



QAD Enterprise Applications  
Enterprise Edition

# **Training Guide Quick Start**

70-3227-2013EE  
QAD 2013 Enterprise Edition  
Workspace: 10USA > 10USACO  
March 2013

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# Change Summary

The following table summarizes significant differences between this document and the last published version.

| <b>Date/Version</b> | <b>Description</b>                                                                   | <b>Reference</b> |
|---------------------|--------------------------------------------------------------------------------------|------------------|
| March 2013/2013 EE  | Rebranded for QAD 2013 EE                                                            | ---              |
| March 2012/2012 EE  | Rebranded for QAD 2012 EE, edited for clarity and consistency, minor content updates | ---              |
| Sept 2011/2011.1 EE | Rebranded for QAD 2011.1 EE                                                          | ---              |





## **About This Course**

# Course Description

This course provides quick start training on QAD Enterprise Edition (QAD EE) by offering a very high-level overview of most of the core features of the QAD system. The quick start is for those who want to “hit the ground running” with the application software. This accelerated course provides a focused introduction to the fundamentals of the system and demonstrates how to apply the functionality to critical business processes.

The focuses on basic operational tasks lays a foundation for further training in more advanced functions. In this sense, you might think of the course as very broad but somewhat shallow. Training guides for the individual modules provide much deeper training within a narrower scope.

## Course Objectives

The overall objectives of the course are to provide a basic background in setup concepts and the processing of core business functions in QAD EE, such as:

- Basic Setup
- Purchasing
- Sales Orders
- Work Orders
- Planning

Each chapter includes a list of learning objectives for the topics covered in that chapter.

This course is not intended to take the place of implementation training or consulting. The complete body of knowledge needed to make the business decisions required for system setup and implementation are beyond the scope of this course.

The format for this course is designed for the classroom with each student completing their own hands-on activities that simulate how to use QAD Enterprise Edition to run a business.

## Course Benefits

The learner will obtain an overview of core QAD Enterprise Edition functionality.

## Audience

This course is intended for first-time users.

## Prerequisites

An understanding of basic manufacturing principles is beneficial.

## Course Credit

This course is valid for 30 credit hours and is typically taught in 5 days.

## Organization of Training Guide

This training guide has four main sections:

- System organization
- Setting up items and a manufacturing environment
- Processing transactions such as purchasing, work orders, and sales orders
- Planning

System organization provides a very high-level overview of how the system is organized, its modules, program types, and types of data. The other sections provide the core material of the course as they focus on how to set up and use QAD EE.

Each chapter in these sections is divided into these subsections:

- Overview and learning objectives
- Key concepts
- Example
- Review
- Exercise

Key concepts are discussed at the beginning of each chapter to familiarize you with processes, work flows, and terminology. For example, the chapter on Manufacturing Environment Setup discusses concepts related to work centers and routings.

## Example Background

The examples in this course are based on a hypothetical company named Quality Manufacturing International Incorporated (QMI). To illustrate the full range of features in QAD EE, QMI is set up as a multinational company headquartered in New York, NY (USA) with eight divisions located around the world.

QMI manufactures a wide range of products, typical of a variety of vertical markets including Medical Device, Electronics/Industrial, Consumer Packaged Goods, Automotive, Life Sciences/Pharmaceutical, and Food and Beverage. Manufacturing techniques include discrete, repetitive, and process.

These same products are produced at all of the company divisions around the world and sold to industrial companies, large distributors, medical suppliers, and directly to the consumer.

QMI takes advantage of shared services to manage their business relationships. QMI has relationships with customers and suppliers in all of the countries where a QMI division is located.

**Note** Throughout this course, various screen images may not display the exact data that is mentioned in the text. The content of the transaction detail will be correct. In the exercises, always follow the printed text.

## Virtual Environment Information

The hands-on exercises in this book should be used with the Enterprise Edition 2011.1 r01 - Training environment in the 10USA > 10USACO workspace

## Additional Resources

If you encounter questions or problems on QAD software that are not addressed in this book, several resources are available. The QAD corporate Web site provides product and company overviews. The Print Solution option on the opening page provides a means of compiling desired content into a document specialized to your industry, business implementation, and needs.

<http://www.qad.com/>

From QAD's main site, you can access QAD's Learning or Support sites.

### QAD Learning Portal

To view available training courses, locations, and materials, use the QAD Learning Portal. Choose Education under the Global Services tab to access this resource.

### QAD Support

To access release notes, user guides, installation and conversion guides by product and release, visit the Support site. Support also offers an array of tools depending on your company's maintenance agreement with QAD. These include the Knowledgebase and direct links to QAD Support experts.

Choose Visit Online Support Center under the Support tab.

Any QAD customer can register for a QAD Web account by accessing the Support Web site and clicking the Accounts link at the top of the screen. Your customer ID number is required. Access to certain areas is dependent on the type of agreement you have with QAD.

# QAD EE User Interface

This chapter provides information on the features of the QAD Enterprise Application user interface and how to navigate in the system.

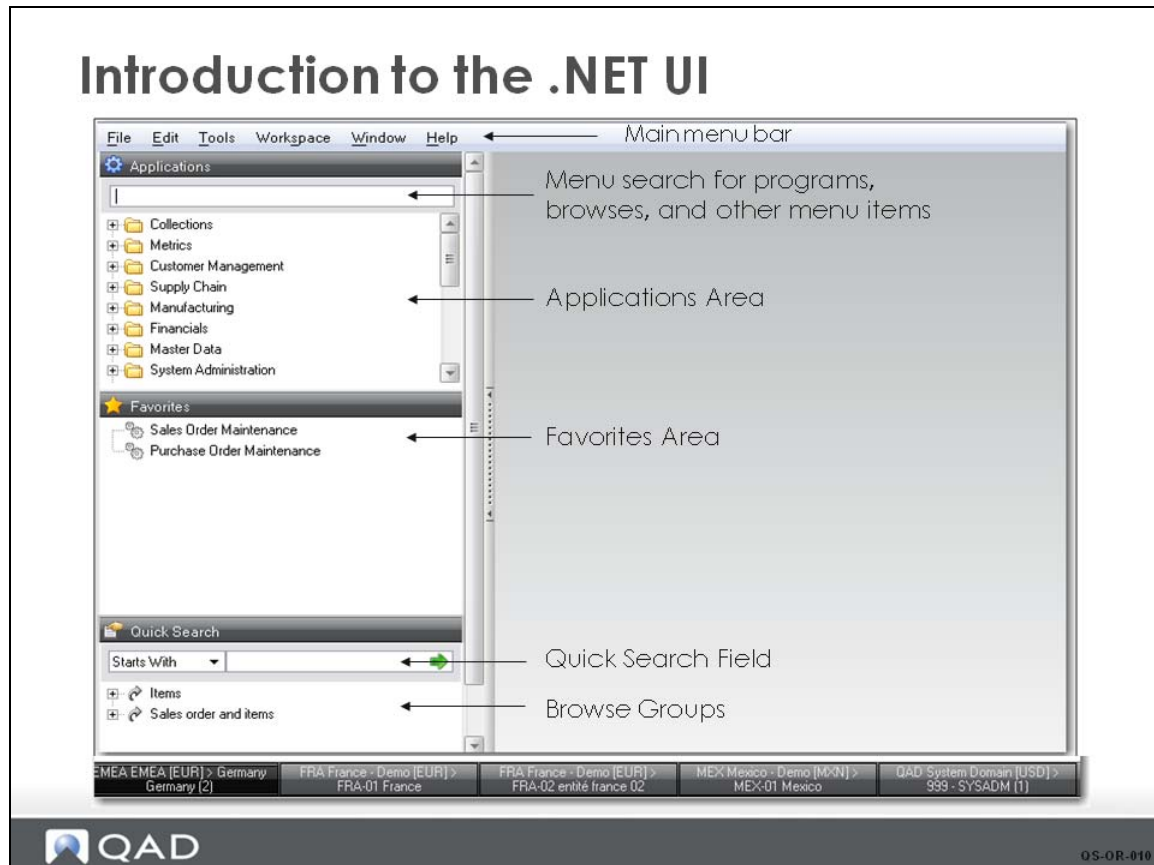
*Introduction to the .NET UI*

*Introduction to QAD EE Modules*

*Types of Programs and Data in QAD EE*

*Exercise 1*

## Introduction to the .NET UI



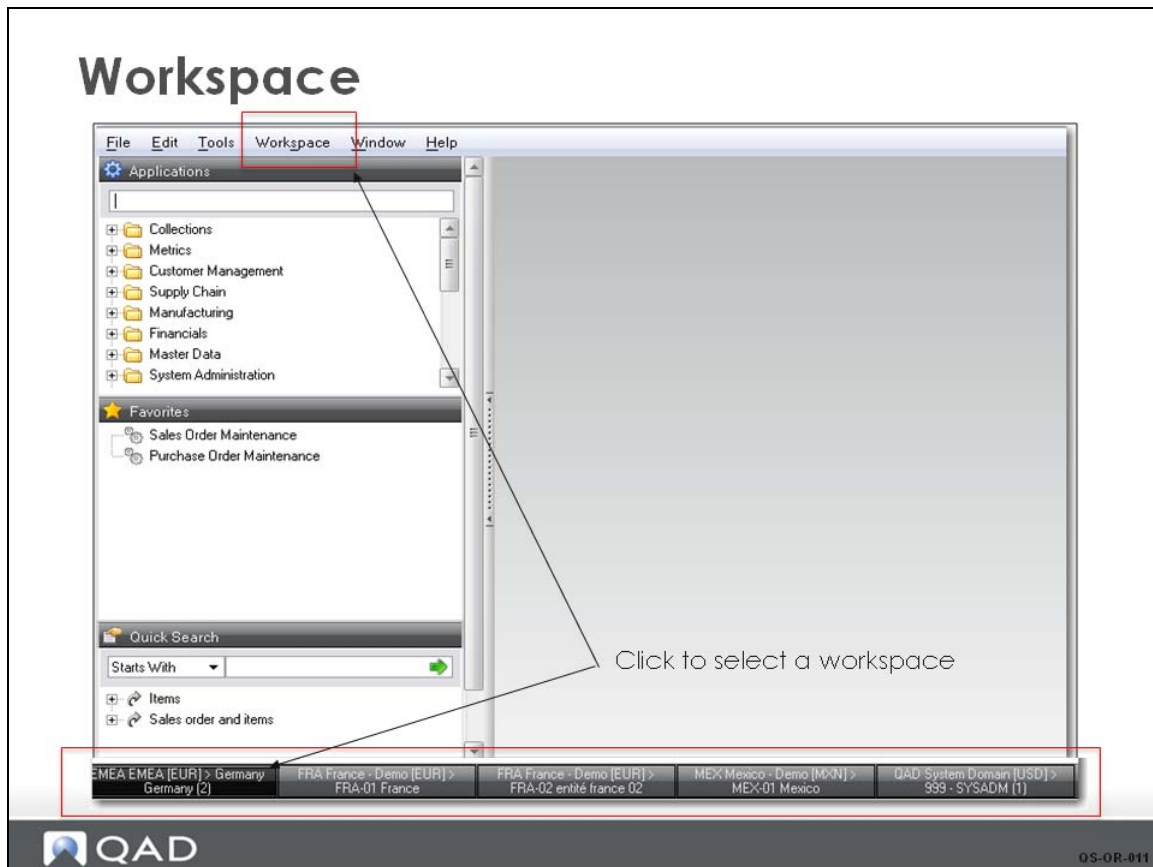
The QAD .NET User Interface (UI) provides a common framework for multiple QAD applications. This framework, based on Microsoft .NET technology, has excellent performance and provides best-practice usability and deployment features, as well as extensive ways for users to adapt the UI to their preferred work style.

When you first log into the .NET UI, you see a screen like the one above.

- The Main menu bar includes selections for file, edit, tools, workspace, window, and help.
- The Menu search helps you locate programs to run.
- The Application area displays the application programs that are running in the QAD .NET UI.
- The Favorites area can be customized by each user to list frequently used screens.
- Quick search area lets you search for a value across all of the fields in a browse.
- Browse groups are user created to support quick searches.

**Note** If you are not familiar with the .NET UI interface, you should review the *Training Guide: .NET UI User Interface*.

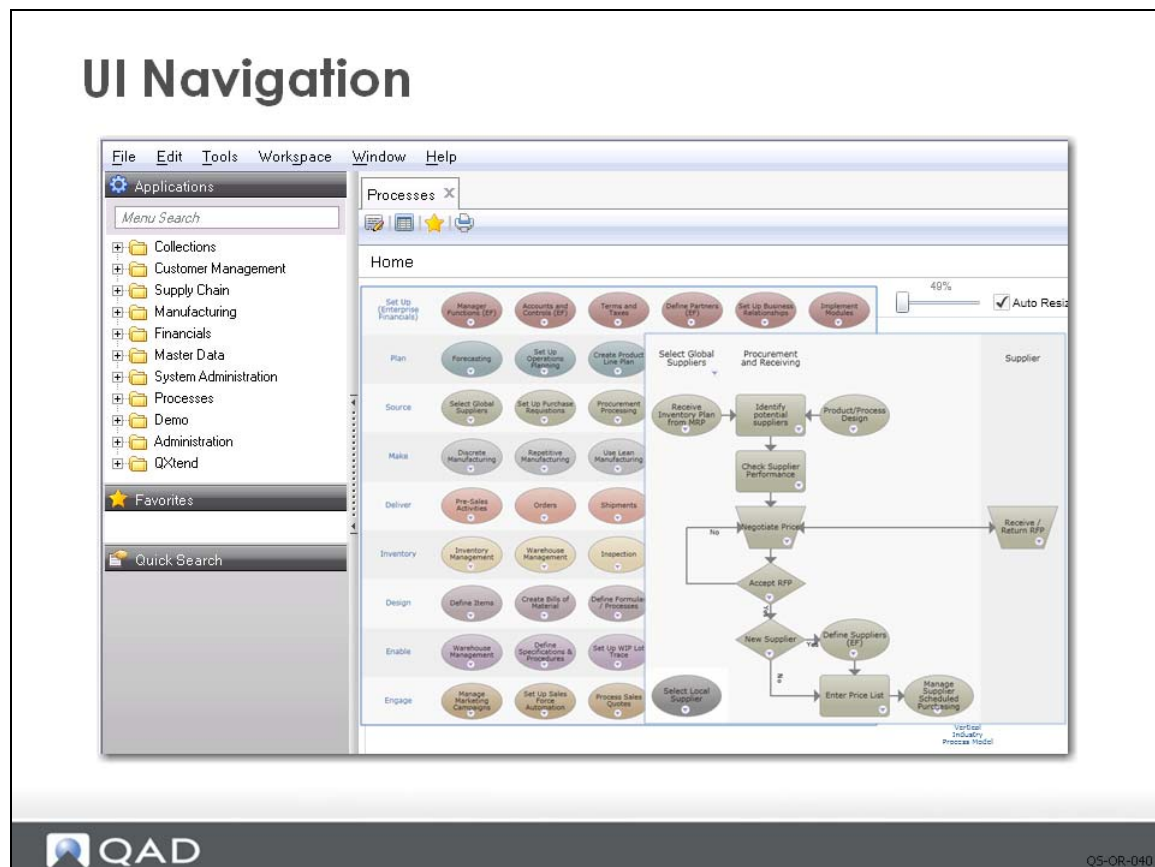
## Workspace



In the .NET UI, your application context is determined by a combination of domain and entity, called a workspace. The next chapter introduced the business model concepts, including domains and entities, in more detail. They basically represent the area of your business where you are working. Most users only use one workspace and once selected, it is always active by default.

With the workspace selector toolbar along the bottom of the screen, you can quickly change workspaces and domains.

## UI Navigation: Process Maps



The .NET UI provides many ways to navigate and find programs you are interested in.

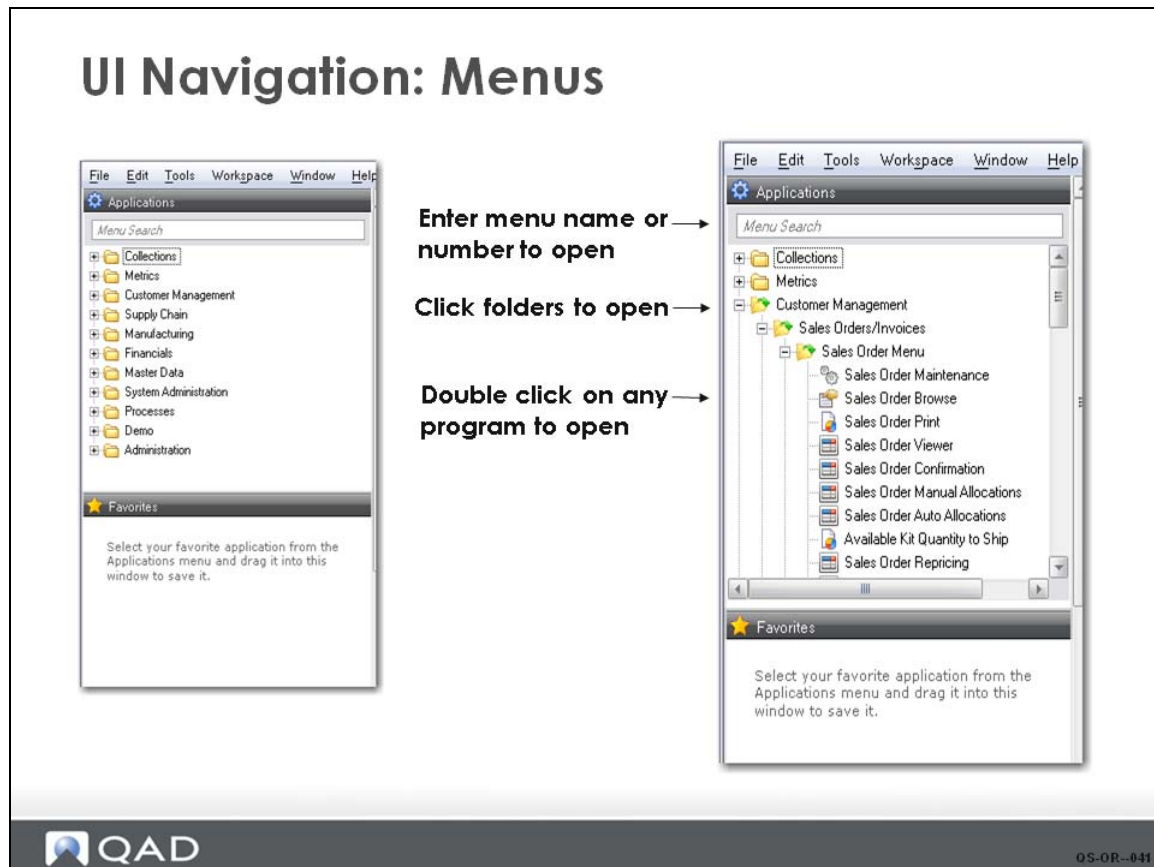
This screen shows how to use process maps, which are graphical models of workflows that link to programs, browses, and other process maps using advanced features of .NET technology.

Process map nodes provide drill-down navigation to individual programs within process flows.

You can also select programs from the menu on the left or enter a program name or number the search field.



## UI Navigation: Menus



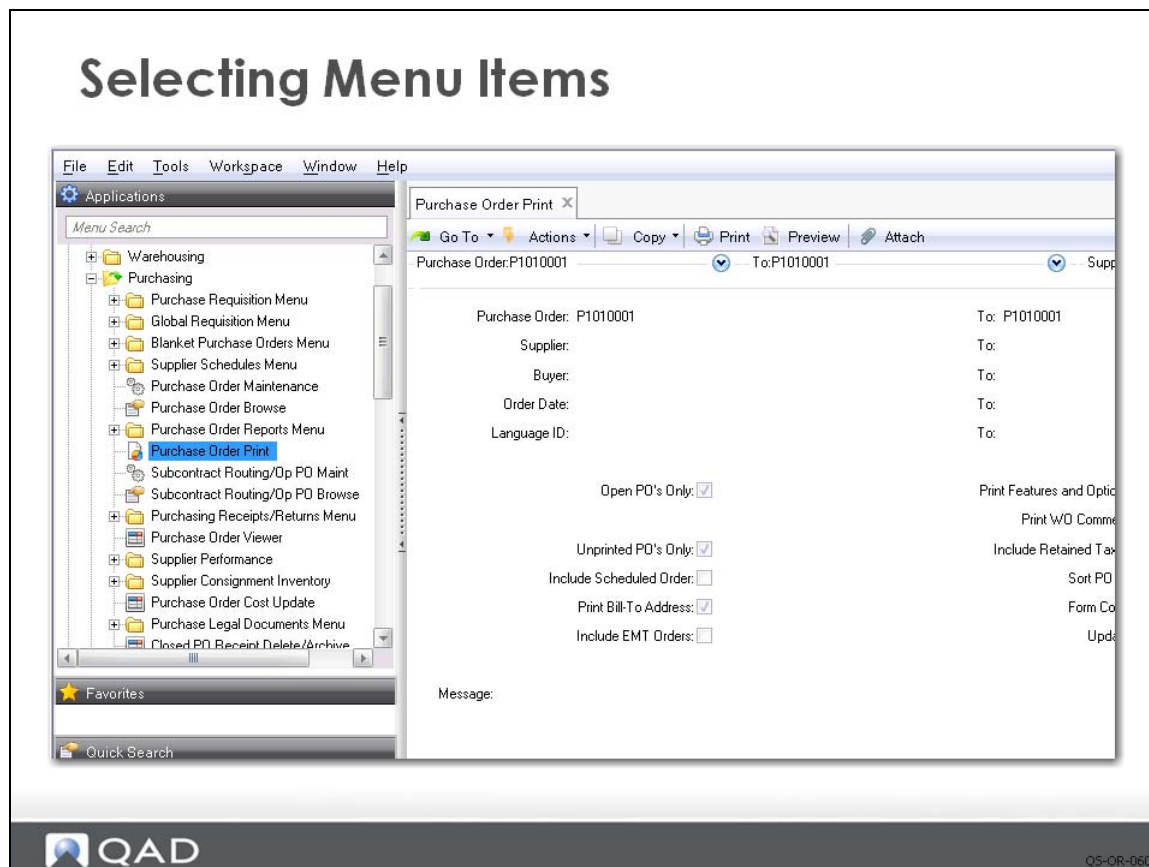
When the system is installed, the default menu organization is automatically loaded. The first menu in QAD EE is the main menu, which groups functions into application-related sections. Each menu folder contains other folders or menus of related business activities called modules.

This example of the menu structure shows the indented format of subfolders and items. Under the Customer Management folder is the Sales Orders/Invoices folder. It contains other folders for various functions required to manage sales orders and related functions such as Customer Schedules and Shipment Processing.

**Note** The menu structure for QAD EE has been significantly revised from the QAD Standard Edition. If you are upgrading from a standard version of the system, you will want to familiarize yourself with the new menu structure. Enterprise Financials are completely revised from previous releases. User guides and training guides exist for Enterprise Financials for those who require in-depth knowledge of the new financial functionality.

In order to provide enhanced separation of activities, most of the financial control settings are now updated separately from operational controls. For example, Sales Order Control (7.1.24) under the Sales Order menu in Customer Management now has only the operational control settings for sales orders. All of the financial control settings for sales orders are in Sales Order Accounting Control (36.9.6) under the Operational Acct Controls Menu in System Administration.

## Selecting Menu Items



You use the mouse to select menu items. You can execute a program by:

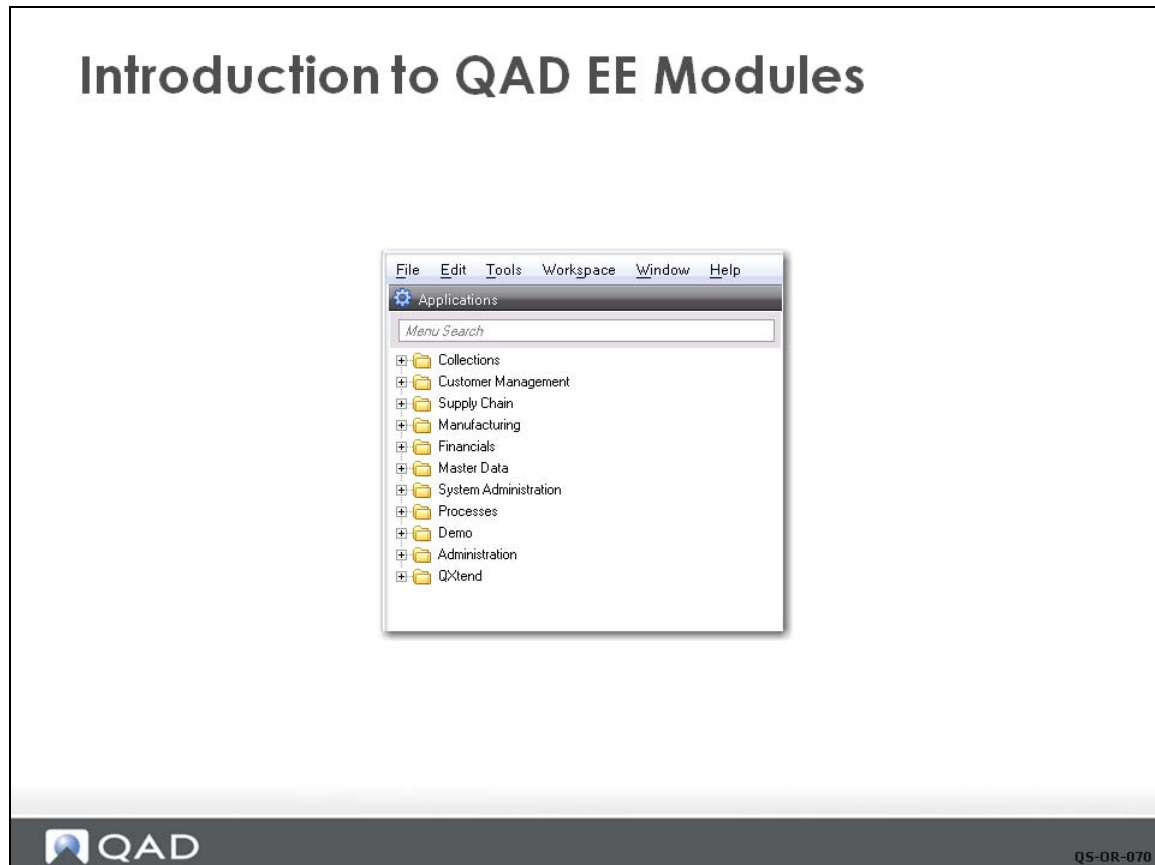
- Clicking on the menu folders until you find the program in the menu and then double-clicking on its name. You can single-click the plus or minus sign to toggle the folder open or closed or double-click the folder icon directly.
- Double-clicking on a discrete functions, such as Purchase Order Maintenance to open the functional screen in the main window.
- Entering part of its name in the Menu Search field. For example, enter sales to display all menu labels that include the word sales.

Experienced users can also find menus by number and program name, but most users find the search easiest. This guide assumes you are using menu names but menu numbers are provided when a function is first introduced. When typing in the menu search area, different screens appear as the typing continues until the proper screen is located. This is called predictive text.

The window uses tabs and lets you open multiple functions at one time. You can toggle between the functions by clicking on the tabs. Close a tab by mouse clicking the X in the tab corner.

Note the Favorites section below the menu listing. You can create your own unique menu of frequently used functions by dragging the icon of a menu item from the main list into the Favorites section.

## Introduction to QAD EE Modules



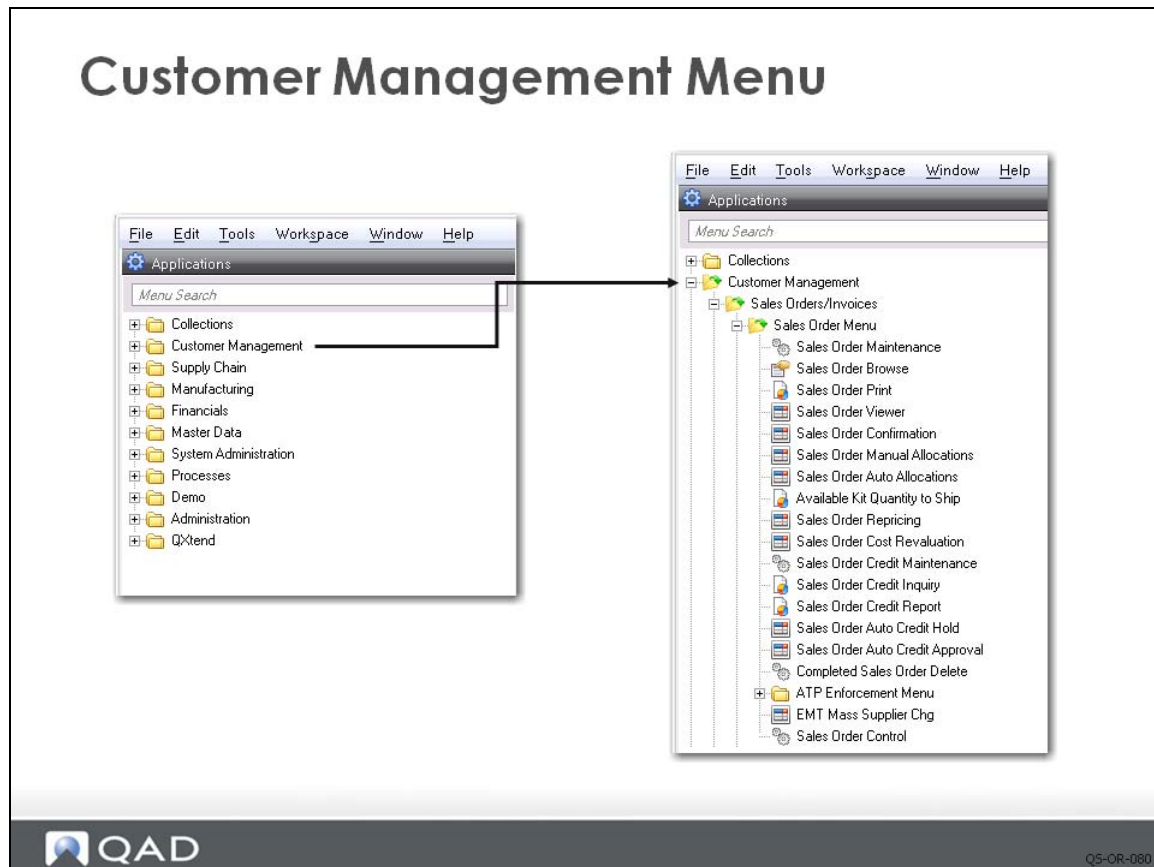
The main menu in QAD EE has seven application-related sections: Customer Management, Supply Chain, Manufacturing, Financials, Master Data, System Administration, and Administration. The figure above shows this top-level menu in the e.NET UI user interface.

Each folder contains groups of related business activities called modules and individual programs.

The next few pages provide a quick look at these seven main menus and the modules each contains. This course covers only a very small portion of QAD EE application functionality. The system includes many more capabilities than can be covered here. In-depth, module-based training is provided by other QAD classes; information and schedules can be accessed on the QAD Web site.

Within each of the seven sections of the main menu are several top-level menu items. Each of these menu items represents a module.

## Customer Management Menu

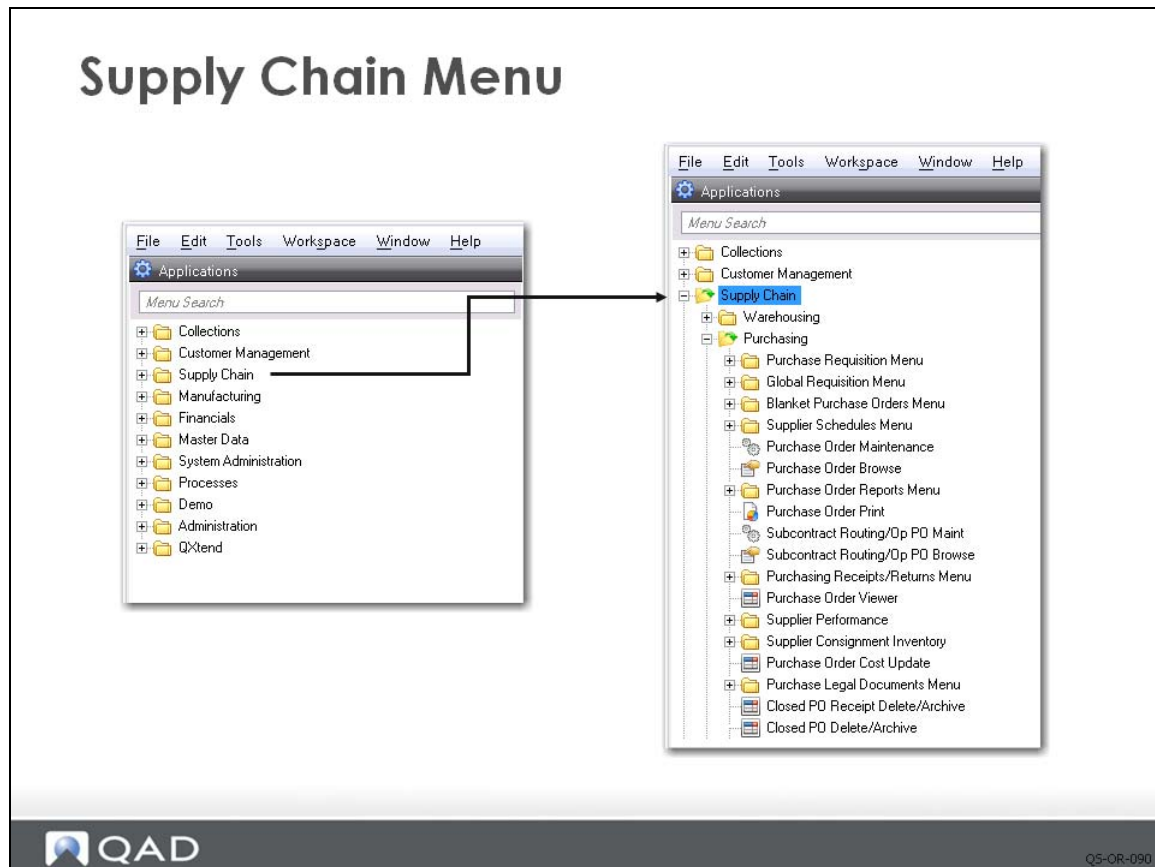


The Customer Management menu contains the menu folders needed to manage all aspects of your customer relations.

The three major subdivisions under Customer Management are Sales Orders/Invoices, Configured Products, and Service/Support. As shown, both Sales Orders/Invoices and Service/Support have many subfolders or menus under them.

This course covers an overview of the Sales Order and Invoicing functions and a simplified shipment process. Other functions such as Sales Quotes, Customer Schedules, Containerization, Consignment Inventory, Configured Products, and Service/Support are covered in detail in their respective training guides. While these topics are not included in this course, a good understanding of the information presented here is prerequisite to learning to use these more advanced functions.

