Integrating Oracle Process Manufacturing with Advanced Supply Chain Planning Release 11*i*

Student Guide

14756GC10
Production 1.0
November 2000
M013937

ORACLE

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This book was published using:

Oracle® Tutor™

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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 manufacturing planning.
- Working experience with the following OPM modules:
    - System Administration
    - Inventory Management
    - Formula Management
    - Production Management
    - Material Requirements Planning (MRP)/Master Production Scheduling (MPS) and Forecasting

Prerequisites

- Oracle Process Manufacturing Foundation (14827GC10) (ILT)
- Oracle Process Manufacturing Advanced Planning (14750GC10) (ILT)
- Oracle Advanced Planning and Scheduling (APS) Release 11*i* (14278GC10) (ILT)

How This Course Is Organized

Integrating Oracle Process Manufacturing with Advanced Supply Chain Planning Release 11i 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 Process Manufacturing System Administration User's Guide, part number A77212-3
- Oracle Process Manufacturing Formula Management User's Guide, part number A77221-02
- Oracle Process Manufacturing Inventory Management User's Guide, part number A77228-03
- Oracle Process Manufacturing Production Management User's Guide, part number A77372-02
- Oracle Process Manufacturing MPS/MRP and Forecasting User's Guide, part number A81329-01
- Oracle Process Manufacturing Integration with Advanced Planning and Scheduling User's Guide, part number A81002-01
- Oracle Advanced Supply Chain Planning and Oracle Global ATP Server User's Guide, part number A81011-01

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.

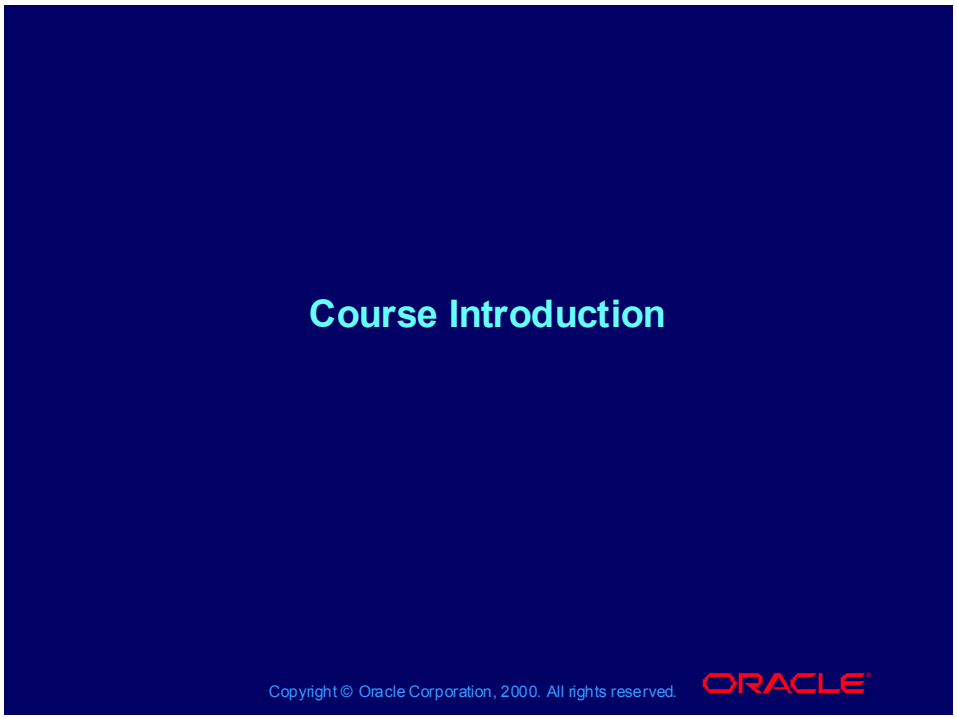
Searching for Help

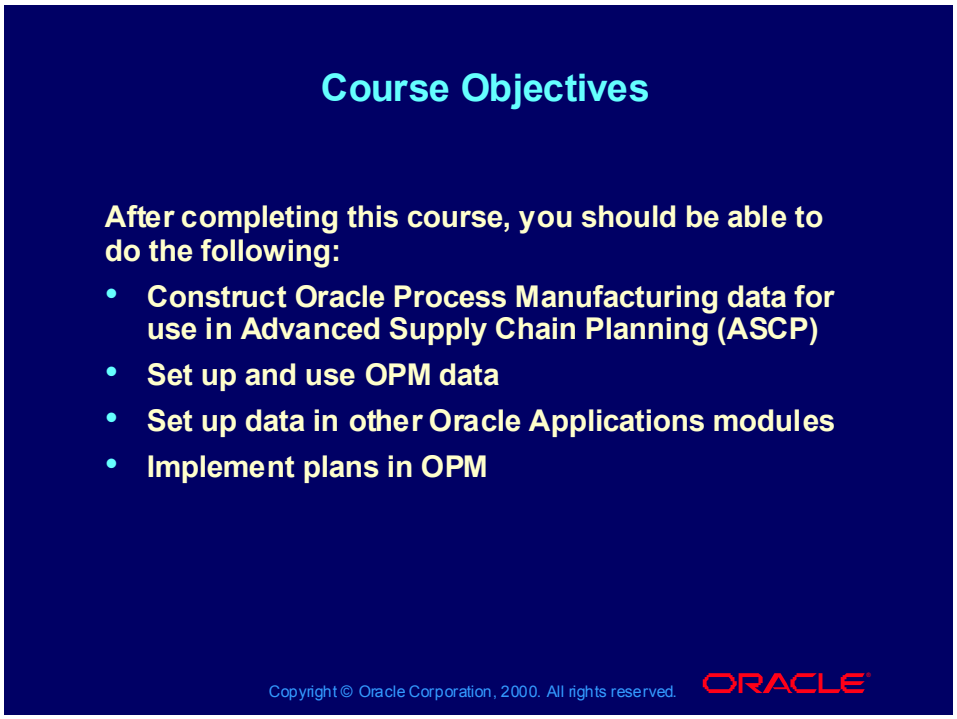
You can perform a search to find the Oracle Applications help information you want. Simply enter your query in the text field located in the top-left frame of the browser window when viewing help, then click the adjacent Find button.

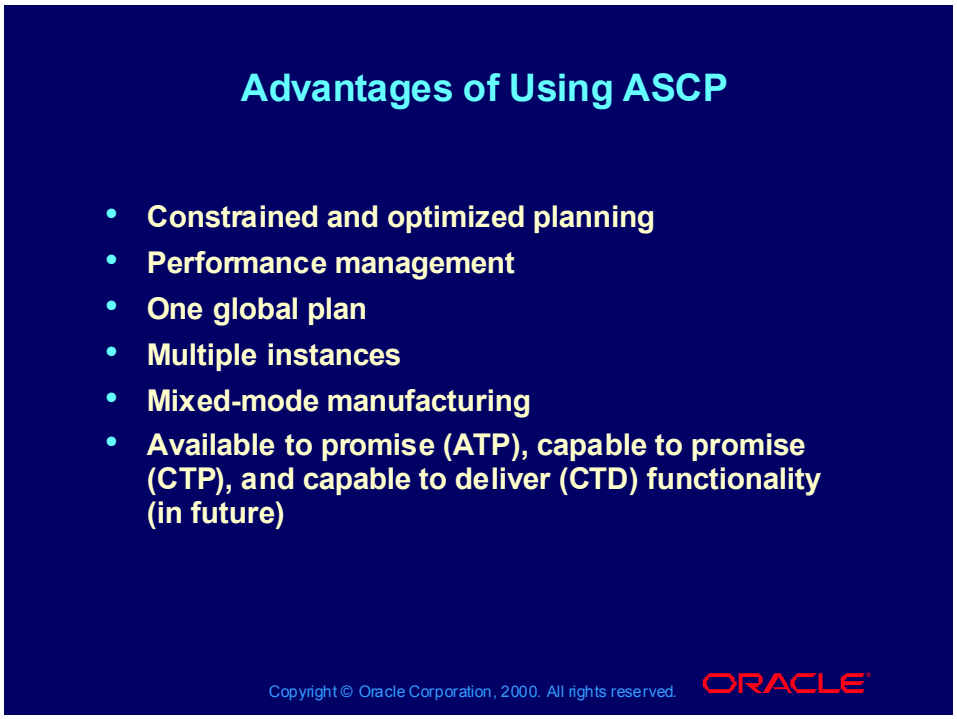
A list of titles, ranked by relevance and linked to the documents in question, is returned from your search in the right-hand document frame. Click on whichever title seems to best answer your needs to display the complete document in this frame. If the document doesn't fully answer your questions, use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

Course Introduction

Chapter 1



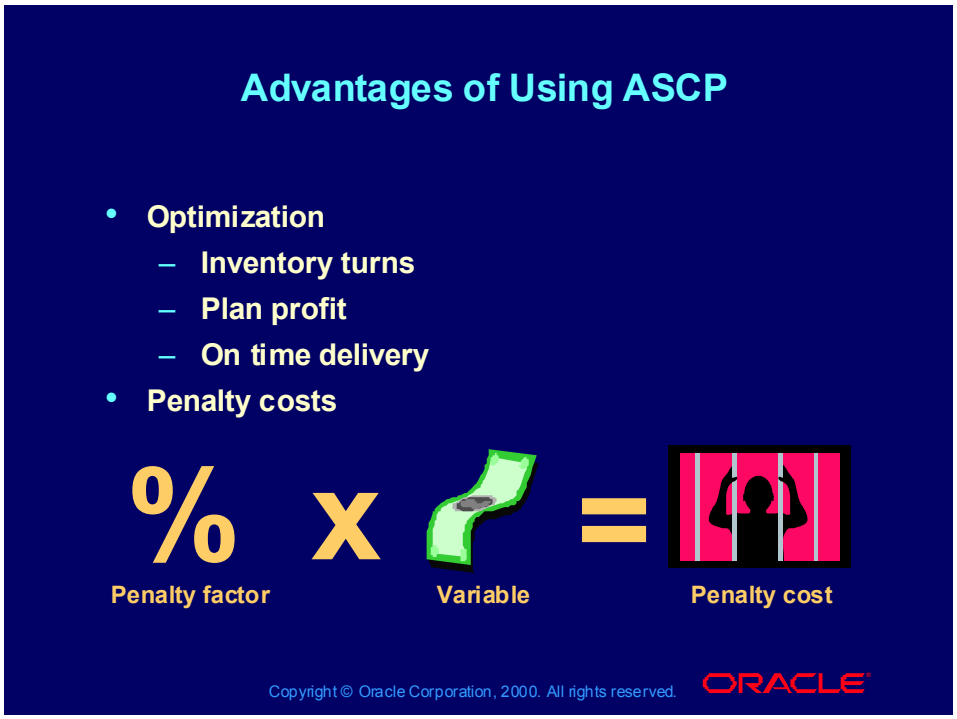




Advantages of Using ASCP with OPM

When you integrate with Oracle Advanced Supply Chain Planning (ASCP), you gain substantial competitive advantage and planning efficiency. The following features contribute to these advantages:

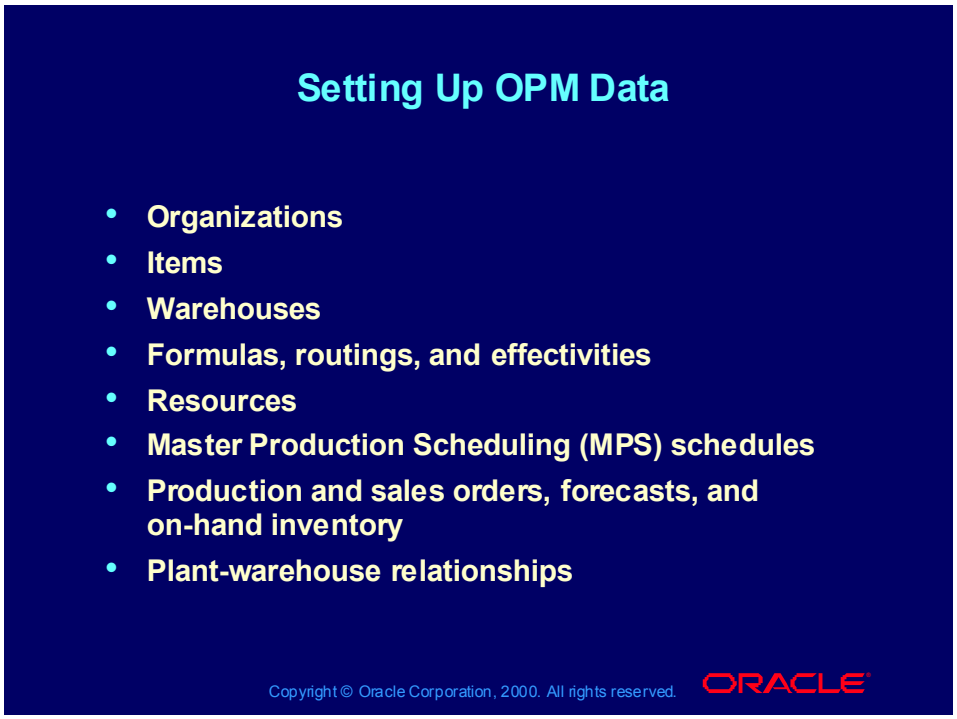
- Constrained and optimized planning, which ensures that your plan is feasible and respects all of your constraints
- Performance management when you integrate ASCP with Oracle Business Intelligence System and Oracle Workflow:
  - Easily and quickly evaluate a plan based on its impact on target key performance indicators (KPIs)
  - Manage by exception: receive notifications when corrective actions are required
- Planning for all supply chain activities in one global plan, which reduces inventory and improves responsiveness.
- Collecting data from multiple instances, such as 10.7, 11.0, 11*i*, and OPM 11*i*.
- Mixed-mode manufacturing, so you can choose the best method to produce each of your products, and combine all of these methods within the same plant
- Available to promise (ATP), capable to promise (CTP), and capable to deliver (CTD) functionality will be available after OPM becomes integrated with Oracle Order Management.



Advantages of Using APCP with OPM

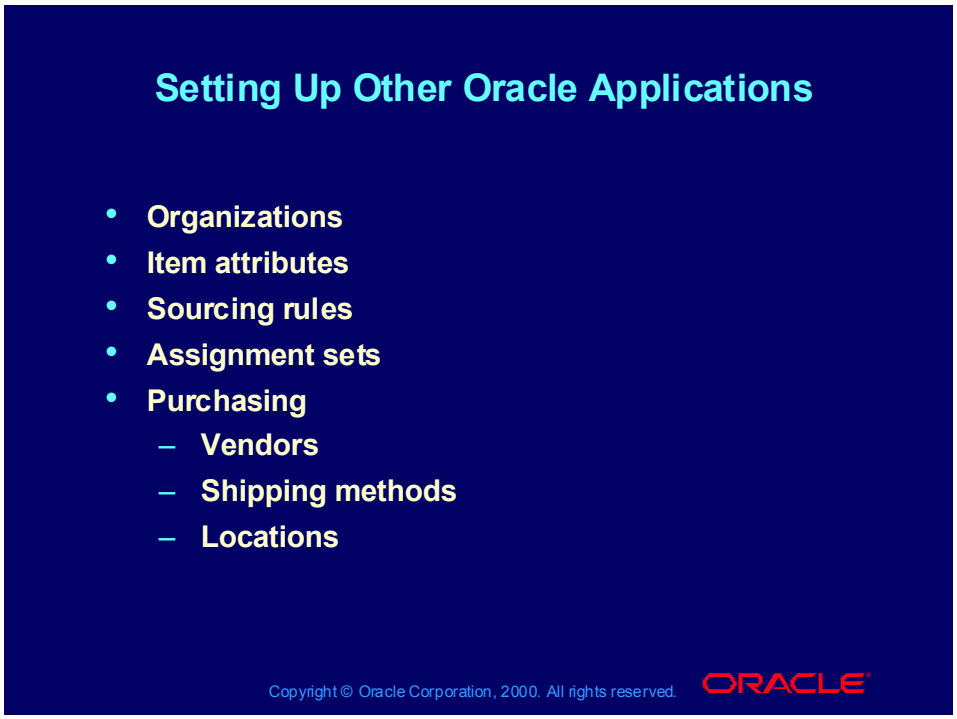
Optimization: You can optimize your plans to financial and other enterprise-strategic objectives. Because you can name and save your plans, you can run several plans optimized to different sets of objectives, then use the Planner Workbench graphical user interface to quickly compare key performance indicators and action messages associated with alternative plans.

Penalty Costs: ASCP also has some built-in optimization objectives, such as weighing the penalty costs of late orders against expedited production and delivery costs. You can affect the solution by entering penalty factors, applied as a percent of cost. The optimization process attempts to drive costs out of the solution, and drives out the most costly factors first.



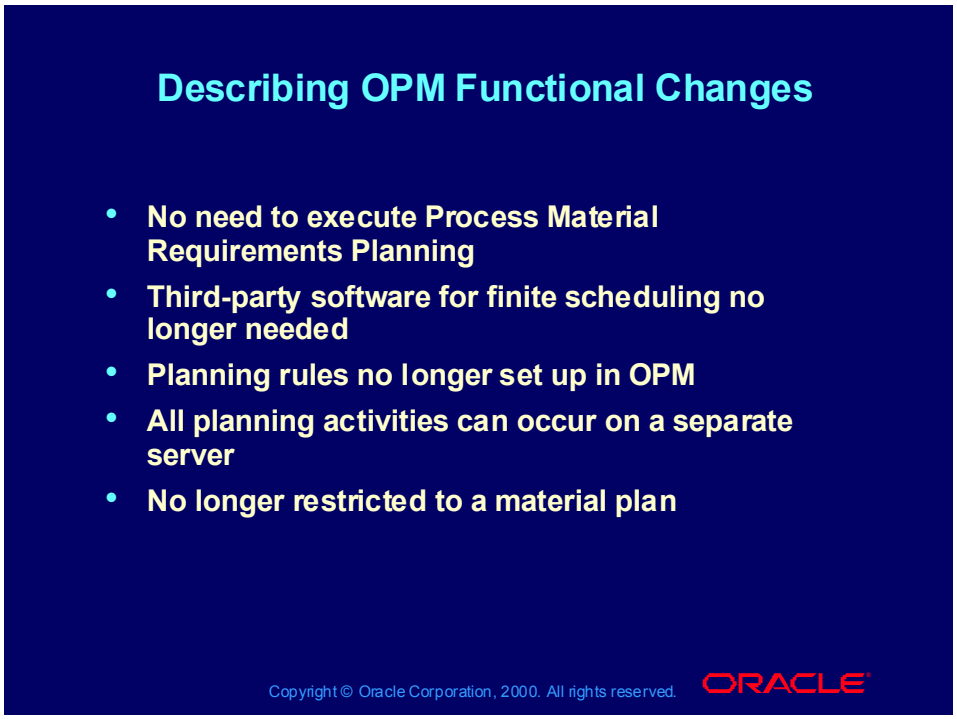
Setup Requirements for Mapping OPM Data to ASCP

Using APS puts certain restrictions on how you set up OPM data. This course explains the restrictions placed on the above setup data.



Oracle Applications Setup Requirements

The Oracle Applications data shown above must be set up for OPM to interface properly with ASCP.



Planning Changes in OPM

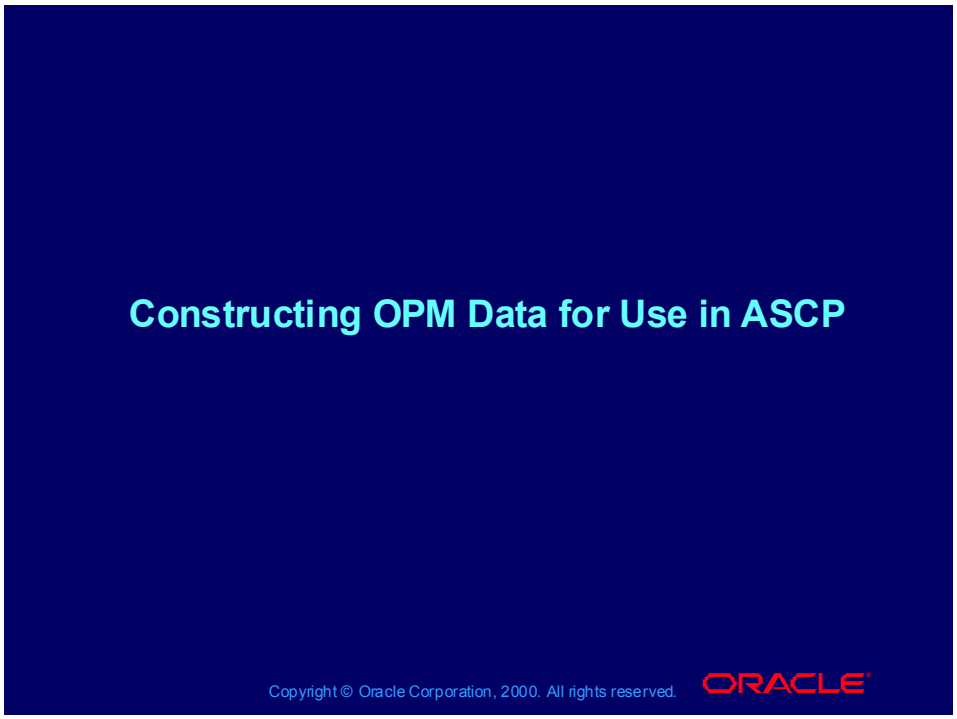
If you have no need for finite scheduling, then you do not need to change your method of planning. You can continue to use the OPM Process Planning modules in release 11*i* the same way as you have in release 11, unless you want to use the finite scheduling functionality available in the Advanced Planning and Scheduling modules.

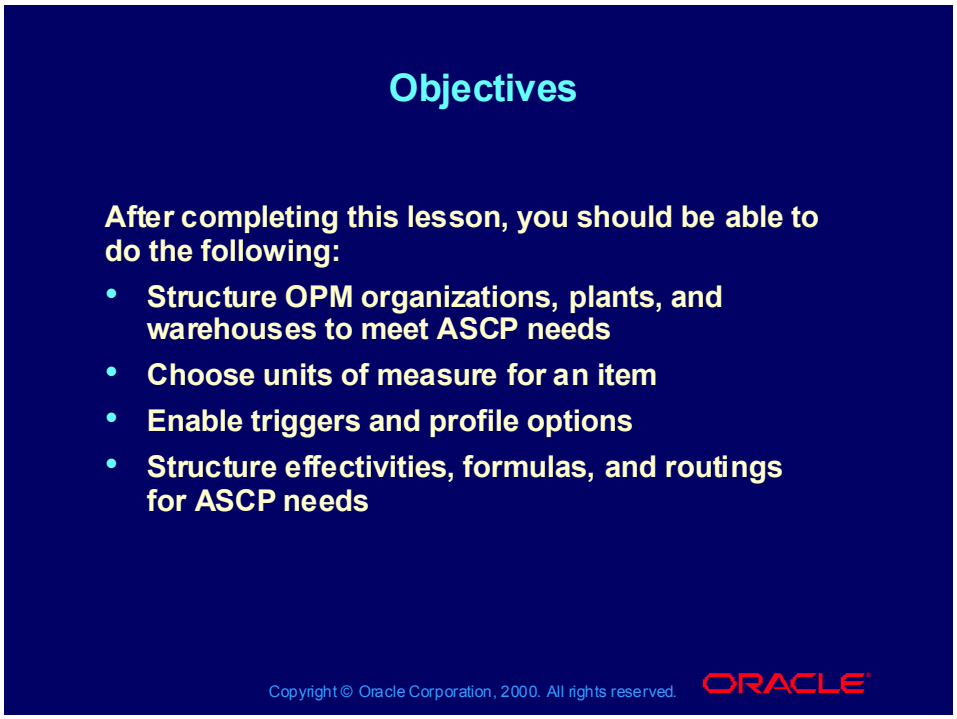
If you choose to use ASCP, you should make the following changes:

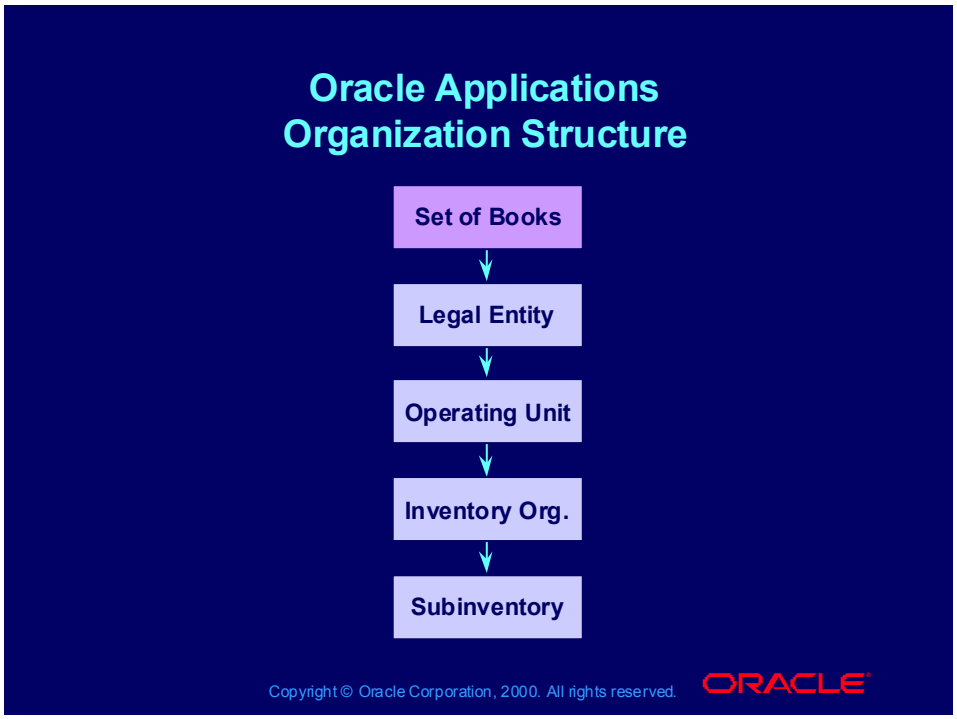
- Set up your planning rules in ASCP instead of OPM.
- Purchase a separate server for all planning activities. Purchasing a separate server is not mandatory, but it is recommended due to the heavy processing load created with ASCP.
- Create multiple plans using different scenarios, then decide which plan to use.

Constructing OPM Data for Use in ASCP

Chapter 2

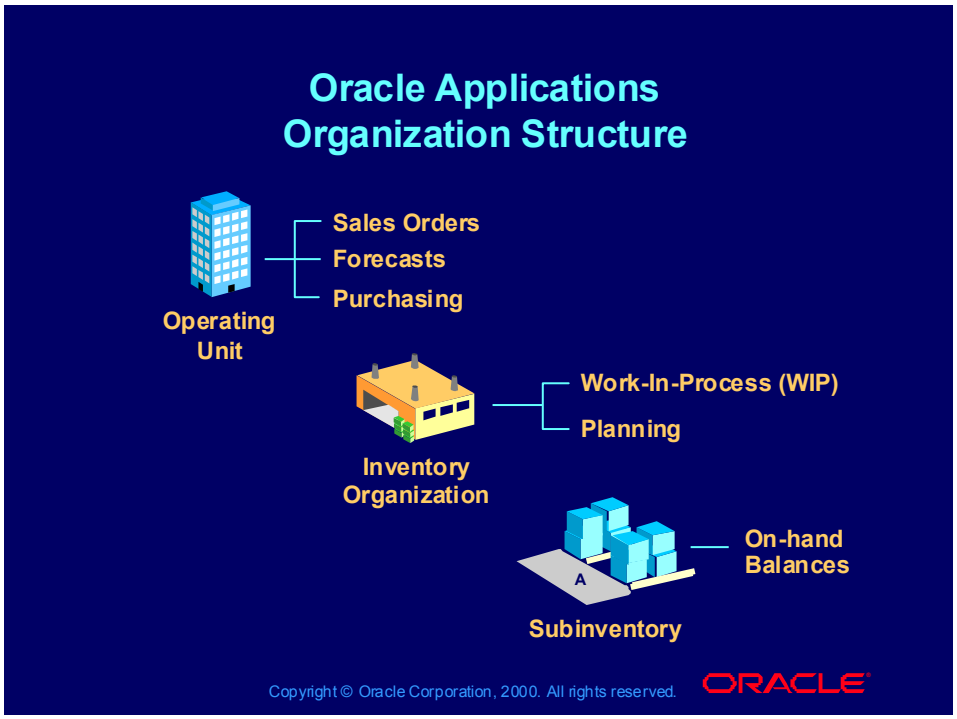






Defining the Oracle Applications Organization Structure

Before any type of organization is defined in Oracle Applications, you must define a set of books. Once a set of books is defined, you can define your company's legal entities, operating units, inventory organizations, and subinventories.



Entering Transactions and Storing Information

Transactions and other information are entered and stored at different levels of the organization structure when using Oracle Applications.

