs.

Security Functions

- ECO Security Functions: (continued)
  - Implement: Determines whether you can implement ECOs.
  - Release: Determines whether you can release ECOs.
  - Reschedule: Determines whether you can reschedule ECOs.
  - Schedule: Determines whether you can schedule ECOs.

Security Functions

- ECO Security Functions: (continued)
  - Update: Determines whether ECOs can be updated.
  - Delete: Determines whether you can delete engineering items from the Bills of Material window or the Routings window.
  - Transfer: Determines whether you can transfer engineering items to manufacturing.

BOM Setup Reports

BOM Setup Reports

Use the BOM Setup Reports form to request setup reports.

In Oracle Bills of Material: (N) Reports > Setup > BOM Setup Reports

- Alternates Report
- Bills of Material Parameters Report
- Department Resources Report
- Workday Exception Sets Report

Reports

Review Question

Review Question

Which of the following statements are true?

A. Oracle Bills Of Material can be used to transfer product data to Oracle Engineering.

B. The AutoImplement Manager is not required when using Oracle Workflow to approve ECOs.

C. The Revisions security function applies to ECOs.

D. An engineering profile can be set to make ECO Reasons a mandatory field on ECOs.

Answer to Review Question

Answer to Review Question

Which of the following statements are true?

A. Oracle Bills Of Material can be used to transfer product data to Oracle Engineering.

B. The AutoImplement Manager is not required when using Oracle Workflow to approve ECOs.

C. The Revisions security function applies to ECOs.

D. An engineering profile can be set to make ECO Reasons a mandatory field on ECOs.

Lesson 6 - Summary

- Product Overview
- Module setup
- Setup to enter Items and Bills of Material
- Setup to enter Routings
- Setup to perform Product Maintenance
- **Summary**

Summary

Summary

In this course, you should have learned how to:

- Setup the Oracle Engineering module
- Identify implementation considerations
- Prepare to enter items, bills of material and routings
- Prepare to perform transfers, engineering changes mass changes and deletions

Appendix - Engineering Profiles

- ENG: Change Autonumbering - System Administrator Access
  - Indicate whether you can define ECO autonumbering for all users or just yourself.
- ENG: ECO Department
  - Indicate the default department used when you define an ECO. Departments are used to control access to update ECO data.
- ENG: ECO Revision Warning
  - Indicate whether to raise a warning but still implement ECO revisions with pending lower level revisions (Yes), or to raise an error and not perform the implementation (No or blank)

Appendix - Engineering Profiles

- ENG: Engineering Item Change Order Access
  - Indicate whether you can revise items on ECOs.
- ENG: Mandatory ECO Departments
  - Indicate whether it is mandatory to assign a department to each ECO to enforce data security.
- ENG: Model Item Change Order Access
  - Indicate whether you can revise model and option class items on ECOs.

Appendix - Engineering Profiles

- ENG: Planning Item Change Order Access
  - Indicate whether you can revise planning items on ECOs.
- ENG: Require Revised Item New Revisions
  - Indicate whether it is mandatory to assign a new revision to revised items on ECOs. Blank or "null" is equivalent to No.
- ENG: Standard Item Change Order Access
  - Indicate whether you can revise standard items on ECOs.

Appendix - Security Functions

During Implementation, the system administrator sets up and maintains security functions as well as profile options.

- Engineering Change Orders: Approvals (ENG_ENGFDECN_APPROVAL)
  - Determines whether an ECO Workflow process can be submitted or aborted.
- Engineering Change Orders: Cancel (ENG_ENGFDECN_CANCEL)
  - Determines whether ECOs can be cancelled.

Appendix - Security Functions

- Engineering Change Orders: Implement (ENG_ENGFDECN_IMPLEMENT)
  - Determines whether ECOs can be implemented.
- Engineering Change Orders: Release (ENG_ENGFDECN_RELEASE)
  - Determines whether ECOs can be released.
- Engineering Change Orders: Reschedule (ENG_ENGFDECN_RESCHEDULE)
  - Determines whether ECOs can be rescheduled.

Appendix - Security Functions

- Engineering Change Orders: Schedule (ENG_ENGFDECN_SCHEDULE)
  - Determines whether ECOs can be scheduled.
- Engineering Change Orders: Update (ENG_ENGFDECN_UPDATE)
  - Determines whether ECOs can be updated.
- Engineering Change Orders: Delete (ENG_INVIDITM_DELETE)
  - Determines whether engineering items can be deleted from the Bills of Material or Routings windows.

Appendix - Security Functions

- Engineering Change Orders: Revisions (ENG_INVIDITM_REVISIONS)
  - Determines whether revisions for engineering items can be updated.
- Engineering Change Orders: Transfer (ENG_INVIDITM_TRANSFER)
  - Determines whether engineering items can be transferred to manufacturing.