## Supply Chain Menu



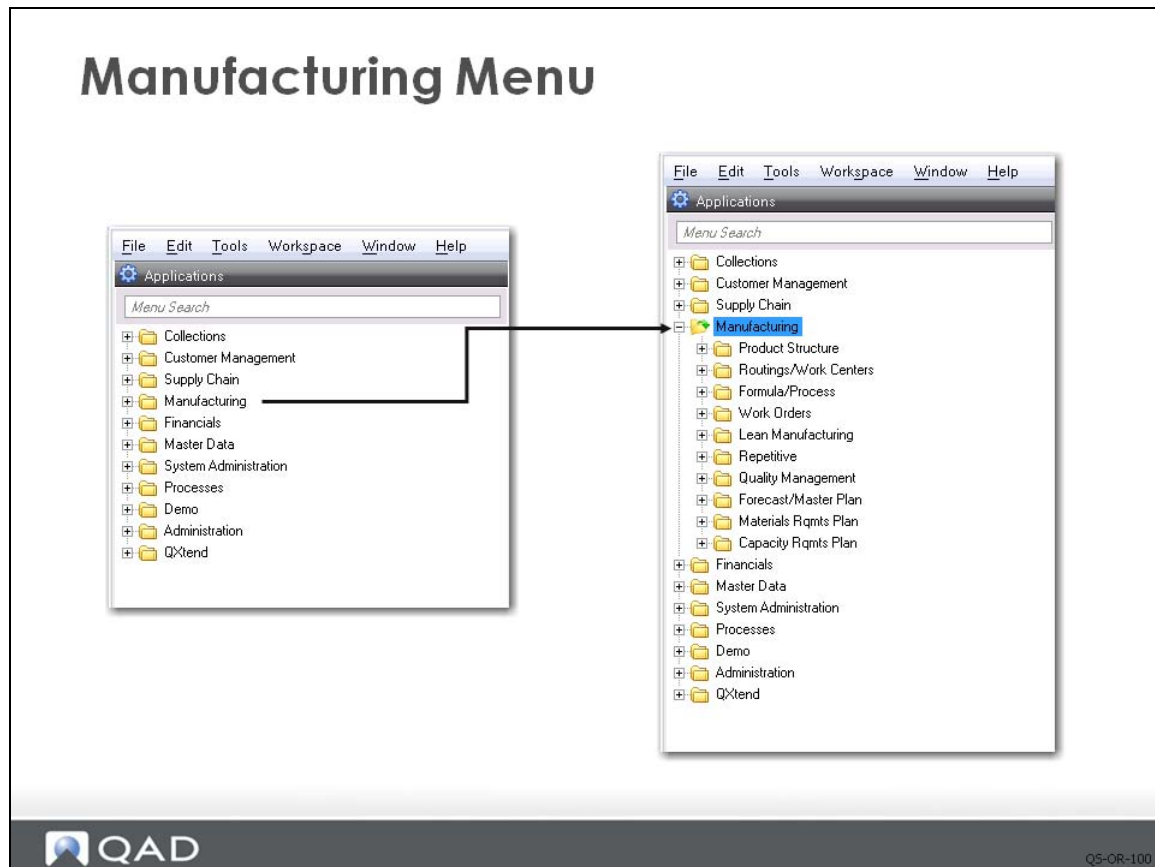
Supply chain management is the process of planning and controlling the movement of goods and information from suppliers and multiple company sites through the manufacturing and distribution processes to the customer.

Modules in the Supply Chain menu are: Warehousing, Purchasing, Distribution Plan, Product Line Plan, Resource Plan, Operations Plan, and EDI eCommerce. The activities in these modules are focused on planning so they have significant system-wide impact.

Modules in this section support traditional purchasing functions and supply chain planning practices—distribution, product line, resource, and operations—as well as electronic data interchange (EDI) transactions using EDI eCommerce, which is typically used to support supplier schedules as well as other functions.

This course covers basic purchasing activities. Other supply chain functions are all covered by separate courseware and are not covered in this course.

## Manufacturing Menu

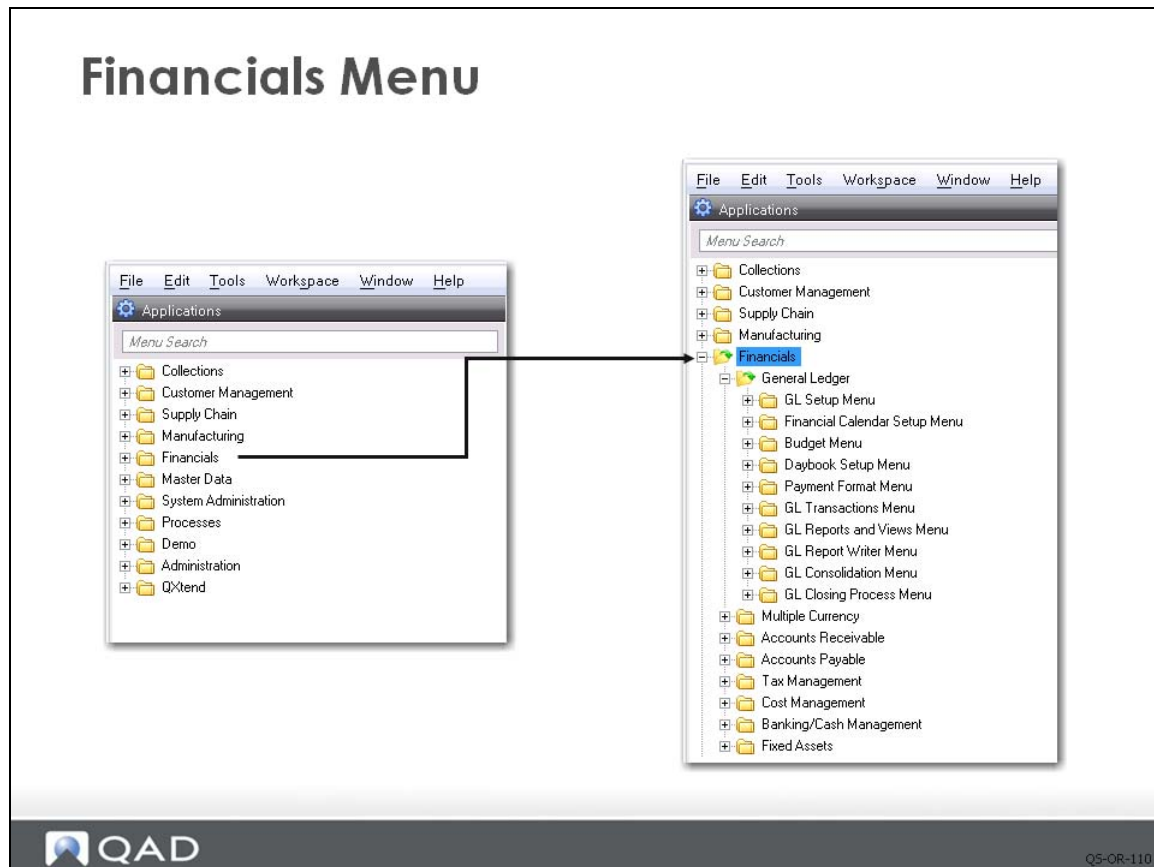


Manufacturing modules manage internal supply and demand. Components and raw materials are moved out of inventory into production (WIP). Work orders process these materials and return them to stores or finished goods inventory locations, or components are moved from production into inventory.

Modules in Manufacturing are: Product Structures, Routings/Work Centers, Formula/Process, Work Orders, Shop Floor Control (which includes Flow Scheduling and Kanban), Repetitive, Quality Management, Forecasting/Master Schedule Planning, Material Requirements Planning (MRP), and Capacity Requirements Planning (CRP).

This course provides an overview of activities in the Product Structures, Routings/Work Centers, Work Orders, Shop Floor Control, Forecasting/Master Schedule Planning, and MRP modules.

## Financials Menu



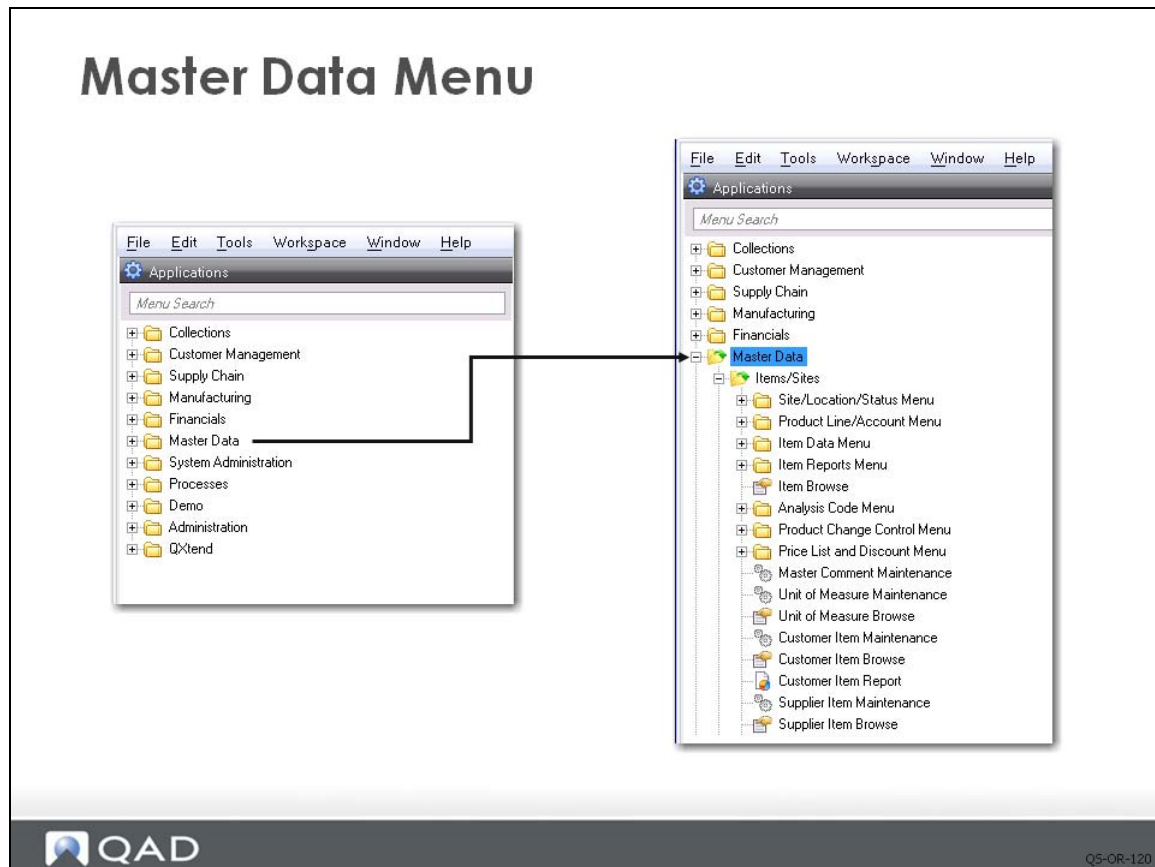
The introduction of Enterprise Financials with QAD Enterprise Edition has significantly enhanced the functionality of the QAD financial modules and also has had some impact on the system setup. While this course does not deal with the financial aspects of the system directly, it does reflect the differences in setup procedures.

Financial modules support financial activities of the business and set up the financial aspects of system administration:

- General Ledger, Accounts Receivable, and Accounts Payable track the financial effects of activities in other modules.
- Multiple Currency, Tax Management, Banking, and Cash Management are used primarily to set up financial data used during financial transactions.
- Cost Management, while having some setup features, is used primarily for cost planning and tracking.
- The Fixed Assets module manages the company's fixed assets from acquisition to retirement.

This course discusses various aspects of the General Ledger, Accounts Receivable, and Accounts Payable modules, generally as they relate to sales and manufacturing activities. Only broad concepts and tasks needed for system setup are covered. Detailed courses are provided on Enterprise Financials, as well as some of the specific modules such as Fixed Assets and Cost Management.

## Master Data Menu

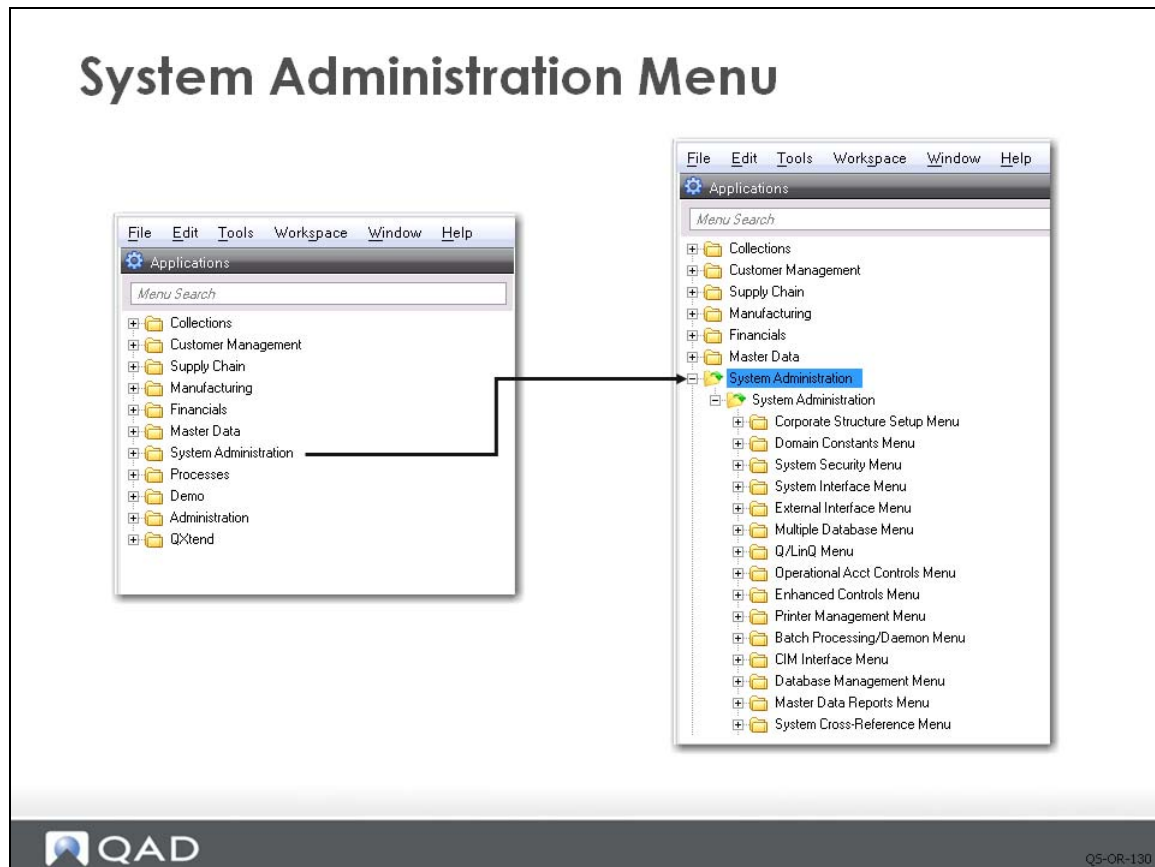


Use the modules in Master Data to set up basic business information including item codes, site codes, and inventory control information. Basic address information is defined in Financial setup activities. You use the Master Data Addresses module to define additional operational information about customers, suppliers, and salespersons used during sales and purchasing activities. You also define codes associated with these activities such as country codes and freight charges.

This course covers activities in the Items/Sites, Addresses, and Inventory Control modules.



## System Administration Menu

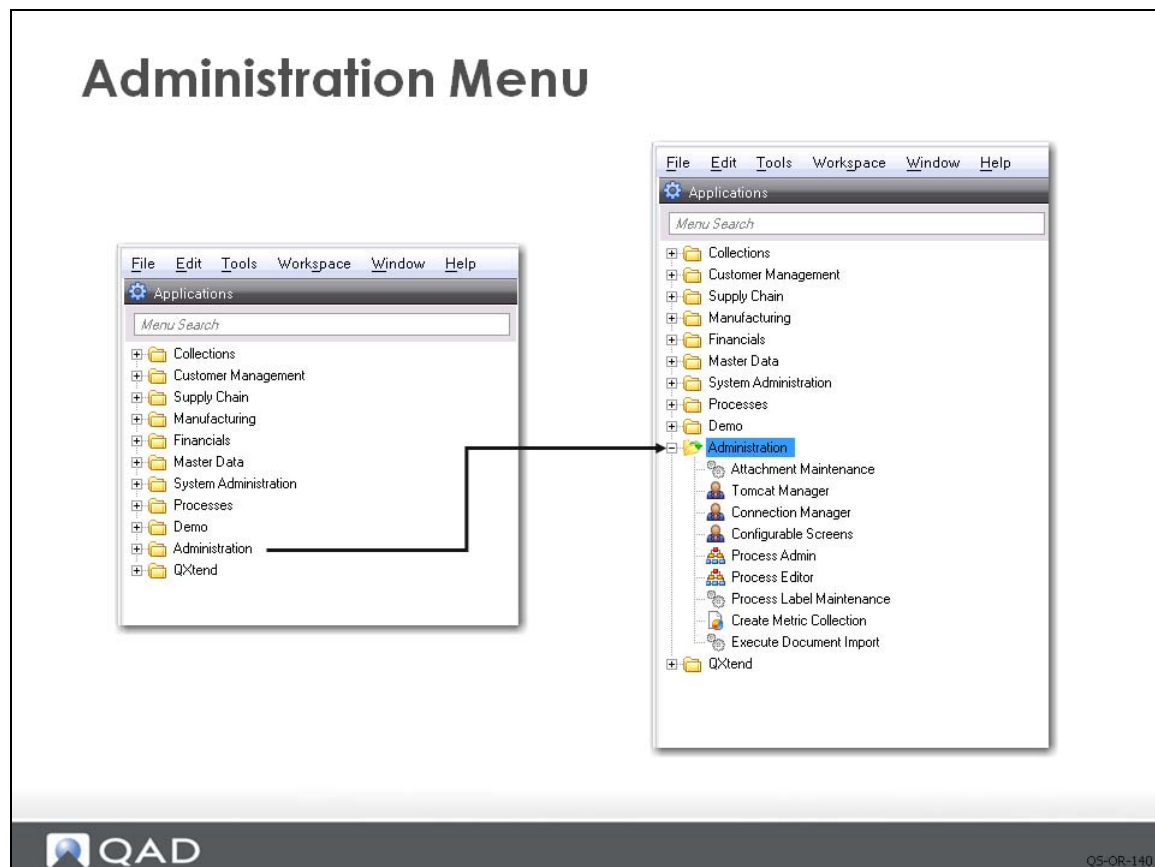


The System Administration menu contains many submenus or folders. Most of these are related to the technical administration and setup of the system hardware, software, security, and communications. These activities are beyond the scope of this course. Most users will not have access to these modules.

The Domain Constants menu does have several user-defined functions that are discussed in this course. While the individual user may not have access to these functions, it is important to understand the concepts behind them. This module contains the work day and holiday calendars, reason codes, generalized code validation tables, and sequenced number ranges for various documents. Several of these are covered in this course.

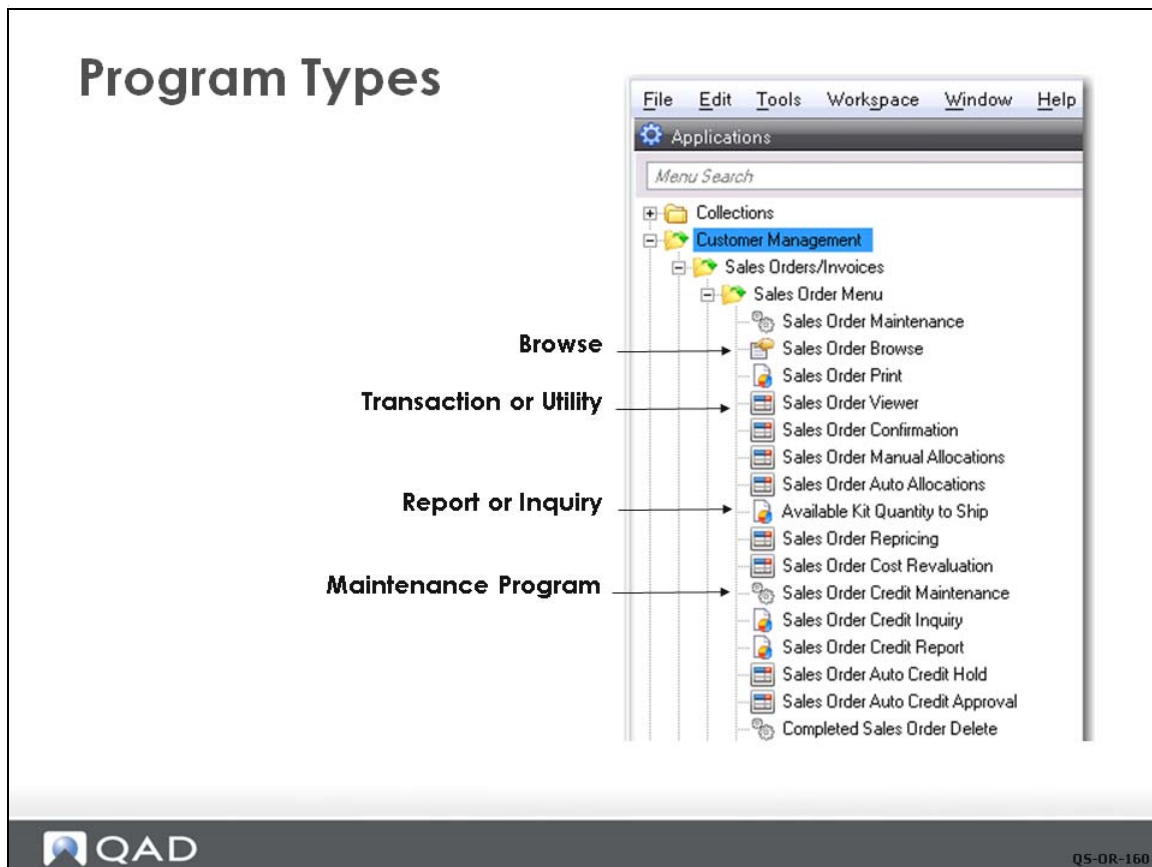
In addition, the concepts underlying the Corporate Structure Setup module are essential to a high-level understanding of the system as a whole. These concepts, as well as a brief overview of system security, are introduced in the next chapter.

## Administration Menu



This section can be used for organizing miscellaneous applications and customized programs that your company creates and uses. These are not covered in this course. If used, these are set up by your in-house technical support staff.

## Types of Programs and Data in QAD EE



On the menu, a distinct icon indicates the type of program:

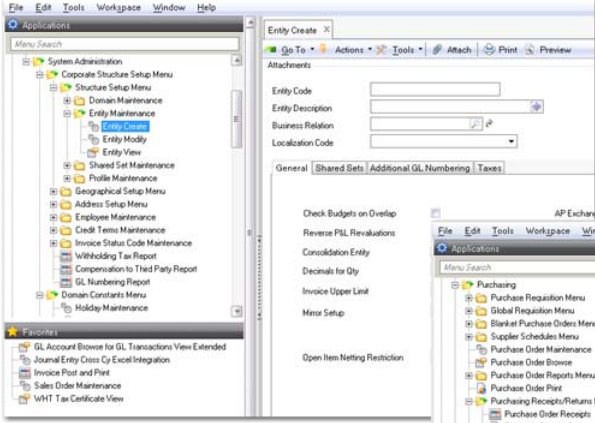
- Maintenance programs
- Transactions and utilities
- Reports and inquiries
- Browsers

Each type of program maintains a specific kind of data within the database.

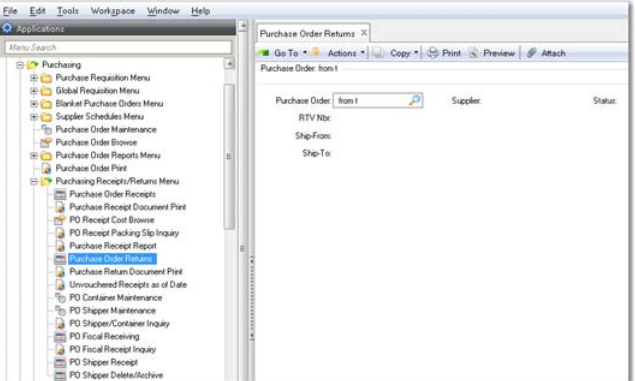
The following pages illustrate the types of programs that you will encounter as you use the product during this course. However, you need to be aware of an additional distinction.

## Component and Non-Component Programs

### Component and Non-Component Based Programs



**Component Based: Enterprise Financials and System Administration programs only**



**All other programs are non-component based**


QS-OR-165

A subset of programs within the .NET UI use a component-based architecture that changes their appearance and supports some extra features. Within QAD EE, only Financials and some system administration programs are component-based. Component-based programs have individual maintenance programs for Create, Modify, and Delete.

The following slides illustrate both a non-component and a component-based example of each type of program.

## Maintenance Programs

Maintenance programs create and maintain basic codes such as customers, inventory items, GL accounts, currencies, and other data. They are also used to record data that initializes business activity in a module such as sales orders and purchase orders. Most maintenance programs update static data, which is changed infrequently.

Entering data in a maintenance program creates a record in one or more tables controlled by the maintenance program. For example, item records are stored in the Item Master table controlled by Item Master Maintenance.

With non-component maintenance programs, all changes to the record are made in the same maintenance screen. In component-based maintenance programs, changes are made in separate Create, Modify, or Delete functions.

## Inquiry and Report Programs

# Inquiry and Report Programs

**Item Master Inquiry** 05/24/10

Item Number: 01010  
 Site: 10-10-100  
 Prod Line: 10  
 Added: 01  
 Design Group: PF  
 Promo Group: ME

| Site     | Description               | Line Description      | Cost Set | Material  | Labor    | Burden  | Overhead |
|----------|---------------------------|-----------------------|----------|-----------|----------|---------|----------|
| 01010    | Ultrasound Mfg Site       | 10 Finished Goods     |          |           |          |         |          |
| 03/01/10 | Current                   | EA Medical Ultrasound |          | 225.71    | 19.34    | 0.28333 | 0.00     |
| 03/01/10 | Standard                  | EA Medical Ultrasound |          | 225.71    | 19.34    | 0.28333 | 0.00     |
| 01011    | EA Supplies Kit           |                       |          |           |          |         |          |
| 03/01/10 | Current                   |                       |          | 0.00      | 0.00     | 0.00    | 0.00     |
| 03/01/10 | Standard                  |                       |          | 0.00      | 0.00     | 0.00    | 0.00     |
| 01020    | EA Implantable Ultrasound |                       |          |           |          |         |          |
| 03/01/10 | Current                   |                       |          | 144.81516 | 25.09176 | 0.36372 | 0.00     |
| 03/01/10 | Standard                  |                       |          | 144.81516 | 25.09176 | 0.36372 | 0.00     |

QAD QS-OR-180

Inquiries and reports retrieve and display database records.

- Inquiries are primarily used to answer specific questions and are typically viewed online, although they can be printed
- Reports usually provide more detail and are printed for a range of data records. You select data by entering a specific range of criteria, such as item number or date. Reports are often sent to a printer or file. Other output options, such as e-mail, are available.

## Component-Based Reports

# Component-Based Reports

GL Account List

Report Variants: FACTORYDEFAULT

Filter: GL Account: 05000, 2900001

| GL Account | COA Element TySys Type    | Debit/Credit | Balance/P&L | Auto/Manual | Analysis Type |
|------------|---------------------------|--------------|-------------|-------------|---------------|
| 05000      | STANDARD                  | DEBIT        | BALANCE     | MANUAL      | None          |
| 05600      | STANDARD                  | DEBIT        | BALANCE     | MANUAL      | None          |
| 05610      | SYSTEM RESULTCURRENTYEAR  | CREDIT       | BALANCE     | AUTOMATIC   | None          |
| 05620      | SYSTEM RESULTPREVIOUSYEAR | CREDIT       | BALANCE     | AUTOMATIC   | None          |
| 09000      | STANDARD                  | CREDIT       | BALANCE     | MANUAL      | None          |
| 09100      | STANDARD                  | CREDIT       | BALANCE     | MANUAL      | None          |
| 10000      | DEBTORCONTROL             | DEBIT        | BALANCE     | AUTOMATIC   | None          |
| 10100      | DEBTORDOCUMEN             | DEBIT        | BALANCE     | AUTOMATIC   | None          |
| 10200      | OPENITEM                  | DEBIT        | BALANCE     | MANUAL      | None          |
| 10500      | DEBTORCONTROL             | DEBIT        | BALANCE     | AUTOMATIC   | None          |
| 10600      | DEBTORDOCUMEN             | DEBIT        | BALANCE     | AUTOMATIC   | None          |
| 11300      | STANDARD                  | DEBIT        | BALANCE     | MANUAL      | None          |
| 12200      | BANK                      | DEBIT        | BALANCE     | MANUAL      | None          |
| 12201      | BANK                      | DEBIT        | BALANCE     | MANUAL      | None          |
| 13000      | STANDARD                  | DEBIT        | BALANCE     | MANUAL      | None          |

Server Output Processing

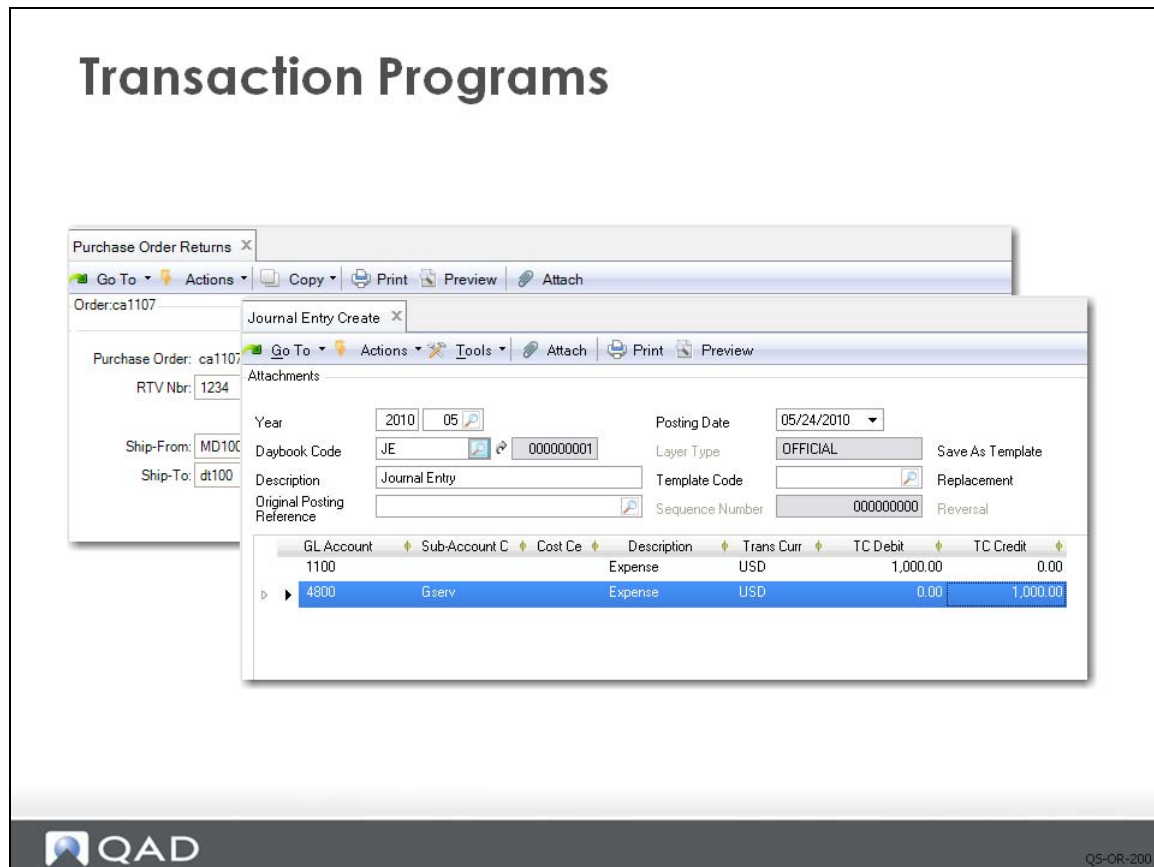
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Component-based reports have multiple output options, including viewer, printer, and export to PDF, XLS, and DOC standards. The report output is easy to customize, and you can create an extensive set of reports with unlimited report variants for many output types.

You can run a report immediately, or choose to schedule it to run later. In this case, a pop-up window opens to let you enter details for running the report at a later date.

## Transaction Programs



Transactions express the core business activities of a company. They control and record activities related to business documents such as sales orders and invoices. Example of transaction are shipping a sales order or receipt of a shipment for a purchase order. Enterprise Financials transactions programs include Customer and Supplier Invoice Create and Journal Entry.

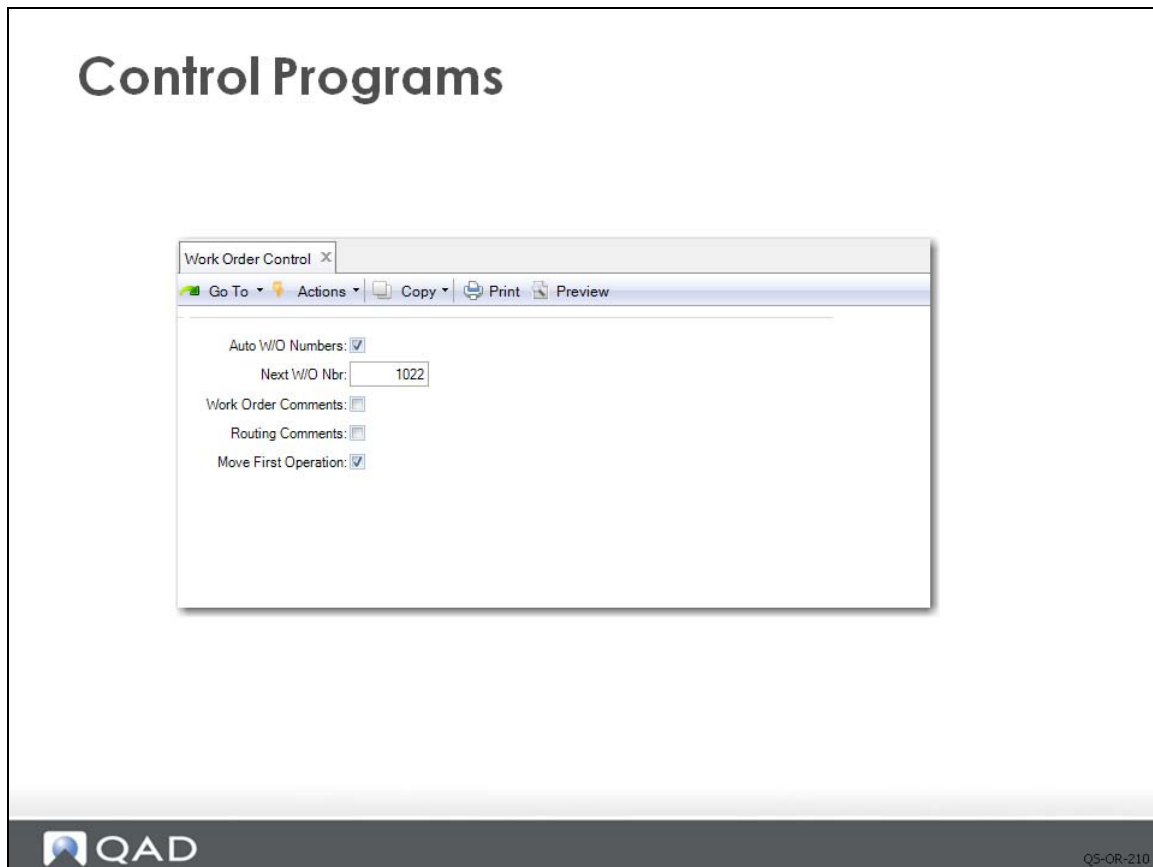
Most data in the database is transaction data. Every day, sales orders come in, purchase orders go out, and work orders make demands on and create material for inventory. These events result in transactions, which are stored in transaction tables. In contrast to control programs, transaction tables are constantly updated by users of the system.