The following information is stored at the operating unit level:

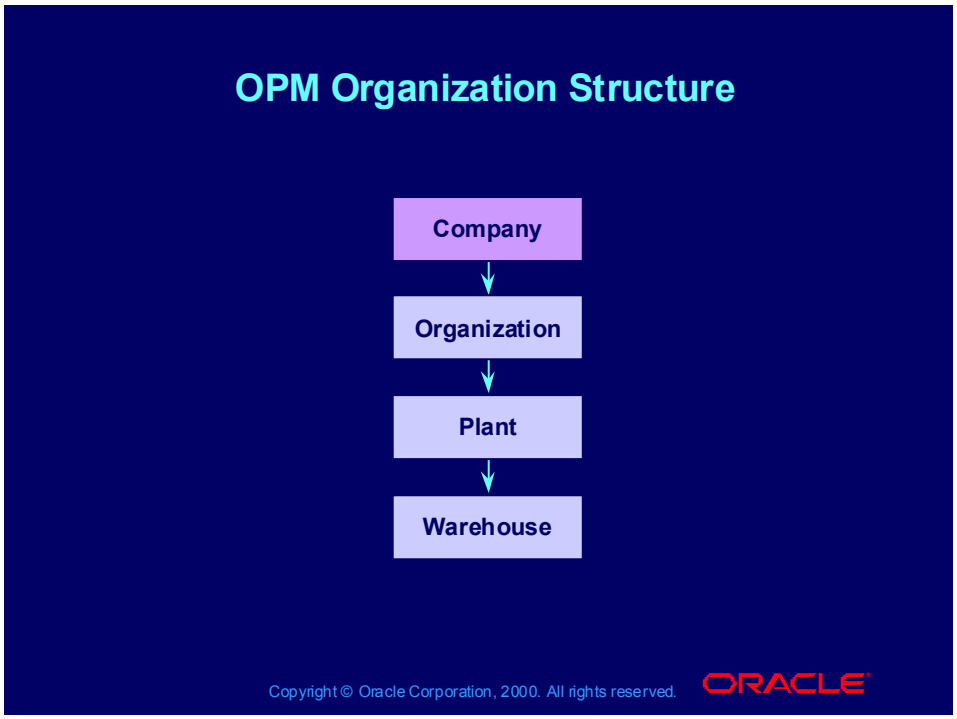
- Sales orders
- Forecasts
- Purchase orders

The following information is stored at the inventory organization level:

- Work-in-process
- Planning data

On-hand balances are stored at the subinventory level.

OPM Organization Structure

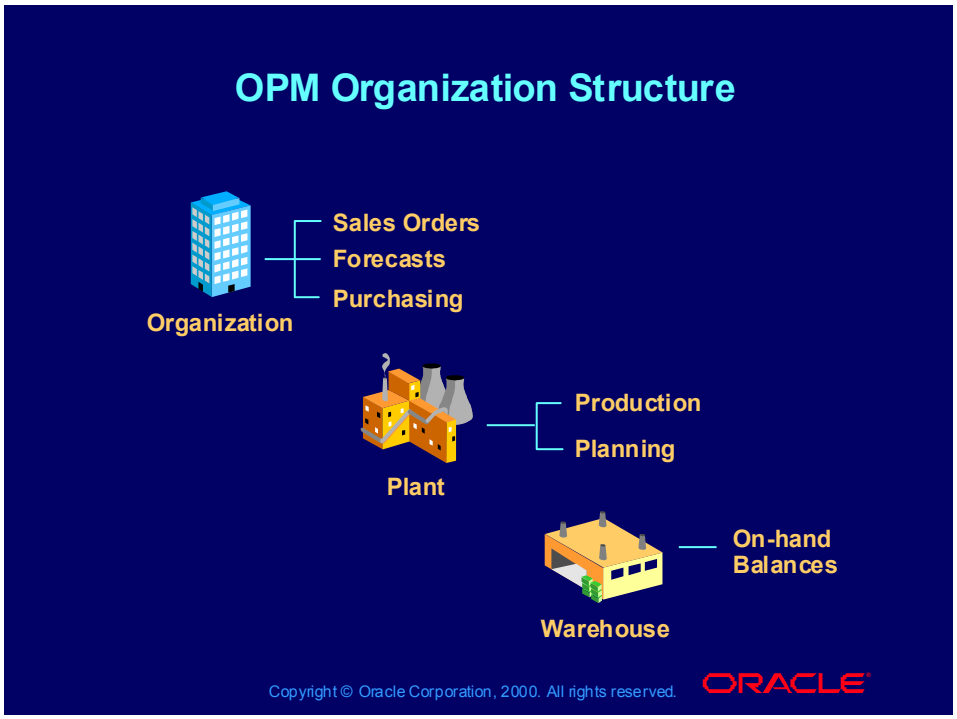


Defining the OPM Organization Structure

OPM organizations can be companies, parent organizations, staff organizations, inventory organizations, or manufacturing plants.

OPM organizations defined as companies must maintain a balanced set of books. A company in OPM equates to a set of books defined in Oracle Applications. The following list shows how other types of OPM organizations map to the Oracle Applications organization structure:

- OPM organizations map to legal entities and operating units
- OPM plants map to inventory organizations (with some modifications)
- OPM warehouses map to inventory organizations and subinventories



Entering Transactions and Storing Information

Transactions and other information are entered and stored at different levels of the organization structure when using OPM.

The following information is stored at the organization level:

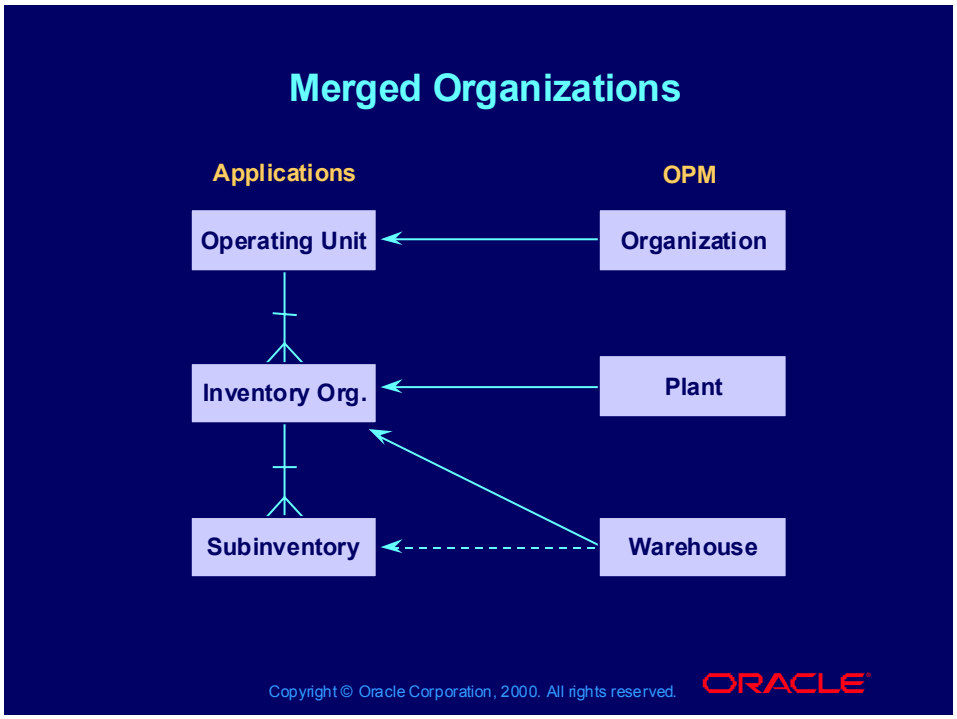
- Sales orders
- Forecasts
- Purchase orders

The following information is stored at the plant level:

- Production
- Planning

On-hand balances are stored at the warehouse level.

Merged Organizations



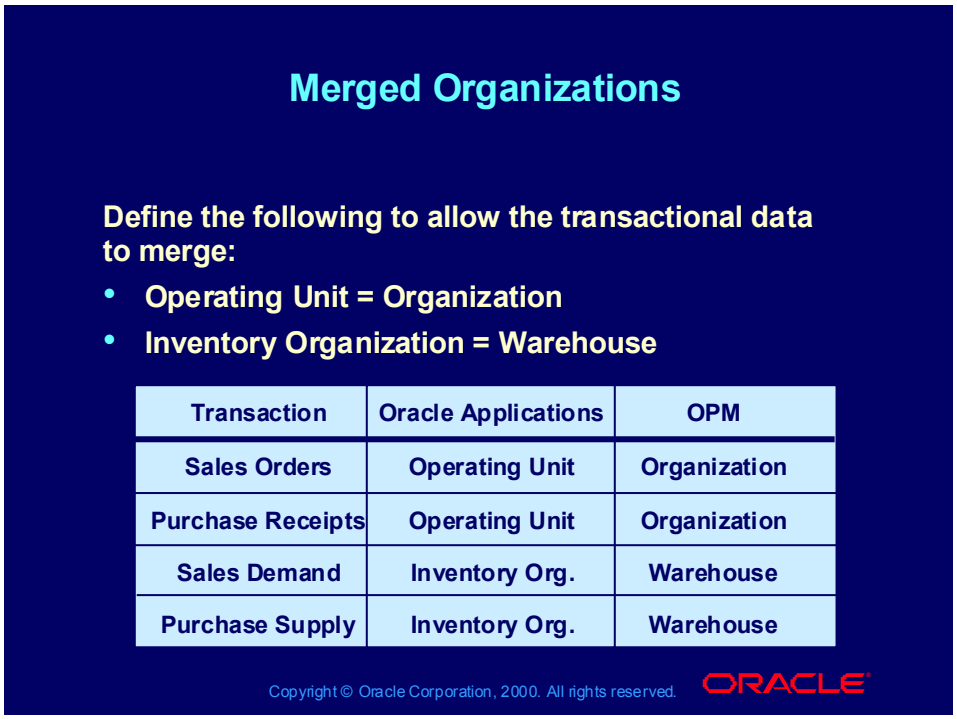
Merging OPM and Oracle Applications Organizations

OPM maintains data in *both* the OPM and the Oracle Applications organization structures. OPM data can then interface with Oracle Applications modules such as Purchasing and Financials. ASCP assumes that the data stored at different organizational levels will be imported into ASCP in the Oracle Applications organization levels, so the OPM organizational structure must merge with the Oracle Applications organization structure.

Example: For ASCP to be aware of transfers between OPM warehouses, each OPM warehouse must be defined at the inventory organization level in Oracle Applications. A subinventory is created in ASCP by default.

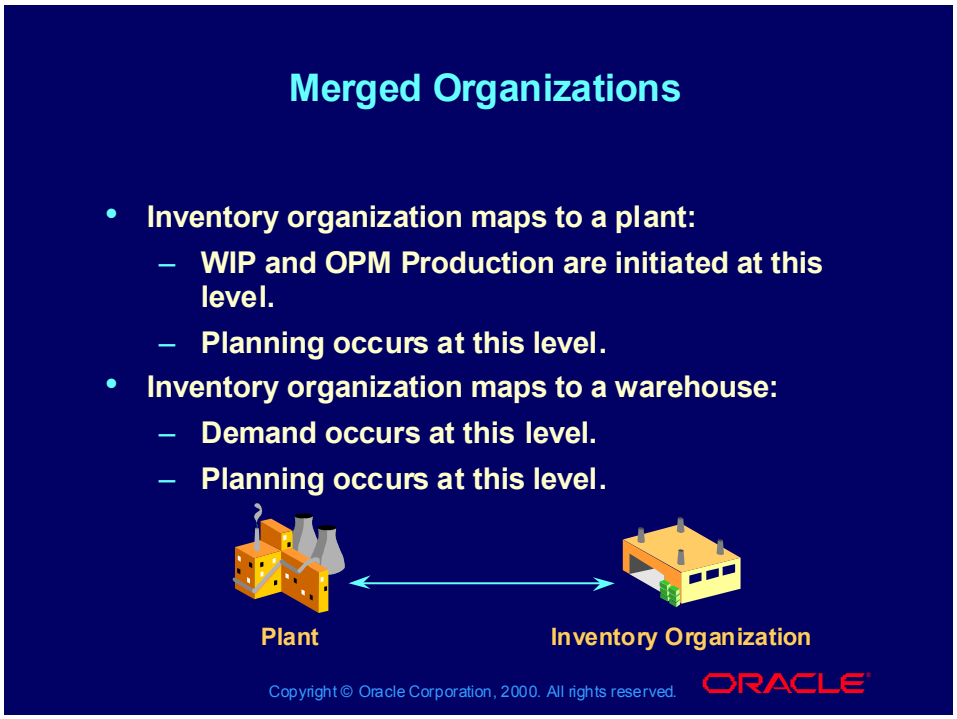
Technical Note

Companies and organizations that are not designated as plants in the OPM Organizations window are considered at the operating unit level in Oracle Applications.



Merging Transactional Data

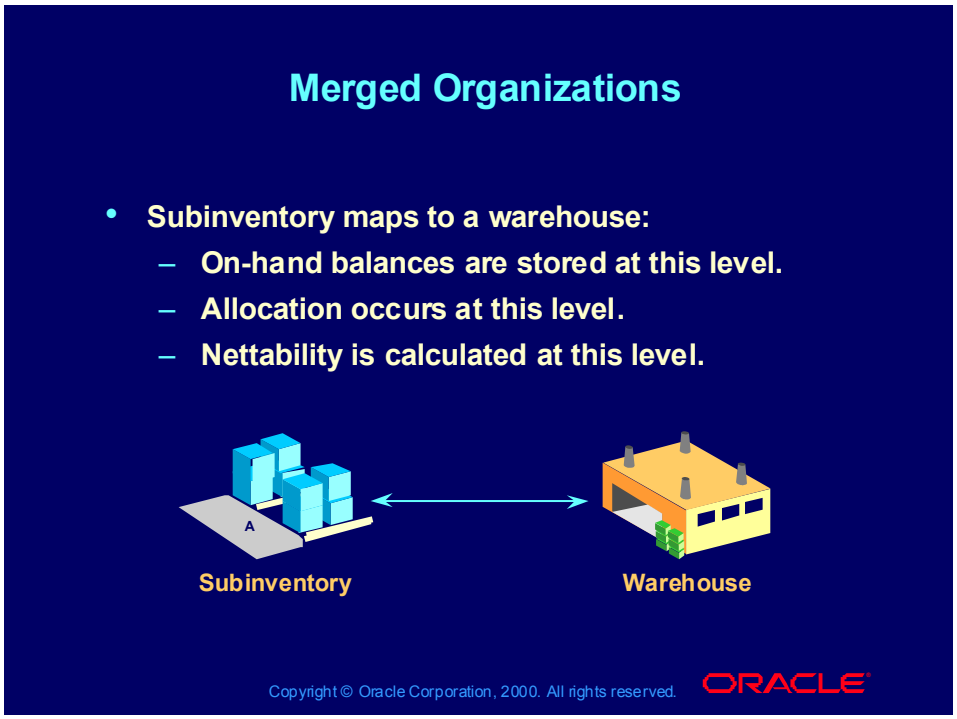
The above table shows the level at which transactional data resides in both Oracle Applications and OPM. In order for the transactional data from both systems to be imported at the same organizational level, you must merge OPM organizations at the operating unit level and warehouses at the inventory organization level.



Merging Transactional Data

OPM production batches and planning functions occur at the plant level. Since the corresponding transactions in Oracle Applications occur at the inventory organization level, you must merge the OPM production and planning data at the inventory organization level.

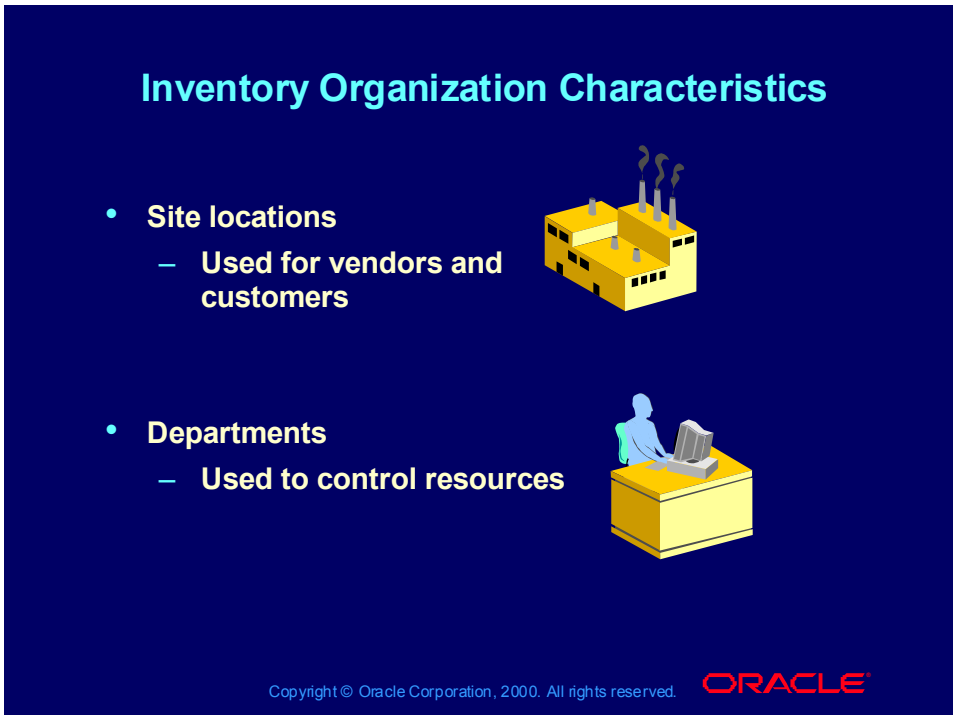
OPM demand is placed at the warehouse level and planning can occur at the warehouse level as well as at the plant level. Since the corresponding transactions in Oracle Applications occur at the inventory organization level, you must merge the OPM demand and planning data at the inventory organization level.



Merging Transactional Data

OPM on-hand balances are stored at the warehouse or location level. Stock allocation also takes place at this level and nettability is calculated here as well. Because the corresponding transactions in Oracle Applications occur at the subinventory level, you must merge the OPM on-hand balance, allocation, and nettability data at the subinventory level.

The above data and transactions can also occur at the location level in OPM. The corresponding level in Oracle Applications is the locator level, but ASCP does not plan at the locator level. All OPM location data must therefore be merged into the warehouse and mapped at the subinventory level as well.

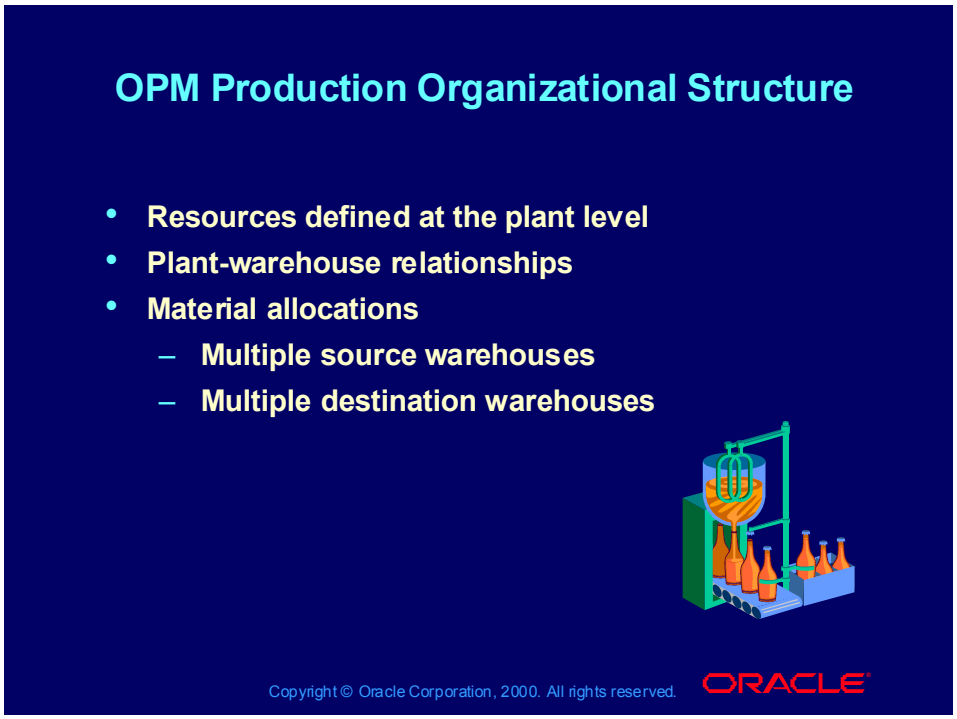


Oracle Applications Inventory Structure

In Oracle Applications, you must define your company work sites as site locations before you can define any of them as inventory organizations. You can also use these site locations to allow the Supply Chain Planning module to determine transportation lead times and capacities.

You can define vendor or customer sites as site locations if you want to maintain them in your system. For example, you may want to manage your product inventory at a customer site so that you can automatically ship the customer more product when their inventory runs low.

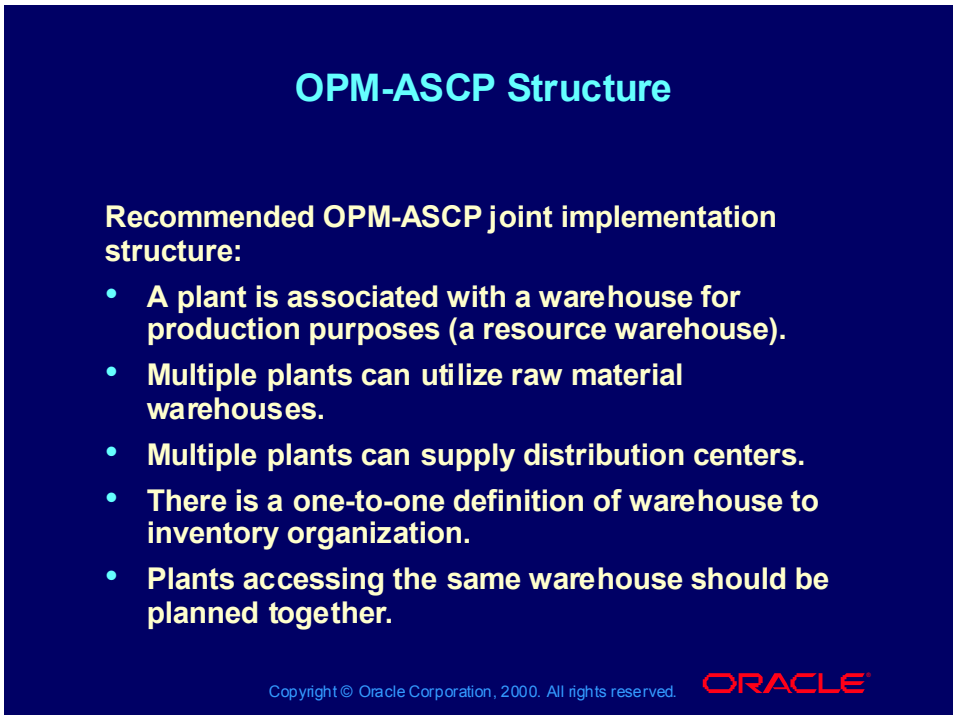
In Oracle Applications, a department is an area within your organization, which consists of resources such as one or more people, machines, or suppliers, where you want to collect costs, apply overhead, and compare load to capacity. You assign a department to each operation in a routing, and assign resources that are available for that department.



The Organizational Structure of OPM Production

The following differences exist between production functions in OPM and those in Oracle Applications:

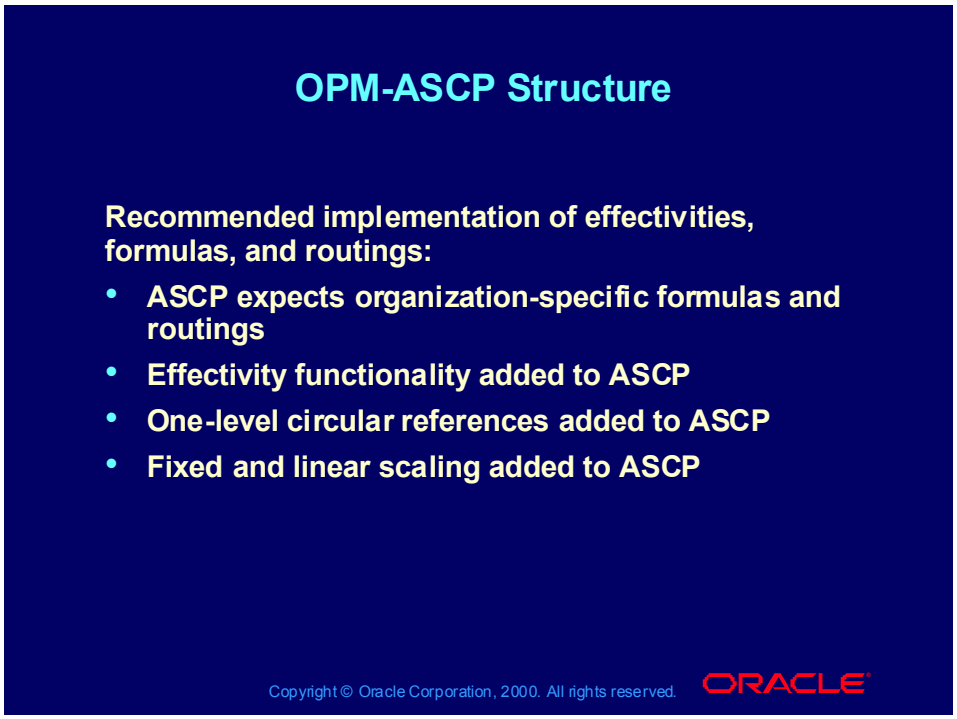
- A work order in Oracle Applications is roughly equal to a production batch in OPM. Both work orders and production batches consume resources.
- In OPM, resources are defined at the plant level, whereas in Oracle Applications they are defined at the department level (part of an inventory organization).
- In Oracle Applications, a work order (created at the inventory organization level) can only draw from resources available in the inventory organization for which the work order was created.
- In OPM, a batch may only access resources for the plant. Plant- warehouse relationships in OPM allow a production batch to draw from materials available outside the warehouse in which the production batch was created.
- In OPM, you can also specify which warehouses you want to pull inventory from in order to complete a production batch. You can define multiple allocation parameters for an item, and thus allocate inventory from multiple warehouses.



The Optimal OPM Organization Structure for ASCP

The following OPM organization structure is recommended in order for OPM data to merge smoothly with ASCP:

- Each OPM production plant owns one warehouse. Production is assumed to take place in this warehouse.
- Multiple production plants can draw raw material inventory from common warehouses to meet their production demand.
- Multiple production plants can supply common warehouses (distribution center).
- Each OPM warehouse is linked to a single inventory organization in Oracle Applications. This happens automatically because a corresponding OPM warehouse is created once the Process Enabled check box for an inventory organization is selected.
- If multiple production plants use the same warehouse as their raw material inventory source, then the production for these plants should be planned together.



Merging Effectivities, Formulas, and Routings with ASCP

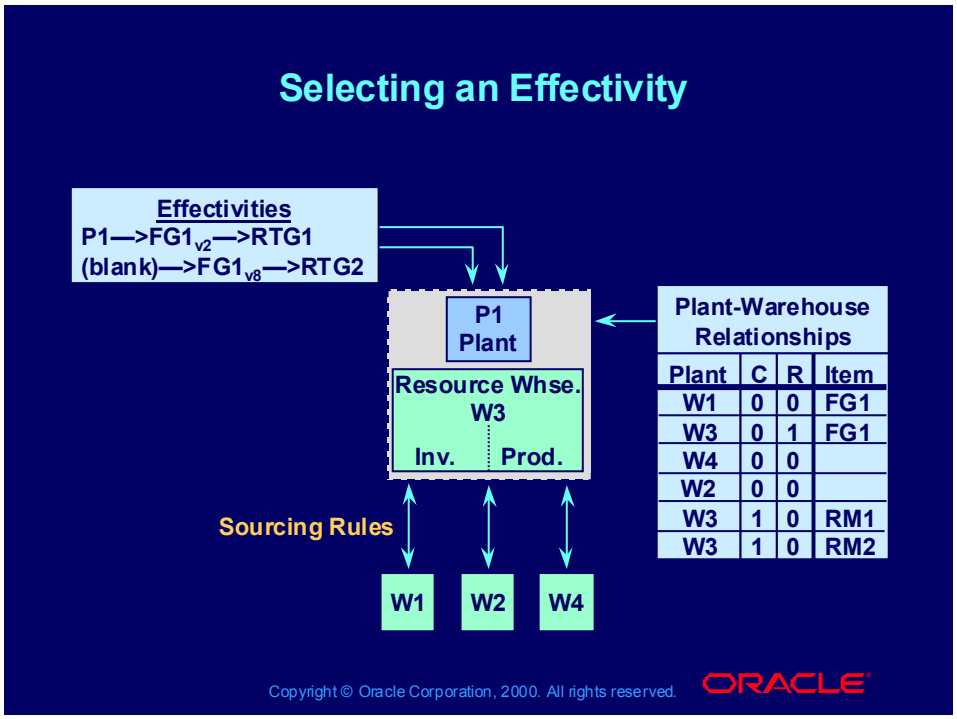
ASCP can only reference organization-specific formula effectivities. If an effectivity is global, the interface to ASCP creates one copy of the effectivity for each organization. Since a warehouse is an inventory organization, each one of the formerly global, but now organization-specific, effectivities is mapped to a warehouse. Plant-warehouse relationships identify which warehouses use particular effectivities, and therefore formulas, for production.

To ensure a smooth merging with ASCP, it is best to be specific when defining the plant-warehouse relationships. Be specific about items, warehouses, and the consumption and replenishment of the items. Global rules create an individual record for the valid combinations, which has a matrix effect, exponentially increasing the amount of data transferred.

ASCP includes the following OPM functionality:

- Effectivities
- Scaling
- One-level circular references

One-level circular references allow the definition of formulas that have a product or by-product listed as an ingredient in the same formula. For example, when making sourdough bread, you save a small portion of the dough to use as a starter for the next batch. Therefore, when defining a sourdough bread formula, the dough is a product, but also an ingredient.



Selecting an Effectivity

The above diagram assumes the following:

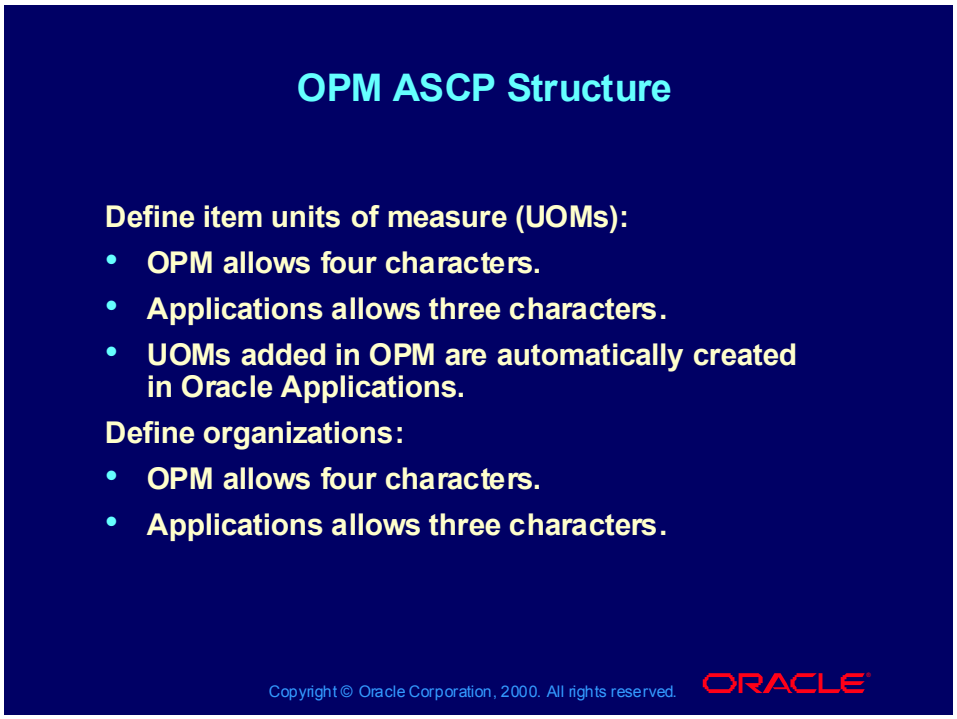
- Item FG1 is stored in the distribution center W1.
- Items RM1 and RM2 are stored in the replenishment warehouses W2 and W4.
- Manufacturing takes place in plant P1 and resource warehouse W3.
- Sourcing transfer rules must be defined to transfer RM1 from W2 to W3, RM2 from W4 to W3, and FG1 from W3 to W1.
- Two effectivities have been defined, one for plant P1 and one global effectivity where the Organization field was left blank.

ASCP can use either the P1 or the global effectivity. Since ASCP can only reference organization-specific formula effectivities, the interface to ASCP creates a copy of the global effectivity for the resource warehouse W3. ASCP determines that the P1 effectivity can be used for W3 because the replenishment for FG1 is defined only for W3.

ASCP selects which effectivity to use based on effectivity rules such as lot sizing and the effectivity date range. If the effectivity rules are the same, then ASCP chooses one based on the effectivity preference number. If there is no difference between the effectivity rules or preferences, ASCP selects the first effectivity it encounters.

Creating a Resource Warehouse

In ASCP, capacity planning occurs at the inventory organization, department, or resource level. OPM needs to perform capacity planning at the plant level, but ASCP does not recognize production plants. To bridge this gap between OPM and ASCP, one warehouse is defined for each production plant that requires capacity planning. These warehouses are called resource warehouses. ASCP recognizes resource warehouses as production facilities that require capacity planning.



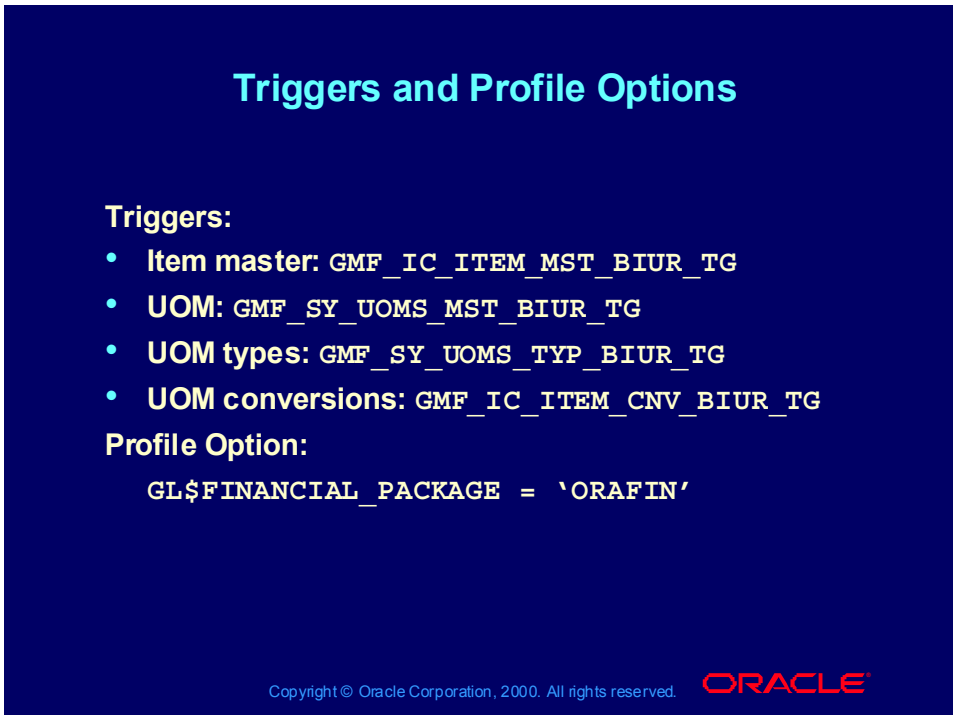
Differences in Field Lengths

Units of measure, unit of measure types, and unit of measure conversions added in OPM are automatically created in Oracle Applications by means of a trigger.

You can define item unit of measures in OPM that are four characters long, but the value will be truncated to three characters once the unit of measure is copied into Oracle Applications. If the truncated, three-character unit of measure is not unique, Oracle Applications changes one of the characters so that the unit of measure is unique. This difference in field length also applies for OPM organizations.

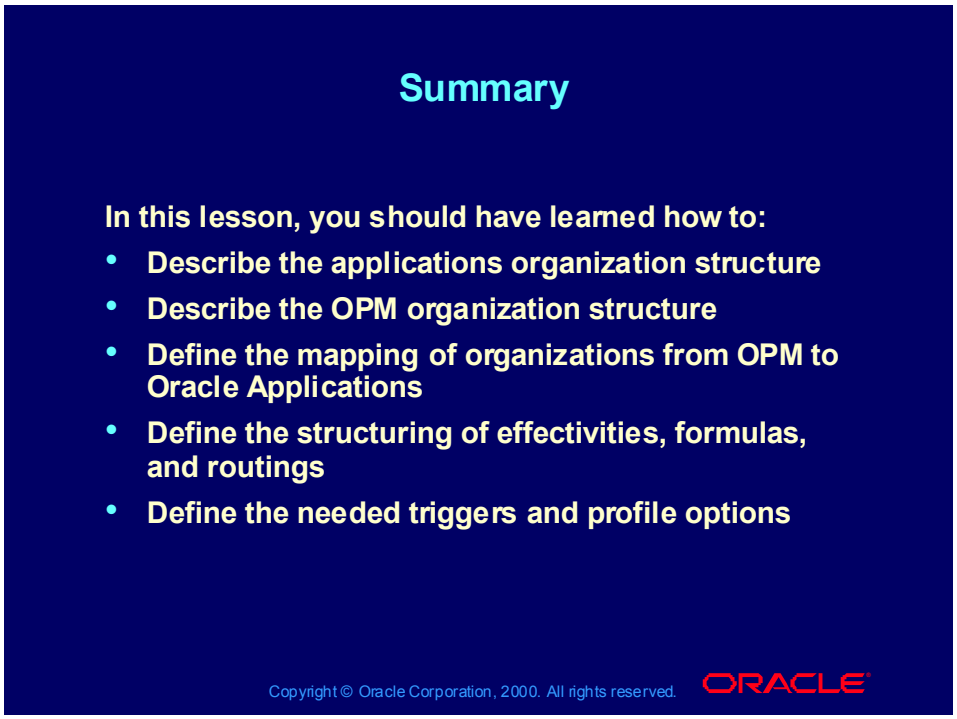
Technical Note

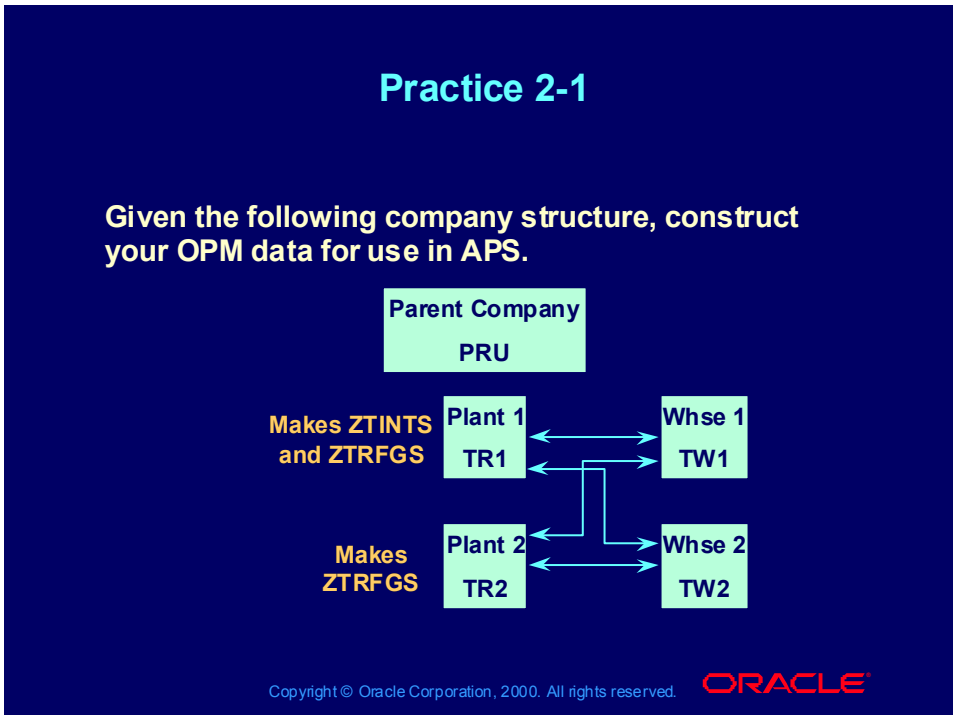
If you need to change the unit of measure for an item, do so from the OPM item window instead of from the item window in Oracle Applications to ensure that the unit of measure is valid for OPM.



Using Triggers and Profile Options to Synchronize Data

The above triggers synchronize the data between OPM and Oracle Applications. The profile option allows the validation of financial data to occur.





Practice 2-1

Constructing OPM Data for Use in ASCP

Decide how you will model the company structure shown in the above graphic. More details about the company structure follow:

- Warehouse 1 and Warehouse 2 both store ingredients used by both plants as well as the products of both plants.
- Plant 1 supplies ZTINTS to Plant 2.

What OPM organizations must you define?

_____

What inventory organizations/warehouses must you define in Oracle Applications? What process organization should you attach to each inventory organization?

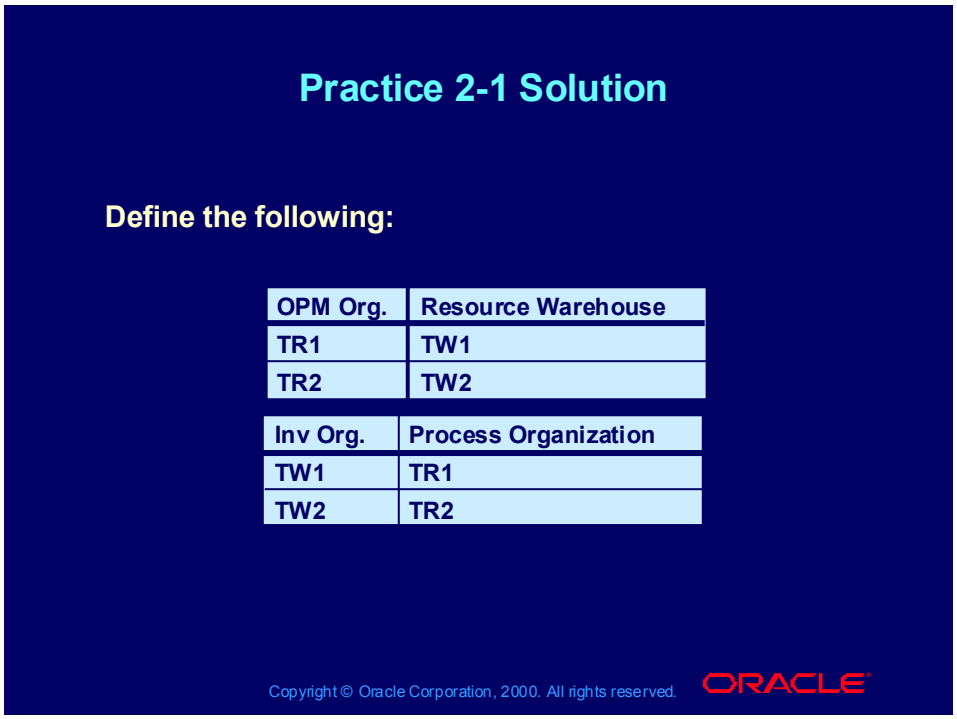
_____

What resource warehouse must you attach to each plant?

_____

How should you set up plant-warehouse relationships for each plant/warehouse combination?

_____



Practice 2-1 Solution

What OPM organizations must you define?

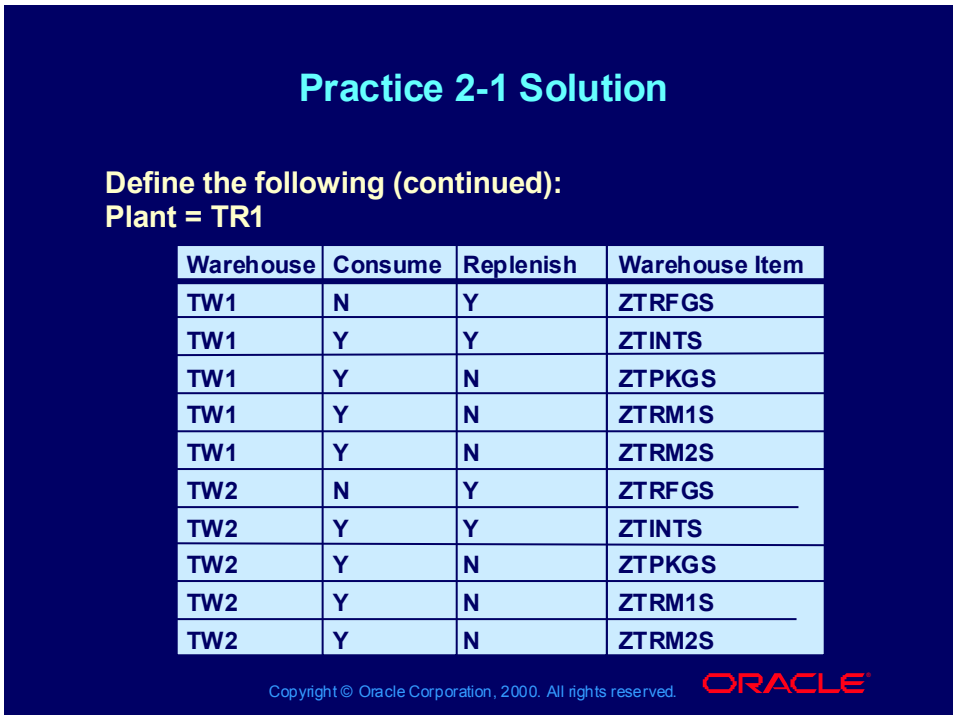
TR1 and TR2

What inventory organizations/warehouses must you define in Oracle Applications? What process organization should you attach to each inventory organization?

Define TW1 and TW2 as inventory organizations in Oracle Applications, specifying their respective plants as the process organization for each. This creates OPM warehouses TW1 and TW2 automatically.

What resource warehouse must you attach to each plant?

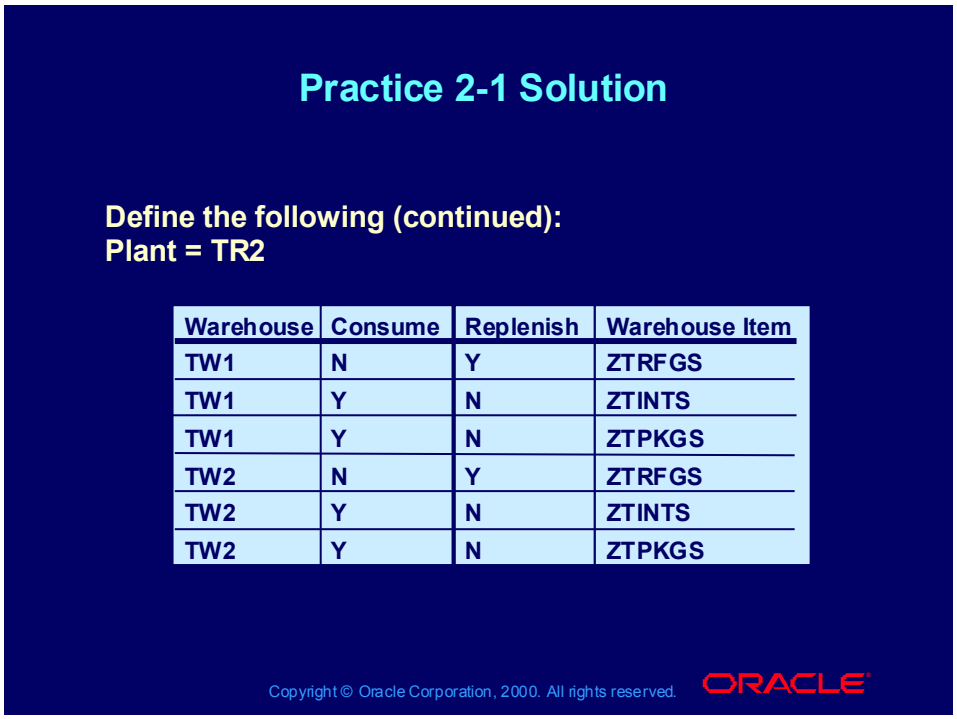
Attach TW1 as the resource warehouse for plant TR1. Attach TW2 as the resource warehouse for plant TR2.



Practice 2-1 Solution (continued)

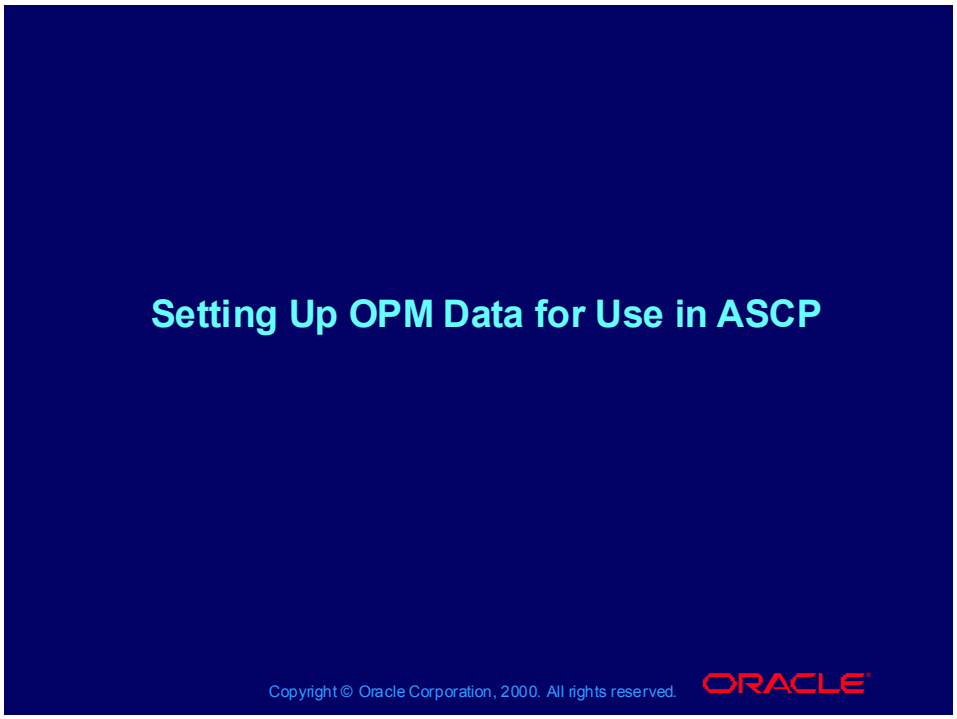
How should you set up plant-warehouse relationships for each plant/warehouse combination?

Be specific about items, warehouses, and the consumption and replenishment of the items when defining the relationships for plants TR1 and TR2. Global rules create an individual record for the valid combinations, thus having a matrix effect, which exponentially increases the amount of data transferred.

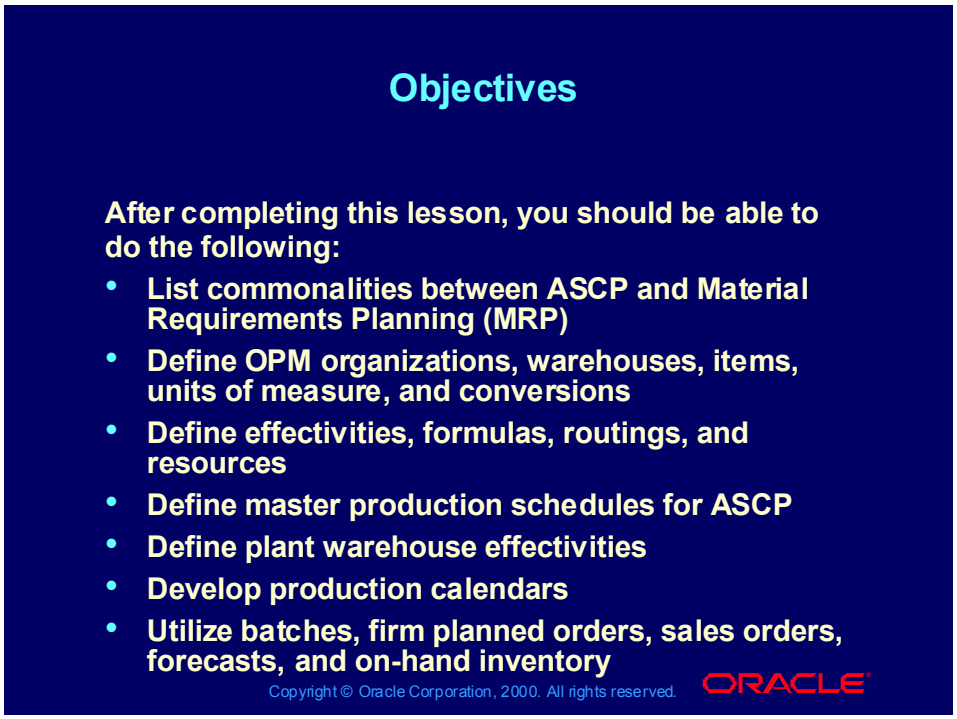


Setting Up OPM Data for Use in ASCP

Chapter 3

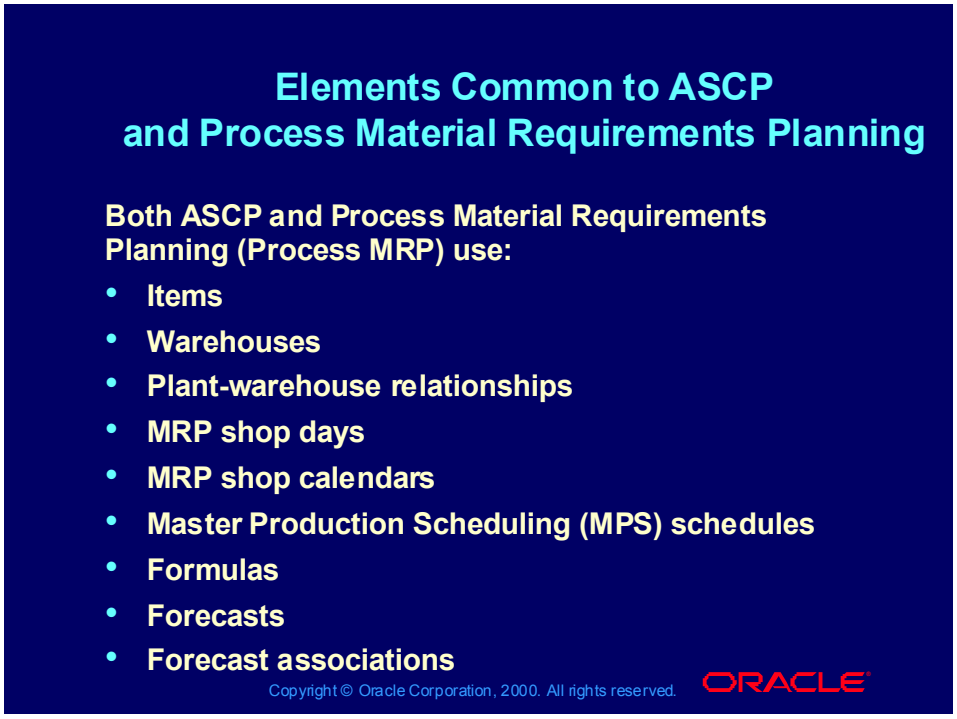


Objectives



Lesson Topics

This lesson describes the setup steps necessary to allow OPM data to interface with ASCP.



Elements Common to ASCP and Process MRP

Items: Set up in OPM and synchronized ("synched") to the Oracle Applications Inventory module; item attributes are then set up in Oracle Applications Inventory for each synched item

Warehouses: Provide the "containers" for material in both ASCP and Process MRP; Process MRP uses warehouse rules and warehouse transfer rules to manage material movement between warehouses, while ASCP uses a bill of distribution to enable material to flow through three or more organizations

Plant-warehouse relationships: The linkage between production plants and the warehouses to which finished goods are sent; these relationships determine the consumption and replenishment rules among plants, warehouses, and items

MRP shop days: The work days and days off (for example, weekends and holidays) included in the MRP calendar, and defined by the beginning and ending times for up to three working shifts within a 24-hour period

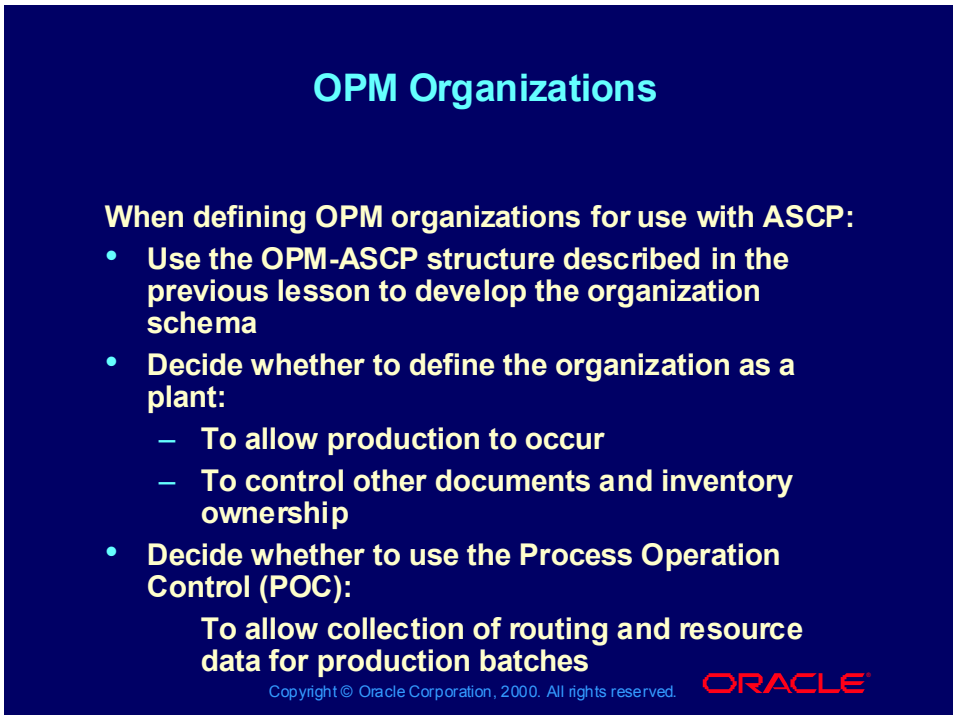
MRP shop calendars: The dates for which manufacturing work can be scheduled; they must include shop days for which working hours are defined in order for MRP to function

MPS schedules: The criteria by which inventory supply and demand appears on displays and reports

Formulas: The “recipe” upon which production batches are based; a formula consists of products, ingredients, and, optionally, by-products, and also specifies the quantities of each item

Forecasts: A financial plan of expected sales of finished goods to customers

Forecast associations: The linking of one or more forecasts to a schedule

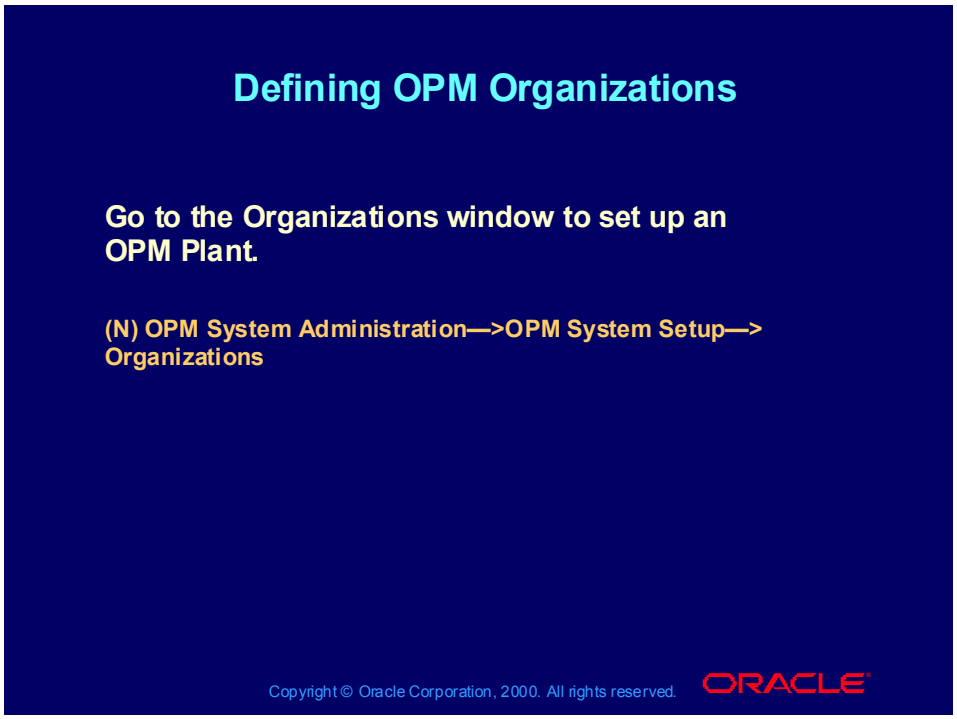


Setting Up OPM Organizations for Use with ASCP

Use the following organization structure suggestions when merging data with ASCP:

- Each OPM warehouse must have a corresponding inventory organization in Oracle Applications.
- If you plan to use the capacity planning function in ASCP, each OPM production plant must own one resource warehouse.
- Multiple production plants can draw raw material inventory from one warehouse to meet their production demand, but you should model this using transfers for tracking purposes.
- Multiple production plants can supply one warehouse (distribution center), but you should model this using transfers for tracking purposes.