Transaction programs often update multiple database records and generate general ledger account transactions. Shipping a sales order and posting the invoice, for example, updates the on-hand inventory balance for the items shipped, charges the value to cost of goods sold, updates the sales ledger for the value of the sale, updates the customer's accounts receivable record, books charges to appropriate freight accounts, tax accounts, sales commission accounts, updates the inventory allocations, and updates the inventory quantities available to promise

Utilities are a special type of transaction that is often designed to be used only once or under special circumstances. For example, many utilities perform one time data conversions following system upgrades. Other utility programs enable you to manage and perform calculations in internal databases. In Purchasing, Closed PO Delete/Archive is a database management utility, and in MRP, Net Change Materials Plan causes the system to run net change MRP calculations



## Control Programs



When you implement a module, you enter data that the system uses later to control the interactions with users and with the database. This data is stored in control tables.

Control tables enable you to adapt QAD EE to your environment. The data and settings in these tables determine how certain programs are displayed, the numbers assigned to transactions, the GL accounts for particular transactions, and so on. When you can manage a typical manufacturing function in more than one way, control settings enable you to establish a preference.

## Browses

### Browses

The screenshot displays the 'Sales Order Browse' window. The main table lists sales orders with the following data:

| Sales Order | Sold-To | Quantity Open | Line | Item Number  | Status | Unit of Measure | Quantity Ordered |
|-------------|---------|---------------|------|--------------|--------|-----------------|------------------|
| 10009       | cu1500  | 10.0          | 1    | 10-10000-001 | FT     |                 | 10.0             |
| 10009       | cu1500  | -10.0         | 2    | 10-10000-001 | FT     |                 | -10.0            |
| 10010       | CU1500  | 2.0           | 1    | 10-10000-001 | FT     |                 | 2.0              |
| 10011       | CU1500  | 2.0           |      |              |        |                 |                  |
| 10012       | CU1500  | 3.0           |      |              |        |                 |                  |
| 10012       | CU1500  | 2.0           |      |              |        |                 |                  |
| 10004       | CU2500  | 10.0          |      |              |        |                 |                  |
| 10005       | CU2500  | 10.0          |      |              |        |                 |                  |
| test10      | CU2500  | 5.0           |      |              |        |                 |                  |

The context menu is open, showing options: Actions, Print, Add to Favorites, Chart, Chart Designer, Refresh, New, Edit, Export to CSV, Export to Excel, Export to PDF, Workflow, E-mail, and Report. The 'Sales Order Maintenance' window is also visible in the background.

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Browses are inquiry programs with advanced features such as filtering, sorting, and printing. The system supports several types of browses. Complex browses, such as the one in this slide—sometimes called power browses—are listed on the menu. They can also be used as drilldown browses within programs.

Power browses provide tools (2 in the slide) that let you display browse data in graphical form such as pie charts and bar charts, export data to .CSV or Excel for further processing, generate and e-mail a PDF or report, or include the output in a workflow.

Navigation features (1) of browses include:

- Click Clear All to clear browse results.
- Use the navigation buttons to move through the records. The buttons from left to right move to the first set, previous set, next set, last set.
- Use the Records per page drop-down to determine how many records display at one time in the browse. The default value can be set using the Rows Per Page setting in Tools|Options.
- Drag columns by their headings to rearrange the display or click any column heading to sort in ascending order; click again to sort in descending order.
- Blue underlined text indicates values for which you can drill-down. Right-click any value to display associated links: either a more detailed browse, a related program, or an external Web page.

## Filters and Operators

### Filters and Operators

The top screenshot shows the 'Sales Order Browse' window with the search field set to 'Sold-To' and the operator 'starts at'. The bottom screenshot shows the search operators dropdown menu with various options like 'equals', 'not equals', 'contains', 'range', 'starts at', 'greater than', 'less than', 'is null', and 'is not null'. A table of search results is also visible in the bottom screenshot.

| Sales Order | Line | Item Number  | Status | Unit of Measure | Quantity Ordered |
|-------------|------|--------------|--------|-----------------|------------------|
| 10009       | 1    | 10-10000-001 |        | FT              |                  |
| 10009       | 2    | 10-10000-001 |        | FT              |                  |
| 10010       | 1    | 10-10000-001 |        | FT              |                  |

- 1 The search fields display with a default configuration but you can also define and save your own.
- 2 The various search operators include equals, not equals, contains, range, starts at, greater than, less than, is null, and is not null. When an equal sign is displayed next to the field, you enter an exact matching value.
- 3 To refine your search further, click the plus (+) icon to add another search row. You can add as many rows as needed, each with different search values and operators. If you choose the range search operator, the second search box is enabled for the ending value of the range.

## Lookup Browsers

# Lookup Browsers

**Customer Master**

Actions Print

Search

Customer starts at

Records per page: 100

| Customer | Sort Name                   | Telephone | City         | State |
|----------|-----------------------------|-----------|--------------|-------|
| 10C1000  | Wal-Mart                    |           | Bentonville  | AR    |
| 10C1001  | MediLogic                   |           | Bridgewater  | NJ    |
| 10C1002  | Houston Automotive Grop     |           | Houston      | TX    |
| 10C1002B | Houston Automotive Grop     |           | Houston      | TX    |
| 10C1003  | Pacific Health Care Systems |           | Los Angeles  | CA    |
| 10C1004  | Price Chopper               |           | Schenectady  | NY    |
| 10C1005  | Rockland Industrial Company |           | Rockland     | NJ    |
| 10INTCUS | QMI - USA Division          |           | East Hanover | NJ    |
| 11C1000  | Ciyocath Technologies Inc.  |           | Kirkland     | QC    |
| 11C1001  | Chiro Foods limited         |           | Edmonton     | AB    |
| 11C1002  | General Motors of Canada    |           | Oshawa       |       |

Sold-To:

Line Pricing: ☒ Manual: Daybook Set: Channel: Project:



QS-OR-250

Lookup browsers are much simpler than the browses on the menu. They are a form of on-line help and are attached to various fields in programs. You can use them to display all of the valid choices for the current field.

In the example, selecting the Sold-To lookup in Sales Order Maintenance launched a lookup browse of all customers.

## Exercise 1

These exercises and discussion questions will help you become familiar with using QAD EE and navigating the user interface.

- 1 Sales Order Control (7.1.24) is an example of what type of program?
- 2 Create a custom menu by dragging several programs into the Favorites section of the UI.
- 3 Display an existing sales order in Sales Order Maintenance and send the sales order to your user ID by using the workflow. Click Actions and select Workflow. Enter your class login. You should see the message appear in the Inbox area of the UI.
- 4 Create a document in Microsoft Word. Save it to the c:\ drive and attach the document to a purchase order.
- 5 Open up Sales Order Browse (7.1.2). Highlight any order and drill down by double-clicking a sales order number. In the Sales Order Maintenance screen that appears, click the Sold-To lookup.
- 6 Use Sales Order Browse and limit the output of the browse to orders for one specific customer. What filter did you use? What operator did you use? Send the output to an Excel sheet.
- 7 Run Sales Order Browse and rearrange the columns. Group the results by Sold-To.
- 8 Go to Supplier Invoice View (28.1.1.3) and display a component-based browse. Try rearranging the columns by dragging them to new positions. Click the up or down arrow in the column heading to resort the browse.
- 9 Select GL Account List (25.15.1.10), run the report, and send the output to a printer. (If you don't have access to a printer, view the output on your monitor).



# System Structure

This chapter provides information on the basic building blocks of the system that form the foundation for other activities.

*Overview*

*Business Model: Four Kinds of Data*

*Security Setup*

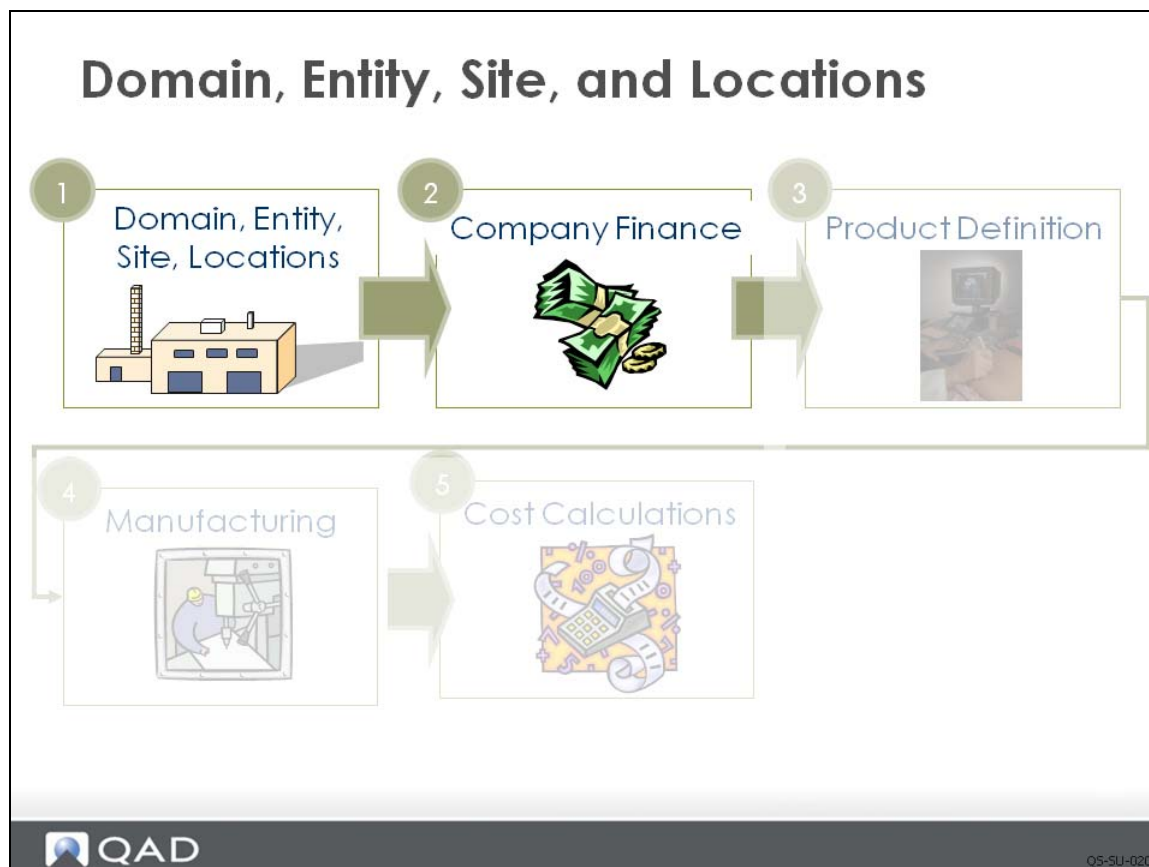
*Operational Structure*

*Example: QMI Business Structure*

*Review*

*Exercise 2*

## Overview



In QAD EE, you can view a company from either a financial or operational perspective. In financial terms, a company is an entity that publishes financial statements and files tax returns. In terms of other activities, a company can be defined by its combined operations, such as sales order entry, purchasing, manufacturing, and general accounting.

### Business Model

The following pages discuss the most basic pieces used to support financial and operational activities. First, is the environment itself—the database. To this are added:

- Domains, which can be thought of as templates for businesses that use the same base currency, chart of accounts, and GL calendar.
- Entities, which are used to identify business units for reporting and tax purposes, and their GL transactions and financial reports including Income Statements and Balance Sheets.
- Shared data sets with information about customers, suppliers, employees, and other data used throughout the system.

This chapter begins with a discussion of databases, domains, and the types of data they contain and share. This includes an overview of some of the basic financial information that forms part of the domain template for business activities.



## Security

Protecting valuable company resources and ensuring proper separation of responsibility is a basic requirement for any business. The next topic covered is a high-level overview of how to manage who is able to complete various activities in the system by setting up users, roles, and access.

## Operational Structure

Sites and locations comprise the basic structure required for managing inventory in the system, and how the inventory transactions affect the GL. Inventory status codes are an essential part of this key area of control.

## Chapter Topics

This chapter covers the following topics:

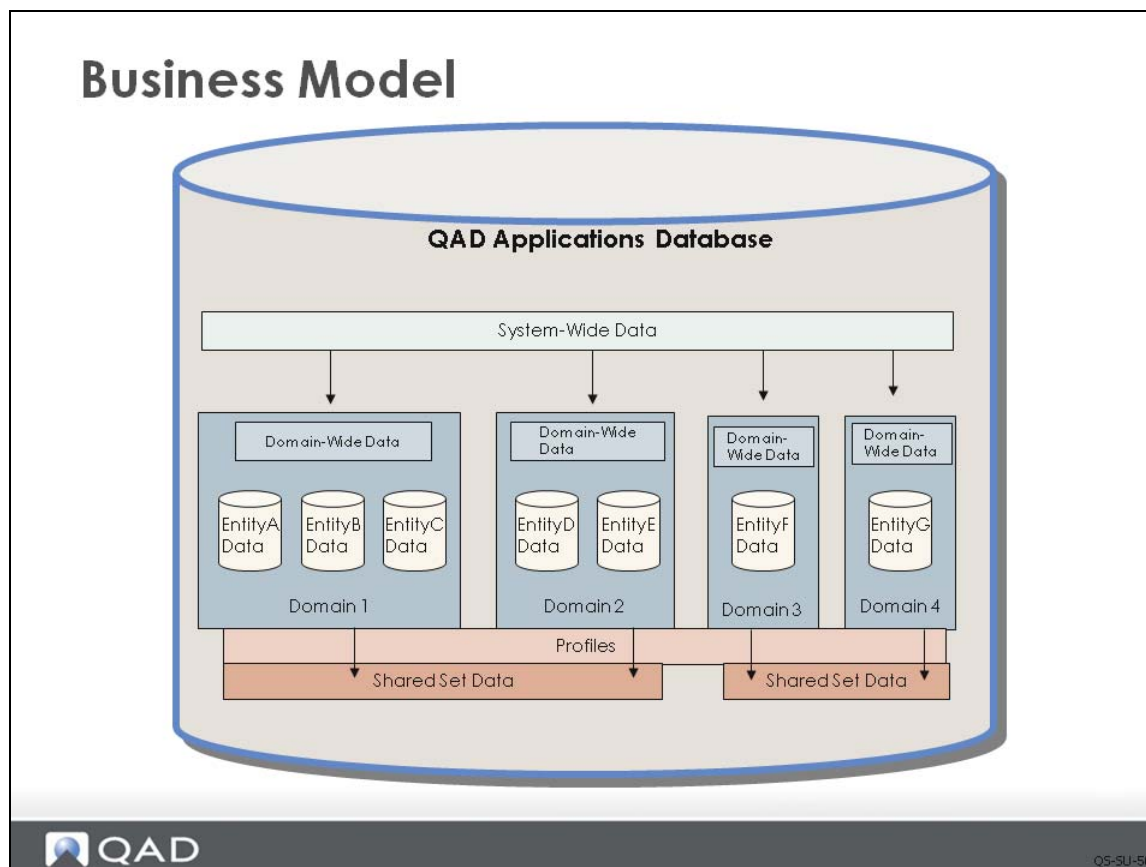
- Key Concepts
  - Databases and System-Wide Data
  - Domains, Entities, and Shared Sets
  - Security Setup
  - Sites, Locations, and Inventory Status Codes
- Example
  - Set up Domain and Entity
  - Review Company Business Relation
  - Review Domain/Account Control
  - Define Inventory Status Codes
  - Set Up Site
  - Set Up Inventory Locations
- Review
- Exercise

## Learning Objectives

This chapter provides a high-level overview of the QAD EE system structure. When you finish this chapter, you should be able to:

- Describe what a database is and list the key data it contains.
- Describe and understand how domains and shared sets are used.
- Distinguish between the role of domains and entities.
- Describe what business relations are and how they are used.
- Describe how users and roles control access to system functions.
- Distinguish between the kind of information sites and locations contain.
- Describe the role of inventory status codes in the system.

## Business Model: Four Kinds of Data



**System Wide.** Some data is shared throughout the system, such as currency, country codes, and tax data. This data never differs from one business unit (entity or domain) to another, so it makes sense to share it across all business organizations. System-wide data includes administrative data related to security, user interface, and technical setup.

**Shared Sets.** Shared sets group data that can be shared across domains. A single domain can have an independent chart of accounts or several domains can share the same chart of accounts, streamlining setup and maintenance. Other types of data that can be shared are customers, suppliers, and exchange rates.

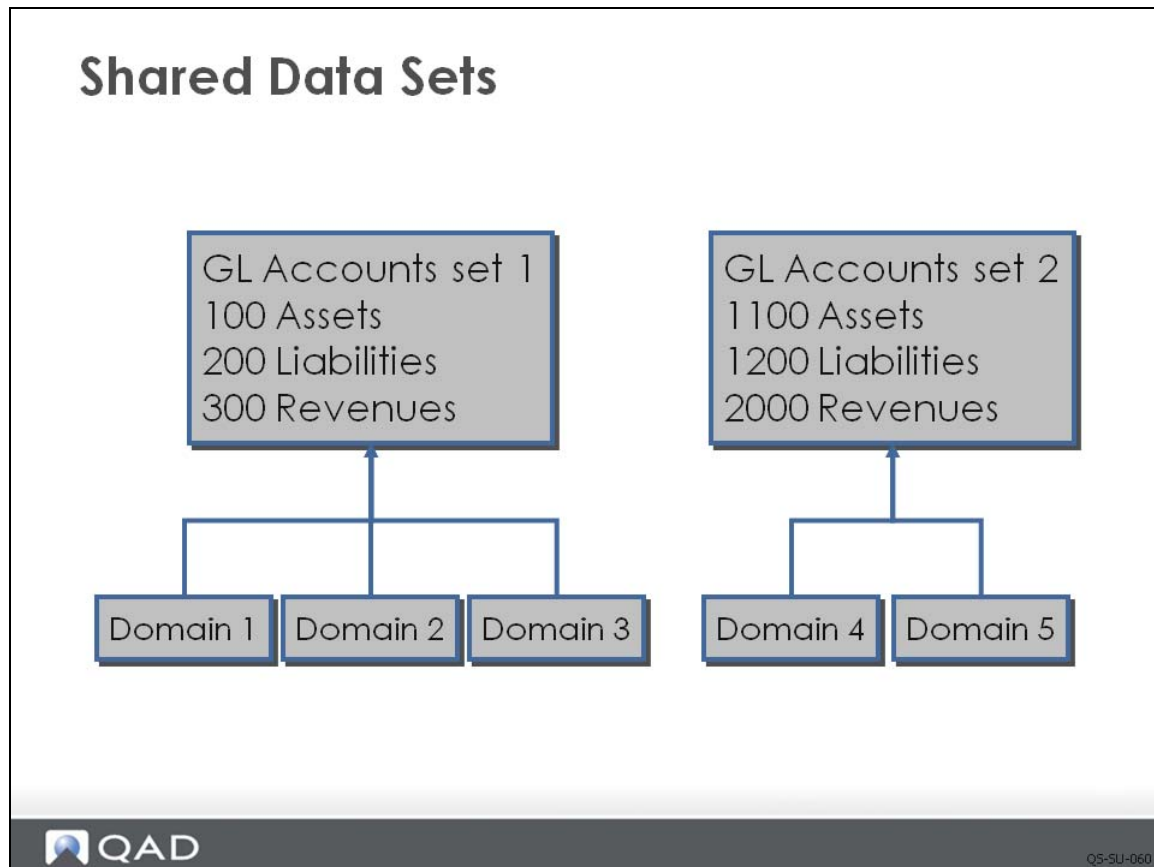
**Domain.** A domain represents the base unit of the system and includes one or more entities. Each domain has its own base currency, and, optionally, statutory currency, which is then shared by the entities within the domain. Domains derive some data from shared sets and also use system-wide data. However, most operational data is domain specific. So for example, all the item data and order transactions take place within a specific domain.

**Entity.** An entity exists within a domain and inherits the domain attributes, such as base currency. Entity-specific data is limited, for example, the organization's own bank account number. General ledger transactions are associated with specific entities.

The following table summarizes the kinds of data found at each level of the business model.

| Level                     | Category                                    | Detailed Data Types                                                                                                                    |
|---------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| System wide<br>(database) | Business relations and address related data | Address types, corporate groups, currencies, rounding methods, languages, counties, countries, states                                  |
|                           | Address related tax data                    | Tax zones, tax environments, tax classes, tax usage codes, tax types                                                                   |
|                           | Financial codes                             | Shared set codes, credit terms, invoice statuses, profiles, and Supplementary Analysis Fields (SAFs)                                   |
|                           | Security data                               | Users, roles                                                                                                                           |
|                           | Administrative data                         | E-mail definitions, printers, some EDI and eCommerce setup data                                                                        |
|                           | User interface data                         | Labels, menus, messages, lookup definitions                                                                                            |
| Shared sets               | Financial data                              | Accounts, sub-accounts, cost centers, projects, daybooks, exchange rates                                                               |
|                           | Business relations                          | Customers, suppliers                                                                                                                   |
| Domain                    | Financial data                              | GL mask (combination acct/sub-acct/cc/project), accounting periods                                                                     |
|                           | Operational data                            | Sites, locations, items, default accounts, generalized codes                                                                           |
|                           | Orders                                      | Purchase orders, sales orders, work orders, distribution orders, service calls                                                         |
| Entity                    | Financial data                              | Employees, bank account numbers, period closing status, general ledger and sub-ledger transactions and balances, transaction numbering |

## Shared Data Sets



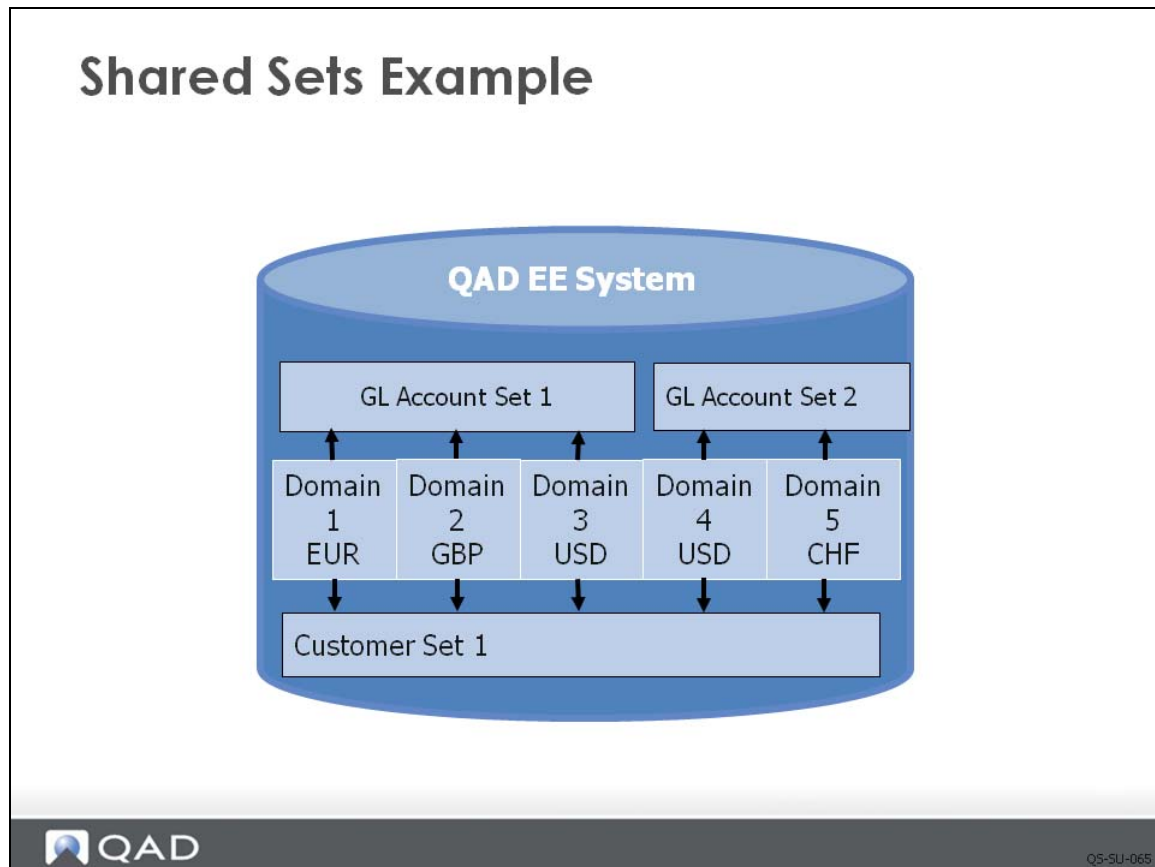
Shared sets provide great flexibility in how a system can be set up. A default set of shared set codes is supplied with the system. However, as many shared sets as necessary can be created.

The following types of data can be shared:

- Customers
- Suppliers
- Accounts
- Sub-accounts
- Sub-account COA mask
- Cost centers
- Cost center COA masks
- Projects
- Project COA masks
- Exchange rates
- Daybooks

**Example** Three US domains can use the same chart of accounts, while two other domains in Japan can use another accounts shared set. This streamlines and standardizes the use of accounts across the enterprise.

## Shared Sets Example



To determine how many shared sets you need, create a table like the one below. Down the side is a list of types of data that can be shared. List the domains you plan to use on the top. Then consider what information will be shared and what will be different among domains.

| Shared Set Type      | US - Domain  | EMEA - Domain |
|----------------------|--------------|---------------|
| Customer             | AllCustomers | AllCustomers  |
| Supplier             | AllSuppliers | AllSuppliers  |
| Account              | US_Accounts  | EUR_Accounts  |
| Sub-Account          | US_Sub       | EUR_SubMask   |
| Sub-Account COA Mask | US_SubMask   | EUR_Sub       |
| Cost Center          | US_CC        | EUR_CC        |
| Cost Center COA Mask | US_CCMask    | EUR_CCMask    |
| Project              | US_Project   | EUR_Project   |
| Project COA Mask     | US_ProjMask  | EUR_ProjMask  |
| Exchange Rate        | SystemExRate | SystemExRate  |
| Daybook              | US_Daybook   | EUR_Daybook   |

## Discussion

A customer references an AR account. What if the same customer set is used by domains that point to different GL account sets?

## Business Relation

**Business Relation**

Business Relation Modify

Go To Actions Tools Attach Print Preview

Attachments

Business Relation: 10-C1003

Name: Pacific Health Care Systems

Search Name: Pacific Health Care Systems

Second Name:

Third Name:

Group Name:

Active: ☒

Address Info General Defaults

| Address           | Address | Address | Zip Code | City        | Name               | Search Name        | Telephone |
|-------------------|---------|---------|----------|-------------|--------------------|--------------------|-----------|
| 600 Calle de Los  |         |         | 90212    | Los Angeles | Pacific Health Car | Pacific Health Car |           |
| 250 Carpentaria B |         |         | 93031    | Carpenteria | IMCC               | Pacific Health Car |           |

QAD

QS-SU-055

Business relations are defined at the database level, and are a prerequisite to creating entity, employee, customer, and supplier records. One business relations can have multiple different types of addresses:

- Head office (mandatory, only 1)
- Ship-to
- Reminder (only 1)
- Remittance (only 1)
- Dock
- Enduser

When creating a customer or supplier, the business relation can be created at the same time.

## Three Accounting Layers

### Three Accounting Layers

- **Official Layer** (primary )
  - For daily transactions and statutory reporting
  - Required layer
  - Only one Official layer
- **Management Layers** (secondary)
  - Additional transactions for management purposes
  - To translate to a different set of accounting standards, GAAP adjustments, IFRS
  - Optional, may have none, one, or more layers
- **Transient Layers**
  - Create temporary postings
  - Useful for what-if simulations or prior to management approval
  - Optional, may have none, one, or more layers



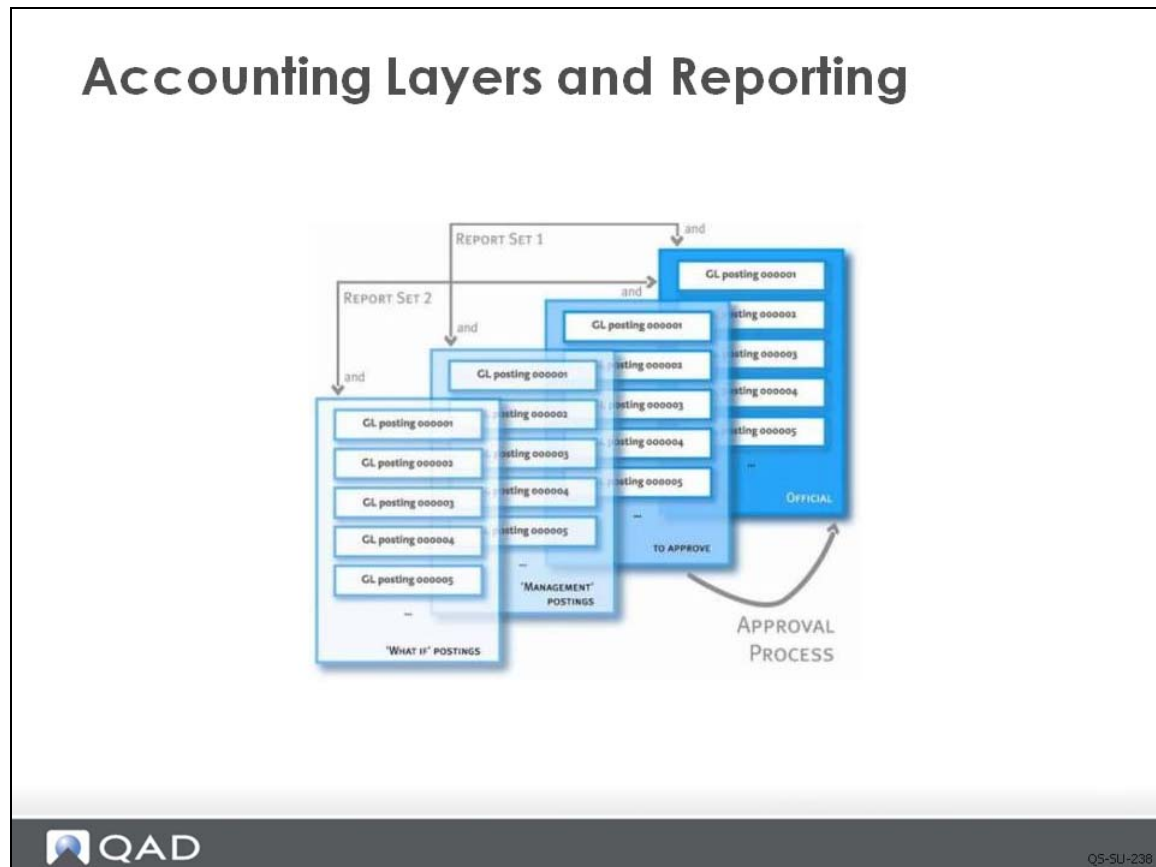
QS-SU-060

Accounting layers provide different ways of segregating transactions within a single GL account to satisfy reporting requirements. The posting of transactions is controlled by associating daybook types with one of the three system-defined accounting layers: primary (labelled official in the system), secondary (labelled management in the system), and transient.

- The primary layer is used for daily transaction posting.
- Define one or more secondary layers to allow for adjustments required to meet different GAAP or IFRS requirements, or for management reporting.
- The transient layer is used to temporarily post transactions pending approval, or to simulate postings.

GL entries can be moved from layer to layer by changing the daybook. You can use Mass Layer Transfer to change many transactions at one time. In reporting, multiple layers can be selected.

## Accounting Layers and Reporting



Financial reports let you select multiple layers at a time; for example, you can select both the primary and secondary layers to include management adjustments. Any combination is possible, as shown in the slide.

- Layer combinations for reporting can be stored as user preferences.
- An account can have a balance for each layer.



## Dual Base Currency

### Dual Base Currency

- **Transaction currency**
  - The currency the transaction is recorded in.
- **Base currency**
  - The currency of the entity in which the transaction is recorded.
- **Management currency**
  - The currency used for corporate-wide management reporting.

The diagram shows a sample customer invoice with three callouts indicating different currency domains:

- Sample Customer Invoice**: Points to the invoice header.
- In GBP (transaction)**: Points to the 'tc Balance' field showing 1,231.00 GBP.
- In EUR (base)**: Points to the 'bc Balance' field showing 1,773.01.
- In USD (management)**: Points to the 'cc Balance' field showing 2,080.00.

| Type    | Inv Date | Da | Voucher   | Business Relation Code | tc Balance | Cu  | Due Date | bc Balance | cc Balance | SubAcc | CI Text |
|---------|----------|----|-----------|------------------------|------------|-----|----------|------------|------------|--------|---------|
| Invoice | 13-06-06 | 01 | 000000001 | Essent                 | 1,231.00   | GBP | 23-06-06 | 1,773.01   | 2,080.00   |        | Various |

QAD QS-SU-090

Each domain has a primary base currency at domain level, and optionally define a second management currency for reporting purposes. This currency is known as the statutory currency, and is normally the local currency of the country in which the organization must produce its declarations and financial reports.

The need for a statutory currency is most likely to arise in a country that is geographically close to a strong currency zone (for example, Mexico and Poland), where the country itself has another local currency. Companies operating in countries close to strong currency zones, such as the Euro and US dollar, might use the stronger currency as their base currency (functional currency). However, local auditors and tax controllers can mandate that companies submit their declarations and financial reports in the local currency of the country. In these cases, the local country currency becomes the organizations' statutory currency.

### Definitions

- **Transaction currency**: The functional currency of the transaction that is recorded.
- **Base currency**: The functional currency of the entity in which the transaction is recorded.
- **Management currency**: The currency used for corporate-wide management reporting.

The system stores all three currency amounts: Transaction, base and management. Transactions are always posted in transaction and base currency using the exchange rate in place at the time of the transaction.