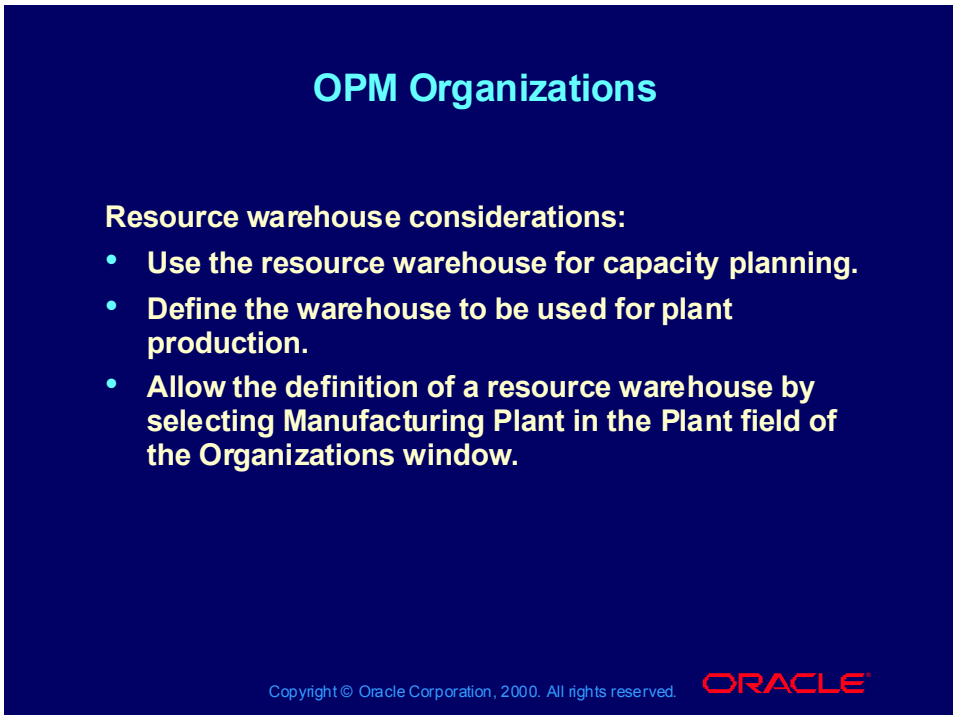
Defining OPM Organizations



(Help) Oracle Manufacturing Applications > Oracle Process Applications > OPM System Administration > OPM System Administration User's Guide > OPM System Setup >Editing Organizations

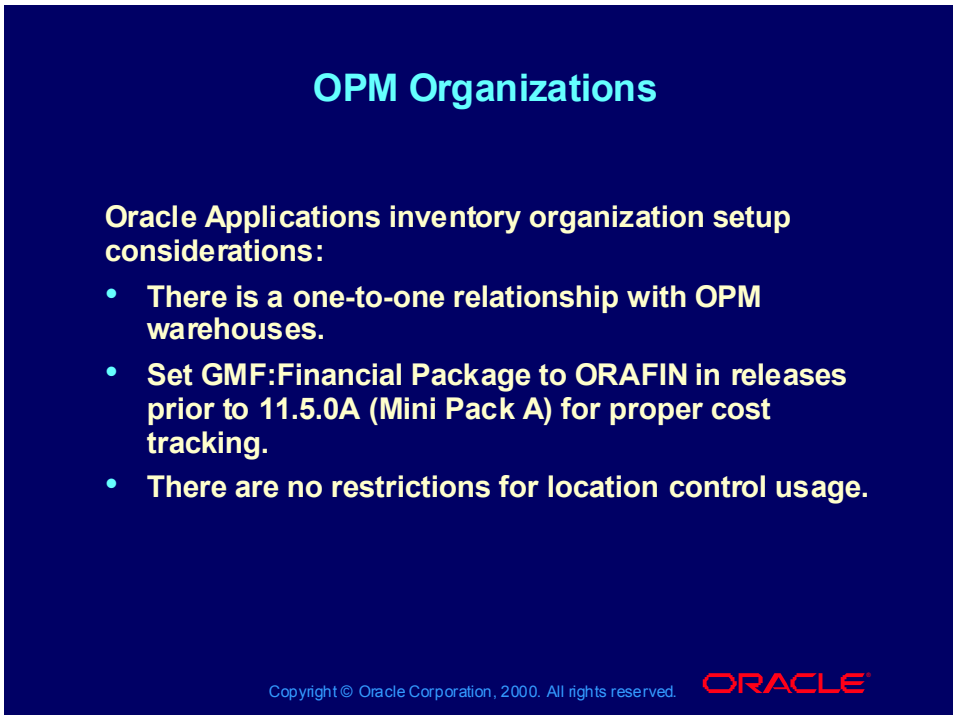
… > Organizations Procedure

… > Organizations Field Reference



Using the Resource Warehouse for Capacity Planning

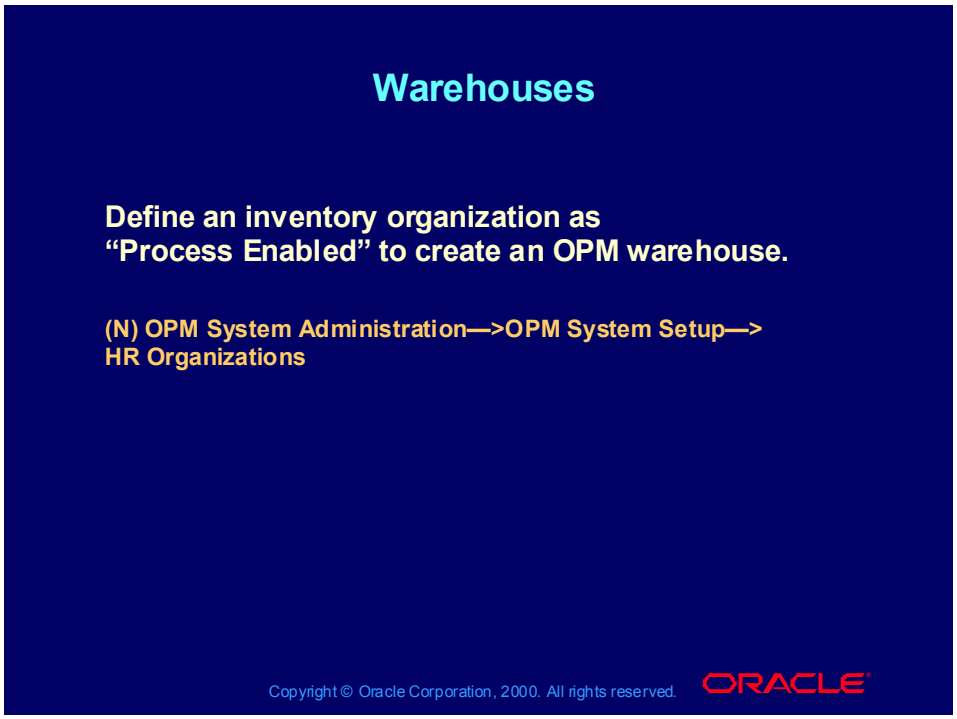
Before you define a resource warehouse for a production plant, you must define the OPM organization as a production plant.



Setting Up Organizations in Oracle Applications

There are several things you must consider when setting up an inventory organization in Oracle Applications:

- Each OPM warehouse must have a corresponding Oracle Applications Inventory Organization.
- In OPM Releases prior to 11*i* (Mini Pack A), you need to set the GMF:Financial Package profile option (formerly the GL$FINANCIAL_PACKAGE profile value) to ORAFIN.
- ASCP does not consider location even though it is in use within OPM. As a result, you don't have to worry about restrictions on location-controlled items.



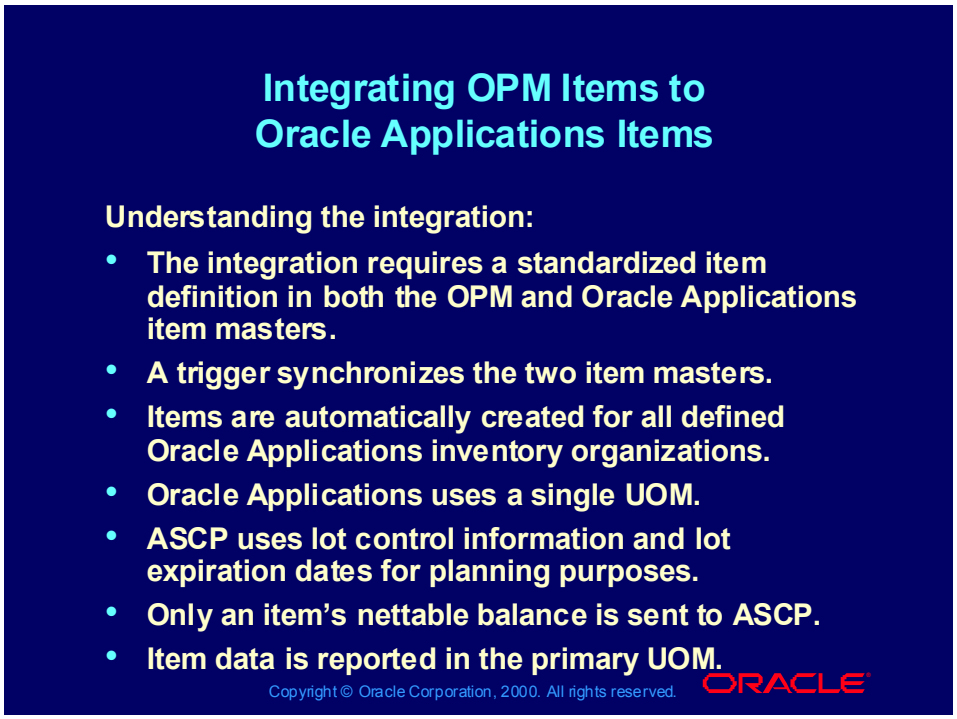
(Help) Oracle Manufacturing Applications > Oracle Process Applications > OPM Inventory > OPM Inventory Management User’s Guide > Organizations > Relating Organizational Structures

... > The OPM Warehouse as Inventory Organization

... > Synchronizing OPM and OA Forms

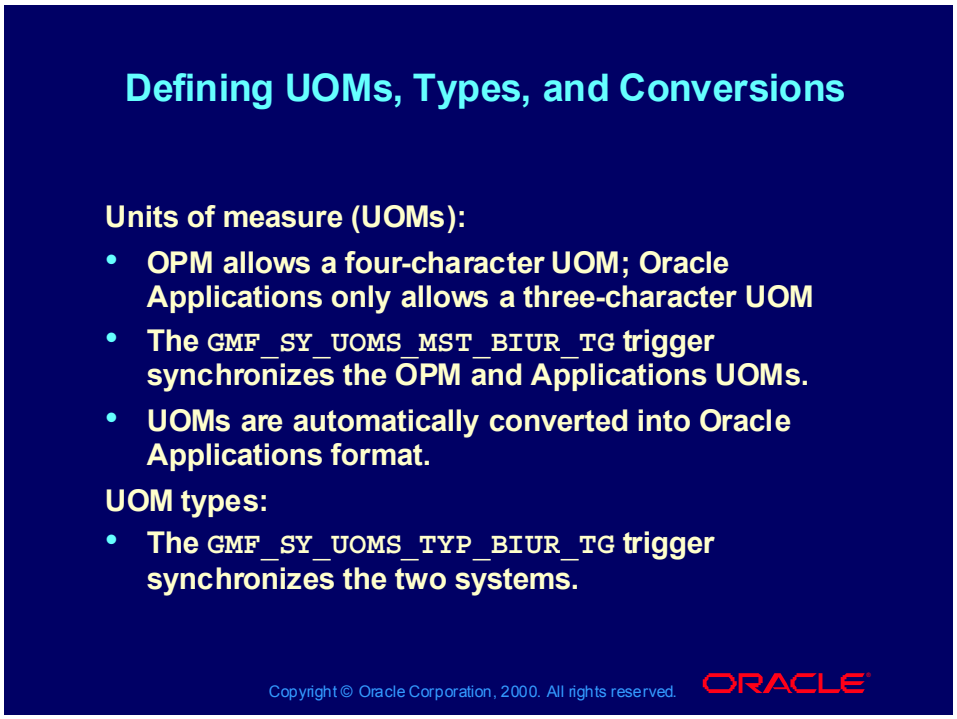
and

(Help) Oracle Manufacturing Applications > Oracle Inventory > OPM Inventory > Setting Up > Inventory Structure > Defining Organization Parameters > Defining Default Inventory Parameters



Integrating OPM Items with Oracle Applications Items

- You need to have a standardized item definition in both OPM and Oracle Applications.
- OPM items are automatically created in Oracle Applications inventory organizations. This means that OPM items can be used within all Oracle Applications inventory organizations. The following are some additional points to consider when defining items for use in OPM and ASCP:
  - Although Oracle Applications only allows the use of one unit of measure per item, you can still use the dual unit of measure functionality in OPM.
  - A trigger (`GMF_IC_ITEM_MST_BIUR_TG`) synchronizes the two item masters to ensure that both OPM and the Oracle Applications contain the same set of items. A resynchronization routine runs to ensure that, as new Oracle Applications inventory organizations are created, all items are added to the new inventory organization.



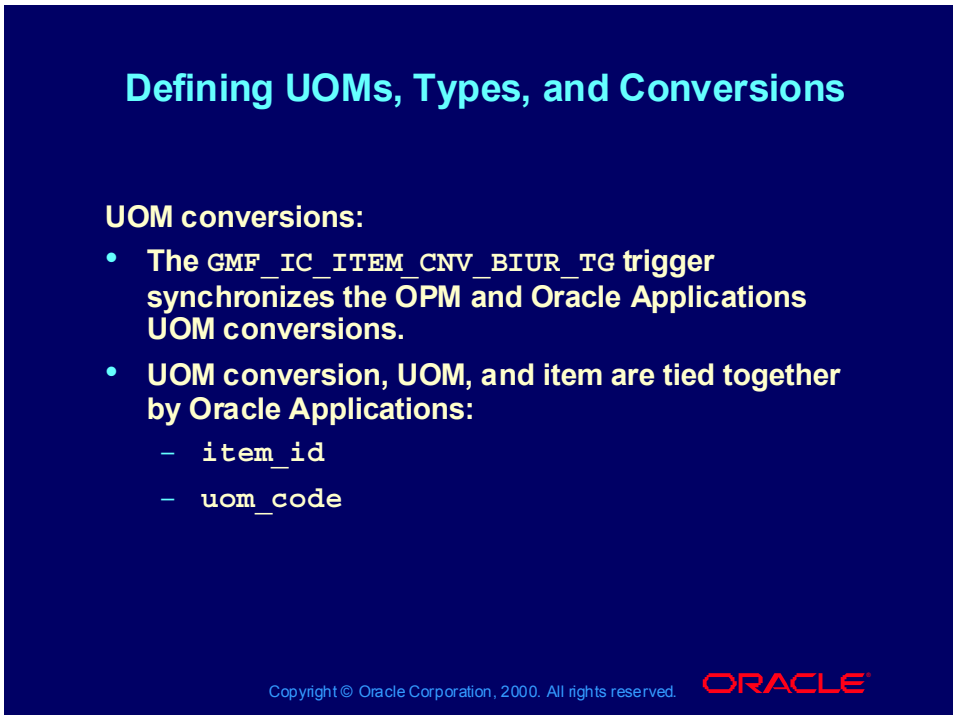
Integrating UOMs and Types with Oracle Applications

To ensure the uniqueness of units of measure in both OPM and Oracle Applications, an algorithm verifies that the truncated OPM unit of measure or organization does not match a preexisting Oracle Applications unit of measure. If a unit of measure is not unique, the algorithm searches for a character to substitute that makes the unit of measure unique. As a result of this substitution, the three-character code entered into Oracle Applications from OPM may not be the value you expected to find.

The UOM type trigger `GMF_SY_UOMS_TYP_BIUR_TG` automatically ensures the uniqueness of UOM types that are integrated into Oracle Applications from OPM.

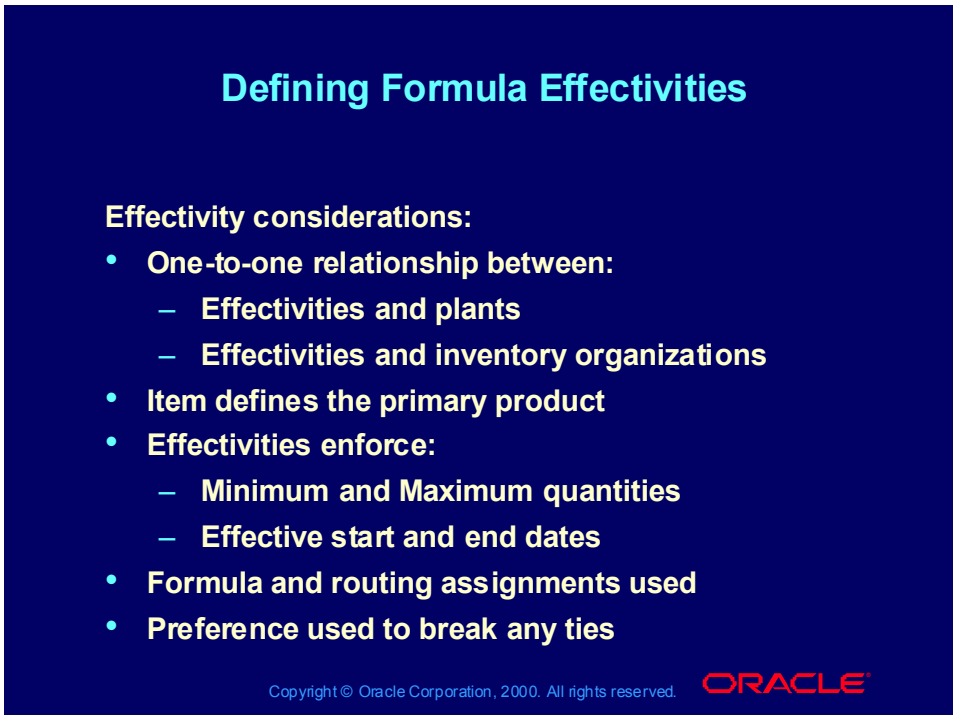
Technical Note

The unit of measure that OPM uses to designate hours must be the same as the unit of measure in the BOM:UOM for Hours profile option for the ASCP instance. This is necessary for ASCP to consider your resources.



Integrating UOM Conversions with Oracle Applications

The UOM conversions trigger automatically ensures the uniqueness of UOM conversions that are integrated into Oracle Applications from OPM. The UOM codes associated with the UOM conversion change due to truncation from four to three characters. The new three-character UOM code is stored in the Oracle Applications UOM conversion table with the corresponding new UOM conversion record.



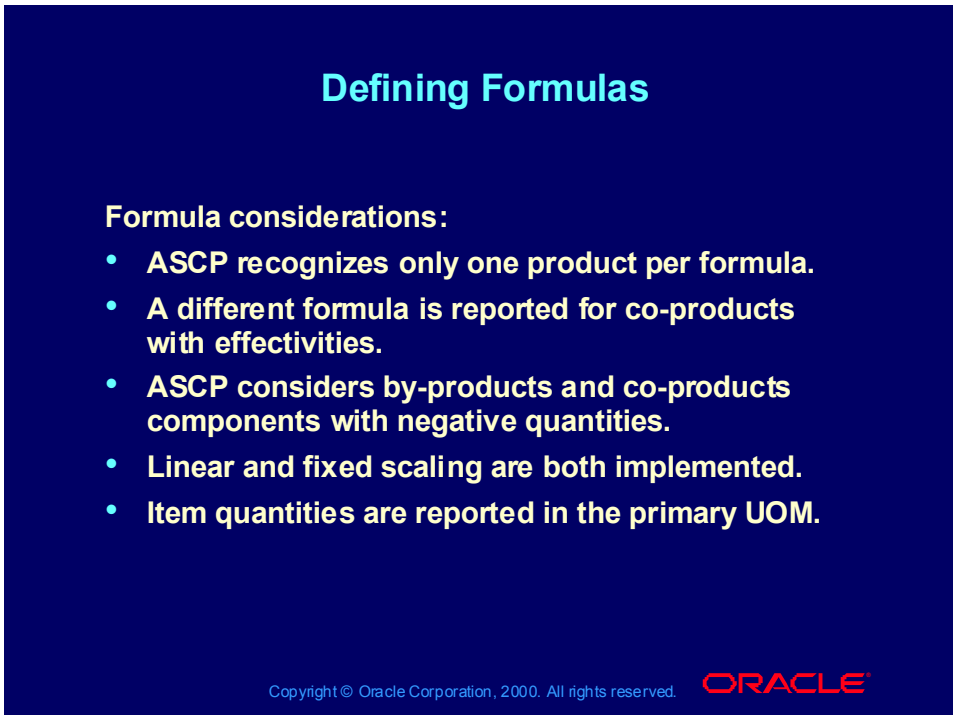
Integrating Formula Effectivities with Oracle Applications

When an effectivity is defined for a specific plant, any warehouse that is defined for an item with that effectivity will have a single version of the effectivity in ASCP. When more than one of these warehouses are mapped to the same inventory organization, only one effectivity is written to ASCP, since there is a one-to-one relationship between both:

- Effectivities and plants, and
- Effectivities and inventory organizations.

If the effectivity is Global, then it is applied to all plants where the item can be produced.

Effectivities enforce minimum and maximum quantities as well as the effective start and end dates. Formula and routing assignments are used, and Preference 1 is used to break any ties.

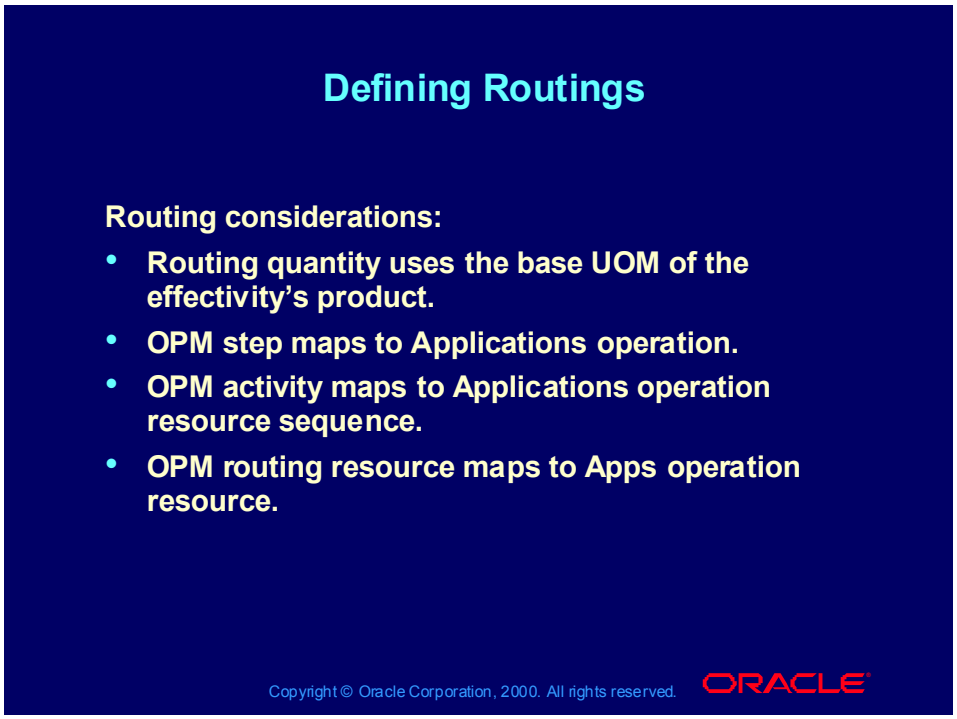


Integrating Formulas with Oracle Applications

ASCP can accept only one product per formula. If an OPM formula has multiple effectivities for a product or for co-products, then ASCP views them as different formulas, even though they are all the same. ASCP expects only one product per bill of material (in OPM, a bill of material is a formula), and this causes the co-products and by-products to be reported as components with negative quantities.

Technical Notes

- If you have a formula with a product and a co-product, you must define a second effectivity for the co-product.
- If you have a formula with a product and a by-product, you must define a second effectivity for the by-product.

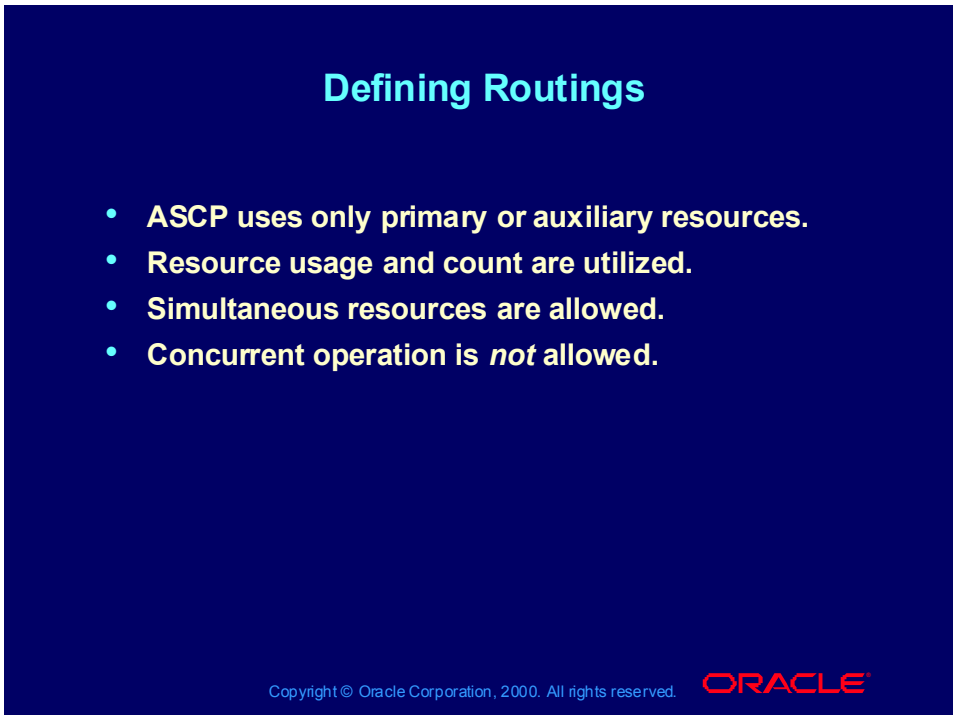


Integrating Routings with Oracle Applications

The routing quantity uses the base UOM of the effectivity's product.

An OPM routing maps closely to the Oracle Applications routing. The flexibility that OPM has for a routing quantity is restricted, because the quantity must be in the unit of measure of the product being routed in order to have it scale properly.