## Currency Example

### Currency Example

#### A US Company in Mexico

- Keeps its accounting records in USD
- Submits reports to the Mexican government in MXN
- Receives a supplier invoice from a UK supplier in GBP



Transaction Currency = GBP

Base Currency = USD

Statutory Currency = MXN

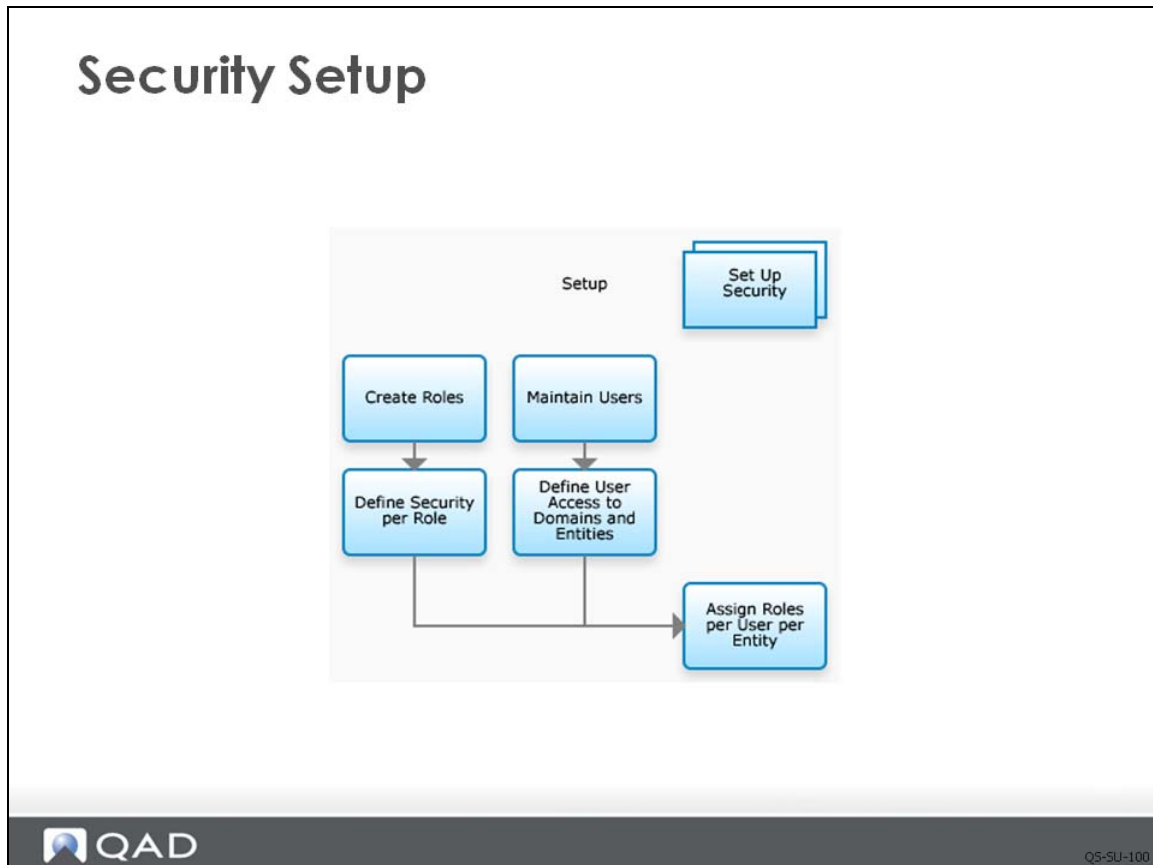


QS-SU-095

**Example** A multinational corporation has a subsidiary in Mexico. In the Mexican subsidiary, most business transactions are conducted in USD, the base currency. However, all reports that the subsidiary must produce for the Mexican government are in Mexican pesos, which is the statutory currency.

- Transaction currency = GBP
- Base currency = USD
- Management currency = MXN

## Security Setup



After defining a new domain, you must define user security and access. To set up security, you must define three main elements:

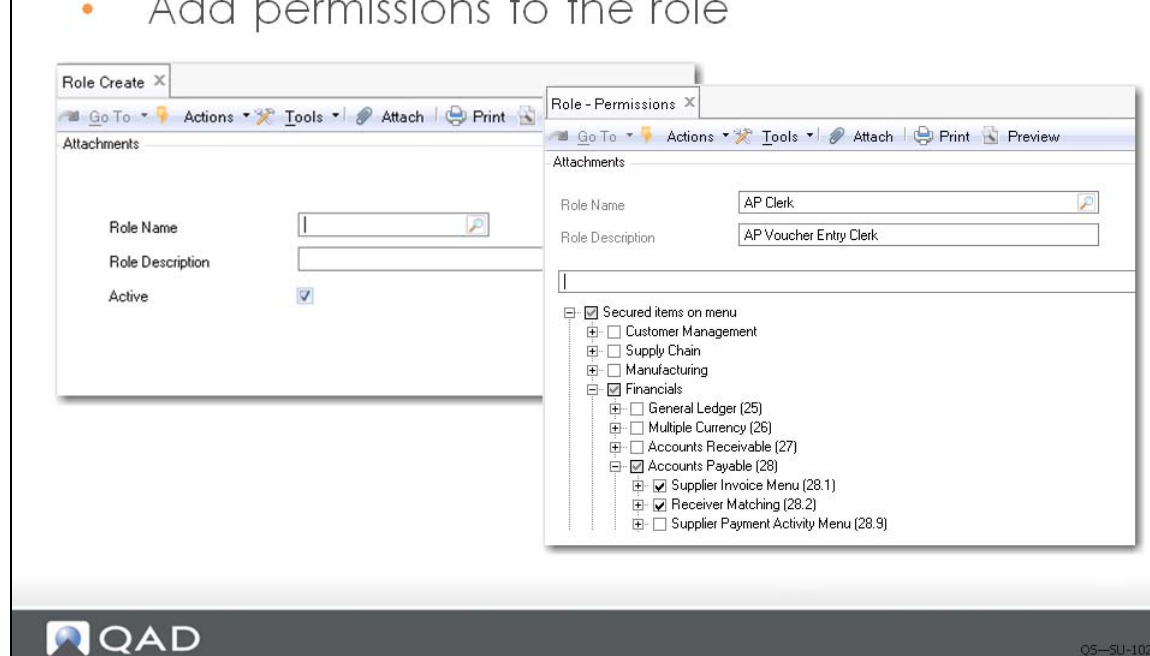
- Roles
- Users
- Permissions

The configuration for the three areas is linked in a fourth step.

## Set Up Roles

### Set Up Roles

- Set up role
- Add permissions to the role



In Role Create (36.3.6.1), enter a name and description to create a new role. During implementation, you can create inactive roles by clearing the Active field. An inactive role cannot be referenced in any functions other than Role Create.

A number of default roles are supplied with the system. Members of these roles are notified by the system when new records are created in finance (customer, employee, end users, suppliers), since additional operation data needs to be specified for these records:

- CustomerNotify
- EmployeeNotify
- EndUserNotify
- SupplierNotify

Two other special roles are supplied with the system:

- qadadmin
- SuperUser

After defining the role names, go to Role Permissions Maintain (36.3.6.5) and associate the system activities that you want members of each role to be able to complete.

## Set Up Users

**Set Up Users**

User Maintenance

Go To Actions Copy Print Preview Attach

E-mail Def:

User ID: ACCT User Name: Alan Curtin

Language: us Variant:

Country Code: usa Restricted: ☐

User Type: Employee Access Location: Primary

Time Zone: PST/PDT Initials:

E-mail Def:  Active: ☒

E-mail Address:

Menu Substitution: ☒

Remark:

System Access

Enabled: ☒ Last Logon: 3/19/2008 08:54

Enabled Reason: QAD\_DEF QAD DEFINITION

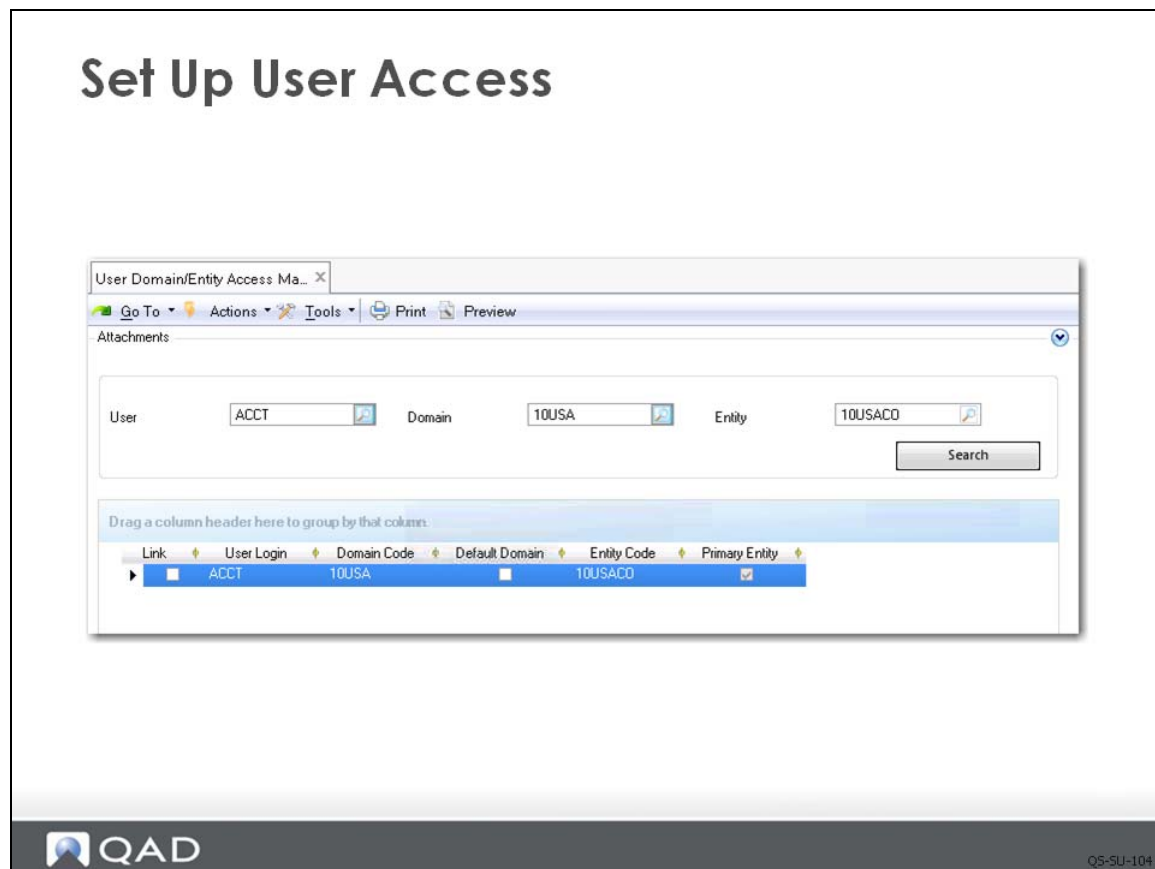
Force Password Change: ☒

Update Password: ☐ Last Password Change: 3/18/2008

**QAD** QS-SU-103

In User Maintenance (36.3.1), define the IDs for the users in your system and associate other data with them such as an e-mail address, language, country, and type.

## Set Up User Access



Go to User Domain/Entity Access Maintain (36.3.4) to set up the user access.

Select the user and click Apply. A new window will display. Link a user to an entity by selecting the field in the Link column.

## Link It All Together

### Link It All Together

Go To Actions Tools Print Preview

Attachments

User

Domain

Role

Entity

Drag a column header here to group by that column:

| Link                                | User Login | Role Name       | Default Role                        | Domain Code | Entity Code  |
|-------------------------------------|------------|-----------------|-------------------------------------|-------------|--------------|
| <input checked="" type="checkbox"/> | ACCT       | SuperUser       | <input checked="" type="checkbox"/> | QAD         | 999 - SYSADM |
| <input type="checkbox"/>            | ACCT       | EmployeeNotify  | <input type="checkbox"/>            | QAD         | 999 - SYSADM |
| <input type="checkbox"/>            | ACCT       | SupplierNotify  | <input type="checkbox"/>            | QAD         | 999 - SYSADM |
| <input type="checkbox"/>            | ACCT       | CustomerNotify  | <input type="checkbox"/>            | QAD         | 999 - SYSADM |
| <input type="checkbox"/>            | ACCT       | EndUserNotify   | <input type="checkbox"/>            | QAD         | 999 - SYSADM |
| <input type="checkbox"/>            | ACCT       | qadadmin        | <input type="checkbox"/>            | QAD         | 999 - SYSADM |
| <input type="checkbox"/>            | ACCT       | udesign         | <input type="checkbox"/>            | QAD         | 999 - SYSADM |
| <input type="checkbox"/>            | ACCT       | rptDsgn         | <input type="checkbox"/>            | QAD         | 999 - SYSADM |
| <input type="checkbox"/>            | ACCT       | rptAdmin        | <input type="checkbox"/>            | QAD         | 999 - SYSADM |
| <input type="checkbox"/>            | ACCT       | SuperUser       | <input type="checkbox"/>            | USA         | US-A         |
| <input type="checkbox"/>            | ACCT       | EmployeeNotify  | <input type="checkbox"/>            | USA         | US-A         |
| <input type="checkbox"/>            | ACCT       | SupplierNotify  | <input type="checkbox"/>            | USA         | US-A         |
| <input type="checkbox"/>            | ACCT       | CustomerNotify  | <input type="checkbox"/>            | USA         | US-A         |
| <input type="checkbox"/>            | ACCT       | End User Notify | <input type="checkbox"/>            | USA         | US-A         |

QS-SU-105

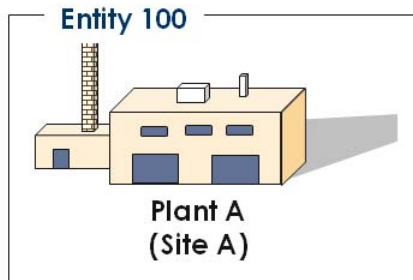
In the final security setup step, you link users, roles, entities, and domains.

Go to Role Membership Maintain (36.3.6.6). Select either a user, role, domain, entity, or a combination, then click Apply. Link a user to a role for the entities that the user has access to (entity by entity).

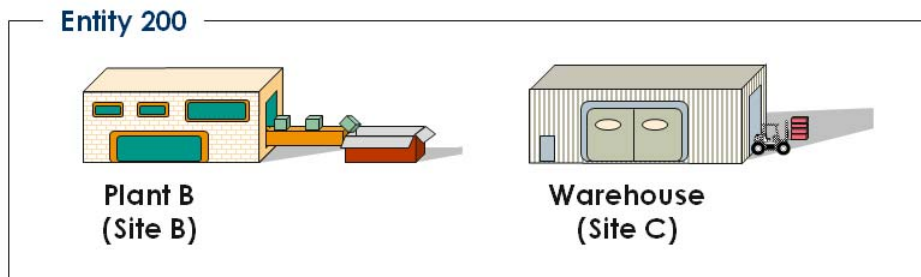
A user can have different roles in each entity.

## Operational Structure

### Entities



- An Entity is a business unit with financial reporting responsibility
- An Entity may have as many Sites as needed



Q5-SU-110

An entity is a subset of the business that does financial reporting. In QAD EE, balance sheets and income statements are prepared by entity.

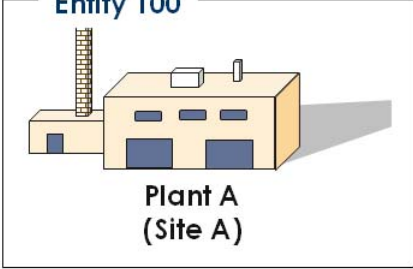
Other structures are used within a QAD EE database to manage inventory and execute planning functions. The next section introduces these elements:

- Sites
- Locations
- Inventory status codes



## Sites

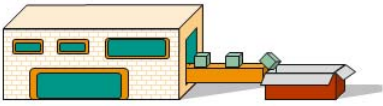
### Sites



**Entity 100**

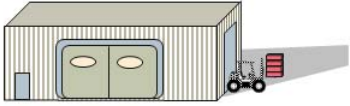
**Plant A  
(Site A)**

- An Entity requires at least one site to plan, manage, and control inventory
- Separate sites are usually set up for separate physical locations



**Entity 200**

**Plant B  
(Site B)**



**Warehouse  
(Site C)**


QS-SU-120

A site is an inventory planning and control concept. Inventory control and planning information is maintained by site, including inventory availability, manufacturing methods and costs, sales and purchasing data, manufacturing plans and orders, and forecasts. Each site should be associated with a physical address. However, each physical address can have several sites.

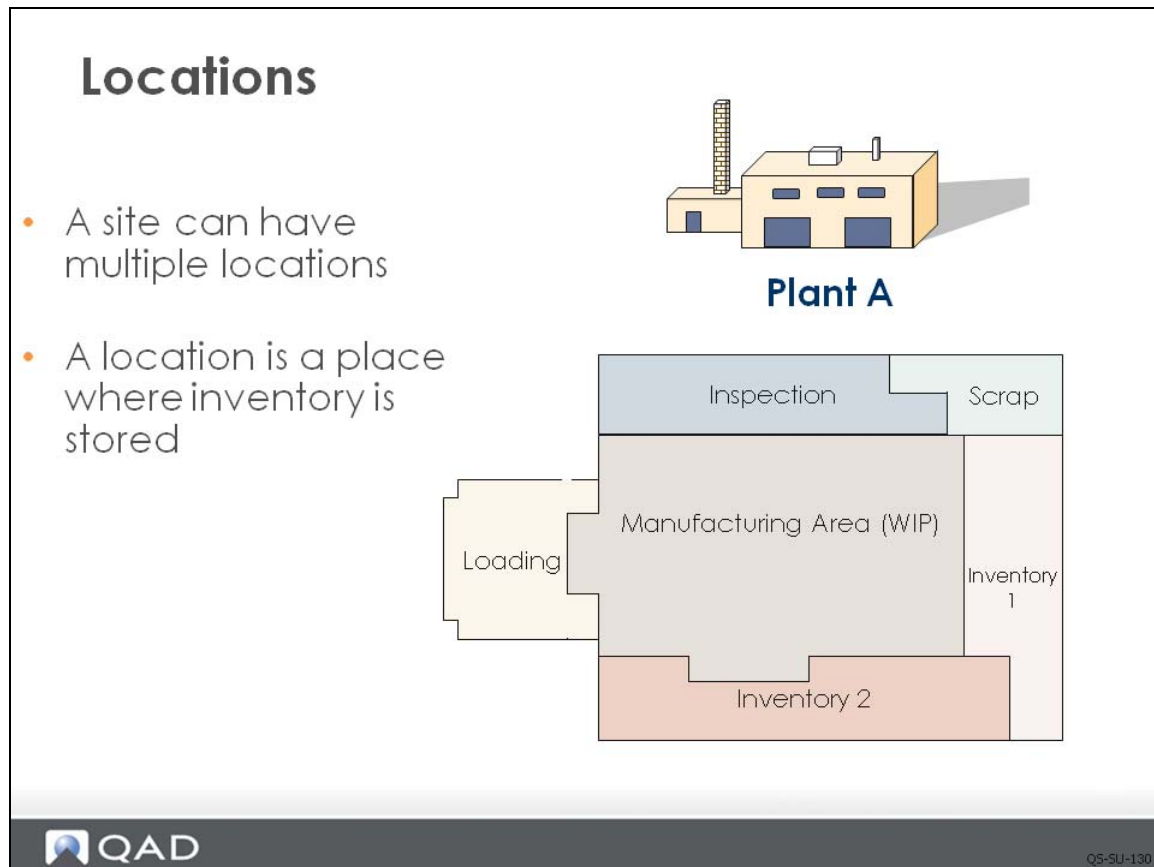
For example, you can set up separate sites for manufacturing, finished goods inventory, and field service in one physical location. There are no limitations on how many sites you have under one entity. Each site belongs to one—and only one—entity, but each entity can have more than one site. A site can be, for example, a distribution center, a warehouse, a manufacturing plant, or a combination of these.

Site Maintenance defines several attributes that default into inventory locations including a default inventory status code, whether or not automatic locations are allowed, and a transfer variance account.

Most planning and control functions work within one site. The system expects to find all the components for a manufacturing order at the same site (with a few exceptions); MRP and DRP calculate requirements one site at a time.

A few functions deal with multiple sites, such as multisite purchase or sales orders, distribution orders, and distributed inventory inquiries.

## Locations



Every inventory transaction must have a site and location. Both can default from the item master. In QAD EE, each site can have a variety of locations where inventory is stored. Locations can include shelves, bins, tanks, silos, refrigerators, freezers, humidity and or temperature controlled rooms, segregated quarantine or material review areas, or other storage areas. Each location's parameters identify what can be stored there and how that inventory can be used.

### Predefined Locations

Most businesses will have several predefined inventory locations such as raw material and or component inventory, finished goods inventory, and perhaps other locations for sales returns, scrap, quality control quarantine, or material review board. In general the more carefully defined locations you use, the higher level of inventory control you will obtain.

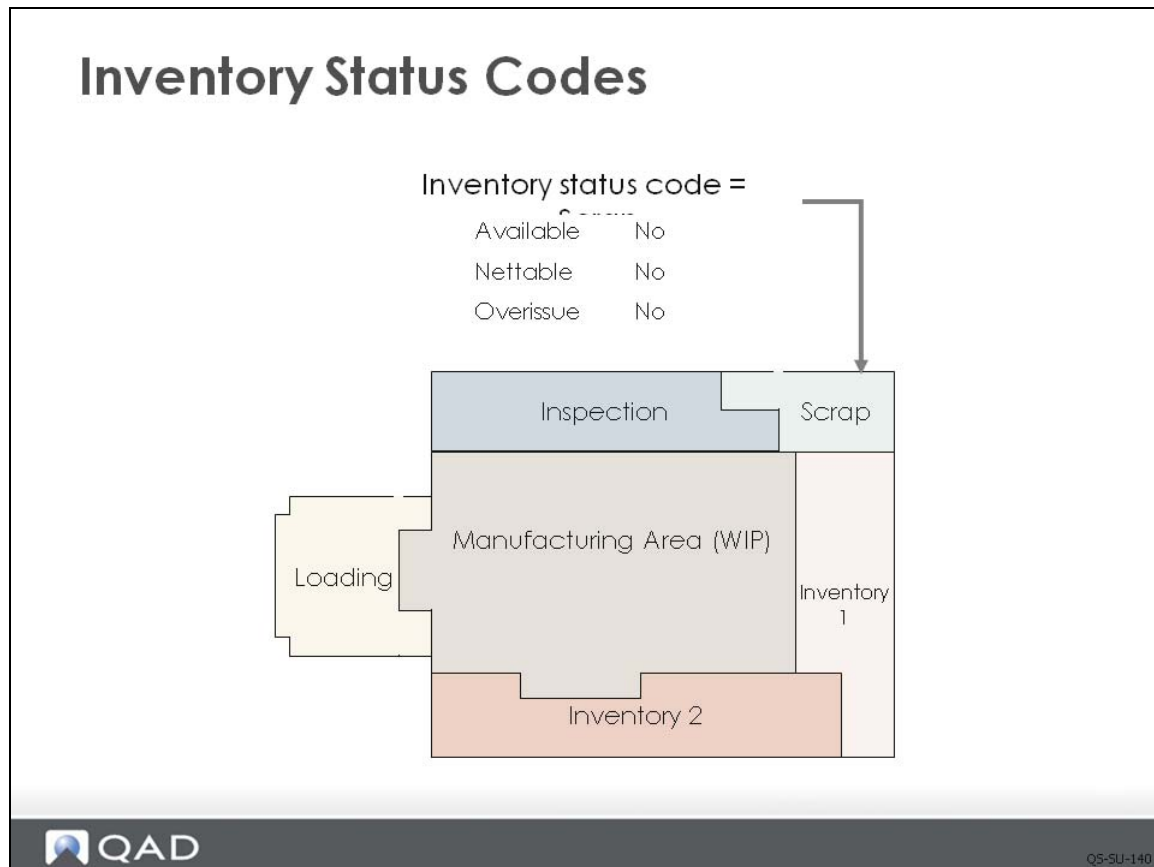
Locations do not have to be predefined. The system can automatically create location codes whenever you enter an undefined value by setting Automatic Locations to Yes in Site Maintenance. While useful in some situations, this offers a very low level of control since anyone with access to inventory transactions can create new locations, possibly as a result of an error.

Inventory location attributes include:

- Description
- A default inventory status code (available, nettable, overissue)
- Whether it is permanent

- A location type code such as tank, silo, freezer
- Restricted to single item (liquid tanks are usually restricted to a single item, for example)
- Restricted to a single lot of a single item (lot-controlled liquids)
- Certain items are assigned to certain locations (location type code associated with the item is matched to location type code of the location)

## Inventory Status Codes



Inventory status codes control your inventory and manage how that inventory is used. Think about how your scrap is managed differently than finished goods inventory or spares. In QAD EE, these different types of inventory are identified by their status codes.

Generic inventory status codes are set up for each type of inventory you have. These identify whether inventory balances of this type are:

- Available to allocate to sales orders and manufacturing orders
- Nettable, to be considered by MRP when calculating net quantity on hand
- Overissue, to denote if this inventory balance is allowed to go negative

Some general guidelines on how status codes are used:

- Scrap inventory would not be available or nettable.
- Material in receiving quarantine is usually not available but is nettable since it is expected to be good.
- Material in material review board is usually not available but can be either nettable or not based on the likelihood of its being approved for use.
- Consignment inventory held for a specific customer is not normally available.
- Negative inventory balances are always errors and should not be allowed.

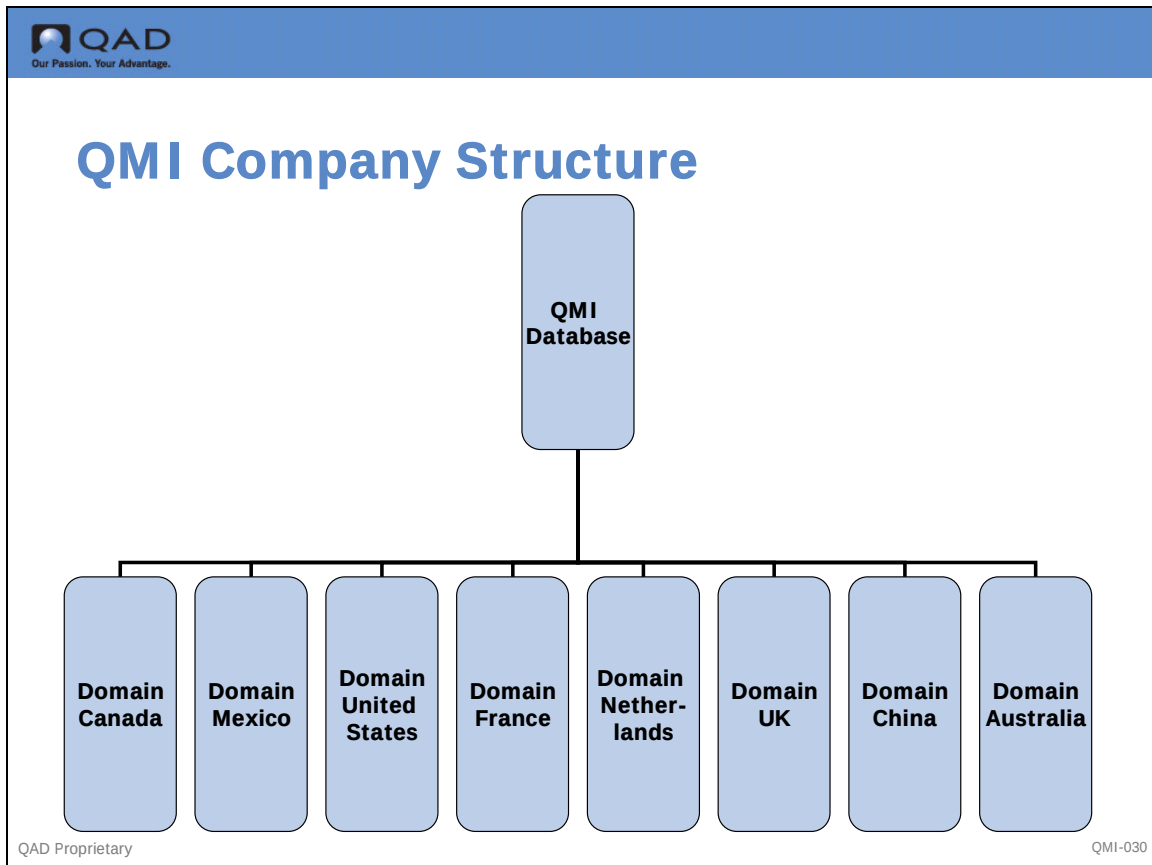
**Note:** Not allowing negative balances forces the user to fix the error at its source.

- Inventory in transit is usually not available.

In addition, certain transactions can be restricted. Each inventory status code can have a list of restricted transactions attached. For example, access to sales order issues can be restricted from a Quality Control Hold location.

Whenever items are received into inventory, a status code is associated with that inventory. This defaults to the status code entered for the location but can be changed using Inventory Detail Maintenance. Whenever you attempt to do something with this inventory—allocate it, issue it, move it—the system checks its status code and makes sure that this is a valid action.

## Example: QMI Business Structure



Quality Manufacturing International (QMI) is a multinational company with its headquarters located in New York, NY.

- QMI has eight divisions located in USA, Canada, Mexico, France, UK, Netherlands, China, and Australia.
- QMI produces a wide range of products that cover Electrical and Industrial, Life Sciences, Consumer Products, and Automotive industries.
- These products are produced at all of the eight company divisions around the world.
- QMI uses shared services to manage their customers and suppliers. Customers and suppliers are also located in each of the countries where a QMI division is located.

The example on the following pages shows how QMI sets up the foundations of its business structure. The domain and entity structure have been previously set up by corporate headquarters in preparation for the startup of the new business unit. This process included the setup of the accounting structure and GL calendars to ensure the new unit correctly integrates with corporate financial reporting requirements.

This course will focus on setting up:

- Sites
- Locations
- Inventory Status Codes

## Set Up Domain and Entity

**Set Up Domain and Entity**

Entity View X

Go To Actions Tools Attach Print Preview

Attachments

Entity Code 10USACO Active ☒

Entity Description USA DIVISION Domain 10USA

Business Relation 10-USA-CO

Localization Code

General Shared Sets Additional GL Numbering

| Shared Set Code      | Shared Set Type      |
|----------------------|----------------------|
| QMS-CostCenter       | Cost Center          |
| QMI-SUP              | Supplier             |
| QMI-CUST             | Customer             |
| QMS-SubAccount       | Sub-Account          |
| QMS-ExRate-US        | Exchange Rate        |
| QMS-GL-US            | General Ledger       |
| QMS-DB-US            | Daybook              |
| QMS-Project          | Project              |
| Sub-Account COA Mask | Sub-Account COA Mask |
| Cost Center COA Mask | Cost Center COA Mask |
| Project COA Mask     | Project COA Mask     |

QAD QS-SU-170

As part of the expansion of its current businesses, basic setup has been completed by the staff of the parent company, QMI. This ensures that all accounting and financial reporting functions are set up in accordance with corporate procedures.

All of the system-wide data is already available to QMI. Images of the domain and entity setup are shown here. Note that QMI has several shared sets that are common with other QMI divisions and two—customers and suppliers—that are unique to QMI.

This course uses a domain already set up with a base currency of US dollars (USD), a general ledger chart of accounts, and a GL calendar with periods that correspond to the standard 12-month calendar.

## Set Up Company Business Relation

# Set Up Company Business Relation

Business Relation Browse for...

Business Relation Modify X

Go To Actions Tools Attach Print Preview

Attachments

Business Relation: 10-CORP-CONS  
Name: Quality Manufacturing International  
Search Name: Quality Mfg Intl  
Second Name:  
Third Name:  
Group Name:  
Active: ☒

Address Info

General Defaults

| Address          | Address | Address | Zip Code | City     | Name              | Search Name      | Telephone |
|------------------|---------|---------|----------|----------|-------------------|------------------|-----------|
| 15 Avenue of the |         |         | 10065    | New York | Quality Manufactu | Quality Mfg Intl |           |

QAD
QS-SU-160

QMI's New York address has been set up in Business Relation Modify (36.1.4.3.2).

All addresses for customers, suppliers, and employees are set up as business relationships.



## Review Domain/Account Control

The screenshot displays the 'Domain/Account Control' window in QAD. The left pane shows verification settings: 'Verify GL Accounts' is checked, 'Base Currency' is USD, 'Entity' is 10USACD, and 'Default Domain Language' is us. The right pane shows a list of 'Sales Accounts' with columns for account number, type, and center. The 'Sales' account 4010 is selected.

| Account Name                | Account Number | Type | Center |
|-----------------------------|----------------|------|--------|
| Sales                       | 4010           | mech | ADM    |
| Sales Discount              | 4200           | Mech |        |
| Sales Inv Tax Acct          | 2400           | Mech |        |
| Sales CN Tax Acct           | 1405           | Mech |        |
| Sales Inv Tax Absorbed Acct | 2410           | Mech |        |
| Sales CN Tax Absorbed Acct  | 1415           | Mech |        |
| Sales Returns               | 4300           | Mech |        |
| COGS Material Acct          | 5010           | Mech | ADM    |
| COGS Labor Acct             | 5100           | Mech |        |
| COGS Burden Acct            | 5200           | Mech |        |
| COGS Overhead Acct          | 5300           | Mech |        |
| COGS Subcontract Acct       | 5400           | Mech |        |
| Sales Freight Accrued       | 2180           | Mech |        |
| Sales Freight Applied       | 4680           | Mech |        |
| Terms Late Interest         | 4650           | Mech |        |

QAD QS-SU-190

Domain Account Control (36.1) is used to set up default account codes, subaccounts, and cost centers. These are system-required accounts from the general ledger chart of accounts. Setting them up here ensures that any transaction the system can process are booked to a valid general ledger account.

The first frame in Domain/Account Control shows that GL accounts are verified, the base currency for the entity is USD, and audit trails are maintained.

The default accounts are organized by the type; Sales Accounts are shown in this image.

The following slides show the remaining default accounts organized by the type of account.

## AP, Department, Product Line Accounts

## AP, Department, Product Line

Domain/Account Control x

Go To Actions Copy Print Preview

AP Inv Tax Acct:1400 AP CN Tax Acct:2405 AP Inv Tax Retained Acct:1420

Accounts Payable

|                  |      |      |
|------------------|------|------|
| AP Inv Tax Acct: | 1400 | Mech |
| AP CN Tax Acct:  | 2405 | Mech |

AP Inv Tax Retained Acct:

AP CN Tax Retained Acct:

Expensed Item Receipt:

Expensed Item Usage:

Expensed Item Rate:

Department

Cost of Production: 5770 Mech

Labor: 5

Burden: 5

Domain/Account Control x

Go To Actions Copy Print Preview

Inventory Acct:1500 PO Receipts Acct:2520 Purchases:6610

Product Line

|                      |      |      |     |
|----------------------|------|------|-----|
| Inventory Acct:      | 1500 | Mech |     |
| PO Receipts Acct:    | 2520 | Mech |     |
| Purchases:           | 6610 | Mech | ADM |
| Overhead Appl Acct:  | 5330 | Mech |     |
| Scrap:               | 6000 | Mech |     |
| Work in Process:     | 1550 | Mech |     |
| Inv Discrep Acct:    | 5900 | Mech |     |
| Cost Revalue Acct:   | 6100 | Mech |     |
| Floor Stock Account: | 1600 | Mech |     |

Variances, Service Accounts

## Variances, Service Accounts

Domain/Account Control

Go To Actions Copy Print Preview

PO Price Var Acct:6710 AP Usage Variance:6720 AP Rate Variance:6740

Variances

|                             |      |      |     |
|-----------------------------|------|------|-----|
| PO Price Var Acct:          | 6710 | Mech | ADM |
| AP Usage Variance:          | 6720 | Mech |     |
| AP Rate Variance:           | 6740 | Mech |     |
| Method Variance Acct:       | 6800 | Mech |     |
| Transfer Variance:          | 6820 | Mech |     |
| Material Usage Var:         | 5040 | Mech |     |
| Material Rate Var:          | 5050 |      |     |
| Labor Usage Variance Acct:  | 5140 |      |     |
| Labor Rate Variance Acct:   | 5150 |      |     |
| Burden Usage Variance:      | 5240 |      |     |
| Burden Rate Variance:       | 5250 |      |     |
| Subcontract Usage Variance: | 5440 |      |     |
| Subcontract Rate Var:       | 5450 |      |     |
| Mix Variance:               | 6830 |      |     |

Domain/Account Control

Go To Actions Copy Print Preview

Service Labor:6900 Service Overhead:6905 Service Expense:6910

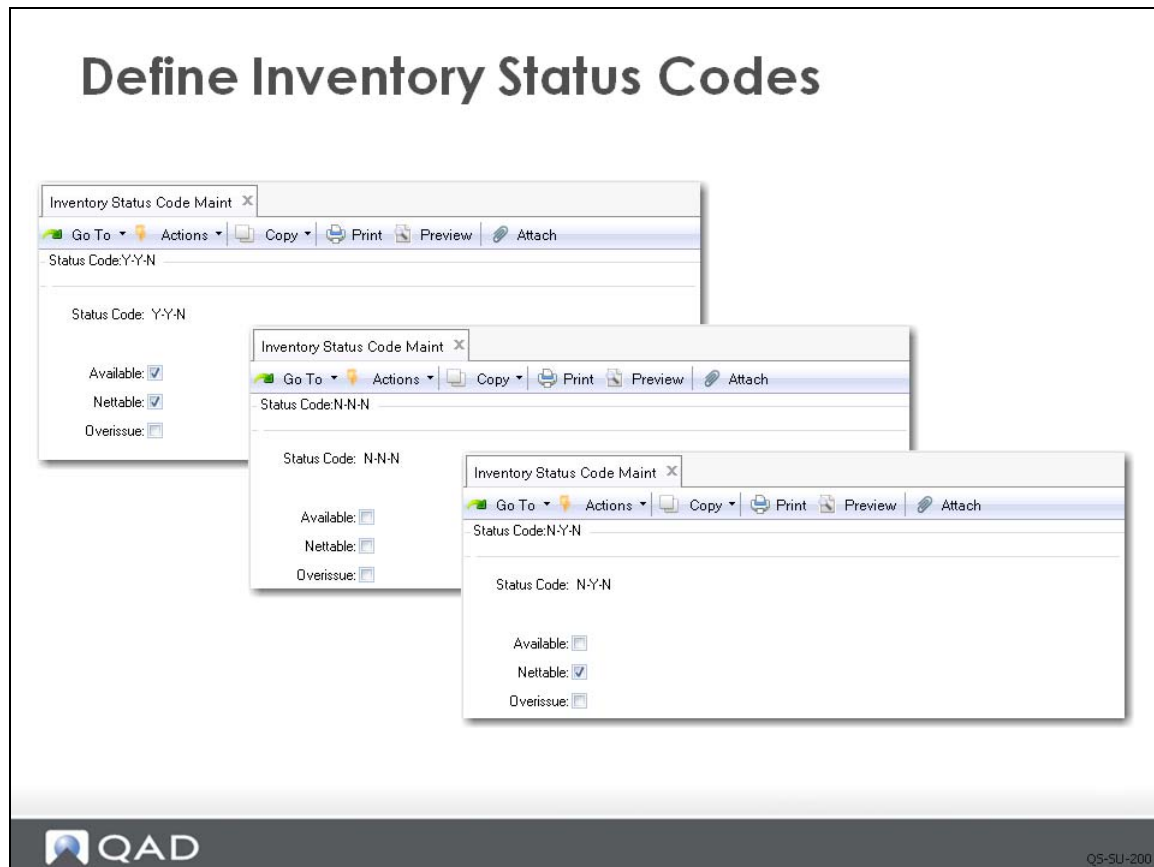
Service Accounts

|                   |      |      |  |
|-------------------|------|------|--|
| Service Labor:    | 6900 | Mech |  |
| Service Overhead: | 6905 | Mech |  |
| Service Expense:  | 6910 | Mech |  |
| Expense Due:      | 6915 | Mech |  |
| Service Returns:  | 6920 | Mech |  |
| Deferred Revenue: | 2450 | Mech |  |
| Accrued Revenue:  | 1450 | Mech |  |

QAD

QS-SU-192

## Define Inventory Status Codes



Before QMI can enter a site or items, it needs to define at least one inventory status code. These codes have a significant effect on how inventory can be managed.

In Inventory Status Code Maintenance (1.1.1), QMI can indicate if the inventory is available to be allocated to sales orders and/or work orders, nettable for MRP planning purposes, and whether overissues (items can be issued even if the current computer balance is insufficient to meet the demand) are permitted from the locations identified with this code.

QMI defines all its status codes to not allow overissues by leaving the Overissue box unchecked. This prevents inventory transactions that would result in a negative balance.

- QMI used code Y-Y-N to indicate parts and items that are OK to use and indicates they are available to issue and nettable for MRP planning purposes.
- QMI uses the code N-N-N to indicate items that are known to be unusable. They cannot be issued or used for planning.
- QMI uses the code N-Y-N to indicate items that are require review upon receipt or that are suspected of being unusable. These items require further review and are normally sent to an inspection area for disposition. They cannot be issued but can be used for planning.

**Note** It is highly recommended to not use blank code fields.

## Set Up Site

The screenshot displays the 'Set Up Site' window in the QAD software. The window has a title bar 'Site Maintenance' and a menu bar with 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. Below the menu bar, there are tabs for 'Site:10-100' and 'Domain:10USA'. The main content area shows the following fields:

- Site: 10-100
- Description: Ultrasound Mfg Site
- Domain: 10USA
- Entity: 10USACO
- Declarant: (empty)
- Default Inventory Status: Y-Y-N
- Automatic Locations: ☒
- Inspection Location: 030
- EMT Supplier: 10-300
- External Supplier: (empty)
- Transfer Variance Acct: 6820 MECH
- Transfer Ownership: ☒
- PD Transit Location: (empty)

The QAD logo is visible in the bottom left corner, and the text 'QS-SU-210' is in the bottom right corner.

QMI has multiple sites that can be viewed in Site Maintenance (1.1.13). This example focuses on site 10-100, assigned to domain 10USA and entity 10USACO. Site 10-100 has a default inventory status code of Y-Y-N, which was defined earlier. This code will default to inventory locations created in this site.

Automatic locations is left unchecked, which requires that new inventory locations be set up in Location Maintenance prior to use. If the field is checked, then inventory transactions can be processed for locations that do not exist, and the system creates them as part of the transaction. Some companies like this because it lets users create new locations as required. The new locations use all defaults from the site record. However, since the input is not verified, locations can be created that are in effect typographical errors.

To calculate taxes, you must set up a corresponding address code for each site in Company Address Maintenance. On taxable transactions, the system uses the site address to select the correct line-item tax environment. On purchase orders, the system retrieves the ship-to address code from the line item site code.

## Set Up Inventory Locations

The image displays two overlapping screenshots of the QAD Location Maintenance window. The background window shows the setup for Location 010, and the foreground window shows the setup for Location 020.

**Location Maintenance - Location:010**

- Site: 10-100
- Location: 010
- Description: Finished Goods
- Inventory Status: Y-Y-N
- Project:
- Date Created: 1/1/2008
- Permanent: ☒
- Type: SR
- Single Item: ☐
- Single Lot/Reference: ☐
- Capacity: 0.0
- Reserved Locations: ☐
- Transfer Ownership: ☒
- Physical Address:

**Location Maintenance - Location:020**

- Site: 10-100
- Location: 020
- Description: Components
- Inventory Status: Y-Y-Y
- Project:
- Date Created: 1/1/2008
- Permanent: ☒
- Type: SR
- Single Item: ☐
- Single Lot/Reference: ☐
- Capacity: 0.0
- Reserved Locations: ☐
- Transfer Ownership: ☒
- Physical Address:
- UM:

QAD QS-SU-220

QMI has set up three locations in Location Maintenance (1.1.18) to subdivide site 10-100, two shown in this slide and one in the following:

- 010 is for storage of finished goods, The Finished Goods location uses the default inventory status code Y-Y-N from the site record.
- 020 is for components. Its inventory status is Y-Y-Y.

Check the Permanent field to ensure your locations do not disappear from the records when they are empty.

## Location Maintenance

Location Maintenance

Go To Actions Copy Print Preview Attach

Site: 10-100 Location: 039 Inventory Status: N-Y-N

Site: 10-100 Ultrasound Mfg Site

Location: 039

Description: Inspection

Inventory Status: N-Y-N

Project:

Date Created: 5/5/2010

Permanent: ☒

Type:

Single Item: ☐

Single Lot/Reference: ☐

Capacity: 0.0 UM:

Reserved Locations: ☐

Transfer Ownership: ☐

Physical Address:

QAD

Q5-SU-221

An additional location is set up called Inspection to be used for material that is of questionable quality and requires further evaluation. This location has the status code N-Y-N.

Define an inventory location for every place your business stores inventory items. If you store pallets, or drums of raw material in the parking lot, the parking lot needs to be a location. If the supervisor keeps a safety stock of small items in a desk drawer, the drawer needs to be an inventory location.

### Additional Notes

You must associate an inventory status code with every location. By default, this is the inventory status from the site record.

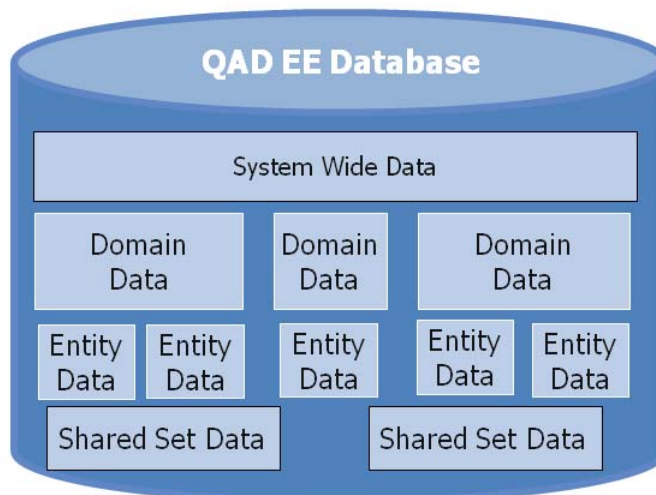
In this course, the other location attributes are left blank, but their usefulness should be evident.

- The Type code lets you indicate unique storage locations such as tanks, silos, and refrigerators. The item master can specify a location type for an item. During inventory transaction, the system ensures that the type of the receiving location matches the type of the item.
- Checking Single Item prevents the user from adding a different item to a location that already has an item in it. For example you cannot add olive oil to a tank that currently has vinegar in it.
- Checking Single Lot/Reference prevents adding a different lot number of an item to a location that already has a lot of material in it. For example you cannot add lot 3 olive oil to a tank that already has lot 2 olive oil in it.

## Review

### Review: Four Types of Data

- System-Wide Data
- Shared Set Data
- Domain Data
- Entity Data



Q5-SU-230

**Database.** To summarize, a database is a physical set of tables. All users who have access to that database have access to the data in those tables (subject to security restrictions).

**Domain.** A domain is a template for several entities that share the same base currency, general ledger chart of accounts, and calendar. A domain requires at least one entity.

**Entity.** An entity is a financial reporting concept. Balance sheets and income statements are produced by entity. A domain can have multiple entities. Consolidated reports can be focused by selecting a range of entities to report. At least one entity is required.

**Site.** A site is an inventory planning and control concept. All inventory is stored by site, and all planning is done by site. Each site belongs to one and only one entity, but each entity can have more than one site. Almost all reports produced in the system are selected and sorted by site. To manage inventory, at least one site is required.

**Location.** A site can have multiple inventory locations used to physically identify and control individual items in stock. Inventory reports normally are selected and sorted by location. To manage inventory, at least one location is required.



## Exercise 2

In this exercise, you will set up a brand new site. In later exercises you will use a site prepared for you. Before beginning, you need to verify a setting.

- 1 Go to Requisition Control (5.2.1.24) and make sure that Using GRS is NOT checked.
- 2 Use Inventory Status Code Maintenance (1.1.1) to add a new status code.

| Field       | Data                       |
|-------------|----------------------------|
| Status Code | Y-Y-N; click Next          |
| Available   | Yes (checked)              |
| Nettable    | Yes (checked)              |
| Overissue   | No (unchecked); click Next |

Click Next (or press Enter) until you come to the Restricted Transaction field, then click Back to complete the update transaction.

- 3 Use Site Maintenance (1.1.13) to enter a record for your manufacturing/distribution site.

| Field                    | Data                |
|--------------------------|---------------------|
| Site Code                | 10-101; click Next  |
| Description              | Ultrasound Mfg Site |
| Domain                   | 10USA               |
| Entity                   | 10USACO             |
| Default Inventory Status | Y-Y-N               |

Click Next 3 times, then Back.

### Set Up Inventory Locations

Add three inventory locations—Finished Goods, Components, and Pending Inspection—to site 10-101. The inventory status code of Y-Y-N should default from the site code.

- 4 Use Location Maintenance (1.1.18) to add three inventory locations with the attributes shown in the table below.

| Site   | Location Code | Description              | Inventory Status |
|--------|---------------|--------------------------|------------------|
| 10-101 | 010           | Finished Goods Inventory | Y-Y-N            |
| 10-101 | 020           | Components               | Y-Y-N            |
| 10-101 | 030           | Pending Inspection       | Y-Y-N            |

You can accept defaults for all other values.



# Product Definition

This chapter provides information on setting up items and defining the components that are used to build them.

*Overview*

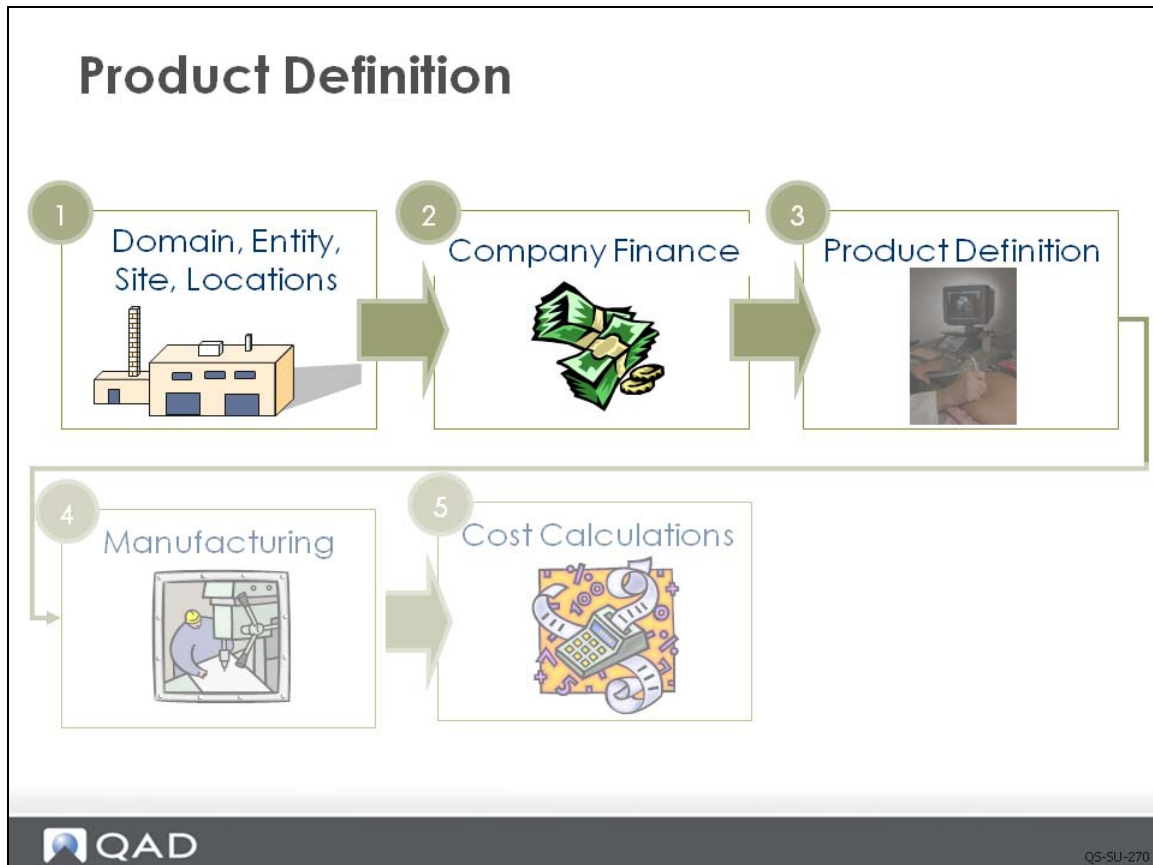
*Key Concepts*

*Example*

*Review*

*Exercise 3*

## Overview



After setting up the basic company structure, you can enter information about company products and how they are made.

## Chapter Topics

This chapter covers the following topics:

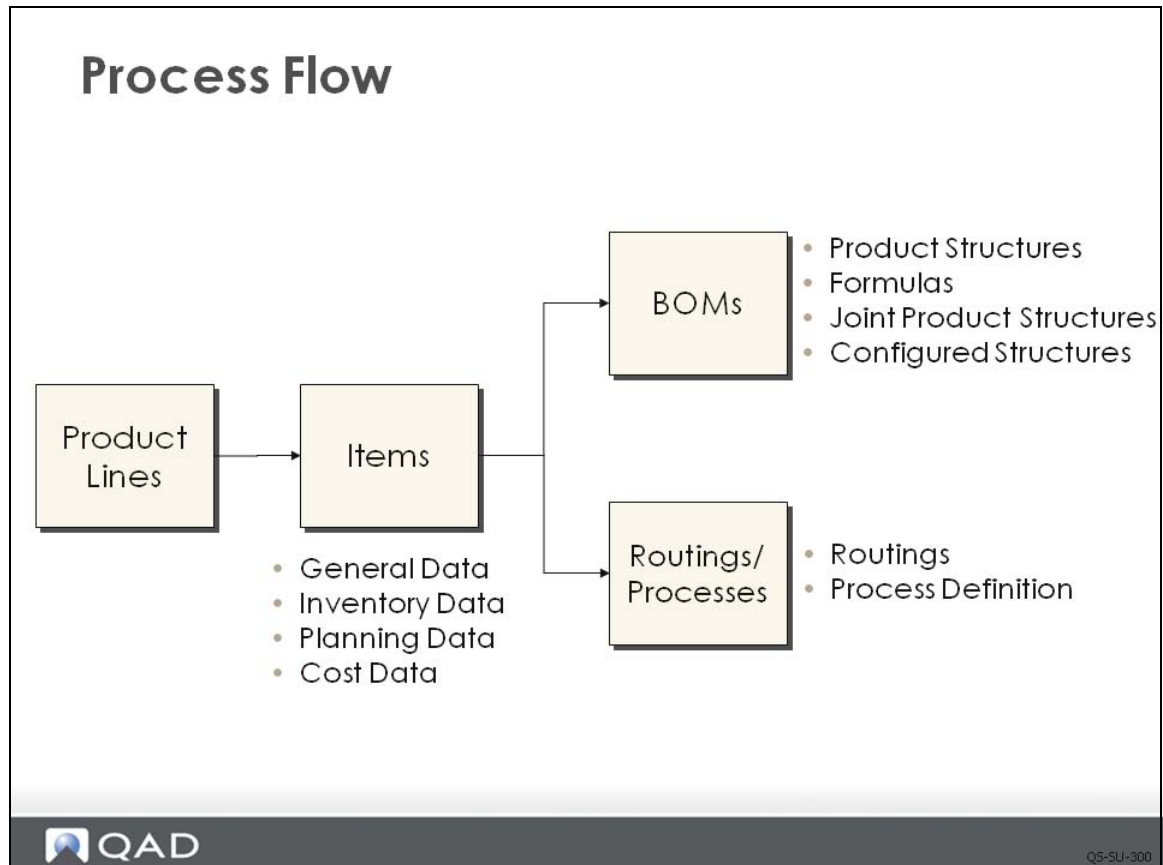
- Key Concepts
  - Product Lines
  - Current Costs
  - Item Information
  - Product Structure
- Example
  - Set Up Product Lines
  - Set Up Accounting Parameters
  - Enter Item Information
  - Set Up Product Structure
- Review
- Exercise

## Learning Objectives

**When you finish this chapter, you should be able to:**

- Explain the importance of a product line.
- Explain the difference between current costs and GL costs.
- Provide examples of order policies and order modifiers.
- List an item's five cost elements.
- Describe the information contained in a product structure.
- Set up a product line.
- Enter an item.
- Define an item's product structure.

## Key Concepts



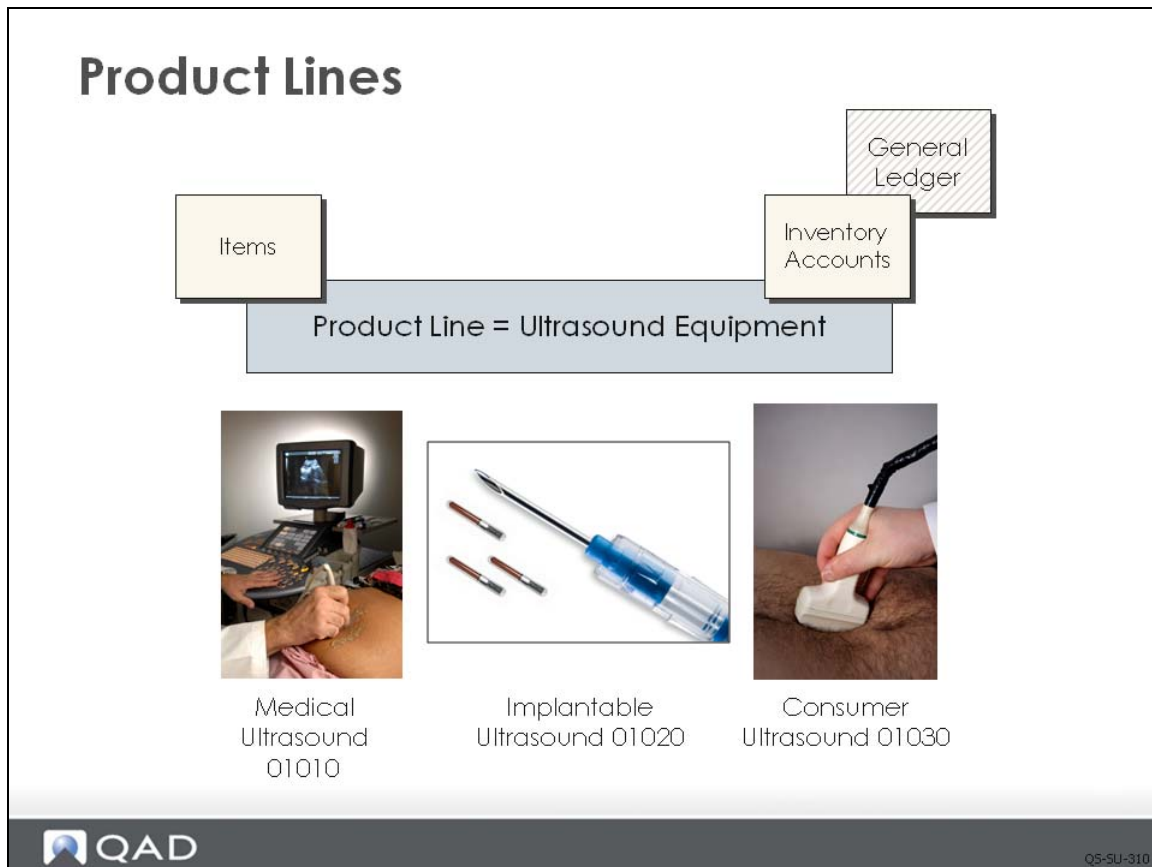
As shown in this slide, to establish a product definition, you must first establish product lines, then assign items to them. Although each item needs to have an associated product line to capture inventory costs and movement, each item may or may not have a bill of material (BOM) or routing associated with it. This chapter discusses bills of material; routings are presented later in the course.

- Bills of material specify how much of each component item are required to produce a parent item.
- Routings quantify where and how the product is made, the steps in the process of putting the materials together.

In very common terms, this is like a recipe. Most recipes have a list of ingredients (the bill of material) and a list of steps telling you how to combine the ingredients and how to process them (the routing).

The next few pages describe each step in the process flow shown in the figure above, beginning with product lines, followed by items and bills of material (product structures). Routings are discussed in the chapter on setting up a manufacturing environment.

## Product Lines



In QAD EE, a product line is a group of items or products with similarities in manufacture or application. While product line codes can be related to a marketing concept, they are more accurately considered an accounting concept since the product line code links items to GL accounts. This link is the way the system ensures that all transactions for an item have GL consequences. All items must belong to a product line; otherwise, no GL transactions associated with them could be recorded.

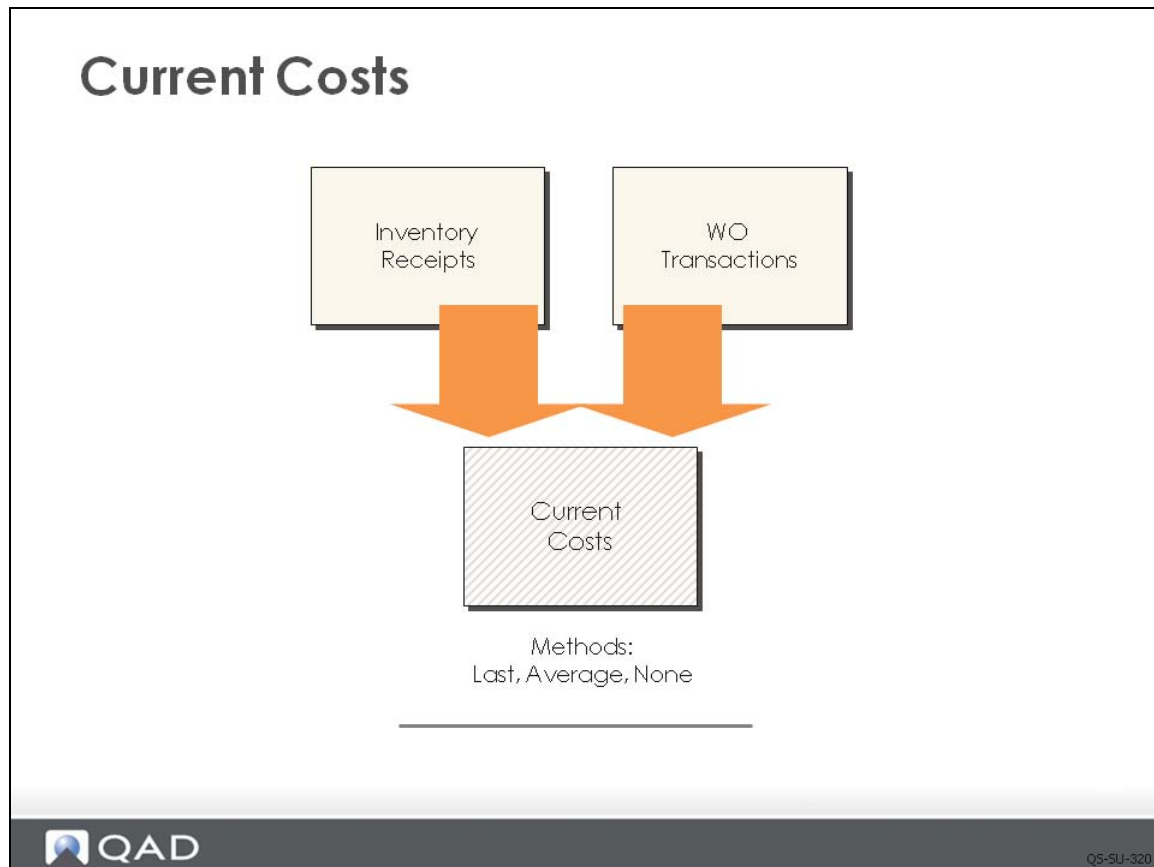
While product lines are primarily a financial construct, they should not be assigned by finance. While finance will play a role in defining product lines, both manufacturing and marketing will want to understand the structure and the ability to track costs and revenues for their items.

**Note** Many browses, inquiries, and reports in QAD can be sorted on product line. So some thought should be given to how you want to organize various reports.

The example in the slide shows three different types of ultrasound devices in one product line, so that all costs and revenues for these items is collected in the same set of GL accounts. Your company could decide that the nature of the materials and the manufacturing processes used for these items are different enough to require three product lines. Then you could use different accounts or sub-accounts to track costs and revenues.

Some companies would want different product lines for purchased materials or manufactured components. You must have at least one product line code but you can have as many as you need. After the product line has been set up, the method of updating the current costs of items is selected, discussed next.

## Current Costs



Current costs represent the costs for producing your products based on inventory receipts and work order labor transactions. These reflect what you are currently paying your suppliers for purchased materials and the current labor hours being consumed in producing the items at the work center labor rates.

When you have a standard costing system, the current cost set can be used to track the running average or last cost for use in determining next year's standard cost or for providing a record of recent actual costs.

Methods that can be used with the current cost set are Last, Average, or None.

**Last.** Each receipt sets the current cost to the last cost of that item. In the case of purchased material, this is the purchase or invoice price.

**Average.** Whenever an item is received, a new weighted average cost is calculated and stored in the cost set, this values all inventory at the new weighted average cost.

**None.** Current costs are maintained manually in the system or not used.

The method to use is selected in Inventory Accounting Control (36.9.2).

Costing is covered in more detail in Chapter 5, "Cost Calculations," on page 123.



## Terminology

### Cost Set

QAD EE has two default cost sets—GL and current—that are available for each site. A site can have additional cost sets set up in the Cost Management module, such as historical costs from prior periods and simulated costs for planning purposes.

### Current Cost Set

The current cost of an item is normally based upon recent production and/or purchases. Current costs are the actual costs from inventory receipts and work order labor transactions.

The use of the term actual is a convention adopted by cost accountants and may not be an actual cost in the strict sense of the word. For example the labor cost of an item is the hours charged multiplied by the work center labor rate. The work center labor rate usually reflects an average rate for all workers in the work center, rather than the actual rate of the person who worked on a specific work order.

### Standard Costing

Costs are preestablished for items and all transactions are valued at that cost as they are processed. Deviations in the costs are reported as variances. Standard costs are usually established once a year.

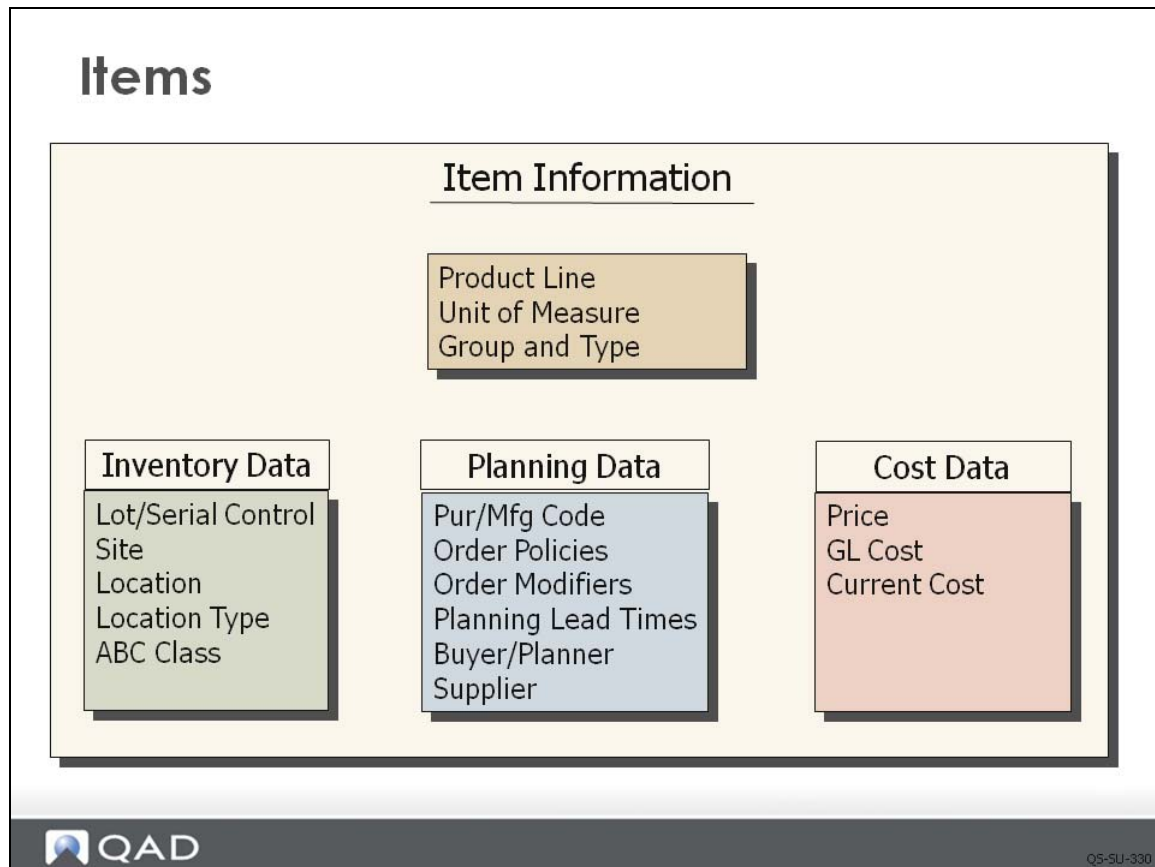
### GL Cost Set

GL cost is a term that distinguishes costs used for valuing inventory and for determining cost of goods sold from other costs such as current costs. GL costs can be based on either a standard or an average cost method.

### Variance

In a standard cost system the variance is the difference between the standard cost and the current cost. It is usually reported on a monthly basis.