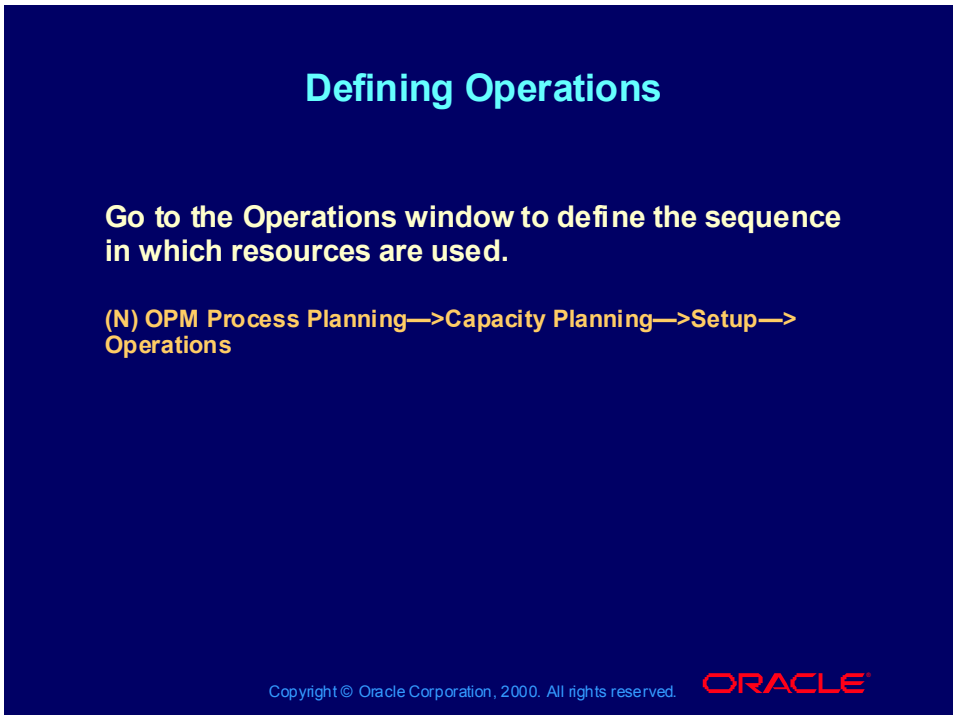
The interface manages any necessary UOM conversions, but displays the *converted* quantity and unit of measure instead of the original quantity and unit of measure defined in OPM.



Integrating Routings with Oracle Applications

With OPM CRP, you have the option of using alternate resources. Resources are assigned a plan type in the Operations window: either primary (1), auxiliary (2), or secondary (0). In ASCP, only the primary and auxiliary resources are used; any secondary resources are ignored.

ASCP uses resource count and usage quantity information. You record resource count and usage quantity information in the Operations window. For example, if two identical blenders are used for mixing, you would enter 2 in the Count field. If the resource can mix 200 gallons per hour, you would enter 200 in the Process Quantity field and 1 in the Usage Quantity field.



(Help) Oracle Manufacturing Applications > Oracle Process Applications > OPM Product Development > OPM Formula Management User's Guide > Routings Setup > Setting Up Operations

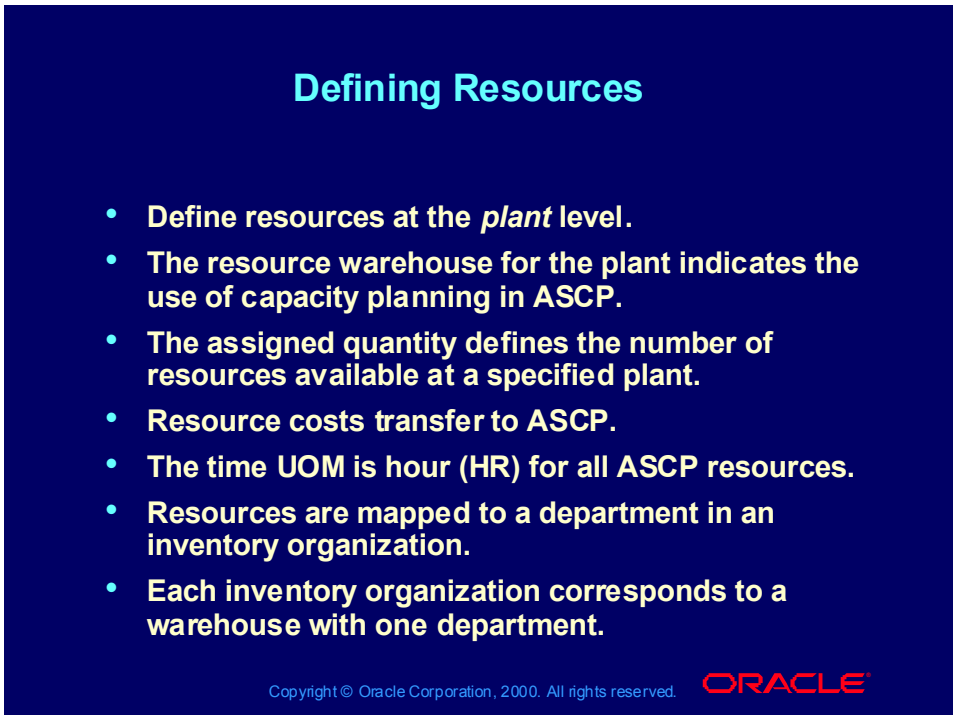
… > Setting Up Operations Procedure

… > Operations Field Reference

Integrating Operations with Oracle Applications

In ASCP, you can use more than one resource at the same time during an operation, but you cannot complete more than one operation in a routing at the *same* time.

You can overlap two operations, but this restricts the OPM functionality that allows concurrent operations and multiple dependent operations. ASCP does not provide a way for you to allow concurrent operations instead of multiple dependent operations (or vice versa). As a result, concurrent operations are not allowed in ASCP.



Integrating Resources with Oracle Applications

When you complete the OPM Resource Information window, you define a relationship between a plant and the resource. Since ASCP acknowledges the plant using the resource warehouse associated with the plant, ASCP views the resource as having a relationship with a resource warehouse instead of with a plant.

A resource warehouse is mapped to a department in an inventory organization within Oracle Applications. The resource is mapped to a department in an inventory organization using the Resource Information window.

You can use ASCP to develop capacity plans for your resources. The resource warehouse for the plant indicates to ASCP a need to perform capacity planning. The ASCP capacity planning function assumes that all resource capacity is measured in hours. The Assigned Quantity field indicates the number or quantity of the resource used in the specified plant for which you are defining production costs and usage availability. The number you enter depends on how broad a resource categorization you are defining. For example, if you define the resource as “Blender 1” (a specific machine) you would enter 1. If you use three blenders in the production line, and you define the resource as “Blenders” (rather than defining each individual machine), you would enter 3.

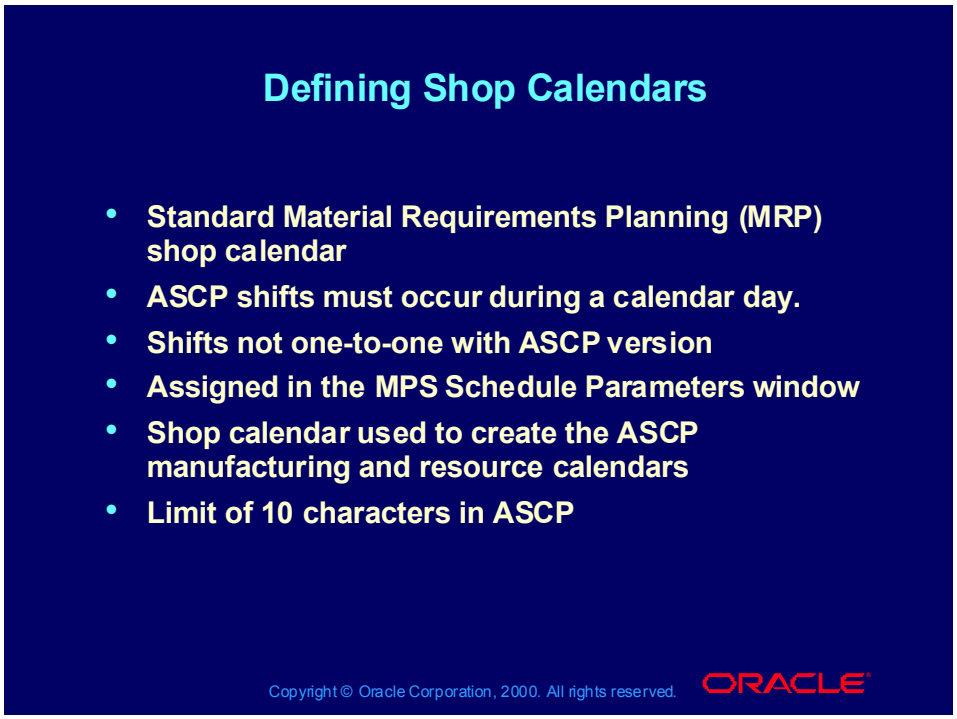
The cost of using a resource for one unit of measure (for example, the cost of running a mixer for one hour) that you define in OPM Cost Management is also used by ASCP, but this cost needs to be recorded in the nominal cost value for the resource. ASCP assumes the unit of measure for all resources is an hour.

Integrating Plant-Warehouse Relationships With Oracle Applications

Plant-warehouse relationships are also known as plant-warehouse effectivities. Plant-warehouse relationships specify the warehouses from which a plant consumes each item when it is used as an ingredient in a batch. They also specify the warehouses that a plant replenishes with each item when the item is a product of a batch.

If the Warehouse Item field in the Plant Warehouses window is left blank for a particular warehouse, then any item can be consumed from or replenished to that warehouse. This is called a global rule. The plant- warehouse relationship item consumption and replenishment rules are enforced by ASCP for both global and warehouse items. Setting global rules increases the amount of data transferred since all warehouse item data is transferred, regardless of whether or not the warehouse items are actually consumed or replenished from the warehouse.

You can transfer items between warehouses as long as the item is defined in a plant-warehouse relationship as a global or a specific rule. The consumption and replenishment indicators for the item/warehouse combination can be turned off and the item/warehouse combination can still be considered for transfers.



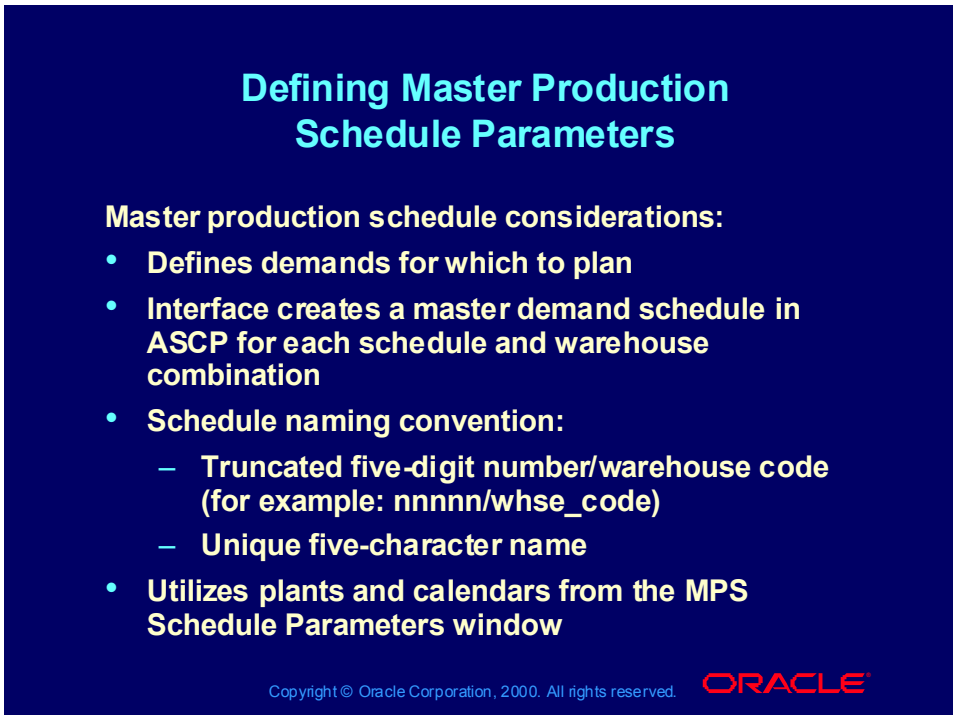
Integrating Shop Calendars with Oracle Applications

To create a shop calendar, you must define shop days, which include the shifts available for the day. The shop days are then used to create the shop calendar. When the calendar is interfaced with ASCP, four relationships are created: the production calendar, weekly buckets, period buckets, and net available resources. The production calendar indicates the days on which planning can occur. The weekly buckets represent the weeks in which planning can occur, and the period buckets represent months. The resources are applied to the shifts, defining the time available for production, which creates the fourth relationship, net available resources.

ASCP expects shifts to occur during a calendar day (12:00 a.m. to 11:59 p.m.), but OPM allows shifts to go past 12 a.m. and into the next day. When an OPM shift overlaps with a shift the next day, one longer shift is created. If a shift engulfs another shift the next day, the engulfed shift disappears. Because ASCP does not account for shift overlaps, it is possible for duplicate shift names to appear within the same day. OPM shop calendars must be defined carefully to avoid shift duplication in ASCP.

During the automatic definition of organization parameters, a calendar must be entered. The system creates a dummy calendar or uses an existing calendar in Oracle Applications. The OPM interface replaces the dummy calendar with the correct shop calendar defined in the MPS Schedule Parameters window.

If the OPM shop calendar name is more than 10 characters long, the name is shortened to only 10 characters in ASCP. The interface ensures that the calendar is unique to ASCP by changing characters if necessary.

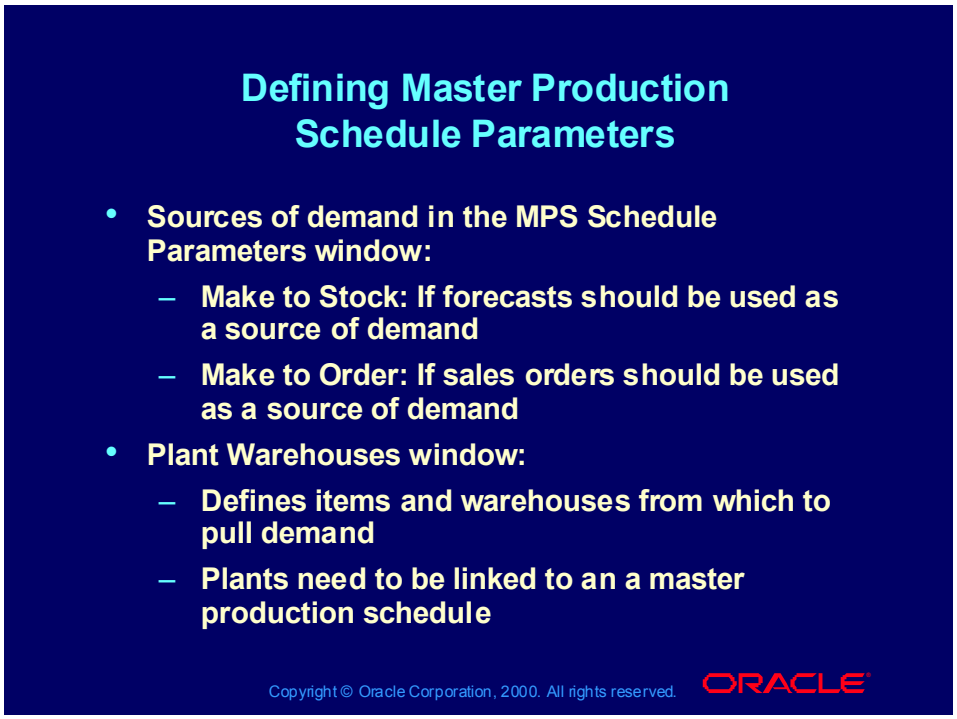


Using Master Production Schedule Parameters with ASCP

When you define master production schedule parameters, you indicate which plants are included in a schedule, also select the criteria for including various sources of inventory supply and demand. The parameters serve the same purpose in ASCP, and are used to create the ASCP master demand schedule. The ASCP master demand schedule includes all plants linked to a master production scheduling in the Master Production Scheduling (MPS) Schedule Parameters window.

The master production schedule must have a unique, five-character name. The ASCP master demand schedule name consists of the master production schedule name and the warehouse name. For example, a master production schedule named SCHD1 for resource warehouse RSW1 would result in a master demand schedule named SCHD1/RSW1. The naming convention takes the first five characters of the existing schedule number (schedule_no) and adds a slash mark (/) followed by the warehouse code (whse_code).

ASCP also uses plants and calendars from the MPS Schedule Parameters window.

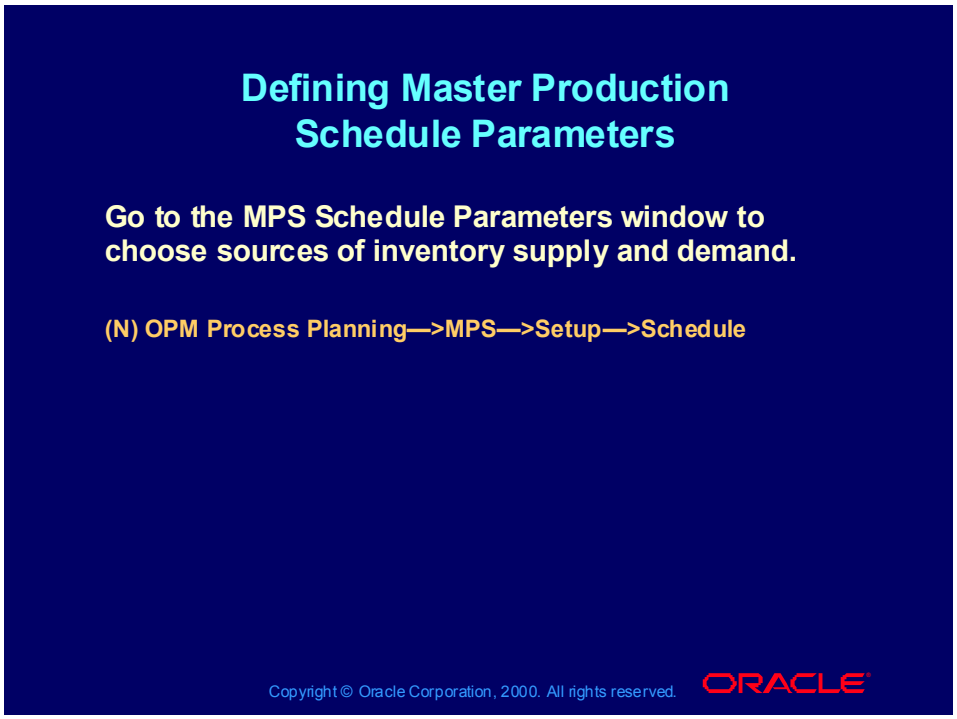


Using Master Production Schedule Parameters with ASCP

In the Make to Stock field in the MPS Schedule Parameters window, you choose whether to include forecasts as a source of demand.

In the Make to Order field, you choose whether to include sales orders as a source of demand.

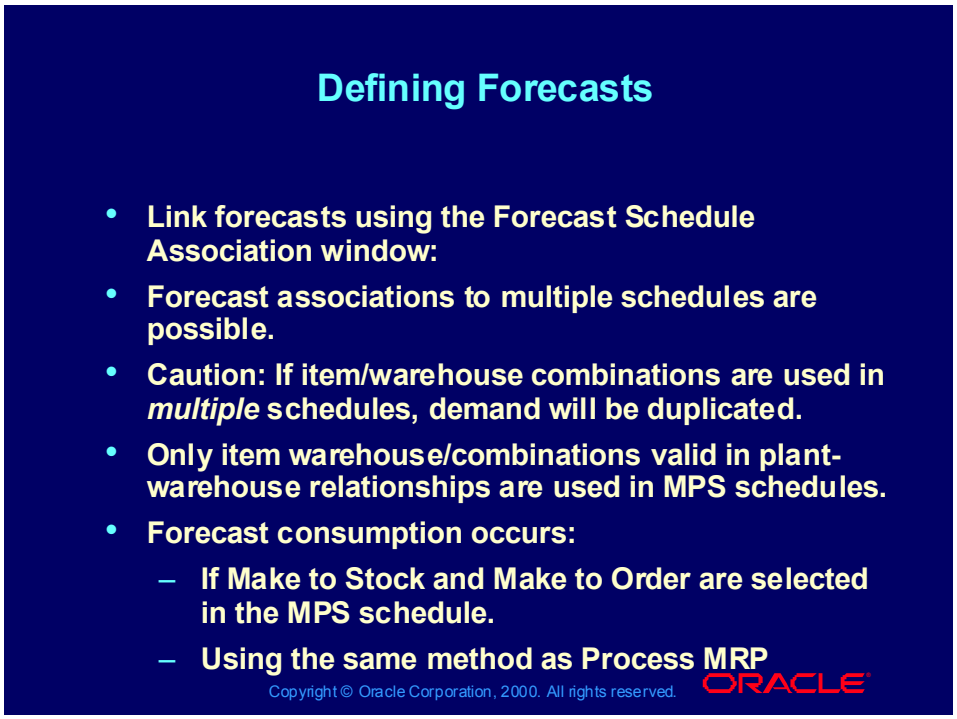
The Plant Warehouses window defines the items and warehouses from which to pull the demand for each plant linked to a master production schedule.



(Help) Oracle Manufacturing Applications > Oracle Process Applications > OPM Process Planning > OPM MPS/MRP and Forecasting User's Guide > MPS/MRP Setups > Defining a MPS Schedule

… > Defining a MPS Schedule Parameters Procedure

… > MPS Schedule Parameters Window Field Reference



Integrating Forecasts with ASCP

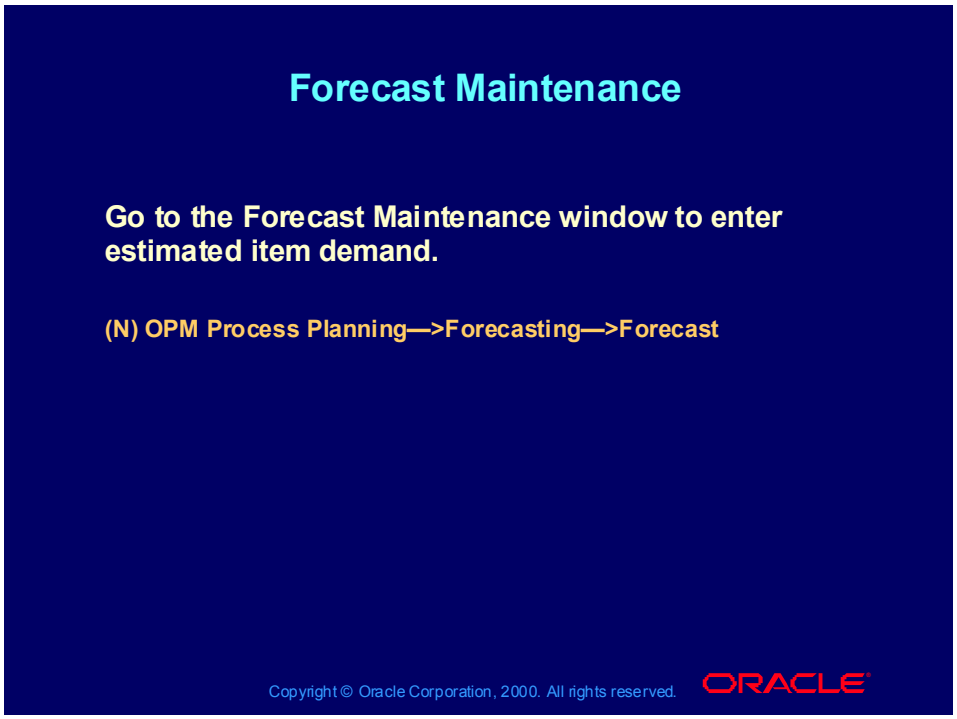
The setup steps necessary to use forecast consumption for APS are the same setup steps you must complete when using forecast consumption in OPM. After you enter forecast information in OPM and link it to an MPS schedule, ASCP uses that information to create a master demand schedule. Forecast consumption occurs when you perform the data collection. Forecasts used by the MPS schedule are specified in the Forecast Schedule Association window. A forecast can contain any number of items in various warehouses, but the schedule uses only items that are valid for a warehouse to consume according to the Plant Warehouses window.

If you want to use forecast information when creating the master demand schedule, navigate to the MPS Schedule Parameters window, and select:

- Include Sales Forecasts in the Make to Stock field
- Include Sales Orders in the Make to Order field

Because one forecast can be used for several MPS schedules, make certain not to *duplicate* the demand for an item in a warehouse.

Forecast Maintenance

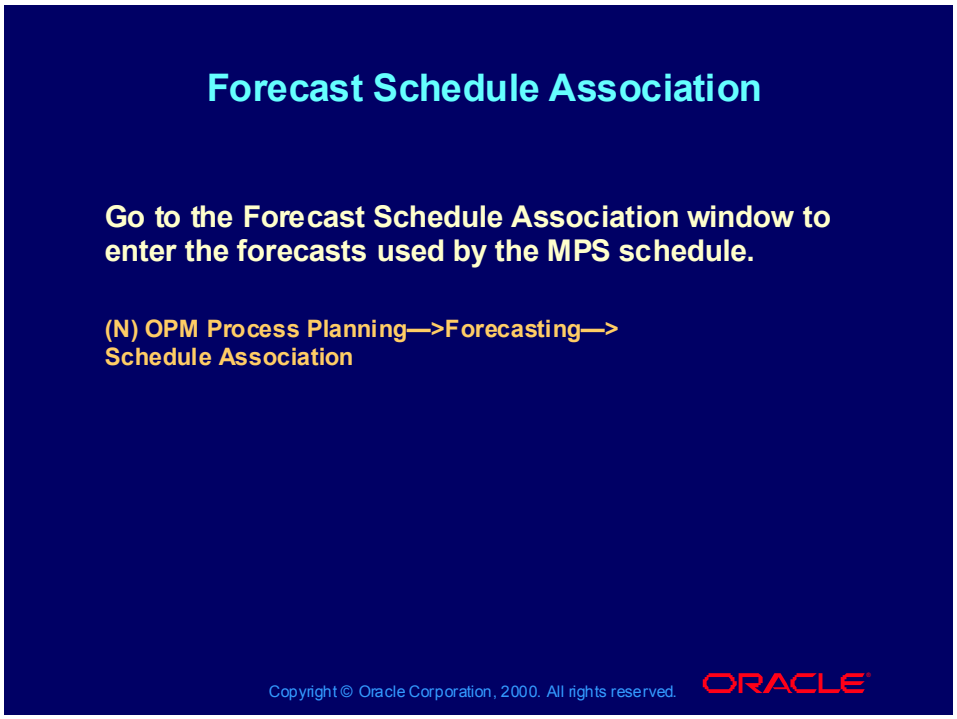


(Help) Oracle Manufacturing Applications > Oracle Process Applications > OPM Process Planning > OPM MPS/MRP and Forecasting User's Guide > Forecasting

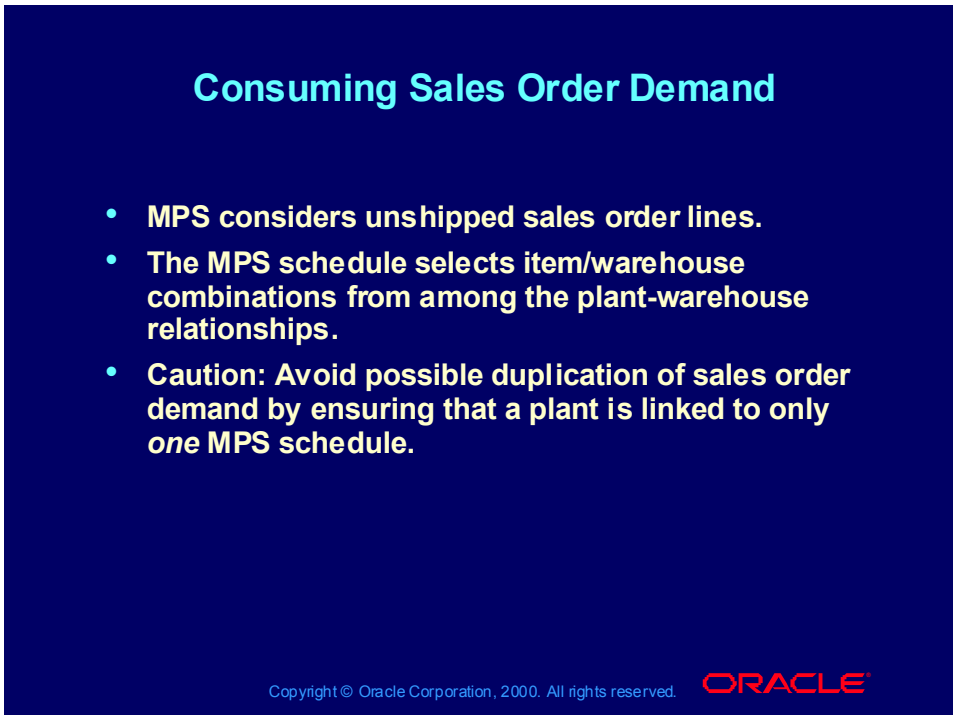
... > Forecast Maintenance Window > Forecast Maintenance Window Field References

... > Forecast Maintenance Window Field References

Forecast Schedule Association



(Help) Oracle Manufacturing Applications > Oracle Process Applications > OPM Process Planning > OPM MPS/MRP and Forecasting User's Guide > Forecasting > Associating a Forecast with a Schedule > Forecast Schedule Association Field References



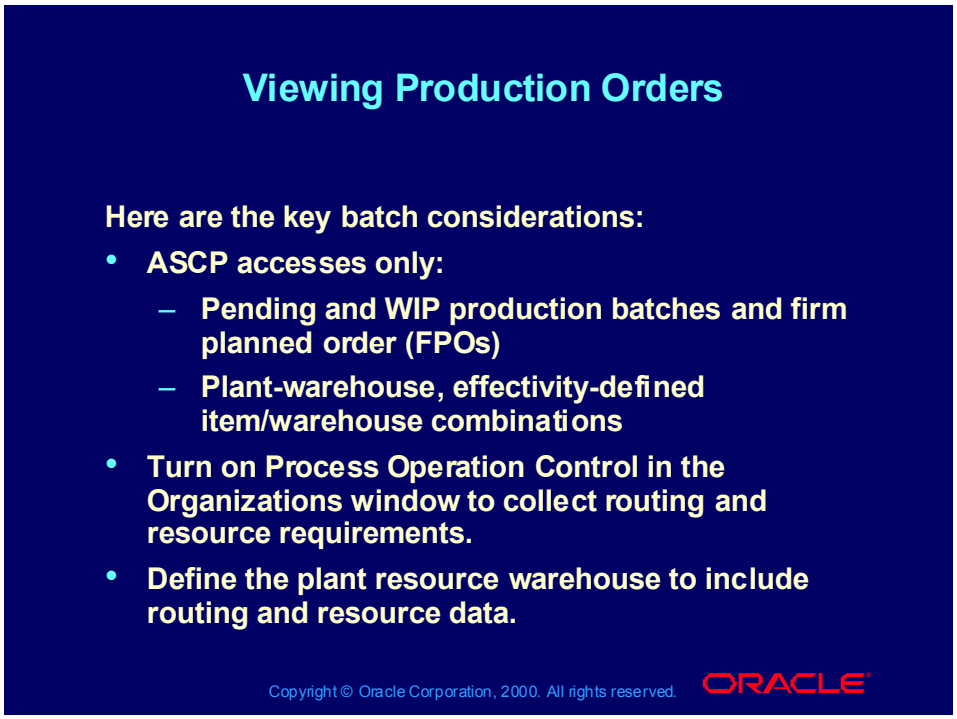
Integrating Sales Orders with APS

Demand is pulled from the Order Fulfillment and Order Management modules for the items that you have defined within a plant warehouse relationship. MPS collects unshipped sales order information if:

- Include Sales Orders is selected in the Make to Order field of the MPS Schedule Parameters window
- Sales order lines are scheduled to ship from warehouses listed as plant warehouses in the MPS schedule.

These same criteria apply to the ASCP master demand schedule.

Caution: Avoid possible duplication of sales order demand. Ensure that a plant is linked to only *one* MPS schedule. If more than one MPS schedule is linked to a plant, the sales order demand for the plant will be duplicated in *all* of the MPS schedules.

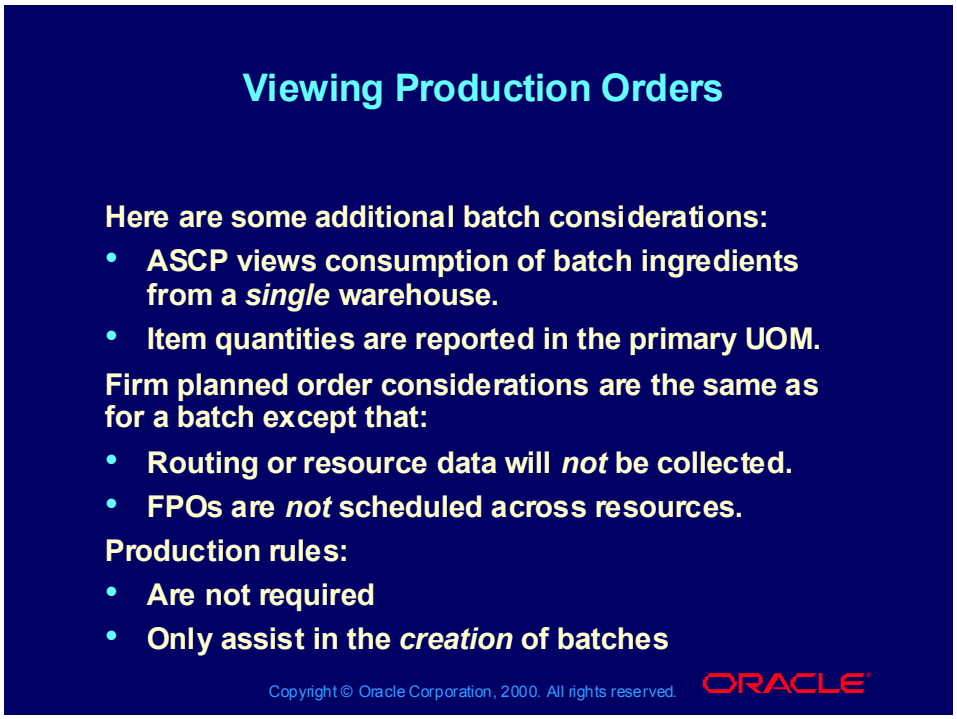


Integrating Production Orders With APS

ASCP views only *pending* OPM production orders (firm planned orders, pending batches, and work-in-process batches):

- As a source of supply and demand
- For items that have an item/warehouse/plant relationship defined in the Plant Warehouses window.

You must turn on Process Operation Control (POC) for a plant, and you must define a resource warehouse for a plant if you want to create capacity plans for that plant. If POC is turned on, ASCP collects the plant's routing and resource requirements once a batch is created. This batch information is transferred to ASCP. If a plant does *not* have a resource warehouse, routing and resource data will not be transferred to ASCP.



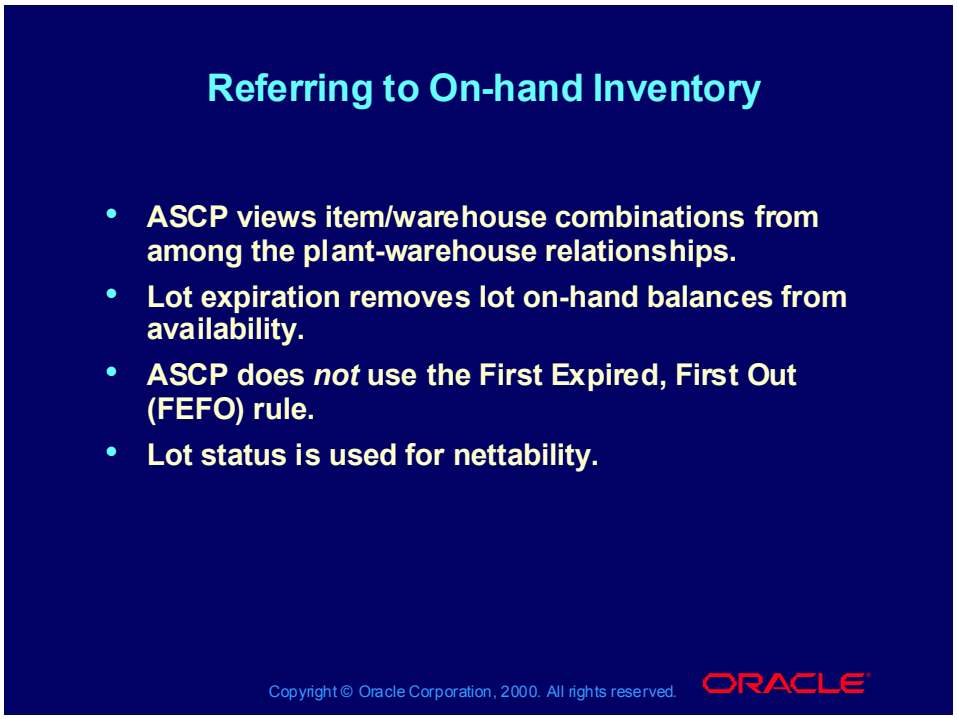
Integrating Production Orders with ASCP

The ingredients for a batch must come from a single warehouse. ASCP does *not* allow allocation of ingredients from multiple warehouses. OPM works around this constraint issue by using the work-in-process warehouse or the resource warehouse (if available) as the single source of ingredient inventory when the batch has multiple sources or destinations. The work-in-process warehouse or the resource warehouse shows ASCP where it can allocate inventory from.

The quantity of a batch product is reported in the converted primary unit of measure of the item.

ASCP views firm planned orders the same way as batches, except that the firm planned order routing and resource requirements are not considered. FPOs are not scheduled across resources. Routing and resource requirements are considered once a firm planned order is converted into a batch.

Production rules (defined in OPM Inventory) are not required, but they do ensure that batches created meet fixed and variable lead-time requirements.

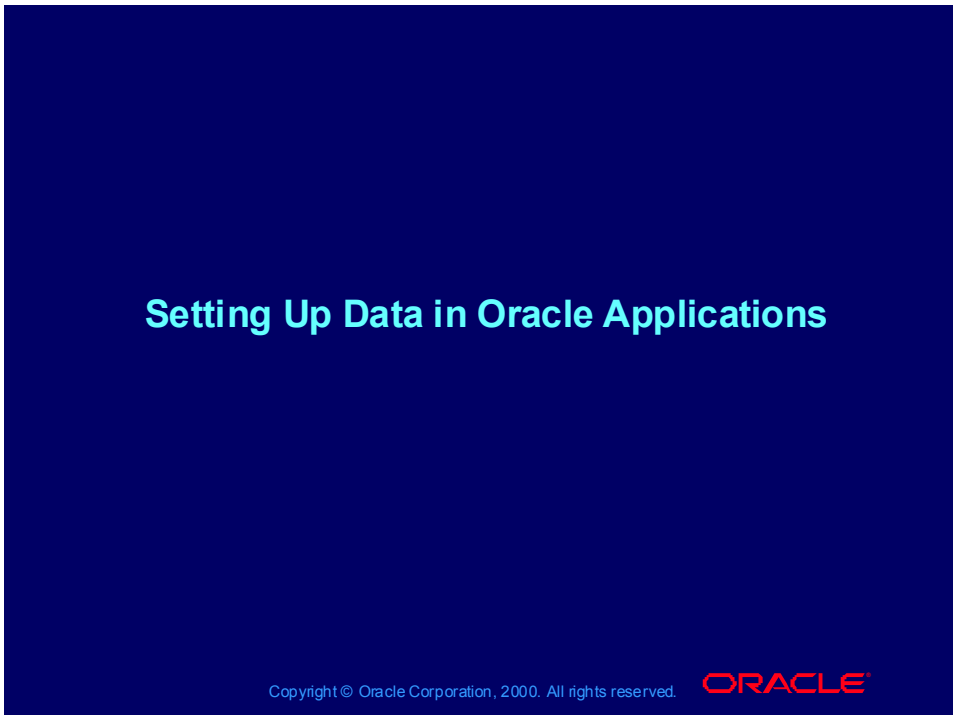


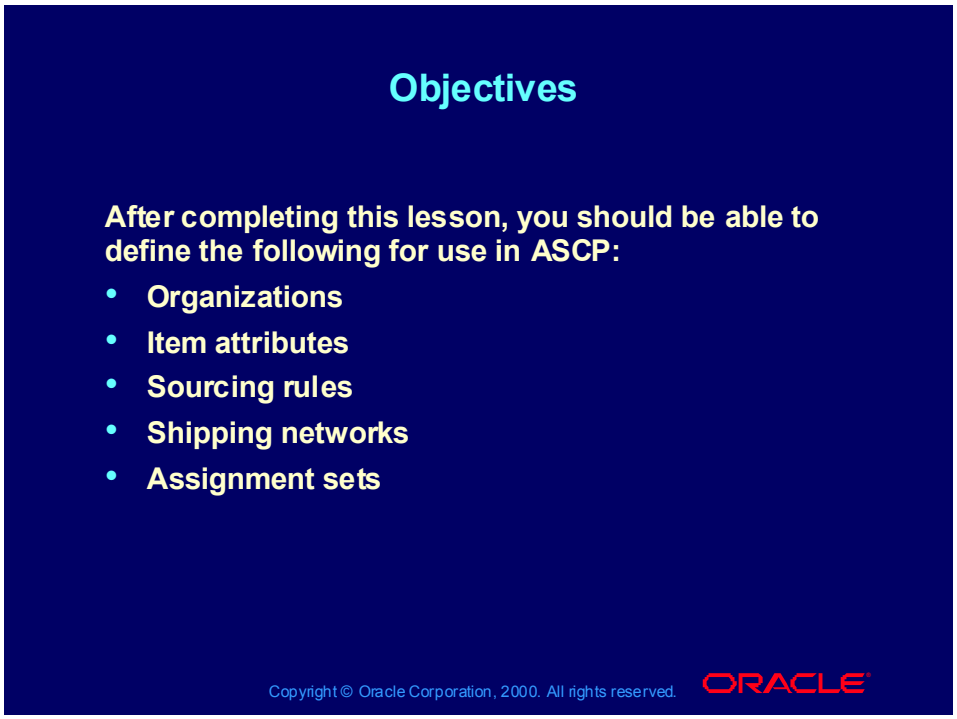
Integrating On-hand Inventory With ASCP

ASCP only views the on-hand inventory of item/warehouse combinations defined for the plant that is attached to the MPS schedule. If a lot has expired, ASCP does *not* consider the lot as available inventory. It also does not use the First Expired, First Out (FEFO) rule, and therefore does not suggest that you use the available lot which is closest to expiring. ASCP observes lot statuses and will not consider a lot for consumption unless the lot status identifies the lot as nettable.

Setting Up Data in Oracle Applications

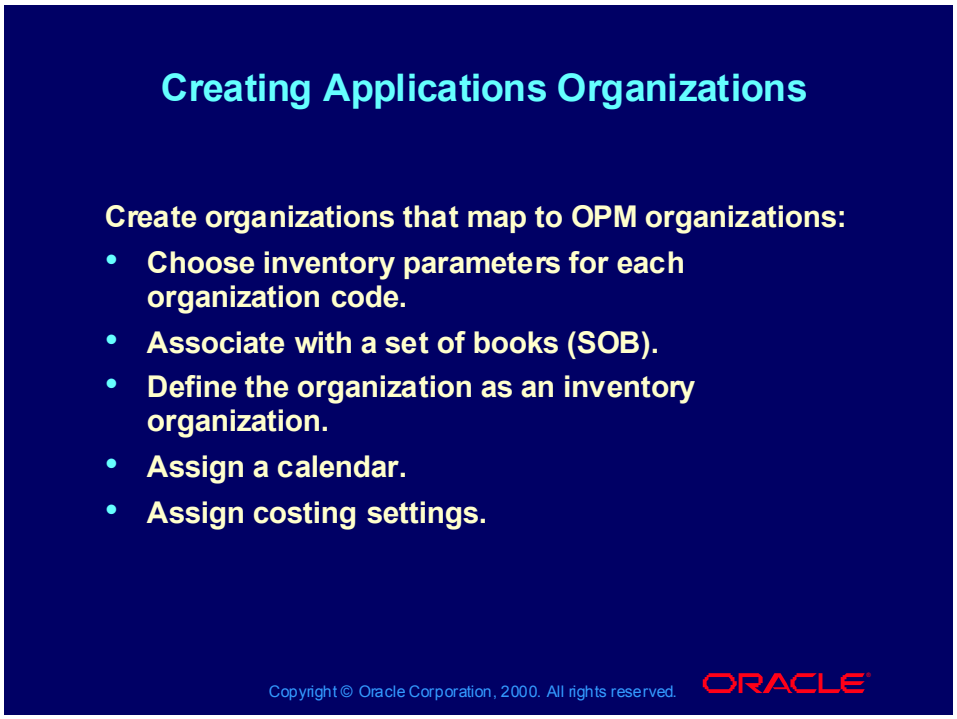
Chapter 4





Lesson Topics

This lesson describes how to set up the Oracle Applications data necessary to run ASCP for OPM.

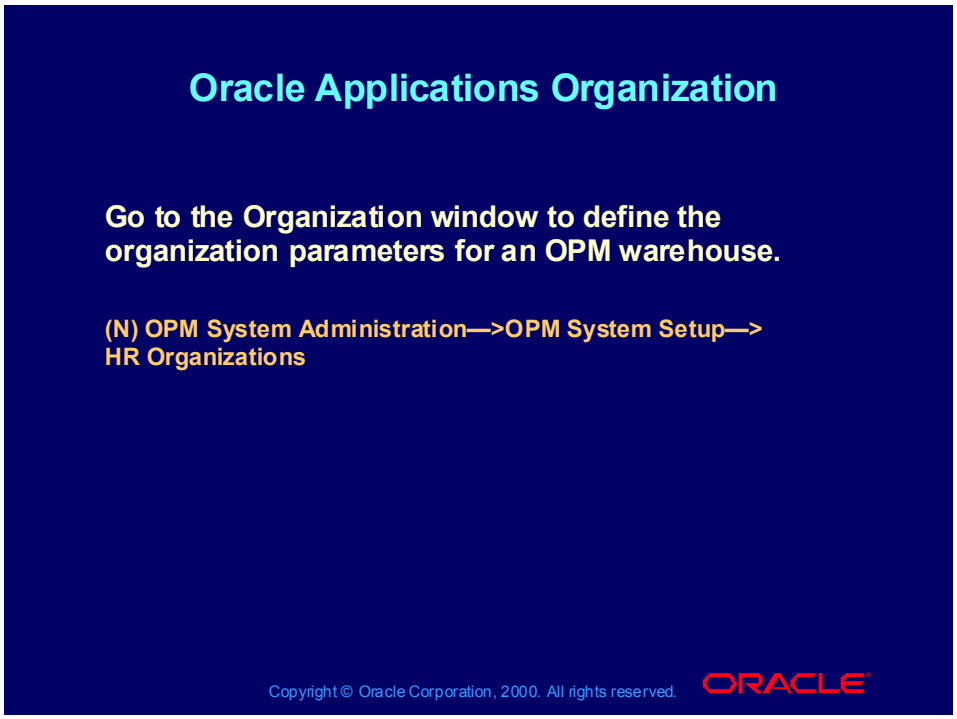


Creating Applications Organizations Automatically

OPM users need to create Oracle Applications inventory organizations that map to OPM warehouses. In order for these organizations to map correctly, you must define organization parameters for the system to use when you are creating the organizations. In the Inventory Parameters tabbed page of the organization Paramaters window:

- Define inventory parameters for each organization code that maps to an OPM organization.
- Associate each created organization code with a set of books.
- Assign any calendar to each organization code in the inventory parameters. The correct shop calendar is provided to APS when the master demand schedule is generated.

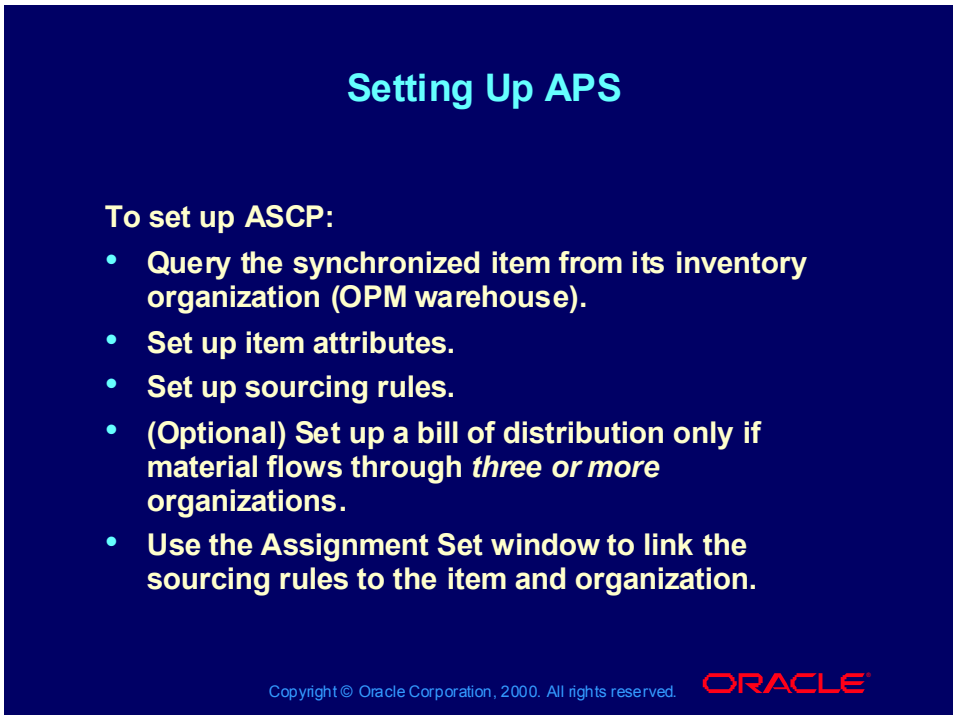
You must also assign costing settings in the Costing Information tabbed page of the Organization Parameters window.



(Help) Oracle Manufacturing Applications > Oracle Process Applications > OPM Systems > OPM System Administration User's Guide > OPM System Setup > Editing HR Organizations > Editing Organization Parameters

and

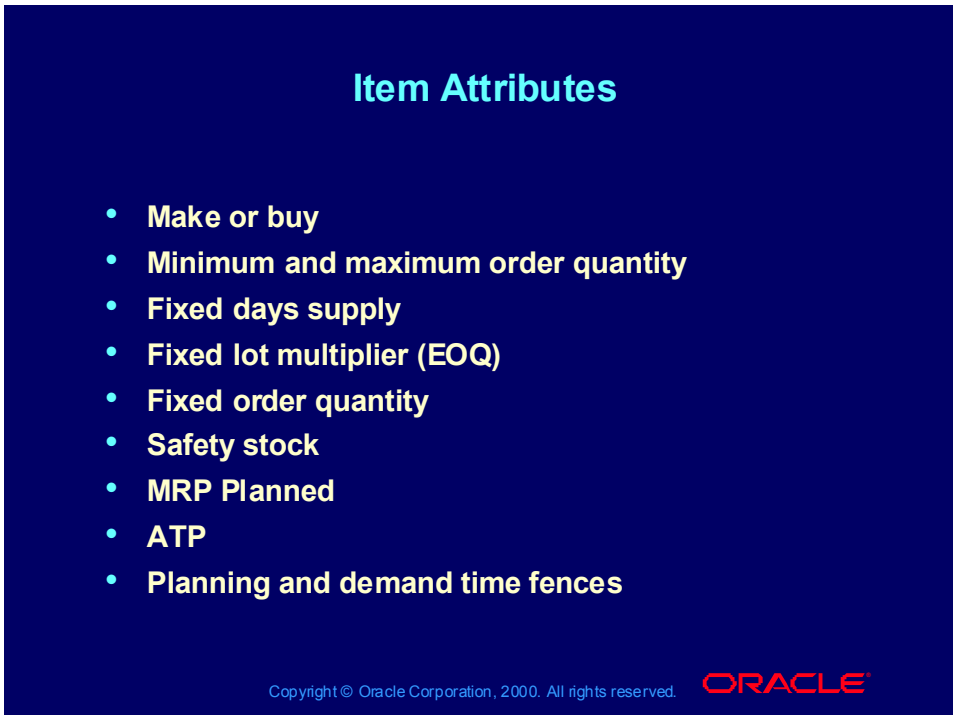
(Help) Oracle Manufacturing Applications > Oracle Inventory > Setting Up > Inventory Structure > Defining Organization Parameters



Setting Up ASCP

To set up ASCP in the Oracle Applications Inventory module:

- Verify that the OPM item has been synchronized to Oracle Inventory by querying it from within its inventory organization (which corresponds to the OPM warehouse).
- Set up sourcing rules to characterize whether the item is make, buy or transfer.
- Set up item attributes within Oracle Inventory.
- Set up a bill of distribution if the material will flow through three or more organizations.
- Use the Assignment Set window to link the sourcing rules to the item and organization.



Automatically Creating Items

The OPM item master trigger automatically creates items in Oracle Inventory that map to OPM Inventory items. These new items are defined as inventory items within Oracle Inventory.

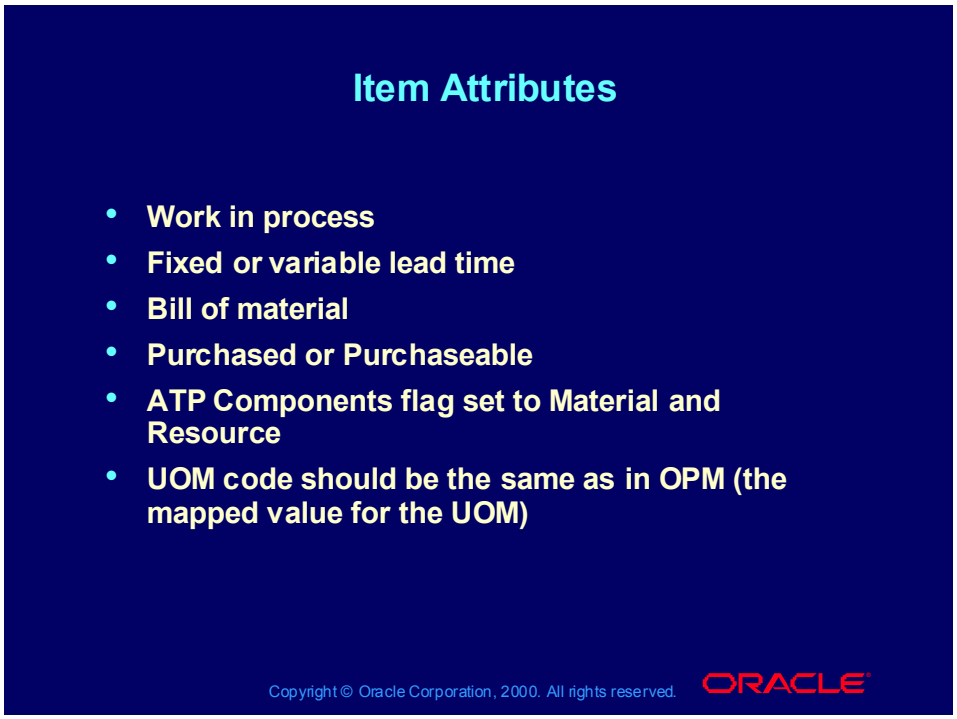
The following list shows the item attributes that you need to assign to newly created items on each of the tabbed pages indicated.

General Planning tab:

- Make or Buy
- Minimum and maximum order quantity
- Fixed days supply
- Fixed lot multiplier (used to calculate the economic order quantity or EOQ)
- Fixed order quantity
- Safety stock

MPS/MRP Planning tab:

- Planning method: MRP Planned
- Calculate ATP
- Planning time fence
- Demand time fence



Automatically Creating Items

Work In Process tab:

Build in WIP

Lead Times tab:

Fixed or variable lead time

Bills of Material tab:

BOM Allowed

Purchasing tab:

- Purchased
- Purchasable

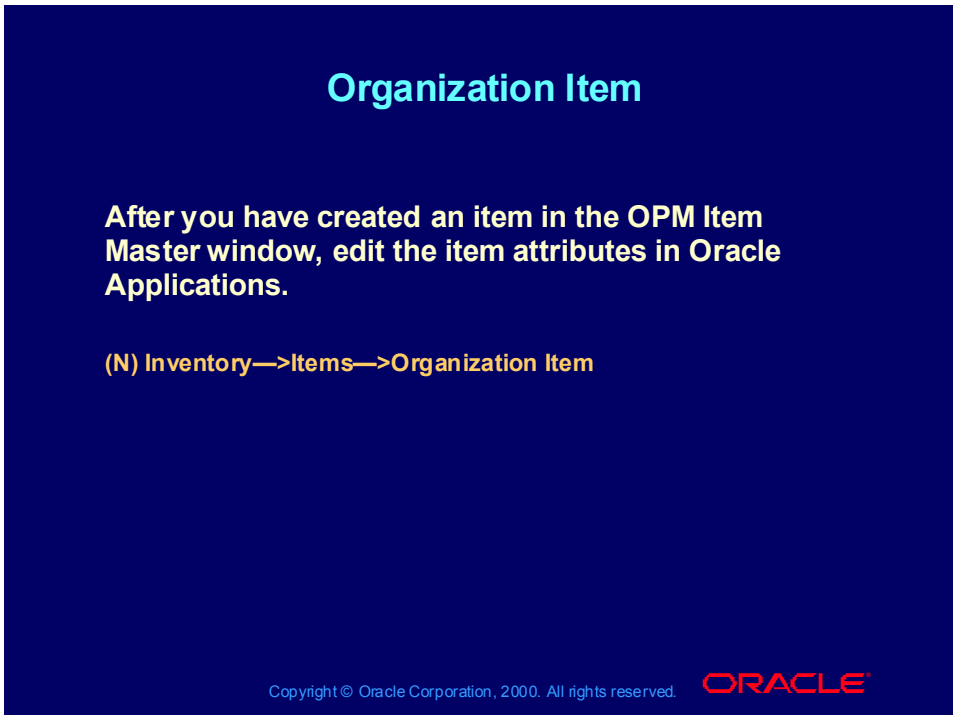
Order Management tab:

ATP Components: Material and Resource

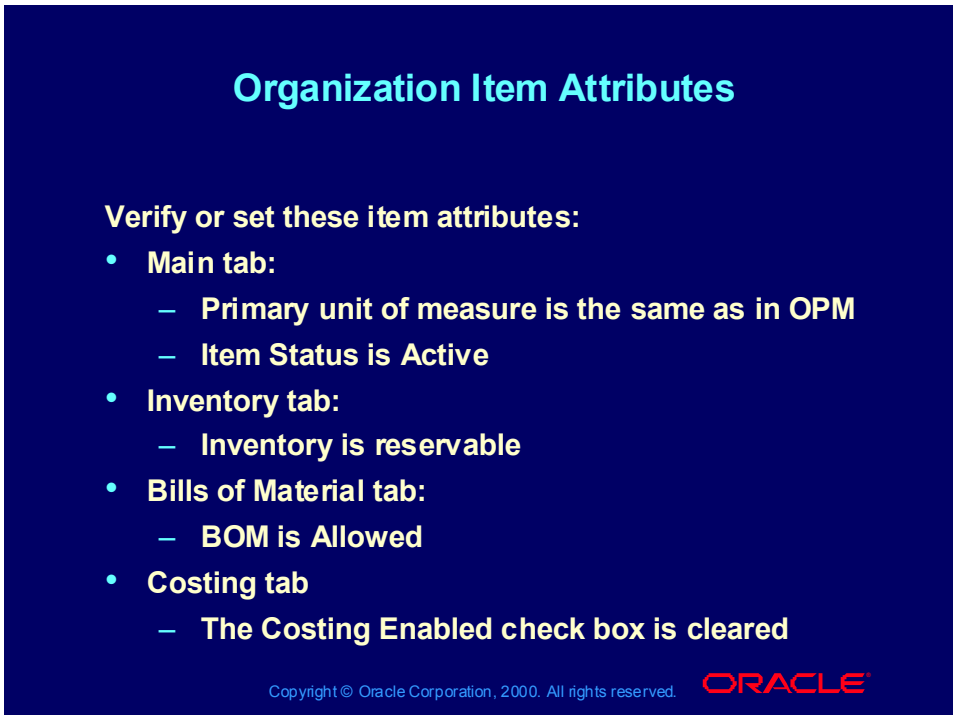
Main tab:

Primary unit of measure equals the OPM item primary unit of measure (**Caution:** You should *not* change this UOM; it is mapped to the UOM value that exists in OPM.)