## Item Information



After you set up the product lines and current cost method, you can define more specific information about each item.

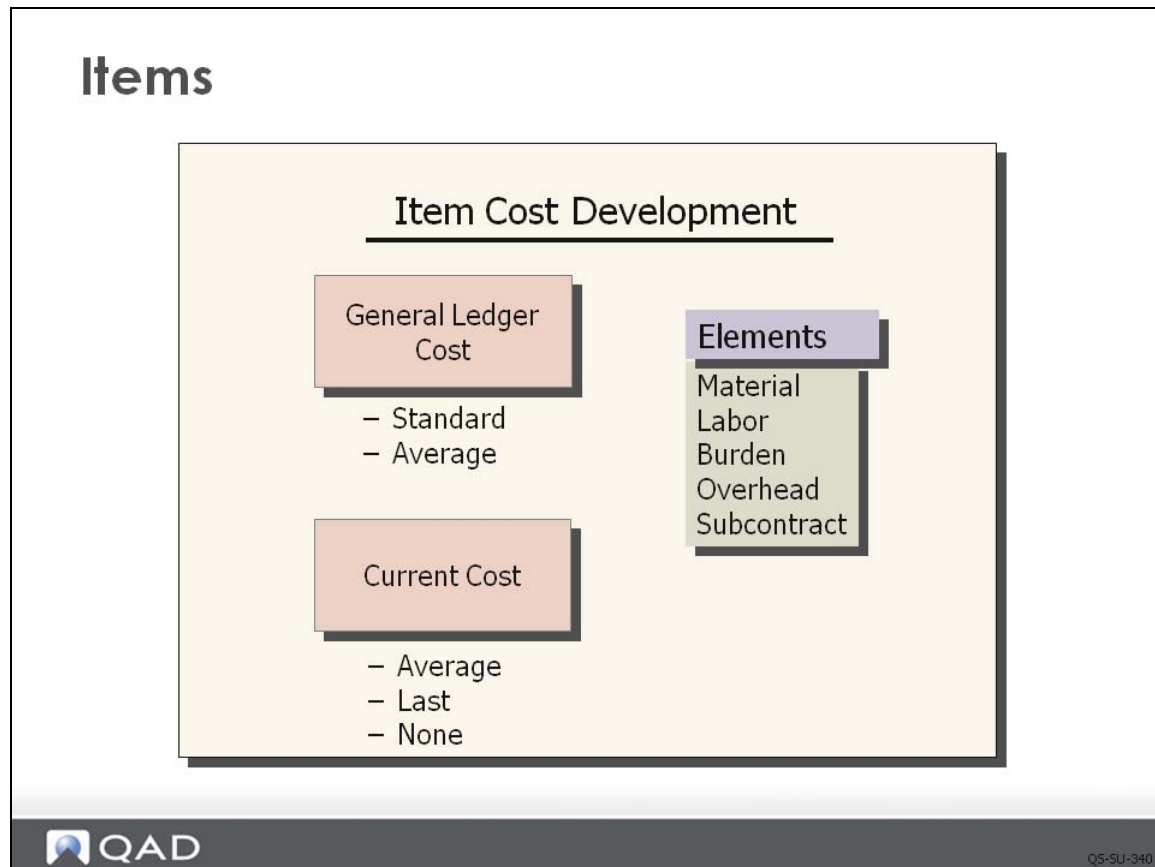
Item information must be entered for every item you use or produce. Item Master Data defaults to all sites in an entity. Later in the course, you will learn that many attributes of an item can be different at each site.

Every item is identified by an item number. This item number is the same for all sites, as is some of the other identifying information, such as product line, unit of measure, and group and type.

In Item Master Maintenance (1.4.1), you enter inventory data, planning data, and cost data. The slide shows the basic information recorded in each of these areas.

You can also use separate functions to add or maintain item data, inventory data, planning data, and cost data. This lets different functional areas such as production planning and cost accounting have update access to their data only.

## Item Cost Development



The cost of a manufactured item can be calculated based on its standard bill of material and routing. Depending upon the BOM and routing, costs can be both this-level and lower-level.

The slide shows that an item has two cost sets: GL and current. The GL cost set has either a standard or average costing method. The current cost set is determined by either the average or last cost of the item or it is maintained manually (setting = none). Both the GL and current cost sets are split into five standard cost categories and elements: material, labor, variable burden, fixed overhead, and subcontract.

In the example in this chapter, you will see how item costs are organized by these cost sets and elements.

### Terminology

#### Average Costing

Costs are recalculated as they occur. The costs associated with a transaction are weighted with the existing costs to provide a new average cost. The average cost can be used for valuation as a GL cost or for information only as a current cost.

### Bill of Material (BOM)

A listing of all subassemblies, components, and raw materials of a parent assembly with the quantity of each required to make one parent assembly. A BOM is also called a product structure or formula. The master production schedule uses the BOM to determine items for which purchase requisitions and production orders must be released.

### This-Level and Lower-Level Costs

This-level costs are the costs to either obtain or produce an item. Thus, a purchased item has this-level material cost, but it has no lower-level costs. Lower-level costs represent costs that are added at prior stages of manufacturing.

### Product Structures

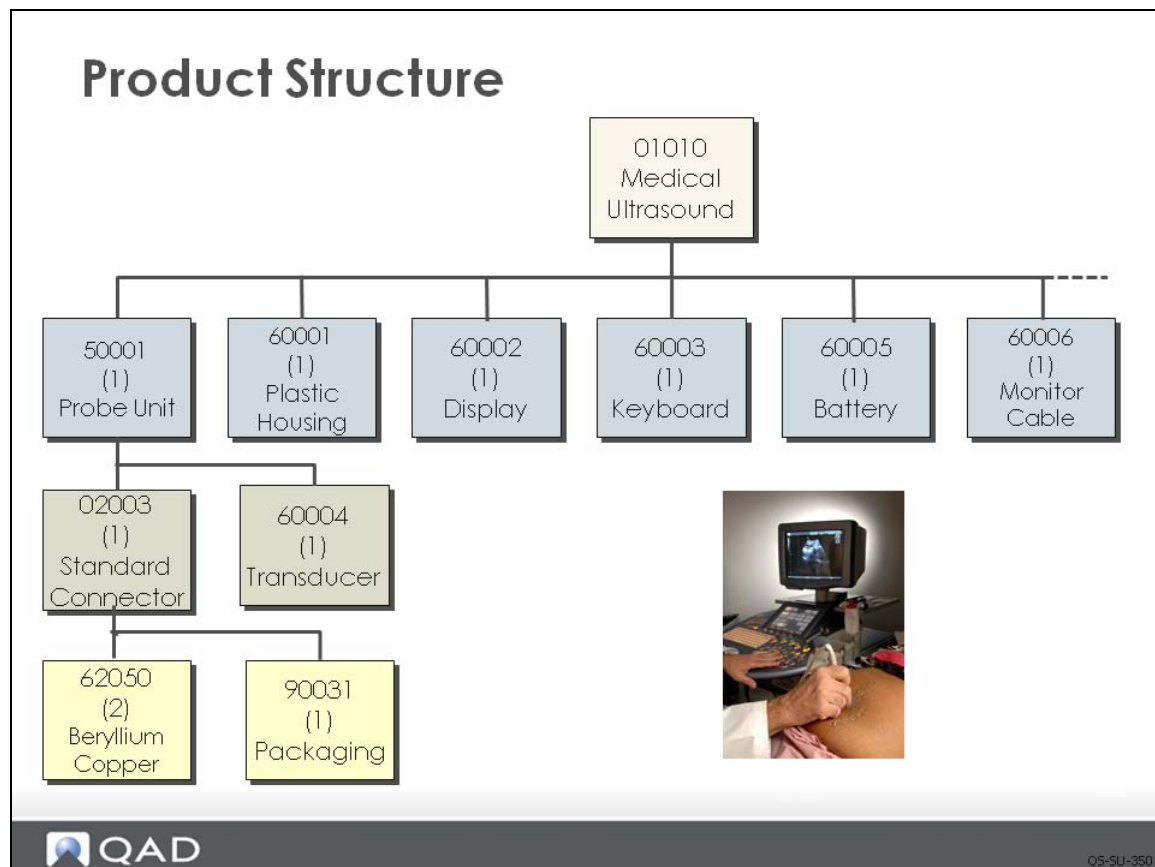
Product structures are associated with discrete items and identify the quantity of each component needed to manufacture one unit of an item, expected scrap percentage, and the operation where the item is required. Product structures are often referred to as bills of material.

### Formulas

Formulas identify ingredient usage as a quantity per batch or percent of batch. These are vital to the planning process. In QAD EE, you define these relationships in Formula Maintenance. Formulas are sometimes referred to as recipes.

In general, product structures and formulas work in the same way, and both are referred to as bills of material (BOMs).

## Parent/Component Relationships



The system uses BOMs, each a collection of parent/component relationships, for the planning and control of manufacturing. This slide illustrates the bill of material for the medical ultrasound (device 01010). The BOM shows three levels in the product structure below the end item 01010, the medical ultrasound.

- Not all level 1 components are shown; several more are needed to build the end item.
- The probe unit has two components: a standard connector and a transducer.
- The standard connector also has two components.

## Alternate Product Structure or Formula

Different formulas for different batch sizes of product or alternate product structures used in different circumstances require multiple BOMs for the same item. This is done by adding a BOM code in Product Structure Code Maintenance or Formula Code Maintenance and then using this BOM code as the parent in Product Structure Maintenance or Formula Maintenance. A BOM code uniquely identifying a product structure or formula.

The normal situation is to have the BOM code be the same as the item number. When several alternate structures are available, they are given other identifiers. The alternate BOM you use most often can be linked to the item number in Item Planning Data Maintenance.

## Example

In this example, QMI's Manufacturing Department:

- Sets up a product line for its ultrasound components
- Selects the current cost method
- Defines several codes to be associated with a defined item
- Defines one of the component items, which is a purchased item
- Defines the product structure of a medical ultrasound unit, which shows the relationship between the parent item and its components (quantity required and routing operation)

Additionally, you will see how current costs are calculated at QMI.

## Set Up Product Lines

### Example: Product Lines

The screenshot shows the 'Product Line Maintenance' window. At the top, there is a toolbar with buttons for 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. Below the toolbar, the 'Product Line: 10' is selected. The 'Description' field contains 'Finished Goods'. The 'Taxable' checkbox is checked. The 'Tax Class' field is empty. The 'Default Sub-Account' and 'Default Cost Center' fields are empty. There are 'Override' checkboxes for both 'Default Sub-Account' and 'Default Cost Center'. The 'Inventory Accounts' section lists four accounts: 'Inventory Acct: 1500 Mech', 'Inv Discrep Acct: 5900 Mech', 'Scrap Account: 6000 Mech', and 'Cost Revalue Acct: 6100 Mech'.

| Inventory Accounts      |      |
|-------------------------|------|
| Inventory Acct: 1500    | Mech |
| Inv Discrep Acct: 5900  | Mech |
| Scrap Account: 6000     | Mech |
| Cost Revalue Acct: 6100 | Mech |

QMI's Manufacturing Department has set up a product line 10 with the description Finished Goods. The sales and operations of all ultrasound components will be planned, reported, and analyzed by this product line. Additionally, costs are tracked by the inventory accounts set up in Product Line Maintenance (1.2.1).

**Note** Once your cursor is in the bottom frame (Inventory Accounts) if you continue to click Next, the system displays four more frames of account code data. These accounts default from Domain/Account Control (36.1) and should be accepted as is.

## Select Current Cost Method

### Example: Cost Set Method

The screenshot shows the 'Inventory Accounting Control' window. The 'Current Cost (AVG/LAST/NONE)' dropdown is highlighted with a red box and set to 'LAST'. Other options include 'Sum LL Costs Into Matl Cost' (unchecked), 'Current Cost from AP' (checked), 'Create GL Transactions' (checked), and 'Transfer Clearing Acct' (1670). The 'Summarized Journal' checkbox is checked, and the 'Journal Reference Method' is set to 0. The window also has a menu bar with 'Go To', 'Actions', 'Copy', 'Print', and 'Preview'.



QS-SU-370

QMI uses a standard cost method for the GL cost set, and it tracks its actual costs in the current cost set. The method of updating the current cost set is selected in Inventory Accounting Control (36.9.2). QMI uses the method Last, so that the last or most recent cost of an item becomes the current cost.

### Additional Notes

#### Current Cost from AP

Optionally, you can also update the current cost each time an AP voucher transaction is completed for the item. This uses the supplier invoice amount to update the current cost.

#### Create GL Transactions

Create GL Transactions is selected unless you are using the periodic method of inventory accounting. In periodic inventory accounting, the period ending inventory is based on the cost of beginning inventory plus purchases minus sales. No GL entries need to be created if inventory is manually created.

**Note** Periodic inventory accounting is essentially an obsolete concept. Only the smallest business could manage with this technique. This is a financial inventory method giving only the value of the inventory, and only at period end. If you wanted to know how much of an item you had on hand, you would need to do a physical inventory count.



## Update Inventory Control

## Inventory Control

Inventory Control
X

Go To Actions Copy Print Preview Attach

Default Site: 10-100  
 Inventory Count Parameters

Tolerance From Qty On Hand or Annual Usage: Qoh

Issue Days: 5

Default Site: 10-100

Item Tolerances:
 

|          |       |      |             |       |      |
|----------|-------|------|-------------|-------|------|
| Class A: | 3.00% | 0.00 | Class C:    | 5.00% | 0.00 |
| Class B: | 4.00% | 0.00 | All Others: | 5.00% | 0.00 |

QAD
QS-SU-371

Use Inventory Control (3.24) to set other non-financial inventory parameters. Use it to set the default site to 10-100. This will prefill the site field on many transactions saving you some effort.

## Set Up Item Status Codes

The screenshot displays the 'Item Status Code Maintenance' window in QAD. It shows two overlapping windows. The background window is for 'Item Status: ACTIVE' and the foreground window is for 'Item Status: OBS'.

**Item Status: ACTIVE**  
Description: ACTIVE

**Restricted Transactions:**

| Transaction Code | Status |
|------------------|--------|
| ADD-FC           |        |
| ADD-PO           |        |
| ADD-WO           |        |
| ADD-SO           |        |
|                  |        |
|                  |        |
|                  |        |
|                  |        |
|                  |        |
|                  |        |

**Item Status: OBS**  
Description: Obsolete

**Restricted Transactions:**

| Transaction Code | Status |
|------------------|--------|
| ADD-FC           |        |
| ADD-PO           |        |
| ADD-WO           |        |
| ADD-SO           |        |
|                  |        |
|                  |        |
|                  |        |
|                  |        |
|                  |        |
|                  |        |

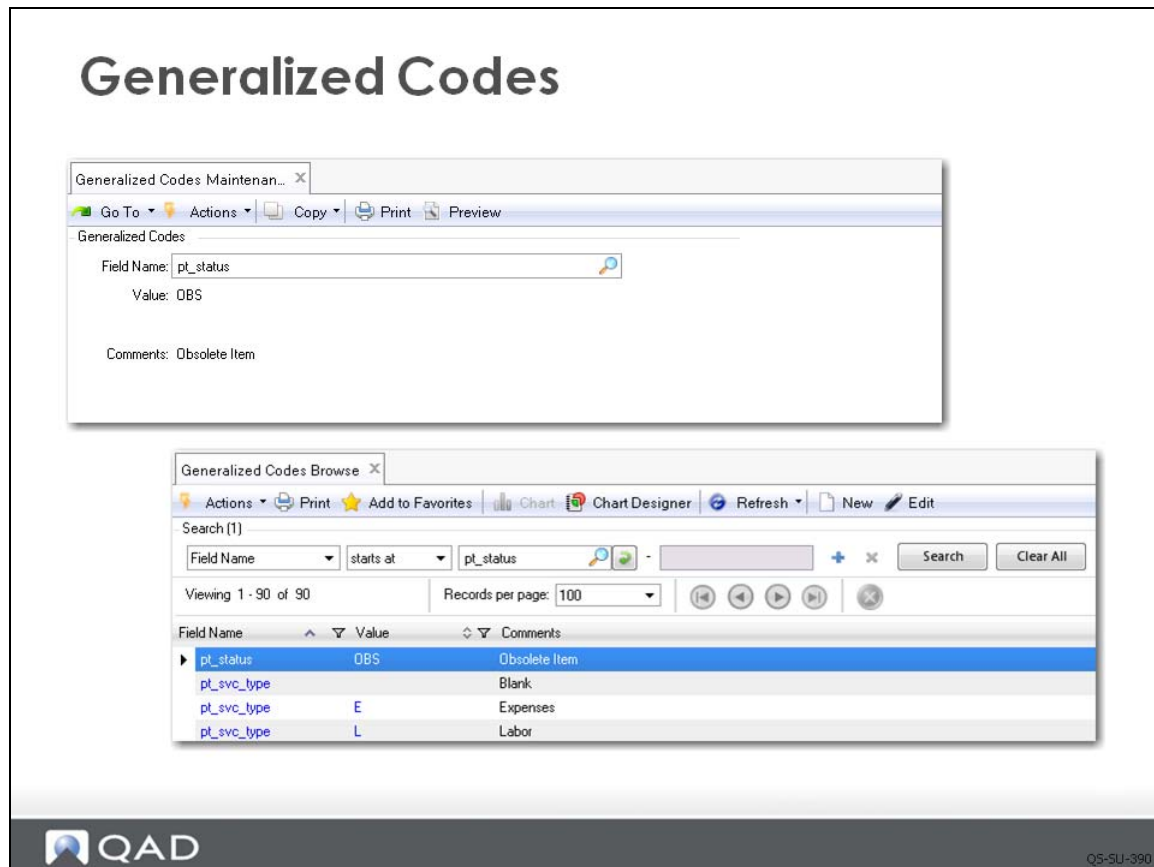
QAD QS-SU-360

Item status codes are optional but a very useful feature. The codes are designed to relate to an item's life cycle. This example shows two codes: one for active items and one for obsolete items.

The first image displays the Active code and the second displays the code OBS for obsolete items. For the obsolete item status, several inventory transaction codes are prohibited. The codes are selected by clicking on the lookup icon. Those selected in the example prevent users from adding a forecast, a purchase order, sales order, or work order for any item with the status code OBS.

Item status codes are user defined and you can set up as many as you need. Used in conjunction with inventory status codes, they offer powerful control for your items.

## Set Up Generalized Codes



After you have created item status codes, you can choose to enforce the use of only those you created. This is done using Generalized Codes Maintenance (36.2.13), which lets you control the values that can be specified in fields with user-defined codes.

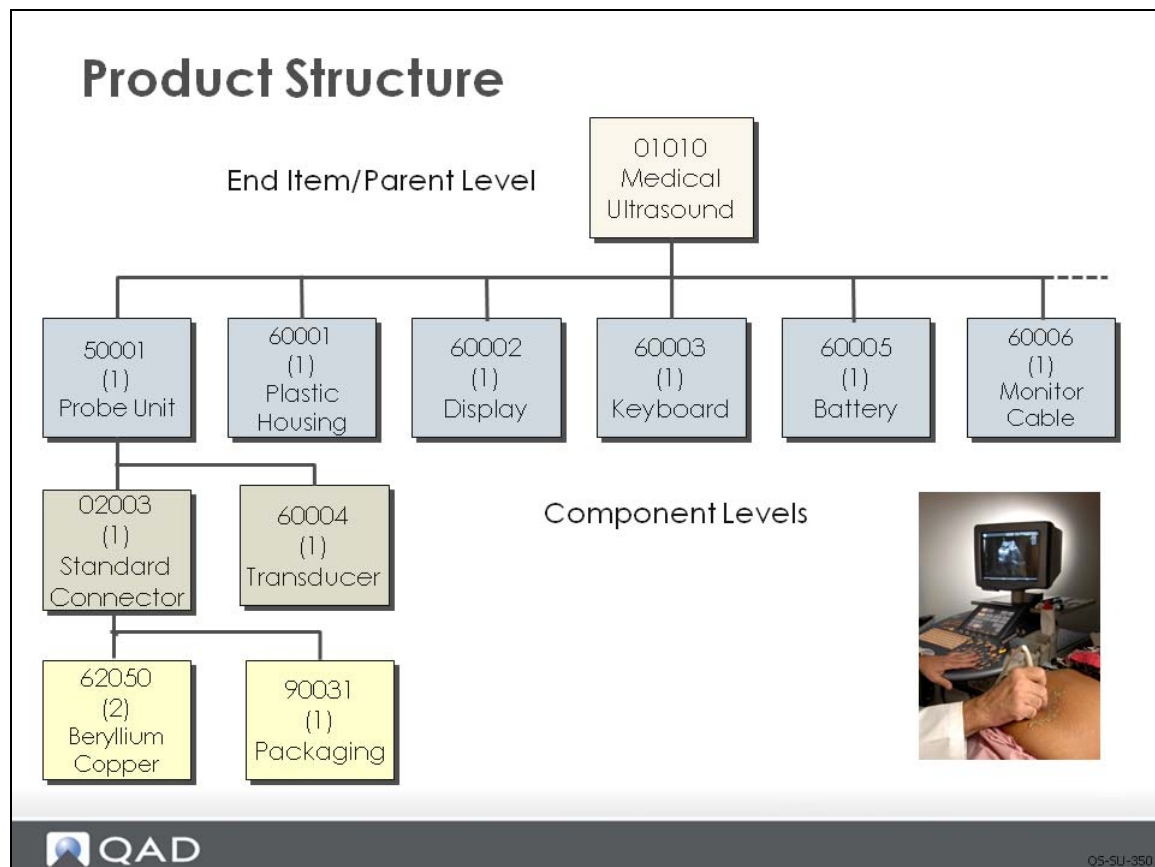
To set up code validation, you need to know the name of the field where you want the validation to occur. To find out its name, go to the program where it is used and press Next through a record until your cursor is in the field. Then press the key combination of Ctrl+F. A window displays all the information about your current context, including the technical field and program name.

In this example, you would go to Item Master Maintenance (1.4.1), click Next until your cursor is in the Item Status field, and then press Ctrl+F. A window displays information including the name for that field: pt\_status. You can find the name of any active field in the same way.

Create the list of acceptable codes for Item Status by entering the pt\_status for Field Name in Generalized Codes Maintenance; then click Next. In the field labeled Value, enter the acceptable code value and click Next. Then enter a description for the code and click Next. You can enter as many codes as you want. When done, you can check your work by using the browse.

Users can see the codes that have been set up by using the lookup on the Status field in Item Master Maintenance.

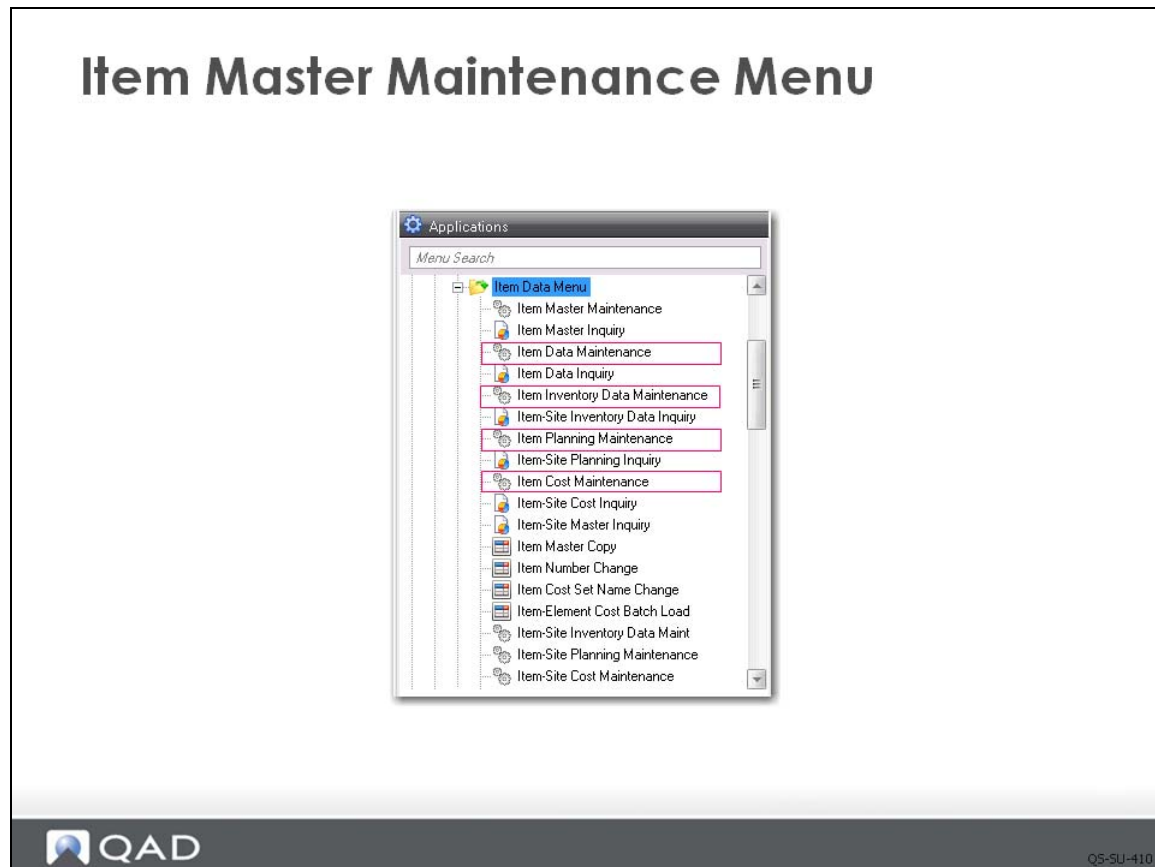
### Example: Item Information



The product structure of the medical ultrasound is shown again in this slide. In this example, you will see how QMI set up the parent item in this product structure.

**Note** In the exercise, you will set up two additional items. All the items belong to product line 10.

## Item Master Maintenance Menu



You will use Item Master Maintenance (1.4.1) to add the information for QMI's medical ultrasound and its components. This function—at the top of the menu shown in the slide—is a series of linked frames labeled:

- Item Data
- Item Inventory Data
- Item Planning Data
- Item Cost Data

As highlighted in the menu, each of these frames can be accessed with its own separate menu selection. This is often useful for job separation. You can use system security to limit access to a particular function to only those authorized to add or maintain that specific data.

**Note** In the exercise, you may find it more convenient to use one of the separate functions.

The menu also has separate functions for the same data at different sites. This training guide use only one site, 10-100. If additional sites are used, each item can have different data at each site.

## Example: Item Data and Inventory

### Example: Item Data and Inventory

The screenshot displays the QAD Item Master Maintenance window. The top navigation bar includes tabs for Item, Planning, and Price. The Item Data frame contains fields for Item Number (01010), Description (Medical Ultrasound), Unit of Measure (EA), Product Line (10), Item Type (FINGOOD), Status (ACTIVE), Design Group (PRODMGMT), Group (Medical), Drawing (F-10000-A23), Revision (D), Drawing Loc (B2-1), Size (10), and Price Break Category. The Item Inventory Data frame includes fields for ABC Class (A), Lot/Serial Control (S), Site (10-100), Location (010), Location Type, Auto Lot Numbers, Lot Group, Article Number (F10000-0123), Average Interval (90), Cycle Count Interval (90), Shelf Life, Allocate Single Lot, Key Item, PO Receipt Status, Active checkbox, WO Receipt Status (N-Y-N), Active checkbox, and Memo Order Type.

In Item Master Maintenance, QMI enters item number 01010, a description, and the item unit of measure and in the Item Data frame, product line 10. Remember, each item is assigned to one and only one product line. Enter the status code Active in the Status field. UoM and product line are the only fields (other than the item number) required by the system. UoMs are critical to both inventory control and costing. Careful consideration should be given to how you plan to use them.

**Note** Other fields may be required when generalized codes validation has been added and blank is not an allowed value.

**Important** Item Type, Item Status, and Item Group are optional and user defined. If you choose to use them, plan carefully since these codes offer additional capability in sorting browses, reports, and inquires.

In the Item Inventory Data frame, enter site 10-100; this will appear as the default site. In the Location field, enter 010, which will appear as the default inventory location for this item. The default site and location can be overridden on any transaction by the user by simply typing over the default value and entering the site and or location to be used for the current transaction.

Set the ABC Class code to A. This code is used for ABC analysis of inventory, managing inventory count tolerances, and cycle counting. After the system has some data and history to work from, it can compute the ABC class code.

When you click Next on the Inventory Data Frame, the Shipping Data frame appears. Leave this data blank for the time being and click Next to advance to the Item Planning Data frame.

## Example: Item Planning

### Example: Item Planning

Item Master Maintenance

Go To Actions Copy Print Preview Attach

Item Planning Price

Item

Item Number: 01010 Description: Medical Ultrasound

Unit of Measure: EA

Item Planning Data

Mstr Sched: ☒ Plan Orders: ☒ Time Fence: 0

MRP Required: ☐ Order Policy: POQ Order Qty: 0 Batch Qty: 0 Order Period: 7 Safety Stock: 0 Safety Time: 0 Reorder Point: 0 Revision: D Issue Policy: ☒

Buyer/Planner: 1-01 Supplier: PO Site: Purchase/Manufacture: M Configuration Type: Inspect: 1.0 Ins LT: 0 Cum LT: 0 Mfg LT: 4 Pur LT: 0

Phantom: ☒ Minimum Order: 1 Maximum Order: 5 Order Multiple: 1 Op Based Yield: Yield Percent: 100.00% Run Time: 17,000 Setup Time: 7,500 EMT Type: NON-EMT

ATP Enforcement: NONE Auto EMT Processing: Network Code: Routing Code: U-001 BOM/Formula: Replenishment Method: Orders

QAD QS-SU-430

QMI's Material Planning Department uses item planning data to determine how and when to replenish inventory. The planners want to let material requirements planning (MRP) automatically create planned orders for this item, based on demand, so the Plan Orders field is selected. When Plan Orders is selected and a value is specified in the Order Policy field—as it is in this example—MRP generates planned purchase and work orders to satisfy net requirements for this item. Since this is an end item, Mstr Sched is also checked.

**Important** The Mstr Sched field is normally checked only for items that need to be forecast or otherwise planned. These are usually the end items the company sells. Reports, inquiries, and browses can be selected for master schedule items only, providing an excellent high-level filter.

The Order Policy determines the rules for planning orders. The ordering rule QMI applies to item 01010 is Period Order Quantity (POQ). This means that MRP calculates demand for this item over the number of calendar days specified as the Order Period (7 in this example) and creates one order to satisfy all demands in a seven-day period.

**Note** Order policies and how they are used to calculate order quantities are covered later.

Another key field is Purchase/Manufacture. Item 01010 is manufactured, indicated by M. The manufacturing lead time is 4 days—the number of days it takes to complete the manufacturing cycle for this item. The Purchase/Manufacture field defines the source for this item at this site. Its other values and how they work are covered in more detail later in the course.

## Example: Item Cost Data Frame

## Example: Item Cost Data Frame

Item Master Maintenance

Go To Actions Copy Print Preview Attach

Item Planning Price

Price Cost

Item

Item Number: 01010 Description: Medical Ultrasound  
Unit of Measure: EA

Totals

|         |           |          |             |                          |          |                          |
|---------|-----------|----------|-------------|--------------------------|----------|--------------------------|
| Totals: | 369.41443 | 1,226.18 | 1,595.59443 | <input type="checkbox"/> | 12/02/11 | <input type="checkbox"/> |
|---------|-----------|----------|-------------|--------------------------|----------|--------------------------|

Current Cost Data (GL Cost Source Site: 10-100 / Set: Current)

| Element  | This Level | Lower Level | Total     | Pri                                 | Category | A/O                      |
|----------|------------|-------------|-----------|-------------------------------------|----------|--------------------------|
| Material | 0.00       | 1,226.18    | 1,226.18  | <input checked="" type="checkbox"/> | Material | <input type="checkbox"/> |
| Labor    | 368.27404  | 0.00        | 368.27404 | <input checked="" type="checkbox"/> | Labor    | <input type="checkbox"/> |
| Burden   | 1.14039    | 0.00        | 1.14039   | <input checked="" type="checkbox"/> | Burden   | <input type="checkbox"/> |
| Overhead | 0.00       | 0.00        | 0.00      | <input checked="" type="checkbox"/> | Overhead | <input type="checkbox"/> |
| Subcontr | 0.00       | 0.00        | 0.00      | <input checked="" type="checkbox"/> | Subcontr | <input type="checkbox"/> |
|          |            |             |           | <input type="checkbox"/>            |          | <input type="checkbox"/> |

QAD

QS-SU-440

The item cost section is divided into three sections: price, general ledger cost, and current cost. The three frames appear sequentially with repeated clicks of the Next button.

In the first frame, QMI's Marketing Department has determined a price of \$2,500 for each unit.

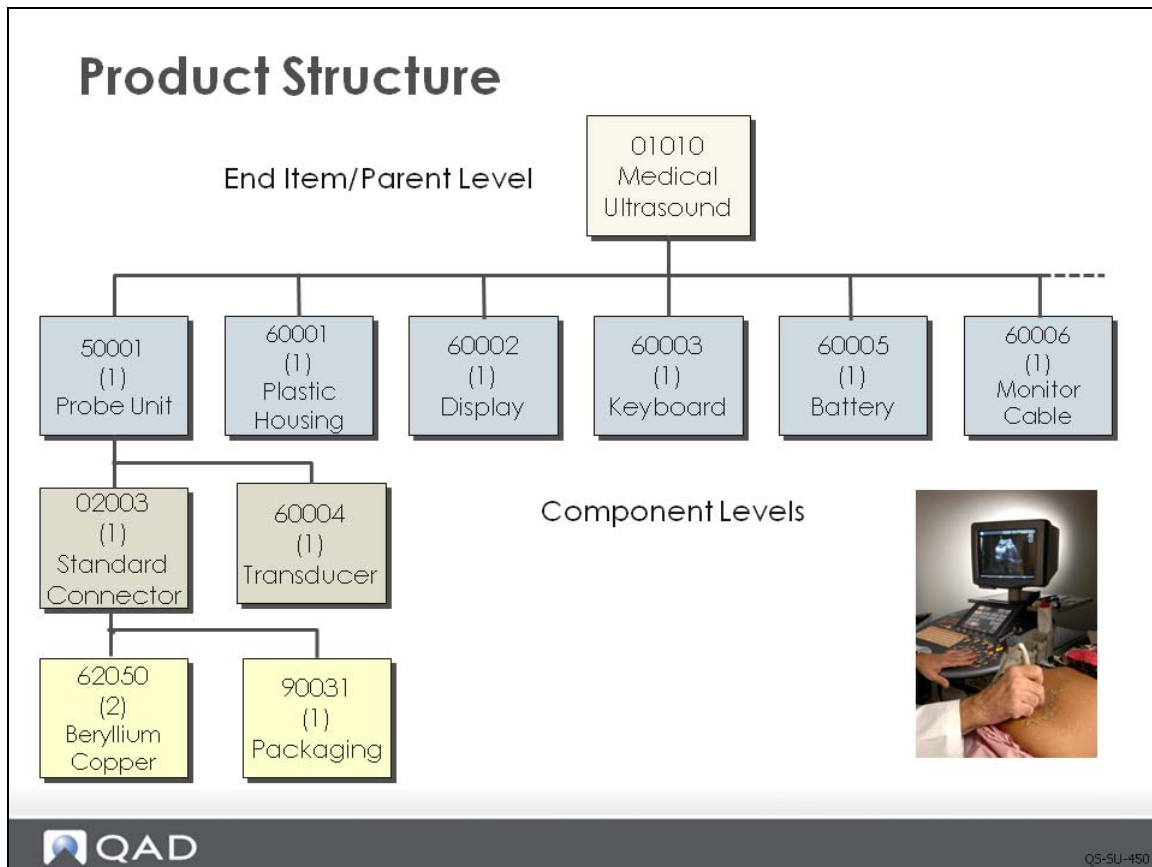
Two cost frames display: GL costs display first and then current costs. This example focuses on the Current Cost Data frame.