Organization Item



(Help) Oracle Manufacturing Applications > Oracle Inventory > Items > Item Attribute Descriptions by Group



Setting Organization Item Attributes

Verify the following under the Main tab:

- The primary unit of measure is the same as in OPM. It is important to make certain that the units of measure are set the same in both Oracle Applications and OPM.
- Item Status is Active. The item must be transactable (active).

Inventory tab:

Inventory must be reservable.

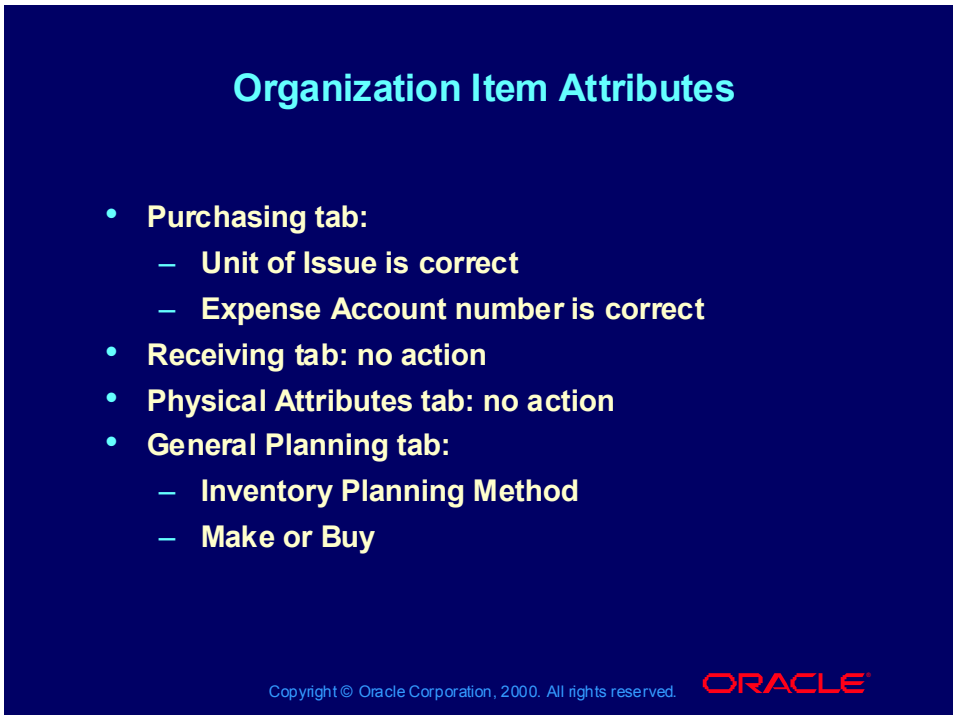
Bills of Material tab:

Bill of Material must be allowed even though an OPM formula will be used.

Costing tab:

Turn costing off.

Organization Item Attributes



Setting Organization Item Attributes

Purchasing tab:

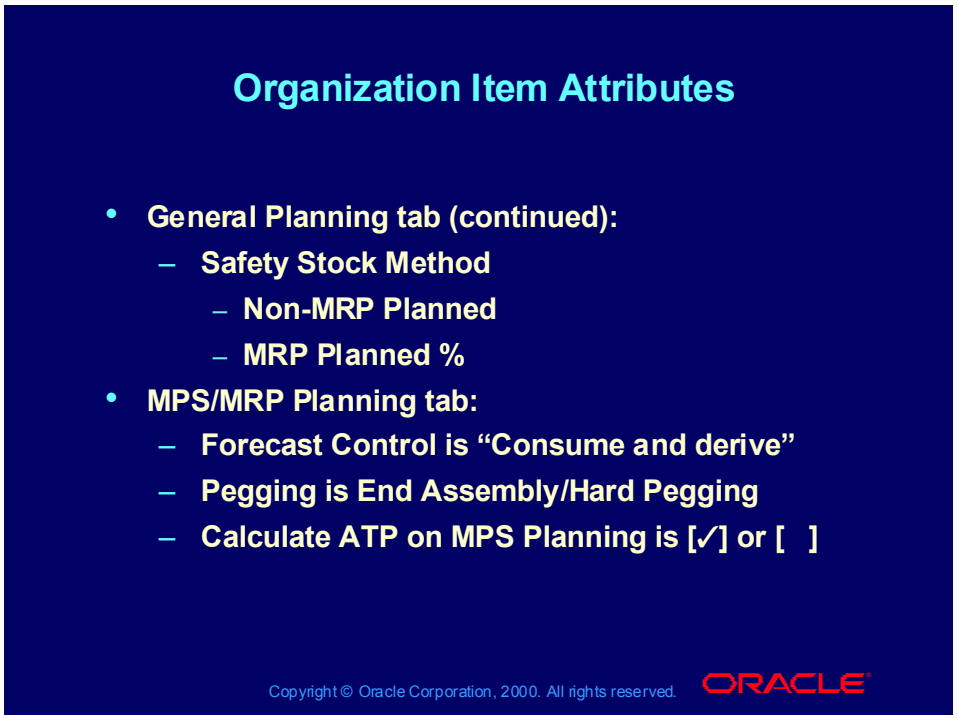
- The unit of issue for the item is set to the desired unit.
- The expense account number is correct.

Receiving tab: no action required

Physical Attributes tab: no action required

General Planning tab:

- Inventory Planning Method:
  - Not Planned: if the item is not planned for
  - Min-Max: if the item is purchased or made on a minimum/maximum rule
  - Reorder Point: if the item is purchased or made on reaching a reorder point
- Make or Buy:
  - Make: usually manufactured. The Planner Workbench defaults the implementation type to Discrete. The planning process passes demand down from manufactured items to lower-level components.
  - Buy: usually purchased. The Planner Workbench defaults the implementation type to Purchase Requisition. The planning process does not pass demand down from purchased items to lower-level components.



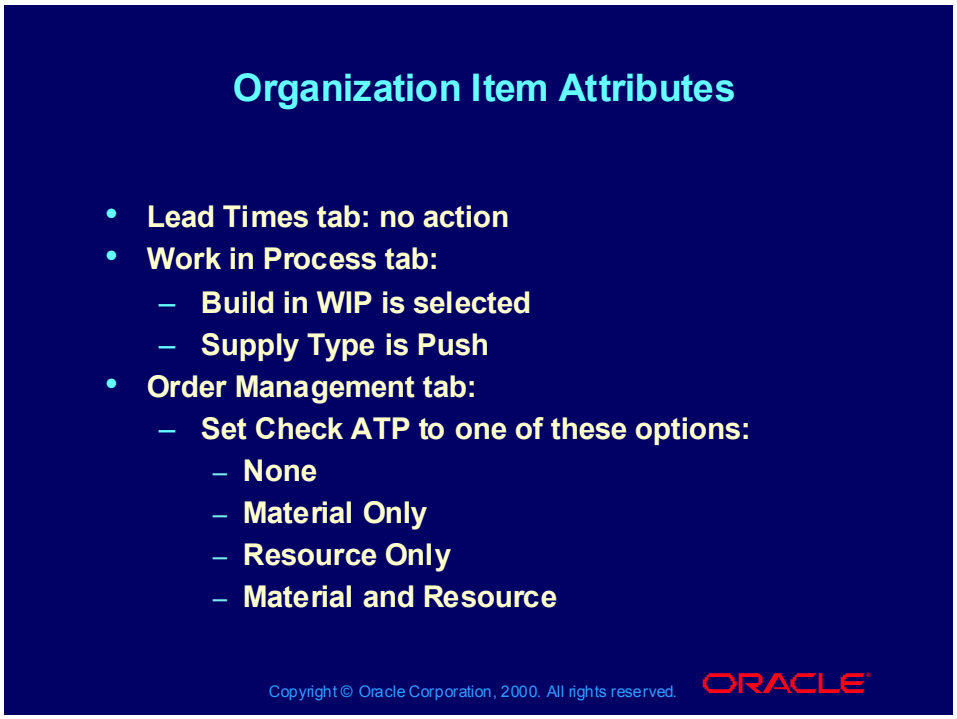
Setting Organization Item Attributes

General Planning tab (continued):

- Safety Stock Method:
  - Non-MRP Planned: Calculates safety stock using methods defined in the Enter Item Safety Stocks window. You can use mean absolute deviation or user-defined percentage of forecasted demand.
  - MRP Planned %: Calculates safety stock at a defined percentage (Safety Stock Percent) of the average gross requirements for specified number of days.

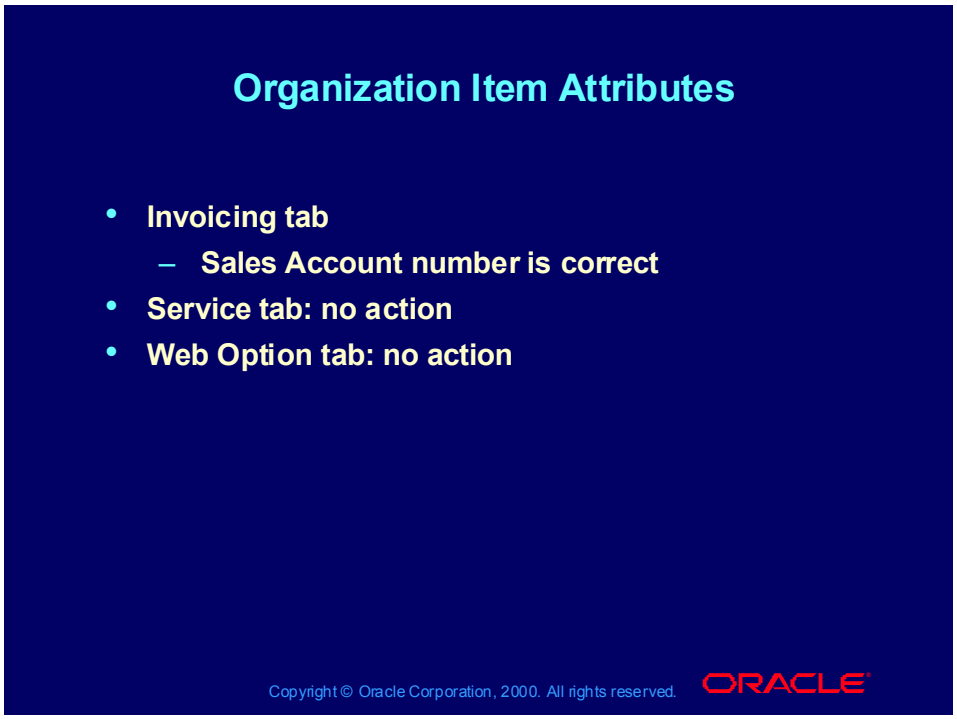
MPS/MRP Planning tab:

- Set Forecast Control to "Consume and derive" for products (not for raw or intermediate materials).
- Set Pegging to End Assembly with Hard Pegging.
- You have the option to choose or decline calculating Available to Promise (ATP) on MPS planning.



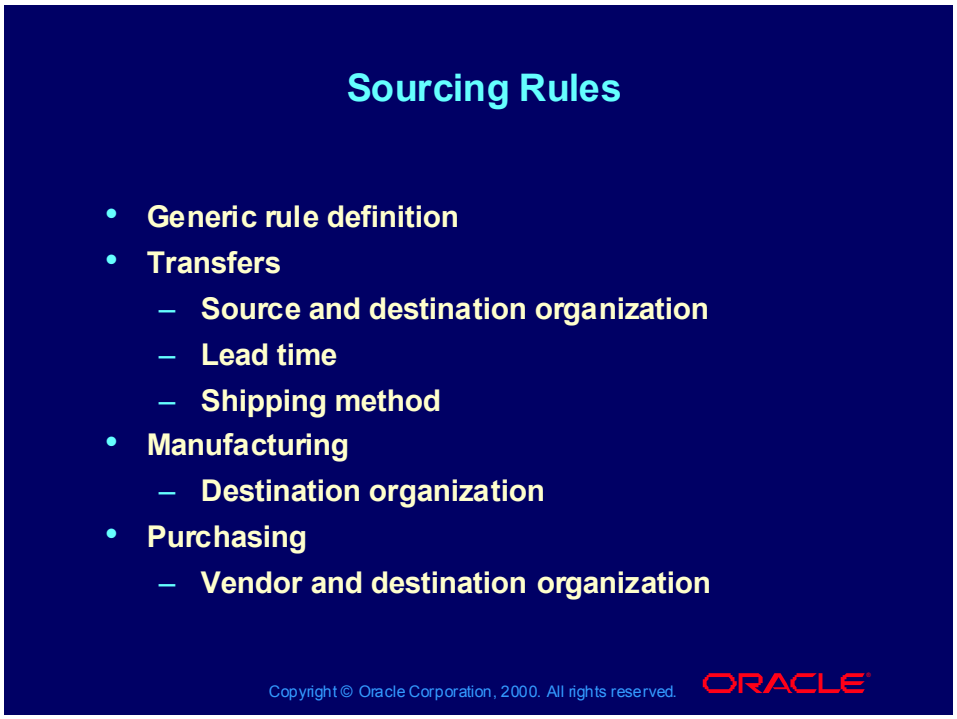
Setting Organization Item Attributes

- Lead Times tab: no action required
- Work in Process tab:
  - Build in WIP is selected
  - The Supply Type is Push
- Order Management tab:
  - Set Check ATP to
  - None: If there is no check for materials or resources
  - Material Only: If you only want to check for material availability
  - Resource Only: If you only want to check for resource availability
  - Material and Resource: If you want to check for availability of both materials and resources



Setting Organization Item Attributes

- Invoicing tab:
  The Sales Account number is correct
- Service tab: no action required
- Web Option tab: no action required



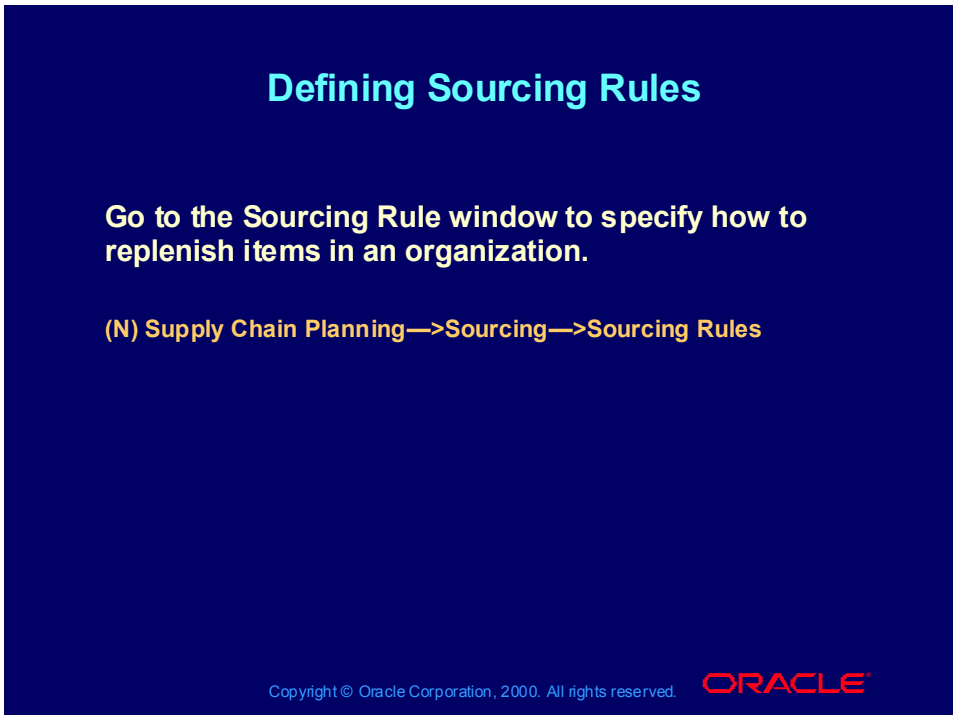
Defining Sourcing Rules

Using sourcing rules, you can define where you receive materials from.

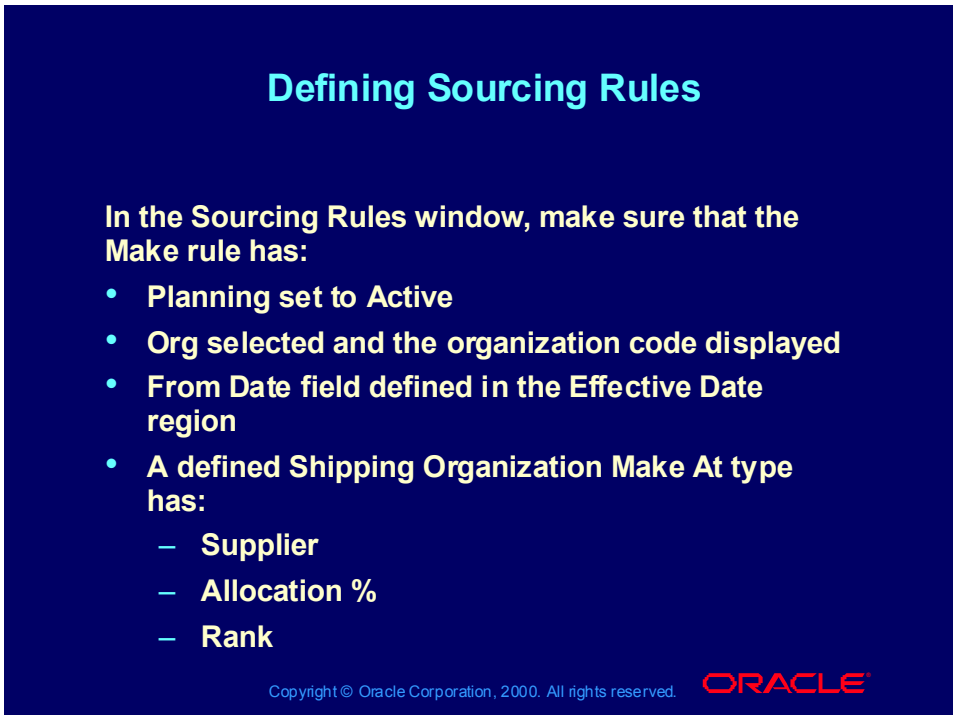
- When you transfer materials from an organization, you need to define the source and destination organization, the lead time, and the shipping method.
- When you manufacture materials, you need to define the organization that receives the manufactured items.
- When you purchase materials, you need to define the vendor that issues and the organization that receives the items.

Sourcing rules and bills of distribution determine the movement of material among organizations. These organizations include supplier, manufacturing, and distribution facilities. The total allocation percentage for all sources within a rank should add up to 100%. The sources with the highest rank (that is, the lowest numerical value) will have the highest priority in allocations. When sources of the highest rank have no more capacity, allocation will be performed for sources in the next highest rank, and so on.

Defining Sourcing Rules



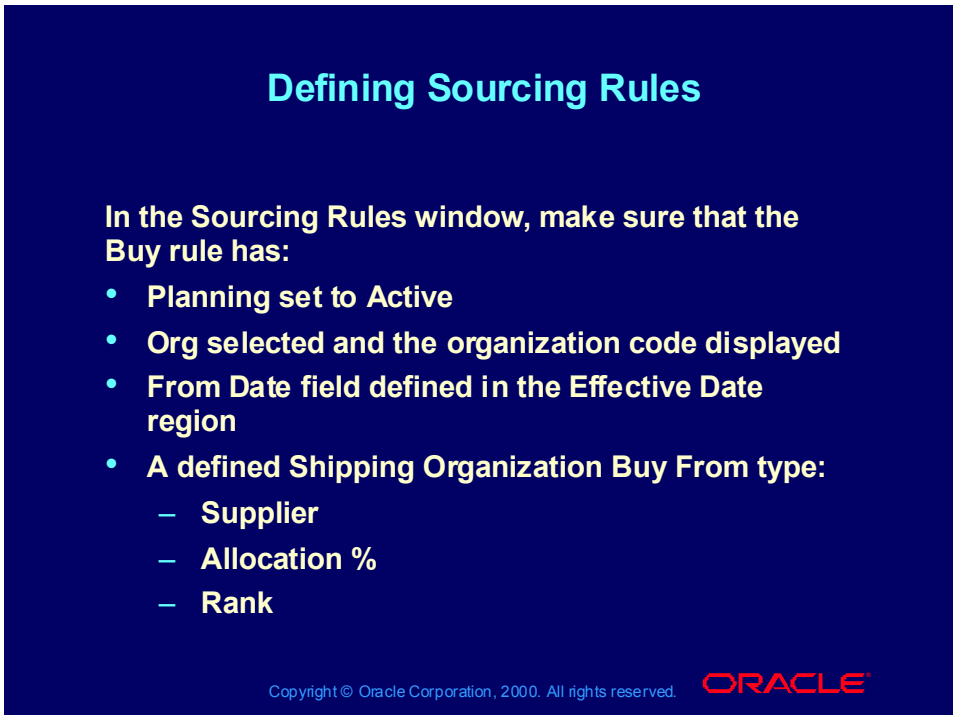
(Help) Oracle Manufacturing Applications > Oracle Master Scheduling/MRP > Supply Chain Planning > Setting Up and Implementing Sourcing Strategies > Defining Sourcing Rules



Defining Sourcing Rules

On the Sourcing Rules window, make sure that the Make rule has:

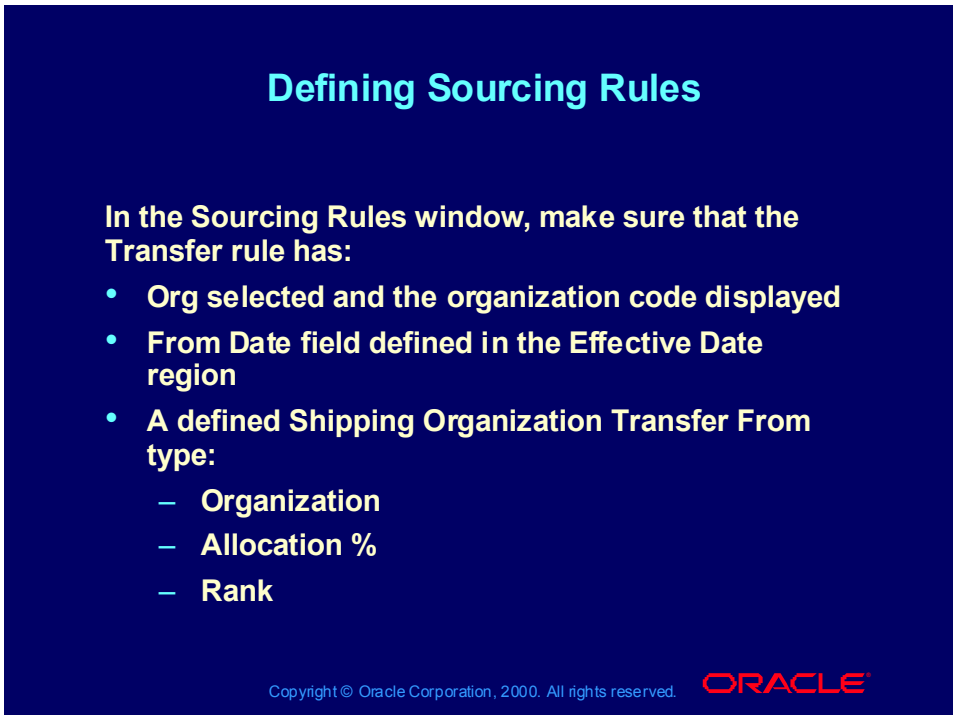
- Planning set to Active
- The Org option button selected and the proper organization code displayed
- The From Date field defined in the Effective Date region.
- A Shipping Organization Make At type with a defined:
  - Supplier
  - Allocation %
  - Rank



Defining Sourcing Rules

In the Sourcing Rules window, make sure that the Buy rule has:

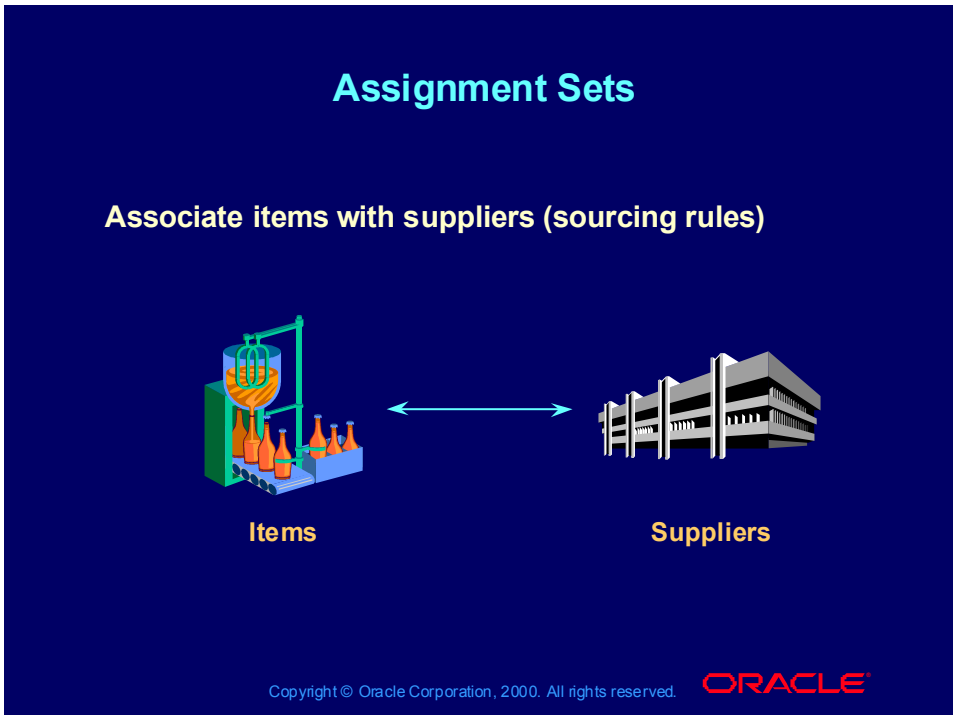
- Planning set to Active
- The Org option button selected and the proper organization code displayed
- The From Date field defined in the Effective Date region
- A Shipping Organization Buy From type with a defined:
  - Supplier
  - Allocation %
  - Rank



Defining Sourcing Rules

On the Sourcing Rules window, make sure that the Transfer rule has:

- The Org option button selected and the proper organization code displayed
- The From Date field defined in the Effective Date region
- A Shipping Organization Transfer From type with a defined:
  - Organization
  - Allocation %
  - Rank



Assignment Sets

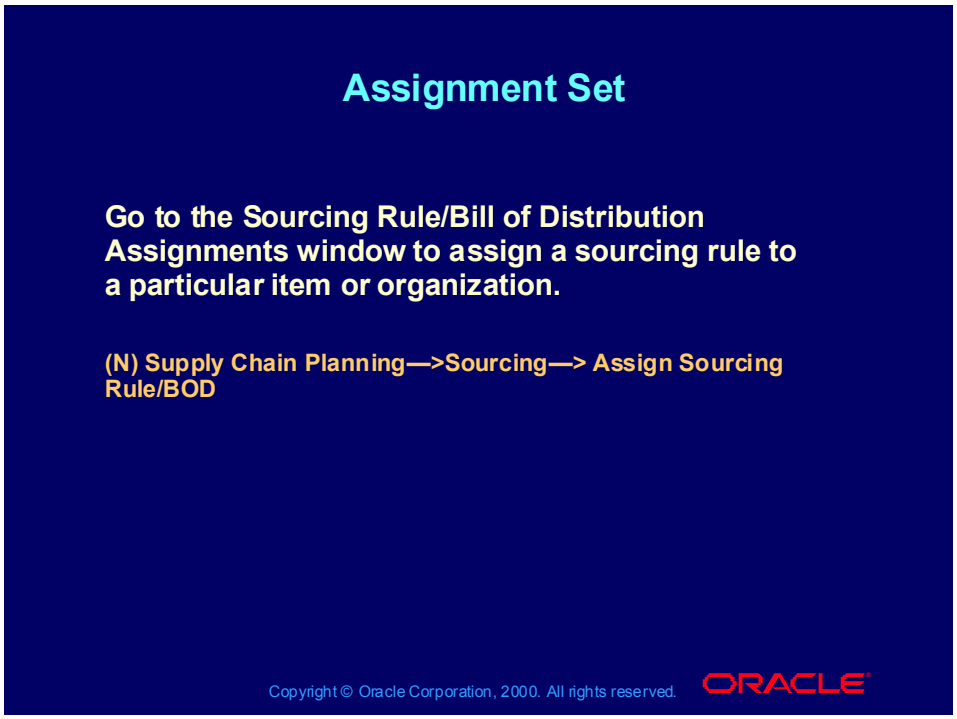
Supply chains can be different, even for the same item. Items need to be associated with their sourcing rules in an assignment set. In effect, the assignment set creates the sourcing and transfer links between organizations for a particular item.