For manufactured items, material costs are calculated based on actual costs recorded in the system. In the case of a purchased item, the material cost is the purchase cost. As a purchased item, it has no lower-level manufacturing related costs, only this-level costs.

**Note** Two cost set frames display in Item Master Maintenance. The one shown here is the standard set; another frame displays GL costs. The relationship between cost sets is explored in a later chapter.



## Set Up Product Structure



## Set Up Product Structure

## Example: Set Up Product Structure

Product Structure Maintenance

Top Level Parent: 01010 | New | Save | Product Structure | Component | Delete | Levels: 1

Items | Product Structure Codes | **Product Structure Maintenance**

Parent: 01010 Medical Ultrasound

Component: 50001 Probe Unit - 10 Mhz

Reference:

Start Date:  End Date:

Quantity: 1 Unit of Measure: EA

Structure Type:  Sequence Number: 0

Remarks:  Forecast Percent: 100.00%

Scrap: 0.00% Option Group:

Lead Time Offset: 0 Process:

Operation: 10

| Component | Description         | Unit of Measure | Reference | Quantity | Start Date | End Date | BOM Code |
|-----------|---------------------|-----------------|-----------|----------|------------|----------|----------|
| 01010     | Medical Ultrasound  | EA              |           | 1        |            |          | 01010    |
| 50001     | Probe Unit - 10 Mhz | EA              |           | 1        |            |          | 50001    |
| 02003     | Standard Connector  | EA              |           | 1        |            |          | 02003    |
| 60004     | Transducer - 10 Mhz | EA              |           | 1        |            |          | 60004    |

**QAD** QS-SU-460

In Product Structure Maintenance (13.5), you click New to begin creating a product structure. After you select the parent item from the list of items by double-clicking, you can begin adding components. You add them the same way by finding them in the list and double-clicking to add them to the structure.

After the item is added, you can double-click again to display the data associated with the component item in the structure (shown above). You can modify the Quantity Per field by entering the number of the component item required to make one of the parent item. You can also add the operation number from the routing where this component will be used. This item is used at operation 10. When data entry is complete for the first component, double-click the next component item you want to modify.

**Component Scrap.** The field labeled Scrap can be used to account for component scrap. For example, the beryllium copper component in the product structure is a very small item, easily dropped and lost, or found to be damaged. In this case, based on actual experience, you can choose to add a small scrap value to the product structure at this operation. Later, you will see how the planning systems adjust the purchase requirements (and the item cost) to account for this loss.

**Effective Dates.** The elements that make up a product structure have a range of effective dates, so new components can be phased in and others phased out. The Start Date defaults to the system date. By leaving the End Date blank, the item remains effective until that date is changed.

## Review Product Structure Inquiry

## Example: Product Structure Inquiry

Product Structure Inquiry X

Go To Actions Copy Print Preview Attach

Parent Item/BOM Code: 01010 Output: PAGE

Parent Item/BOM Code: 01010 Medical Ultrasound EA

As Of: 5/25/2010 Levels: Rev: PCO Number: ID: Domain: Output: PAGE

| Level  | Component Item | Description                  | Quantity | Per | UM | Ph | T | Iss |
|--------|----------------|------------------------------|----------|-----|----|----|---|-----|
| Parent | 01010          | Medical Ultrasound           |          |     | EA |    |   |     |
| 1      | 50001          | Probe Unit - 10 Mhz          | 1.0      |     | EA |    |   |     |
| .2     | 02003          | Standard Connector           | 1.0      |     | EA |    |   |     |
| .3     | 62050          | Beryllium Copper Discrete PO | 0.0001   |     | rl |    |   |     |
| .3     | 62050          | Beryllium Copper Discrete PO | 0.0001   |     | rl |    |   |     |
| .3     | 90031          | Packaging                    | 2.0      |     | EA |    |   |     |
| .2     | 60004          | Transducer - 10 Mhz          | 1.0      |     | EA |    |   |     |
| 1      | 60001          | Durable Plastic Housing      | 1.0      |     | EA |    |   |     |
| 1      | 60002          | Display / Readout            | 1.0      |     | EA |    |   |     |
| 1      | 60003          | Keyboard                     | 1.0      |     | EA |    |   |     |
| 1      | 60005          | Battery                      | 1.0      |     | EA |    |   |     |
| 1      | 60006          | Monitor Cable                | 1.0      |     | EA |    |   |     |
| 1      | 60007          | Movable Cart                 | 1.0      |     | EA |    |   |     |
| 1      | 60008          | Printer                      | 1.0      |     | EA |    |   |     |
| 1      | 60050          | Base Unit / CPU              | 1.0      |     | EA |    |   |     |
| 1      | 90093          | Shipping Carton              | 1.0      |     | EA |    |   |     |

13.6 Product Structure Inquiry bmpsinq.p

Once the product structure is defined, it can be reviewed in Product Structure Inquiry (13.6). The screen above shows the request setup and the inquiry output.

The parent item—the ultrasound—is listed first, and the component items are listed below it using an indented structure that indicates the level of the item in the product structure.

You can quickly see key information, such as unit of measure for each item and the quantity required to make one complete device.

## Review

### Review

3

**Product Definition**

- **Product line**  
*Product Line Maintenance*
- **Current cost method**  
*Inventory Accounting Control*
- **Item data**  
*Item Master Maintenance*
- **Product Structure**  
*Product Structure Maintenance*

Q5-SU-490

In this chapter, you saw how products are defined in QAD EE:

- Product lines are set up in Product Line Maintenance. They provide inventory accounts for an item so that costs can be tracked.
- Current costs for items are calculated based on the setting in Inventory Accounting Control (Last, Average, None).
- Item data is entered by area—general, inventory, planning, and cost data.
- Product structure is defined in Product Structure Maintenance (or Formula Maintenance) indicating the quantity per and routing operation where the item is used.

## Exercise 3

### Set Up a Product Line

**Important** Remember to check the screen shots in the example if you are unsure how to fill in the data fields for these activities.

- 1 Use Product Line Maintenance (1.2.1) to create a new product line, 15.

This will be the product line for the medical ultrasound quality check.

Key fields to populate are:

| Field        | Data           |
|--------------|----------------|
| Product Line | 15; click Next |
| Description  | Quality        |

Click Next slowly 6 times.

Review the account numbers. Where did this default data come from? Accept the default accounts and update the record. (When the product line is highlighted, click Back.)

### Review Control Settings

- 2 Use Inventory Accounting Control (36.9.2). Accept the defaults, but change Current Cost to LAST.

| Field        | Data |
|--------------|------|
| Current Cost | Last |

- 3 In Inventory Control (3.24), ensure the default site is set to 10-100. Click Next, then Back to exit.

| Field        | Data   |
|--------------|--------|
| Default Site | 10-100 |

### Define Item Status Codes

- 4 Use Item Status Code Maintenance (1.1.5) to set up two status codes, Active for Active and OBS for Obsolete. Do not define any restricted transactions for Active. For OBS, select ADD-SO from the list of restricted transactions.

Why might you want to prevent users from adding an obsolete item to a sales order?

### Review Item Data

- 5 Use Item Master Maintenance (1.4.1) to verify that item 01010 has been created correctly.

Key fields to verify are:

| Field       | Data                                  |
|-------------|---------------------------------------|
| Item Number | 01010; click Next twice               |
| Site        | 10-100 (in Item Inventory Data frame) |
| Location    | 010 (in Item Inventory Data frame)    |

Click Next until the Item Number is highlighted, then click Back.

- 6 Review the planning data for the end item using Item Planning Maintenance (1.4.7). Key fields to notice are:

| Field                | Data              |
|----------------------|-------------------|
| Item Number          | 01010; click Next |
| Mstr Sched           | Yes (checked)     |
| Plan Orders          | Yes (checked)     |
| Order Policy         | POQ               |
| Order Qty            | 0                 |
| Purchase/Manufacture | M                 |
| Min Order            | 1                 |
| Order Mult           | 1                 |

Use default values for all other fields.

Click Next until the Item Number is highlighted; click Back.

### Define Component Items

Most of the necessary component items have been provided for you. In this exercise, you add two more items that are used in later exercises.

- 7 Use Item Master Maintenance (1.4.1) to add two component items to your database.

| Field                | Data                   |
|----------------------|------------------------|
| Item Number          | 60017; click Next      |
| Unit of Measure      | EA                     |
| Description          | Mouse Pad; click Next  |
| Prod Line            | 10                     |
| Item Type            | COMP                   |
| Status               | ACTIVE                 |
| Group                | Medical; click Next    |
| ABC Code             | A                      |
| Location             | 020; click Next twice  |
| Supplier             | 10S1002                |
| Purchase/Manufacture | P; click Next          |
| Price                | 3.99; click Next       |
| Material             | 0.49; click Next twice |

| Field           | Data                   |
|-----------------|------------------------|
| Item Number     | 60018; click Next      |
| Unit of Measure | EA                     |
| Description     | Dust Cover; click Next |
| Prod Line       | 10                     |
| Item Type       | COMP                   |
| Status          | ACTIVE                 |

| Field                | Data                   |
|----------------------|------------------------|
| Group                | Medical; click Next    |
| ABC Code             | A                      |
| Location             | 020; click Next twice  |
| Supplier             | 10S1002                |
| Purchase/Manufacture | P                      |
| Price                | 9.99; click Next       |
| Material             | 2.49; click Next twice |

### Item Inventory Data

- 8 Use Item Inventory Data Maintenance (1.4.5) to modify the site associated with some of the components of 01010 so that it is the default site 10-100.

| Item Number | ABC Class | Site   | Location |
|-------------|-----------|--------|----------|
| 50001       | B         | 10-100 | 020      |
| 02003       | C         | 10-100 | 010      |
| 62050       | A         | 10-100 | 020      |
| 90031       | C         | 10-100 | 020      |

### Item Planning Data

- 9 Use Item Planning Maintenance (1.4.7) and quickly scan the data associated with the component items used to produce the medical ultrasound unit (01010). You will add the two items you created to the product structure in the next step.

Note which items are purchased or manufactured.

Item Number 01010:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | Yes     |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | M       |
| Mfg LT               | 0       |
| Minimum Order        | 1       |
| Order Multiple       | 1       |

Item Number 50001:

| Field        | Data    |
|--------------|---------|
| Mstr Sched   | No      |
| Plan Orders  | Yes     |
| Order Policy | POQ     |
| Order Qty    | 0       |
| PO Site      | <blank> |

| Field                | Data |
|----------------------|------|
| Purchase/Manufacture | M    |
| Mfg LT               | 2    |
| Minimum Order        | 0    |
| Order Multiple       | 0    |

Item Number 02003:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | Yes     |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | M       |
| Mfg LT               | 1       |
| Minimum Order        | 0       |
| Order Multiple       | 1000    |

Item Number 62050:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | No      |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 10      |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 3       |
| Minimum Order        | 1       |
| Order Multiple       | 1       |

Item Number 90031:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | No      |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 2       |
| Minimum Order        | 1000    |
| Order Multiple       | 100     |

Item Number 60004:



| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | No      |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 2       |
| Minimum Order        | 0       |
| Order Multiple       | 0       |

## Item Number 60001:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | No      |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 5       |
| Minimum Order        | 0       |
| Order Multiple       | 0       |

## Item Number 60002:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | No      |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 5       |
| Minimum Order        | 0       |
| Order Multiple       | 0       |

## Item Number 60003:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | Yes     |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 5       |

| Field          | Data |
|----------------|------|
| Minimum Order  | 0    |
| Order Multiple | 0    |

Item Number 60005:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | No      |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 1       |
| Minimum Order        | 0       |
| Order Multiple       | 0       |

Item Number 60006:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | No      |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 2       |
| Minimum Order        | 0       |
| Order Multiple       | 0       |

Item Number 60007:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | No      |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 2       |
| Minimum Order        | 0       |
| Order Multiple       | 0       |

Item Number 60008:

| Field       | Data |
|-------------|------|
| Mstr Sched  | No   |
| Plan Orders | Yes  |

| Field                | Data    |
|----------------------|---------|
| Order Policy         | POQ     |
| PO Site              | <blank> |
| Order Qty            | 0       |
| Purchase/Manufacture | P       |
| Pur LT               | 5       |
| Minimum Order        | 0       |
| Order Multiple       | 0       |

Item Number 60050:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | No      |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 5       |
| Minimum Order        | 5       |
| Order Multiple       | 5       |

Item Number 90093:

| Field                | Data    |
|----------------------|---------|
| Mstr Sched           | No      |
| Plan Orders          | Yes     |
| Order Policy         | POQ     |
| Order Qty            | 0       |
| PO Site              | <blank> |
| Purchase/Manufacture | P       |
| Pur LT               | 1       |
| Minimum Order        | 0       |
| Order Multiple       | 0       |

### Define Parent/Component Relationships for Items

In this exercise you use Product Structure Maintenance (13.5) to add the two new items to the parent/component relationships for the medical ultrasound.

- 10** Product Structure Maintenance initially displays all items. In the Items tab, double-click item 01010. Drag the lower frame up to view the component items already defined in the product structure. Note that Item 50001 is a parent item to 02003 and 60004.
- 11** Since there are over 200 items in the database, not all are displaying. To add items 60017 and 60018, specify Item Starts at 60017 in the top frame of the Items tab and press Enter.

Double-click item 60017 and it is added to 01010 structure below. Do the same for 60018. Then click the Save icon at the top of the screen.

- 12 Double-click item 60017 in the lower frame and note that the upper frame is now showing the Product Structure Maintenance tab. After adding the item to the product structure, you can modify the quantity per and the operation where the item is used

Accept the default values.

- 13 Use Product Structure Inquiry (13.6) to review the product structure. Make sure it looks like the following example with the addition of 60017 and 60018. Note how the items you added display in numerical order.

## Exercise: Product Structure Inquiry

| Level  | Component Item | Description             | Quantity | Per | UM | Ph | T | Iss |
|--------|----------------|-------------------------|----------|-----|----|----|---|-----|
| Parent | 01010          | Medical Ultrasound      |          |     |    |    |   | EA  |
| 1      | 50001          | Probe Unit - 10 Mhz     | 1.0      |     | EA |    |   |     |
| 2      | 02003          | Standard Connector      | 1.0      |     | EA |    |   |     |
| 3      | 62050          | Beryllium Copper        | 0.0001   |     | r1 |    |   |     |
| 3      | 62050          | Discrete P0             |          |     |    |    |   |     |
| 3      | 62050          | Beryllium Copper        | 0.0001   |     | r1 |    |   |     |
| 3      | 90031          | Discrete P0             |          |     |    |    |   |     |
| 3      | 90031          | Packaging               | 2.0      |     | EA |    |   |     |
| 2      | 60004          | Transducer - 10 Mhz     | 1.0      |     | EA |    |   |     |
| 1      | 60001          | Durable Plastic Housing | 1.0      |     | EA |    |   |     |
| 1      | 60002          | Display / Readout       | 1.0      |     | EA |    |   |     |
| 1      | 60003          | Keyboard                | 1.0      |     | EA |    |   |     |
| 1      | 60005          | Battery                 | 1.0      |     | EA |    |   |     |
| 1      | 60006          | Monitor Cable           | 1.0      |     | EA |    |   |     |
| 1      | 60007          | Movable Cart            | 1.0      |     | EA |    |   |     |
| 1      | 60008          | Printer                 | 1.0      |     | EA |    |   |     |
| 1      | 60017          | Mouse Pad               | 1.0      |     | EA |    |   |     |
| 1      | 60018          | Dust Cover              | 1.0      |     | EA |    |   |     |
| 1      | 60050          | Base Unit / CPU         | 1.0      |     | EA |    |   |     |
| 1      | 90093          | Shipping Carton         | 1.0      |     | EA |    |   |     |

13.6 Product Structure Inquiry bmpsinq.p

- 14 You can also use the Product Structure by Item Report (13.8.1) to review your work.

## Product Structure by Item Report

Product Structure by Item Rep... X

**QAD**

**Product Structure by Item Report**  
**10USA**

| Level  | Component Item | Reference    | Description                    | Quantity | Per UM | Op | Ph | T | Iss | Start | Eff | End | Eff |
|--------|----------------|--------------|--------------------------------|----------|--------|----|----|---|-----|-------|-----|-----|-----|
| Parent | 01010          |              | Medical Ultrasound<br>Rev: D   |          | EA     |    |    |   |     |       |     |     |     |
| 1      | 50001          |              | Probe Unit - 10 Mhz<br>Rev: AA | 1.0      | EA     |    |    |   |     |       |     |     |     |
| .2     | 02003          |              | Standard Connector             | 1.0      | EA     |    |    |   |     |       |     |     |     |
| .3     | 62050          | Operation 10 | Beryllium Copper               | 0.0001   | RL     |    |    |   |     | 10    |     |     |     |
| .3     | 62050          | Operation 30 | Beryllium Copper               | 0.0001   | RL     |    |    |   |     | 30    |     |     |     |
| .3     | 90031          |              | Packaging                      | 2.0      | EA     |    |    |   |     |       |     |     |     |
| .2     | 60004          |              | Transducer - 10 Mhz            | 1.0      | EA     |    |    |   |     |       |     |     |     |
| 1      | 60001          |              | Durable Plastic Housing        | 1.0      | EA     |    |    |   |     |       |     |     |     |
| 1      | 60002          |              | Display / Readout              | 1.0      | EA     |    |    |   |     |       |     |     |     |
| 1      | 60003          |              | Keyboard                       | 1.0      | EA     |    |    |   |     |       |     |     |     |
| 1      | 60005          |              | Battery                        | 1.0      | EA     |    |    |   |     |       |     |     |     |
| 1      | 60006          |              | Monitor Cable                  | 1.0      | EA     |    |    |   |     |       |     |     |     |
| 1      | 60007          |              | Movable Cart                   | 1.0      | EA     |    |    |   |     |       |     |     |     |
| 1      | 60008          |              | Printer                        | 1.0      | EA     |    |    |   |     |       |     |     |     |
| 1      | 60050          |              | Base Unit / CPU                | 1.0      | EA     |    |    |   |     |       |     |     |     |
| 1      | 90093          |              | Shipping Carton                | 1.0      | EA     |    |    |   |     |       |     |     |     |

End of Report



Q5-SU-482

This view of the product structure also displays the operation number where the component is used. You can direct the report to your monitor by selecting PAGE in the Output field.

The operations will be set up in the next section. When new items are created in manufacturing, the product structure and routing are usually developed together, so all the information is available to the person entering item data.



# Set Up Manufacturing Environment

This chapter describes basic elements required for manufacturing activities to take place, including shop calendars, departments, work center, machines, and routings.

*Overview*

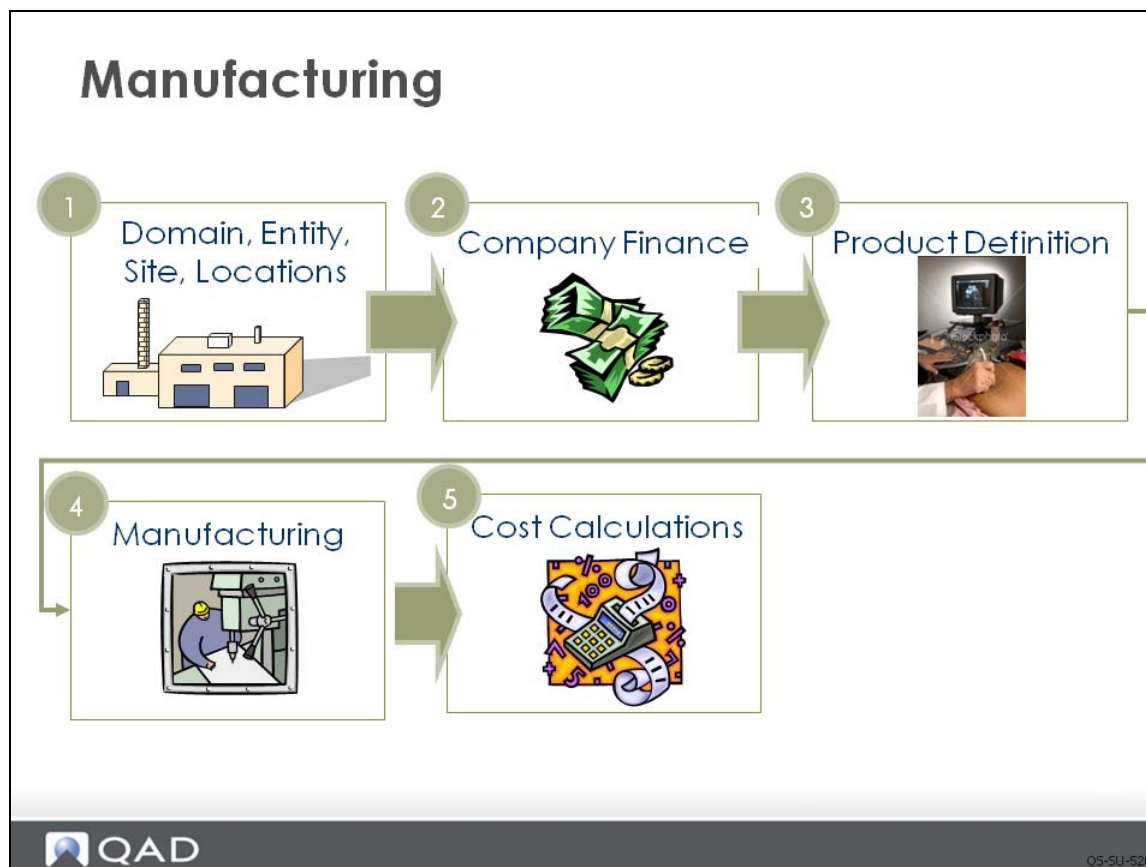
*Key Concepts*

*Example*

*Review*

*Exercise 4*

## Overview



Now that you have seen how to define a product in QAD EE, you will look at the manufacturing environment in which a product is built.

## Chapter Topics

Topics in this chapter are the shop calendar, departments, work centers, machines, and routings.

- Key Concepts
  - Shop Calendar
  - Departments and Work Centers/Machines
  - Routings
- Example
  - Set Up Shop Calendar
  - Define Departments
  - Define Work Centers/Machines
  - Set Up Routings
- Review
- Exercise

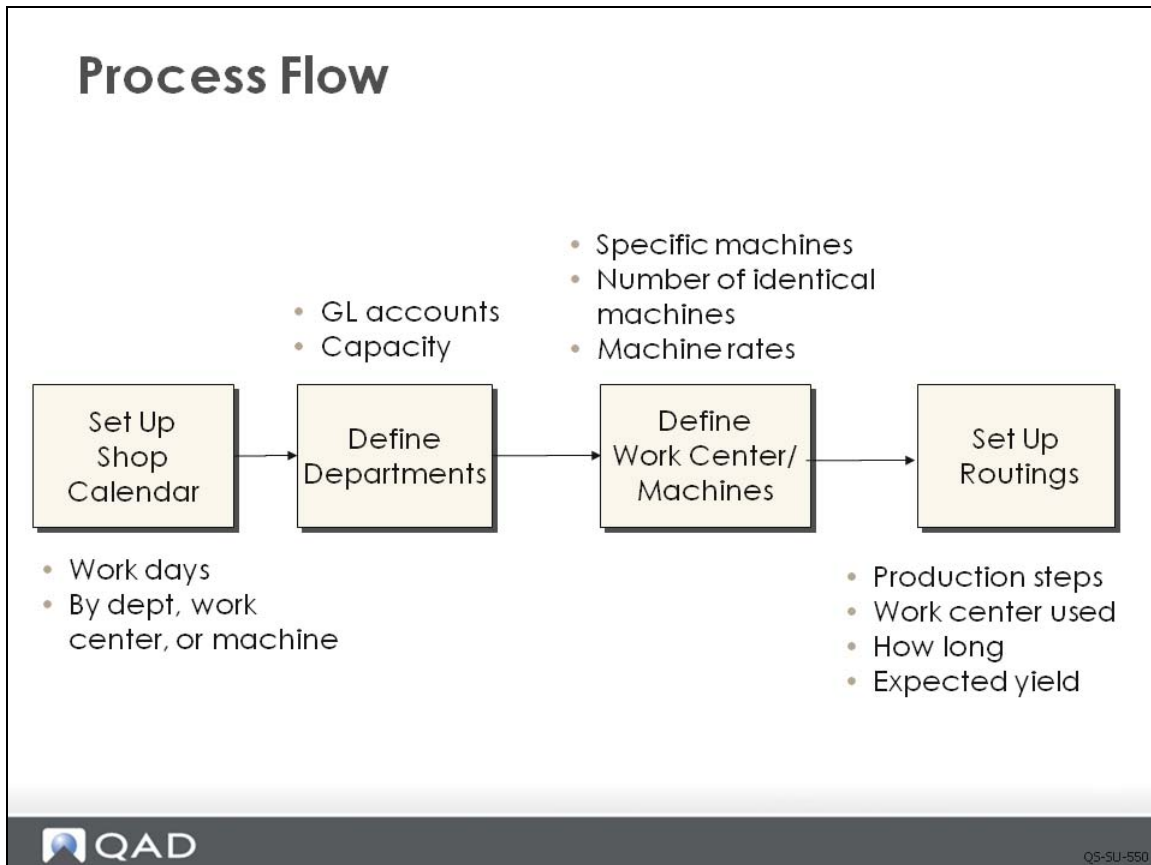


## Learning Objectives

**When you finish this chapter, you should be able to:**

- Describe the information provided by a department.
- Describe the information provided by a work center.
- Describe the information provided by a routing.
- Set up a shop calendar, department, work center, and routing.

## Key Concepts

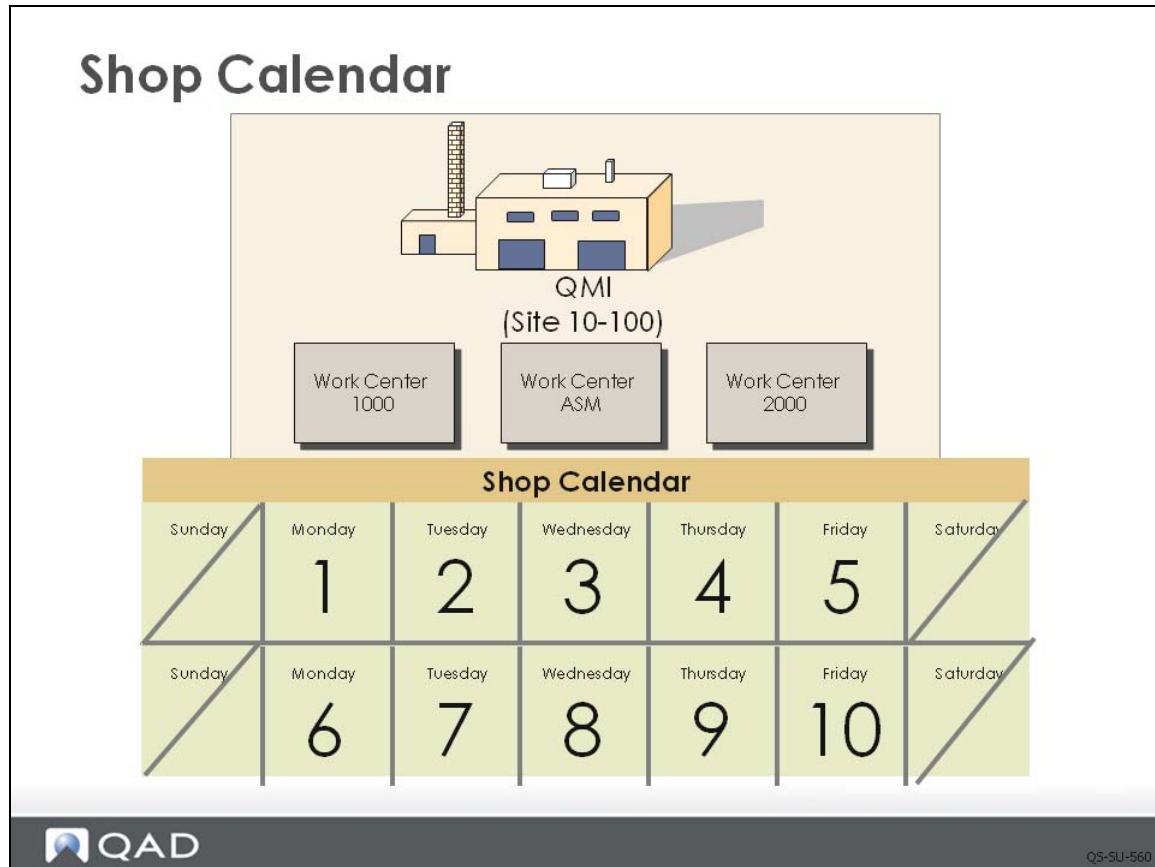


Once you have set up items in Item Master Maintenance, you need to identify where and how they are manufactured. This is done by:

- Setting up shop calendars
- Setting up manufacturing departments and work centers/machines
- Defining the manufacturing operations required to produce each of the items

The following pages follow the order shown in the process flow; the shop calendar is discussed next.

## Shop Calendar



The shop calendar is required for planning, manufacturing, and distribution functions. The calendar indicates what days the plant is open and how many hours are worked each day. The calendar determines the hours a work center is available to do work. This information is also used by capacity requirements planning.

If the Work Day field is not checked on a particular day, an order cannot be due on that day. None of the planning functions in QAD will schedule an order to be due on a non-work day.

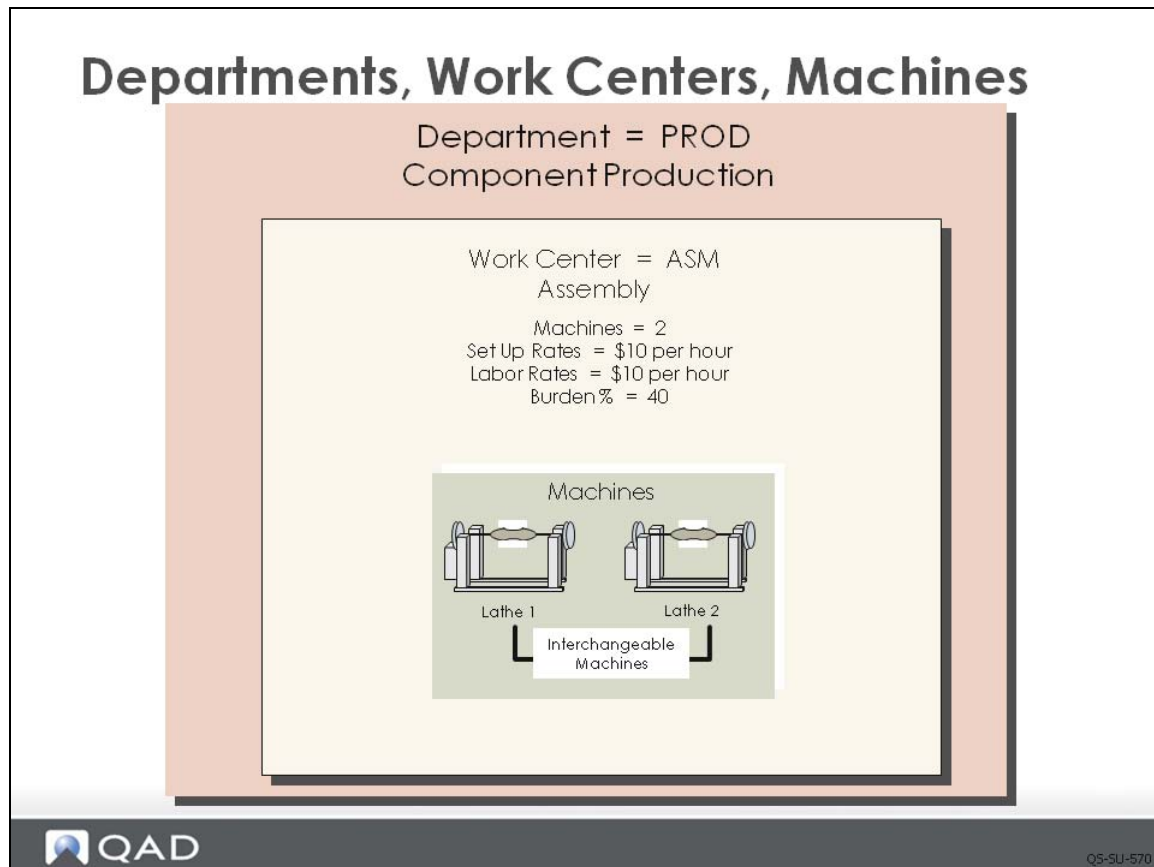
Calendar information is used to schedule:

- Start and due dates for MRP planned orders, master schedule orders, and work orders
- Operations for work orders and repetitive schedules
- The procurement or shipment of materials through association with suppliers and customers

Use Calendar Maintenance to maintain the default calendar for all sites. Use Holiday Maintenance to turn off a normal work day, that is, make it a non-work day for the entire site. Use Calendar Reference to modify a calendar for the short term. For example, add extra hours for a peak season, or indicate a two week shut down.

Calendars are also defined for work centers that have different schedules than the default calendar and can be defined for any machines within a work center that have different schedules.

## Departments, Work Centers, Machines



Work areas in a manufacturing plant are defined in QAD EE using departments, work centers, and machines.