You can model different supply chains by creating alternative assignment sets.

The assignment set to be used for generating a supply chain plan is specified in the planning options for the supply chain plan name. You can name and create several alternative supply chain plans, then use the Planner's Workbench to compare key performance indicators resulting from your alternative plans.

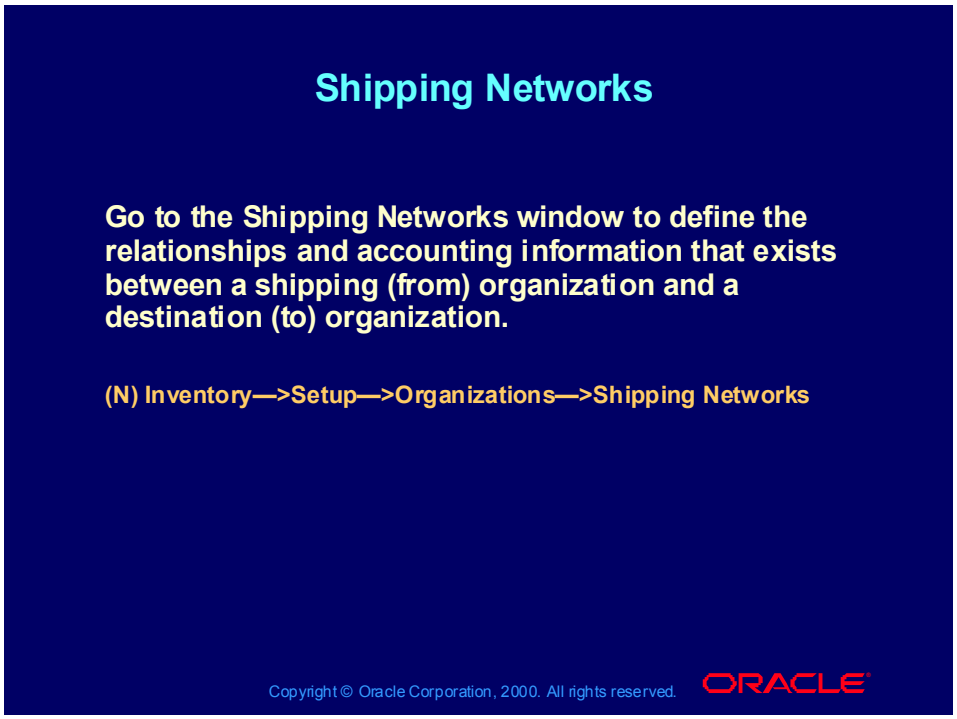
With assignment sets, you can combine many sourcing rules into a group, and source by item or by item/organization.

Assignment Set

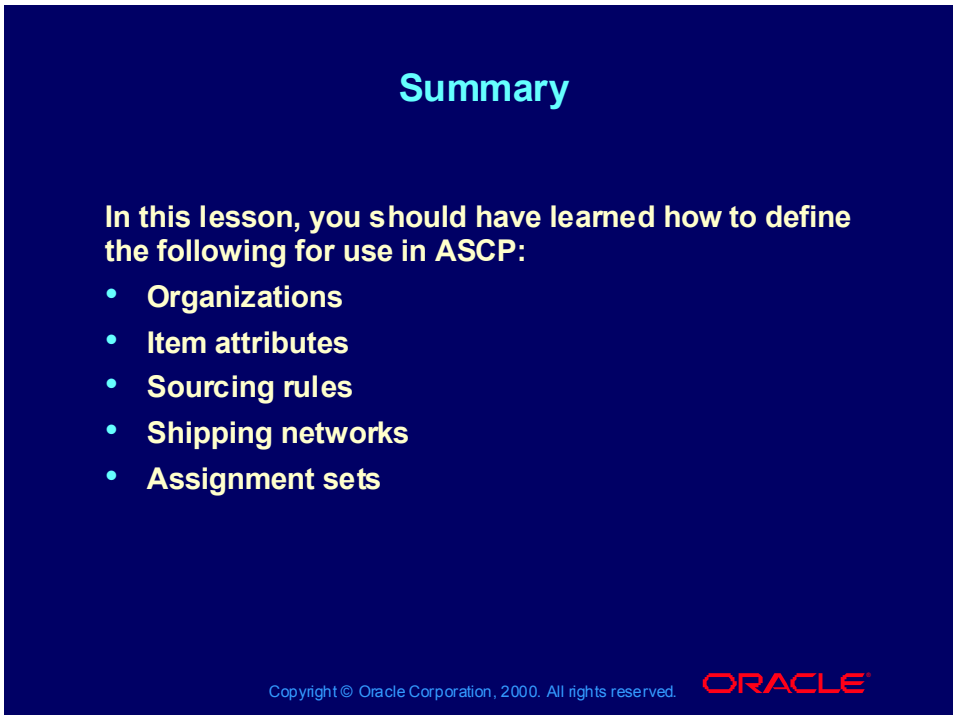


(Help) Oracle Manufacturing Applications > Oracle Master Scheduling/MRP > Supply Chain Planning > Setting Up and Implementing Sourcing Strategies > Assigning Rules and Bills

Shipping Networks

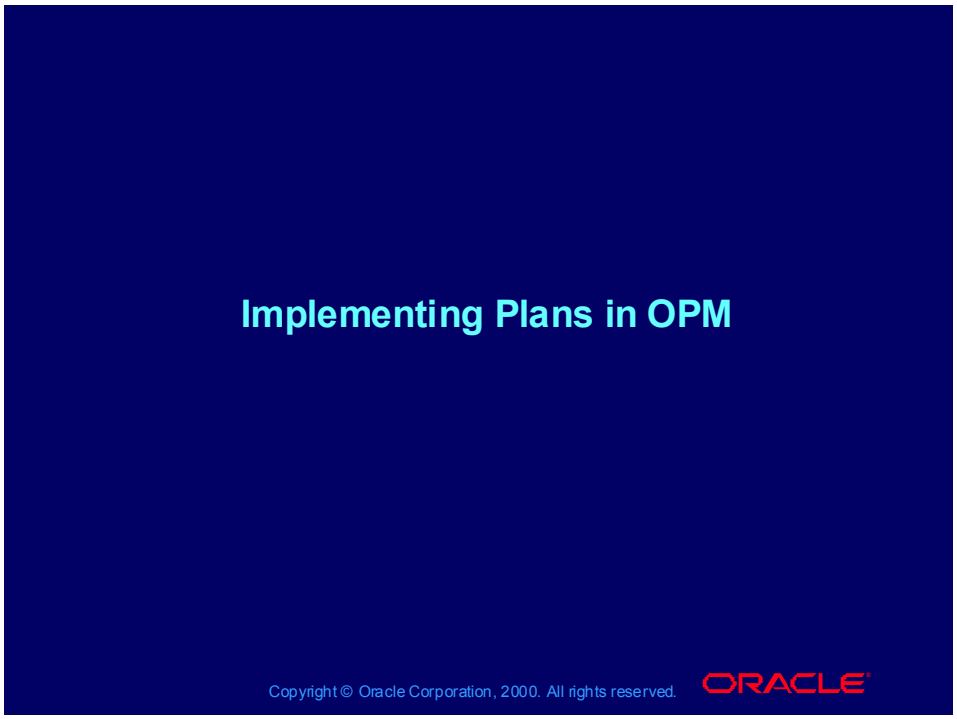


(Help) Oracle Manufacturing Applications > Oracle Inventory > Setting Up > Transaction Setup > Defining Inter-Organization Shipping Networks



Implementing Plans in OPM

Chapter 5



Lesson Topics

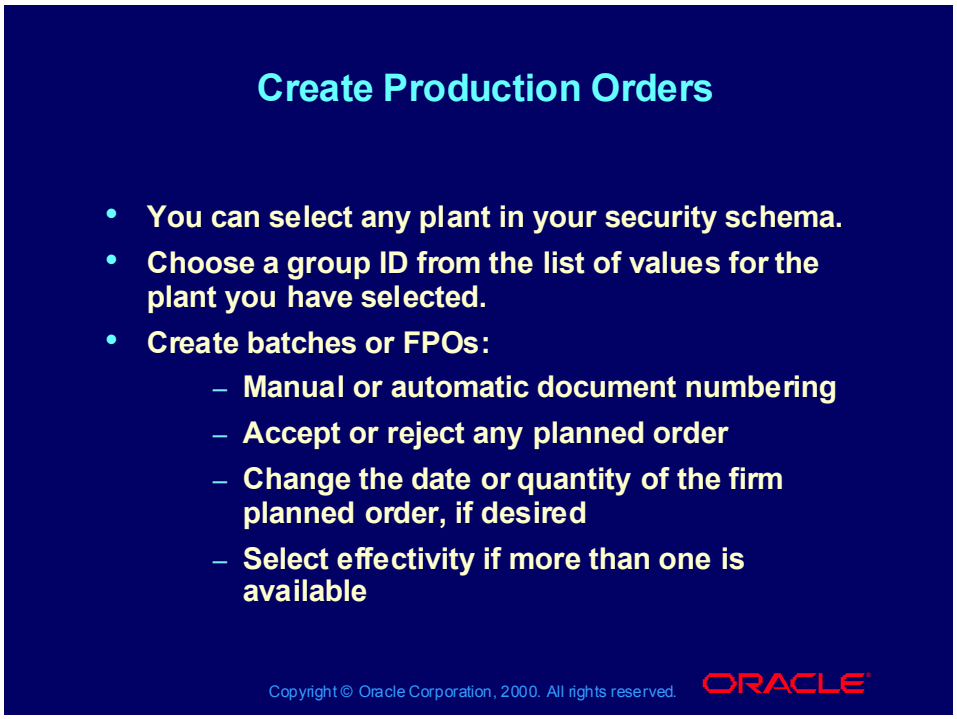
This lesson describes how you can implement the plans generated by ASCP.

Implementing ASCP Plans

The ASCP system calculates planning suggestions (either reschedule orders or the creation of purchasing or production orders) in ASCP, and you can selectively release these ASCP planning suggestions to OPM. For example, you can release suggestions by item or by inventory organization.

When the planning suggestions are released, the purchase orders are sent to Oracle Applications and the production orders are sent to OPM. For OPM, the planner has the option of executing some or all of the planning suggestions by creating either new production orders or rescheduled production order from the suggestions.

You can execute the planning suggestion release process from ASCP multiple times, but not for the same planning suggestions. Once planning suggestions have been released, you can not release them from ASCP again.

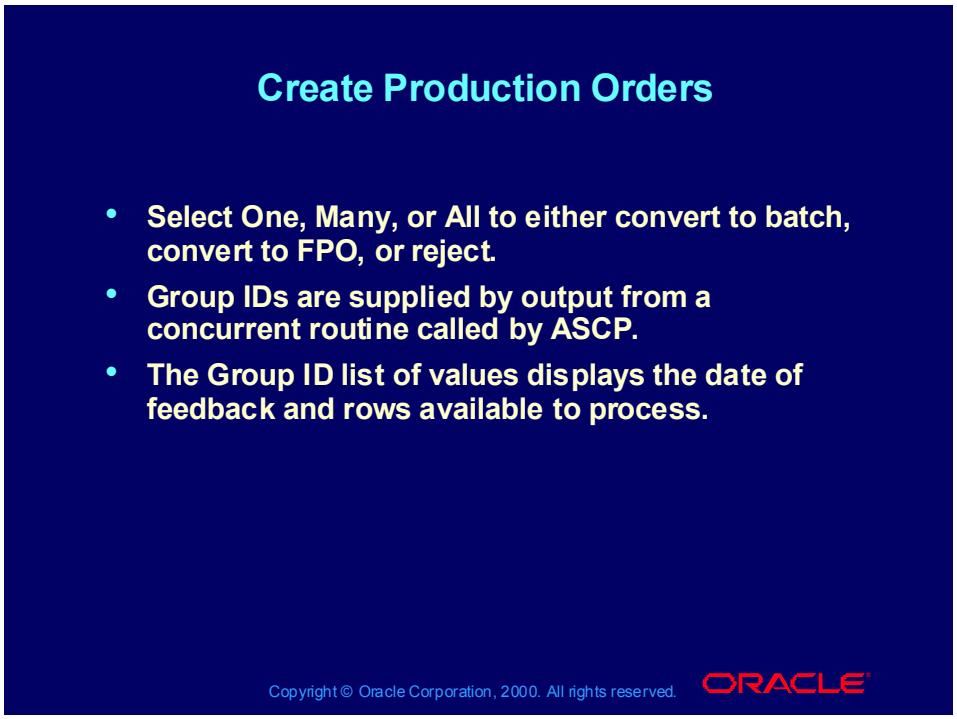


Production Orders

The process of creating production batches or firm planned orders (FPOs) from planning suggestions remains the same, regardless of whether the planning suggestion was created in ASCP or OPM. The following list describes the options you have when creating production batches or FPOs from planning suggestions:

- Manual or automatic document numbering
- The ability to reject any firm planned order
- The option of changing the date or quantity of the FPO
- The ability to select which effectivity is used if more than one is available

Any user can create production batches or FPOs from ASCP planning suggestions as long as the plant selected is listed in their security schema (User Organization window). To generate batches or FPOs, select a group ID from the list of values for a valid plant. You receive a group ID when you release a group of orders from ASCP.



Production Orders

You can convert planning suggestions to a batch or firm planned order one at a time, in groups, or all the suggestions in one group ID at once. You also have the option of rejecting the suggestions.

(Help) Oracle Manufacturing Applications > Oracle Process Applications > OPM Product Planning > Advanced Planning and Scheduling > Scheduling New Batches From MRP

... > Scheduling New Batches From Suggestions - Procedure

... > Imported Batches - Field References

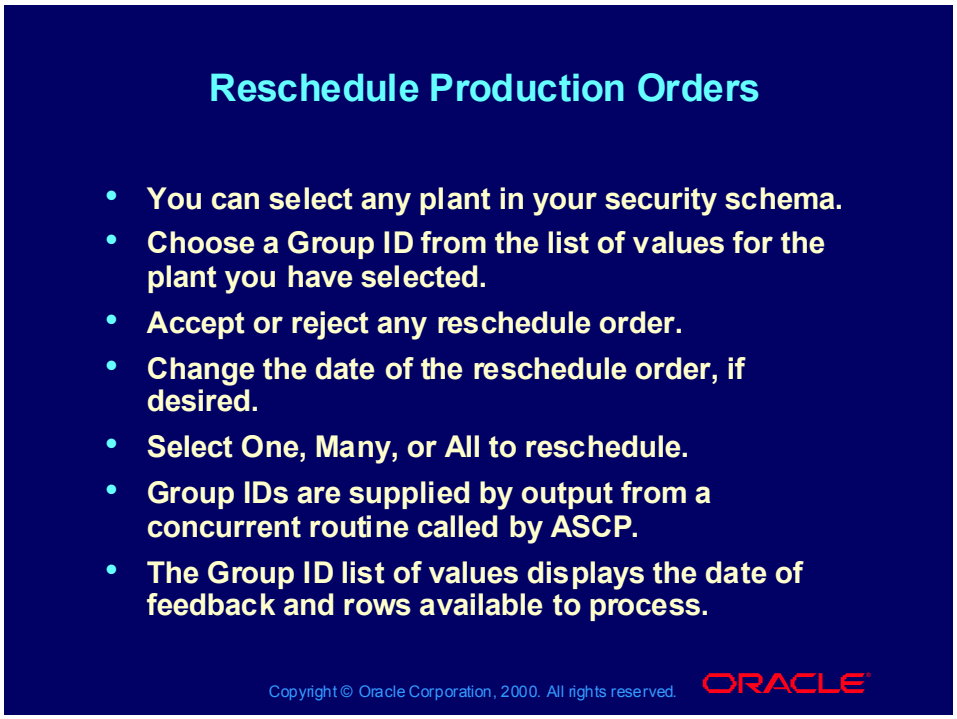
... > Imported Batches - Buttons

(Help) Oracle Manufacturing Applications > Oracle Process Applications > OPM Product Planning > Advanced Planning and Scheduling > Scheduling New Batches From MRP

… > Scheduling New Batches From Suggestions - Procedure

… > Imported Batches - Field References

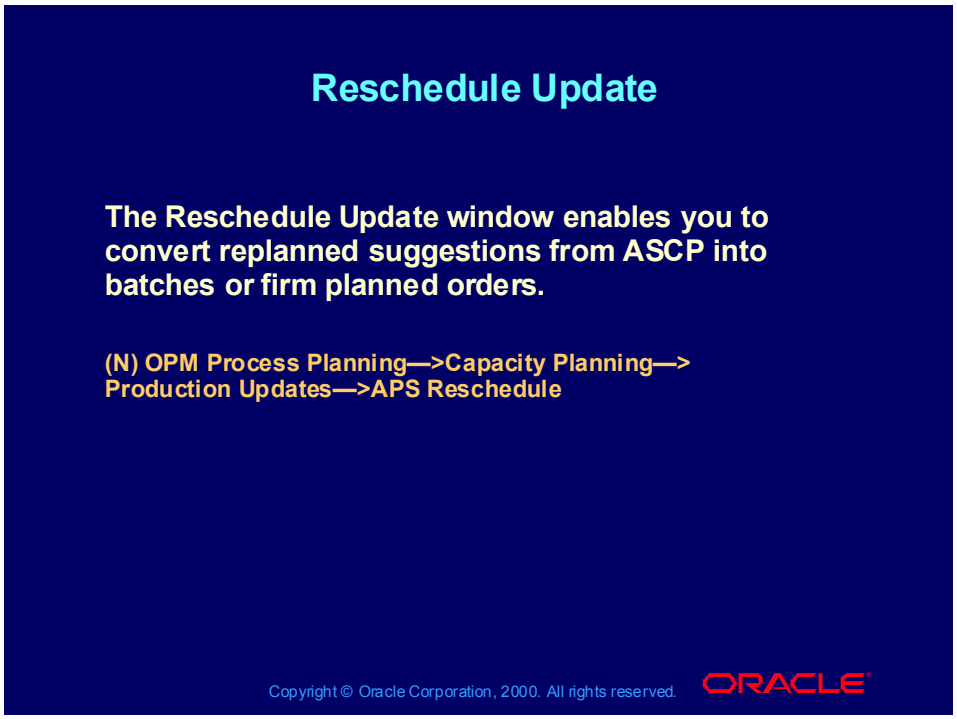
… > Imported Batches - Buttons



Rescheduled Production Orders

As your supply and demand changes, you need to reschedule existing production orders. The Reschedule Update window allows you to reschedule production batches and firm planned orders using the same method you used when releasing planning suggestions the first time.

Reschedule Update

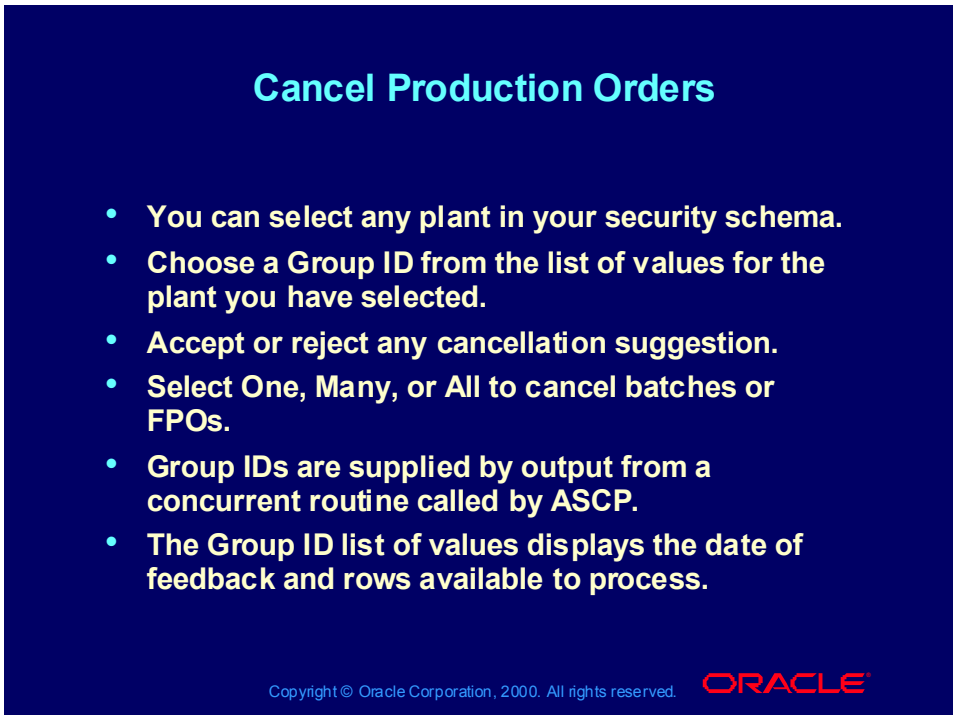


(Help) Oracle Manufacturing Applications > Oracle Process Applications > OPM Product Planning > Advanced Planning and Scheduling > Rescheduling Existing Batches

... > Rescheduling Existing Batches - Procedure

... > Reschedule Update - Field References

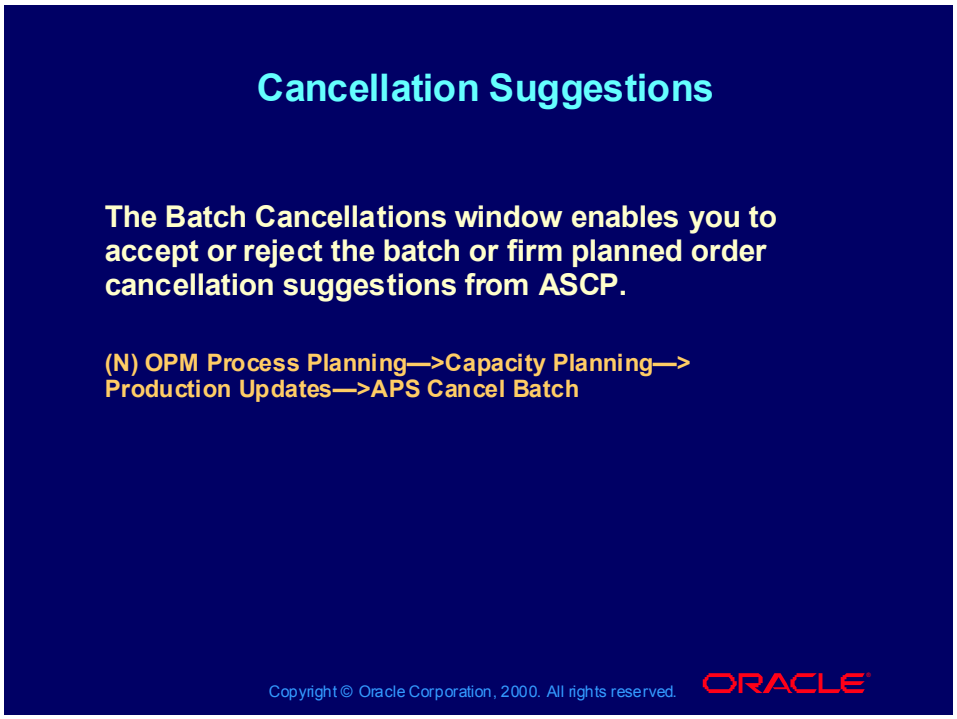
... > Reschedule Update - Buttons



Cancelled Production Orders

As your supply and demand changes, you may need to cancel existing batches or FPOs. The Imported Batches window allows you to view the cancellation suggestions and accept or reject them. Rejecting the cancellation suggestion schedules the batch or FPO.

Cancellation Suggestions

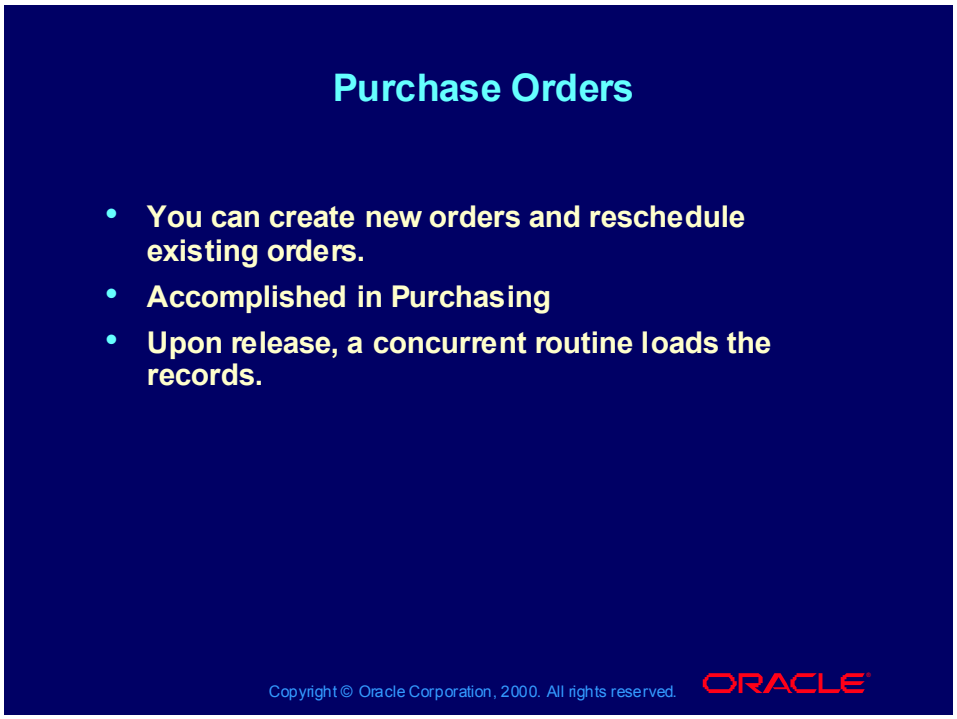


(Help) Oracle Manufacturing Applications > Oracle Process Applications > Oracle Process Manufacturing Process Planning > Advanced Planning and Scheduling > Using APS Data in OPM > Accepting or Rejecting Cancellation Suggestions

... > Accepting or Rejecting Cancellation Suggestions - Procedure

... > Batch Cancellations - Field References

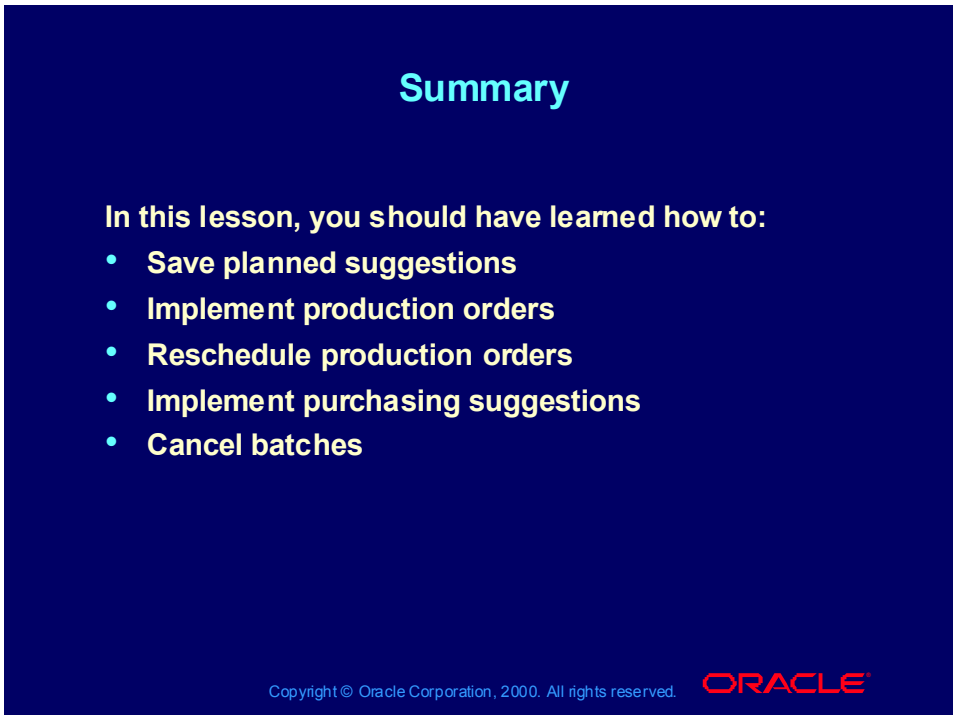
... > Batch Cancellation Buttons



Creating Purchase Orders

APS generates purchasing suggestions that can be approved and converted into purchase orders. The purchasing suggestions are released in ASCP. Once they are released, the new purchase orders are loaded into Oracle Purchasing.

For more information on creating purchase orders from ASCP purchasing suggestions, refer to the *Oracle Purchasing User's Guide*.



Course Summary

Chapter 6