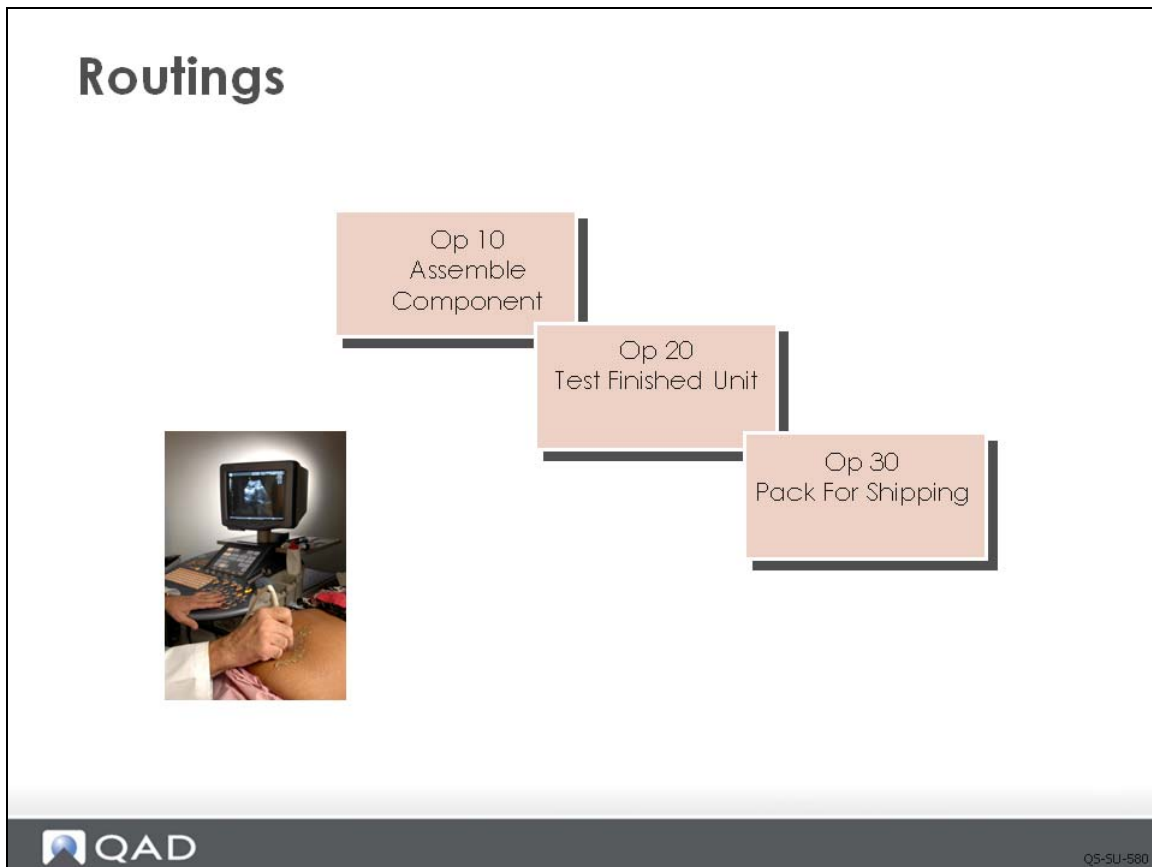
**Departments.** A manufacturing plant is split into departments for control purposes. Each production unit (work center) must belong to one, and only one, department. This grouping is used primarily for capacity planning and accounting. GL accounts are attached to each department. At least one department must be defined before you can enter work centers or routings.

**Work Centers.** A work center is a specific production unit within a department consisting of one or more people and/or machines. In QAD EE, work centers are the most basic units for operation scheduling, capacity requirements planning, and cost determinations for GL transactions. You must have at least one work center in order to set up routings and to report labor.

**Machines.** You can set up a work center with multiple identical machines by leaving the Machine field blank and entering the number of machines in the Machines field. Then you can specify the number of machines that can be used for each operation (parallel production) in the route operation. If the machines are not completely interchangeable, identify each one with a distinct code. For example, you have multiple similar machines but they run at different rates. Or perhaps an older machine has a higher rate of rejects. In this case, each machine must have a unique machine code. The combination of the work center and the machine identifies a specific machine.

**Note** While defining unique work center/machine combinations supports more precise costing and scheduling, it does limit the ability of the work center supervisor to decide which machines to schedule work on without generating method variances.

## Routings



To manufacture an item or product, you must complete one or more activities or operations. The list of required operations is called a routing, which basically defines the process needed to make the item. If a product structure is the list of ingredients in a recipe, a routing is the directions or instructions needed to process the ingredients to achieve the desired end product. The routing describes:

- The steps required to make the item (operations)
- Where the steps are performed (work center)
- How long they take (queue time, setup time, run time, wait time, and move time)
- The expected yield percentage at each operation (yield %)

**Note** Queue time, setup time, run time, wait time, and move time are all elements of lead time. These will be discussed in the section on routings.

For example, to manufacture a medical ultrasound may require a routing with several operations with instructions to assemble the various components. How many operations, how they are sequenced, and how much detail is included with each is determined by how the business sets up the process and how they want to manage it. A highly automated process may have only one operation that says simply “assemble components.” A very manual assembly process may have many detailed steps.

The department and work center codes associated with routing operations link actual production results with capacity planning, cost accounting, and other programs.

### Alternate Routings

The normal situation is to have the route code be the same as the item number. When several routings can be used to produce the same item, alternate routes are defined with different routing codes. The primary route, or the route you will use most often, can be linked to the item number in Item Planning Data Maintenance.

## Example

This example shows how QMI's Manufacturing Department sets up:

- Shop calendar with five eight hour days
- Department 0400 with a labor capacity of 8 hours/day
- Work center 1000 with a setup rate of \$5.00/hour, a labor rate of \$4.50/hour, and labor burden of 0.01%
- Routing with three operations:
  - Operation 10 (assembly) requires 0.5 hours setup time to get the components from the inventory room; additionally, per device, it requires 1.00 hour run time to assemble the ultrasound.
  - Operation 20 (test) requires 0.5 hour setup time, and a run time of 0.2 hours.
  - Operation 30 (pack) requires 0.5 hour setup time, and 0.06 run time.

## Set Up Shop Calendar

**Set Up Shop Calendar**

Calendar Maintenance

Go To Actions Copy Print Preview Attach

Site: 10-100 Work Center: 1000 Machine: Ultrasound Mfg Site

Work Center: 1000 Machine: Ultrasound Mfg Site

General Assembly

| Work Day                                       | Hours |
|------------------------------------------------|-------|
| Sunday: <input type="checkbox"/>               | 0.00  |
| Monday: <input checked="" type="checkbox"/>    | 8.00  |
| Tuesday: <input checked="" type="checkbox"/>   | 8.00  |
| Wednesday: <input checked="" type="checkbox"/> | 8.00  |
| Thursday: <input checked="" type="checkbox"/>  | 8.00  |
| Friday: <input checked="" type="checkbox"/>    | 8.00  |
| Saturday: <input type="checkbox"/>             | 0.00  |

QAD QS-SU-590

The shop calendar is set up in Calendar Maintenance (36.2.5). This calendar shows a five day week, Monday through Friday, with eight hours available for each day.

If additional sites and or work centers/machines are created, they will use this calendar as a default, but could then be changed to site or work center/machine specific calendars.

### Additional Notes

The system supports defining separate shop calendars for each site/work center/machine that you create. Each can have its own work days and work-day duration entered in Calendar Maintenance. Holidays that affect all calendars can be entered in Holiday Maintenance, but work-center-specific holidays must be entered in Calendar Maintenance using the Reference field.



## Define Departments

### Define Departments

Department Maintenance X
 Go To Actions Copy Print Preview Attach

Department: 0400

Default Sub-Account: 
  
 Default Cost Center:

Override: ☐
  
 Override: ☐

Description: Assembly

Labor Capacity: 8

|                                 |      |     |
|---------------------------------|------|-----|
| Cost of Production: 5770        | Mech |     |
| Labor: 5120                     | Mech | mfg |
| Burden: 5220                    | Mech | mfg |
| Labor Usage Variance Acct: 5140 | Mech | mfg |
| Labor Rate Variance Acct: 5150  | Mech | mfg |
| Burden Usage Variance: 5240     | Mech | mfg |
| Burden Rate Variance: 5250      | Mech | mfg |

QS-SU-600

QMI has set up department 0400 using Department Maintenance (14.1). A department is used primarily for capacity planning and accounting purposes and a Labor Capacity of 8 is defined, which means that this department has 8 hours of labor capacity per day Monday through Friday based on the shop calendar. This implies that only one person is in this department since the calendar shows 8 hours per day. If the department had 5 people, Labor Capacity would be 40.

Labor capacity is the total number of hours of work that can be performed within a department per day (day length is defined in Calendar Maintenance). The department labor capacity is entered manually as the sum of the capacities of all work centers and machines in the department. Capacity Requirements Planning (CRP) uses labor capacity to calculate capacity and load by department.

**Important** Care should be used in setting labor capacity since the system assumes all labor in the department can be used in any work center in the department. This is seldom the case and may be the cause of setting up more departments.

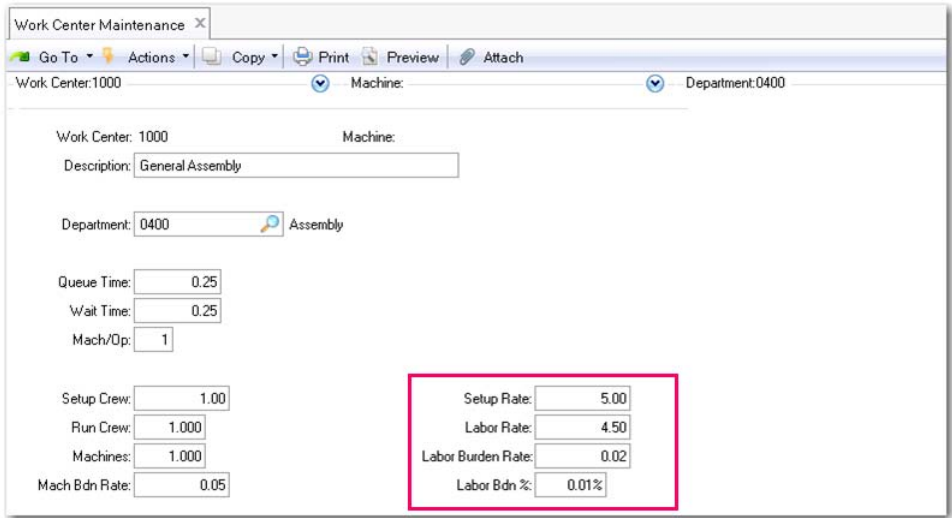
Also notice the account codes that default from Domain/Account Control; all are manufacturing related. In this case, sub-accounts also default, and the variance accounts have a default cost center code of mfg to indicate these are manufacturing related variances. These account codes are used:

- When reporting labor and downtime in the Shop Floor Control and Repetitive modules
- When backflushing inventory and closing the accounting for completed work orders

**Important** If a given work center requires cost of production to be booked to a different account or subaccount, then you need to set up a new department for that work center.

## Define Work Centers/Machines

### Define Work Centers / Machines



Work Center Maintenance

Go To Actions Copy Print Preview Attach

Work Center: 1000 Machine: Department: 0400

Work Center: 1000 Machine:

Description: General Assembly

Department: 0400 Assembly

Queue Time: 0.25

Wait Time: 0.25

Mach/Op: 1

Setup Crew: 1.00

Run Crew: 1.000

Machines: 1.000

Mach Bdn Rate: 0.05

Setup Rate: 5.00

Labor Rate: 4.50

Labor Burden Rate: 0.02

Labor Bdn %: 0.01%

QAD QS-SU-610

QMI has set up work center 1000 (General Assembly). Because this work center has only one machine (actually just a work bench), QMI does not need to specify a machine in the Machine field so it is left blank. If the work center had two or more machines that could not be used interchangeably, then QMI would need to enter a machine code to specify each machine. If the machines were completely interchangeable, then QMI could leave the machine code blank and put the number of machines in the Machines field.

Notice that this work center belongs to the department 0010, which QMI set up in the previous step.

### Machines

If a work area has multiple identical machines, you can define one work center and leave the Machine (code or number) field blank. Enter the number of machines in the Machines field. When a work center has several identical machines, you can specify the number of machines that can be used for each operation (parallel production) in the route operation.

If the machines are not completely interchangeable, identify each one with a distinct code. For example, you have multiple similar machines but they run at different rates. Or perhaps an older machine has a higher rate of rejects. In this case, each machine must have a unique machine code. The combination of the work center and the machine identifies a specific machine.

This example has only one machine per operation and the Machines field shows only one machine in this work center. If two machines were used per operation, then the processing time for an operation that uses that work center/machine combination will be cut in half. Any setup time would be doubled.

### Cost Calculations

Important information for cost calculations is the specified in the rate fields. Machine Burden Rate, Setup Rate, Labor Rate, Labor Burden Rate, and Labor Burden Percent all enter into item cost calculations and labor feedback functions to determine actual costs and cost variances.

### Additional Notes

In a work center, either the number of machines or the number of people limits capacity. The Machines field contains the number of machines or people. Capacity is then calculated by multiplying total hours (from the work center calendar) by the number of machines.

### Field Definitions

*Machine Burden Rate.* The burden rate per hour applicable to machine run time and setup at this work center.

*Setup Rate.* The average hourly rate paid to set up this work center.

*Labor Rate.* The average rate paid per labor hour to run this work center.

*Labor Burden Rate.* The labor burden rate per hour applicable to both setup and run time at this work center.

*Labor Burden Percent.* The labor burden percentage applicable to the total labor cost at this work center.

## Set Up Routing Op 10

**Set Up Routing Op 10**

Routing Maintenance X

Go To Actions Copy Print Preview Attach

Routing Code: 01010 Standard Operation: Standard Operation:

Routing Code: 01010 Medical Ultrasound

Operation: 10 Start Date: End Date:

Standard Operation:

Work Center: 1000 General Assembly

Machine:

Description: ASSEMBLE COMPONENTS

Machines per Operation: 1 Milestone Operation: ☒

Overlap Units: 0 Subcontract LT: 0

Queue Time: 0.25 Setup Crew: 1.00

Wait Time: 0.25 Run Crew: 1.00

Setup Time: 0.5

Run Time: 1.0

Move Time: 0.0

Start Date: End Date:

Yield Percent: 100.00%

Tool Code: Supplier: Inventory Value: 0.00 Subcontract Cost: 0.00

Comments:

QAD QS-SU-620

QMI's Production Manager has set up the routing in Routing Maintenance. Notice that the routing code is the same as the item number for the completed device (01010). This is usually the case.

This example has three operations involved in assembling a medical ultrasound:

- Operation 10 (shown here) requires 0.5 hours setup time to get the jig from the tool room; additionally, per device, it requires 1.0 hour run time to assemble the medical ultrasound.
- Operation 20 requires 0.5 hour setup time and 0.2 hour run time to test the device.
- Operation 30 requires 0.5 hour setup time and 0.6 hour run time to pack the ultrasound for shipment.

These times are converted into decimal hours for the routing standard times by dividing the minutes by 60. You can also use Rate Based Routing Maintenance (14.13.2), which uses pieces per hour rather than decimal hours per piece to set the time standard for the operation.

**Important** Be careful not to use the Standard Operation field by mistake. This field has a special use that is covered in detail in the course on Routings and Work Centers. This feature is not described in this course.

## Set Up Routing Op 20

## Set Up Routing Op 20

Routing Maintenance X
Go To
Actions
Copy
Print
Preview
Attach

Routing Code: 01010      Standard Operation:      Standard Operation:

Routing Code: 01010  
Operation: 20  
Standard Operation:

Medical Ultrasound  
Start Date:  
End Date:

Work Center: 1050      Product Test  
Machine:  
Description: TEST FINISHED UNIT

Machines per Operation: 1  
Overlap Units: 0  
Queue Time: 0.25  
Wait Time: 0.25  
Setup Time: 0.5  
Run Time: 0.2  
Move Time: 0.0  
Start Date:  
End Date:  
Yield Percent: 100.00%

Milestone Operation: ☒  
Subcontract LT: 0  
Setup Crew: 1.00  
Run Crew: 1.00  
Tool Code:  
Supplier:  
Inventory Value: 0.00  
Subcontract Cost: 0.00  
Comments: ☐

QS-SU-630

For operation 20, testing the ultrasound, the run time is 0.2 hour, or 12 minutes

## Field Definitions

**Queue Time.** The time work normally waits at a work center before the operation begins.

**Setup Time.** The time required to prepare the work center/machines for processing. This is independent of batch size.

**Run Time.** The standard amount of time required to process a single unit of this item. It can be entered as the units per hour or run time per batch, but internally, this is converted to a run time per unit.

**Wait Time.** The time spent waiting after the operation is done; for example, drying, curing, cooling. This is based on a 24-hour clock, not the shop calendar.

**Move Time.** The time a work order is in transit from one operation to the next. Per order independent of order size.

**Subcontract Lead Time.** A routing operation can be a task performed by an outside vendor or subcontractor. In that case this is the number of calendar days it takes to process the standard order quantity at the subcontractor's site, including any transit time.

**Yield Percent.** The normal yield percentage for this operation. The percentage of any order expected to be in usable condition after this operation (used to calculate costs).

Yield in the operation route is intended to be used for scrap that occurs at a specific operation because of some aspect of that operation. It consumes all of the components that have been issued up to that point.

This is in contrast to scrap in the product structure which is associated with a specific component at a specific operation. It is important in setting up structures and routings to account for scrap and yield as accurately as possible and in the correct place. Use this rule:

- At the given operation, is the component scrapped before being assembled? This is component scrap in the structure.
- Is the assembly scrapped after the component is assembled? This is yield in the route.

Review Results in Routing Inquiry

# Review Results in Routing Inquiry

Routing Inquiry

Routing Inquiry - 5/26/2010 10:...

Routing Inquiry05/26/10

Routing Code: 01010Medical UltrasoundOutput: PAGE  
Effective: 05/26/10

| Op | Work Center                                  | Machine | Setup | Run Time | Move | Yield%  |
|----|----------------------------------------------|---------|-------|----------|------|---------|
| 10 | 1000 General Assembly<br>ASSEMBLE COMPONENTS |         | 0.5   | 1.0      | 0.0  | 100.00% |
| 20 | 1050 Product Test<br>TEST FINISHED UNIT      |         | 0.5   | 0.2      | 0.0  | 100.00% |
| 30 | 1060 Pack<br>PACK FOR SHIPPING               |         | 0.5   | 0.06     | 0.0  | 100.00% |

14.13.3Routing Inquiryrwroiq.p

QADQS-SU-640

The Production Planner reviews the routing in Routing Inquiry (14.13.3) to ensure that the information is accurate.

## Review

# Review

4

### Manufacturing



- **Shop calendar**  
*Calendar Maintenance*
- **Departments**  
*Department Maintenance*
- **Work Center**  
*Work Center Maintenance*
- **Routings**  
*Routing Maintenance*

 QAD

Q5-SU-660

This chapter introduced how key areas of the manufacturing environment are set up:

- Shop calendar, set up in Calendar Maintenance and Holiday Maintenance, indicates what days the plant is open and how many hours are worked each day.
- Departments, set up in Department Maintenance, are used for capacity planning and accounting purposes.
- Work centers and machines, set up in Work Center Maintenance, are used for operation scheduling, capacity requirements planning, and cost determinations for GL transactions.
- Routings, set up in Routing Maintenance, describe the steps required to make the item (operations), where the steps are performed (work center), how long they take, and the expected yield percentage at each operation.



## Exercise 4

### Add a Department Record

**Note** Refer back to the screen shots in the example if you are unsure of any step.

- 1 In Department Maintenance (14.1), add a new department record, 050, for assembly. Key fields to populate are:

| Field          | Data     |
|----------------|----------|
| Department     | 050      |
| Description    | Assembly |
| Labor Capacity | 8        |

Accept the default account numbers and update the record. Where did these account numbers come from?

Click Next until the Department field is highlighted, then click Back.

### Add a Work Center Record

- 2 Use Work Center Maintenance (14.5) to add a work center record. Key fields to populate are:

| Field             | Data             |
|-------------------|------------------|
| Work Center       | 1005             |
| Machine           | <blank>          |
| Description       | General Assembly |
| Department        | 050              |
| Mach/Op           | 1                |
| Machines          | 1                |
| Setup Rate        | 5                |
| Labor Rate        | 4.5              |
| Labor Burden Rate | 0.02             |
| Labor Bdn%        | 0.01%            |

### Define a Routing or Process Definition

- 3 Use Routing Maintenance (14.13.1) to add a routing code that is the same as the manufactured item number. Key fields to populate are:

| Field        | Data                |
|--------------|---------------------|
| Routing Code | 01010               |
| Operation    | 10                  |
| Work Center  | 1005                |
| Machine      | <blank>             |
| Description  | Assemble Components |
| Setup Time   | 0.5 (30 min.)       |
| Run Time     | 1.0 (60 min.)       |
| Tool Code    | <blank>             |

Accept remaining defaults.

Click Next until the Routing Code field is highlighted.

**4** Enter the second operation

| Field       | Data                    |
|-------------|-------------------------|
| Operation   | 20                      |
| Work Center | 1050                    |
| Machine     | <blank>                 |
| Description | Test Medical Ultrasound |
| Setup Time  | 0.5                     |
| Run Time    | 0.02 (12 min.)          |

Accept remaining defaults

**5** Enter the third operation

| Field       | Data                    |
|-------------|-------------------------|
| Operation   | 30                      |
| Work Center | 1060                    |
| Machine     | <blank>                 |
| Description | Pack Medical Ultrasound |
| Setup Time  | 0.5                     |
| Run Time    | 0.06                    |

Accept remaining defaults

**6** Review your routing in Routing Inquiry (14.13.3) and make sure that all operations and the correct setup and run times display.

# Cost Calculations

This chapter discusses how lower-level manufacturing costs are rolled up by the system and managed in the general ledger.

*Overview*

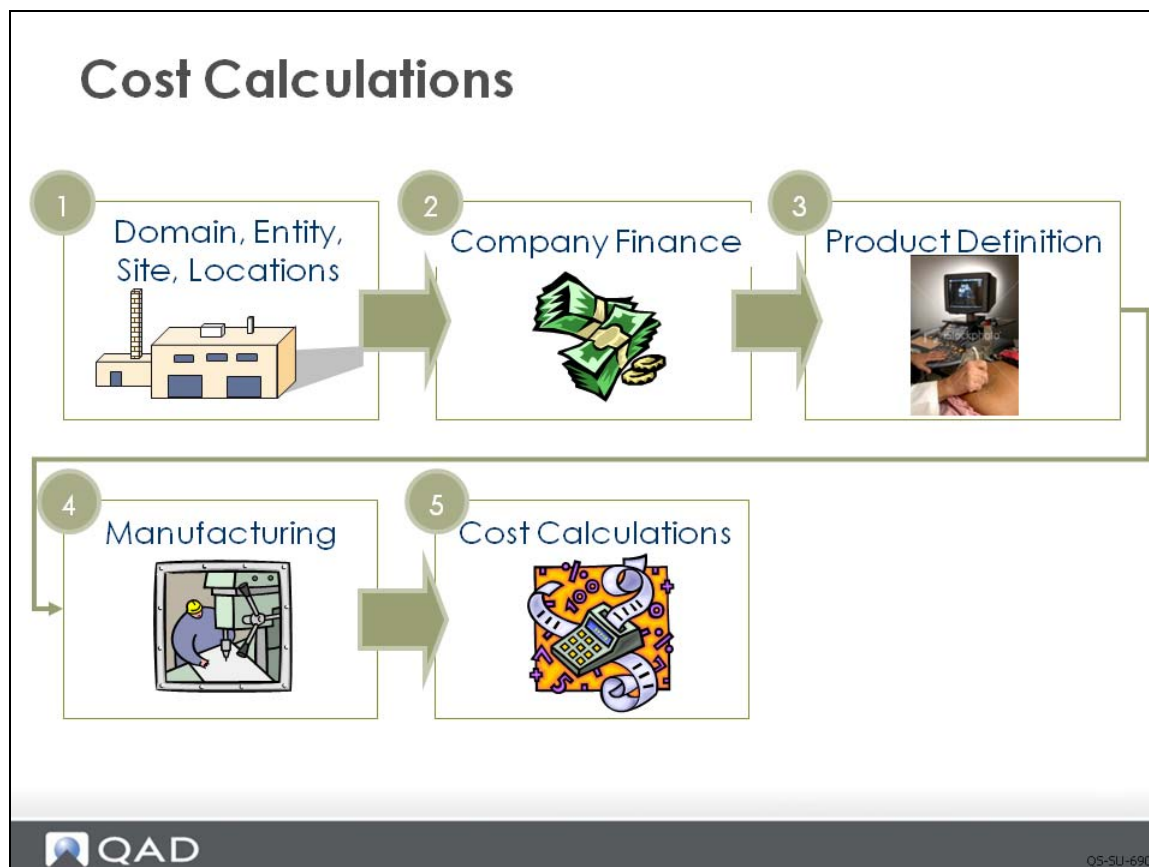
*Key Concepts*

*Example*

*Review*

*Exercise 5*

## Overview



Based on information set up in product definition and manufacturing, item costs can be calculated. This chapter shows how cost information contained in the routing and product structure is “rolled up” to calculate total cost. It begins with a discussion of routing and product structure cost rollups, followed by discussing the update of the GL cost set from costs collected in the current cost.

## Chapter Topics

The topics covered in this chapter include:

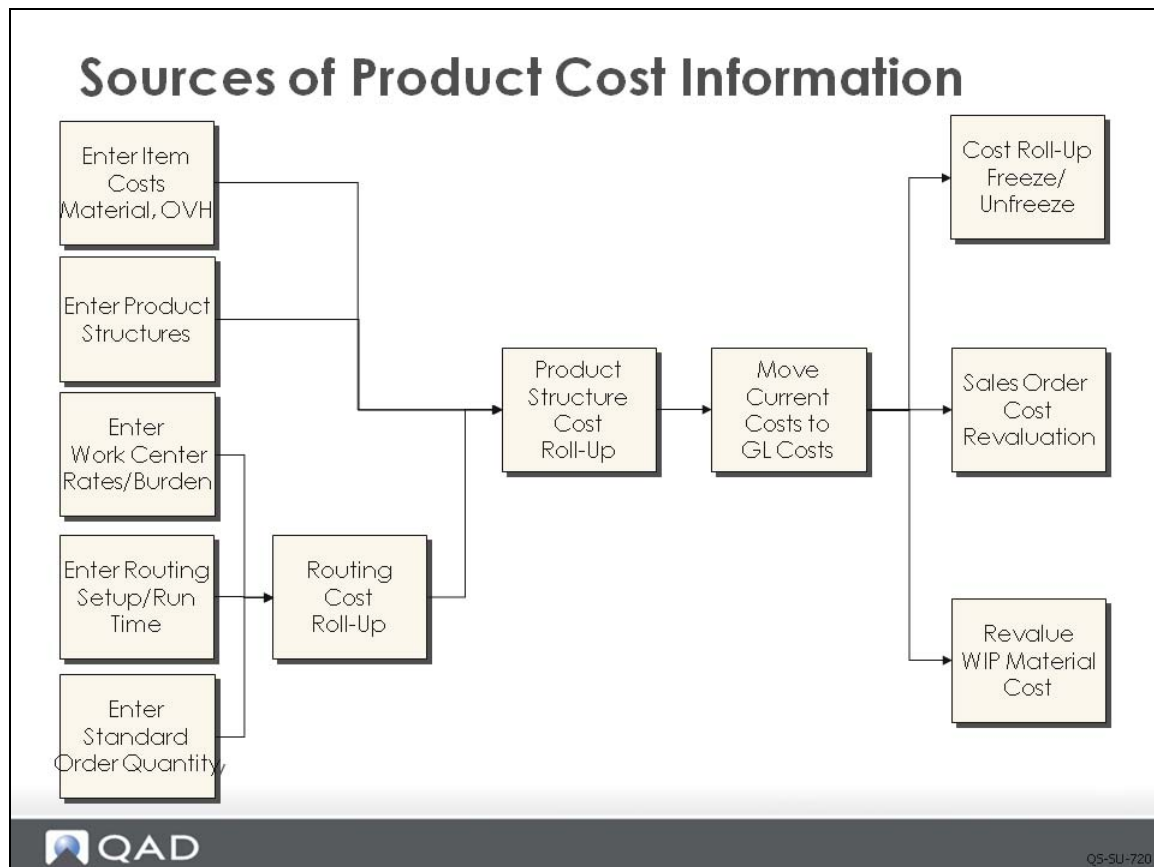
- Key Concepts
  - Routing Cost Rollup
  - Product Structure Cost Rollup
  - Current Cost Set Move to GL Set
- Example
  - Review Standard Order Quantity for Item
  - Roll Up Routing Costs
  - Roll Up Product Structure Costs
  - Move Current Cost Set to GL Set
- Review
- Exercise

## Learning Objectives

**When you finish this chapter, you should be able to:**

- Explain the information captured by a routing cost rollup.
- Explain the information captured by a product structure cost rollup.
- Explain the importance of the Order Quantity field (in Item Planning Maintenance) to the routing cost rollup.
- Roll up routing and product structure costs.
- Copy and move current costs to the GL cost set.

## Key Concepts

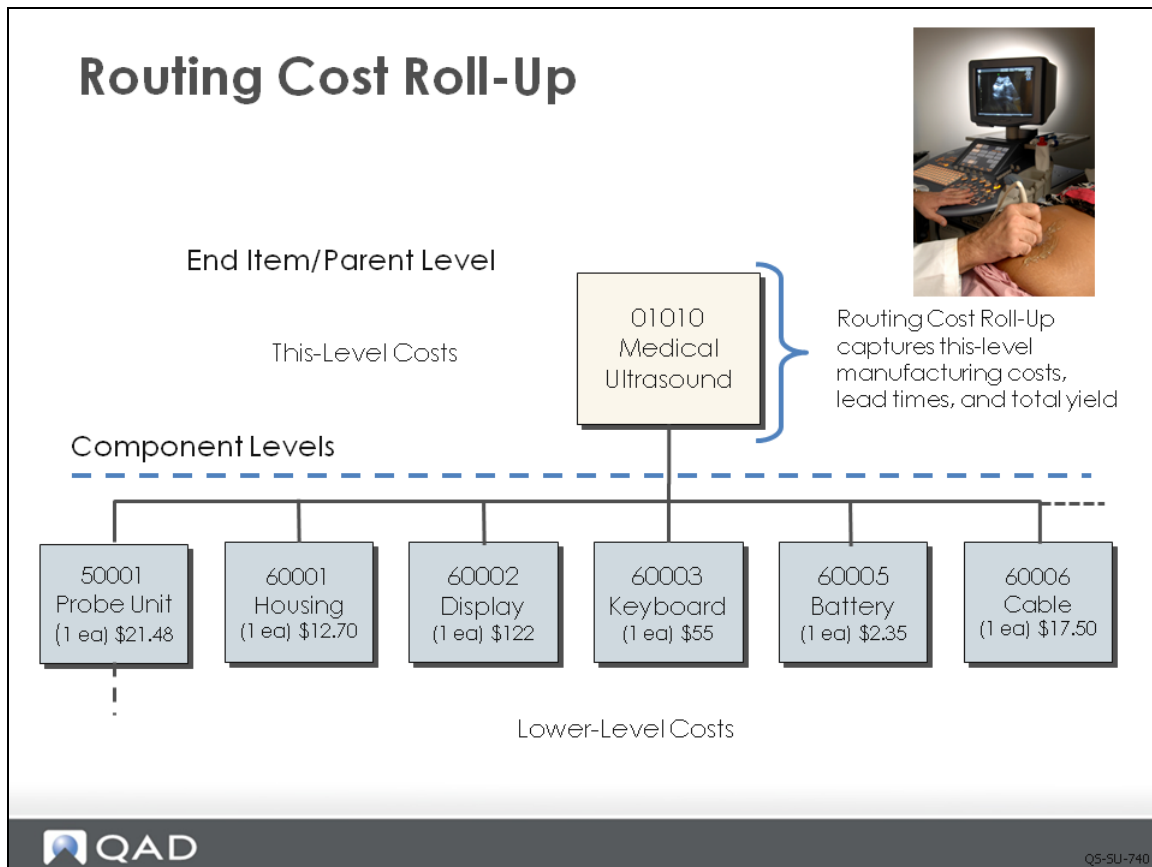


Product cost calculations are based on information from a variety of sources. Some of the key pieces are:

- Purchased material, overhead, and other costs entered manually in Item-Site Cost Maintenance for purchased items
- Component quantity per and scrap rates entered in the product structure (BOM)
- Labor and setup rates entered for each work center
- Variable burden at each work center
- Manufacturing setup and run times entered on each routing operation
- Yield at each operation
- Subcontract cost per unit entered on each subcontracted operation
- Item order quantity entered in Item Planning Maintenance
- BOM and routing code entered in Item Planning Maintenance

Most of this information was described in the previous chapter and shown in the previous examples and exercises. The next steps are to roll up the routing and product structure costs, and move the current cost set to the GL cost set. Those three steps are covered on the following pages.

## Routing Cost Roll-Up



Routing Cost Roll-Up calculates the manufacturing costs, lead times, and total yield for one or more items at a particular site. Costs are calculated for each operation after accessing the item master, work center, routing, and standard operation data.

## Review Standard Order Quantity

### Review Standard Order Quantity

Item Planning Maintenance
Go To Actions Copy Print Preview Attach

Item Number: 01010

Unit of Measure: EA

Description: Medical Ultrasound

**Item Planning Data**

Mstr Sched: ☒

Plan Orders: ☒

Time Fence:

MRP Required: ☒

Order Policy: POQ

**Order Qty:**

Batch Qty:

Order Period:

Safety Stock:

Safety Time:

Reorder Point:

Item Rev:

Issue Policy: ☒

Buyer/Planner: 1-01

Supplier:

PO Site:

Purchase/Manufacture: M

Configuration Type:

Inspect: ☐

1.0 Ins LT:  Cum LT:

Mfg LT:  Pur LT:

ATP Enforcement: NONE

Family ATP: ☐

ATP Horizon:

Run Seq 1:

2:

Phantom: ☐

Minimum Order:

Maximum Order:

Order Multiple:

Op Based Yield: ☐

Yield Percent:

Run Time:

Setup Time:

EMT Type: NON-EMT

Auto EMT Processing: ☐

Network Code:

Routing Code: U-001

BOM/Formula:

Replenishment Method: Orders

QS-SU-790

When manufacturing costs are rolled up in Routing Cost Roll-Up, the setup time is divided by the standard order quantity and each item is assigned its share of the setup cost. The run times are calculated separately for each item at each operation. However, the total run time, for all the items in the standard order quantity, is used to calculate the lead time for a standard order. Queue, wait, and move times are added to get the total lead time for the item.

The item planning record provides the order quantity value, which is used to amortize setup costs over a standard or normal order size to obtain a realistic cost per unit value.

**Note** Routing and product structure rollups are initiated by the user. Some businesses have only one or the other and do not need both. However, when you do have both—the normal situation for manufacturers—always roll up the routing first, then the product structure. If the routing includes operation yields, these need to be accounted for before determining the materials required from the product structure.



## Routing Cost Roll-Up Calculations

# Routing Cost Roll-Up Calculations

Work Center Maintenance

Go To Actions Copy Print Preview Attach

Work Center:1000 Machine: Department:0400

Work Center: 1000
Machine:

Description: General Assembly

Department: 0400 Assembly

Queue Time: 0.25
Wait Time: 0.25
Mach/Op: 1

Setup Crew: 1.00
Run Crew: 1.000
Machines: 1.000
Mach Bdn Rate: 0.05

Setup Rate: 5.00
Labor Rate: 4.50
Labor Burden Rate: 0.02
Labor Bdn %: 0.01%


QS-SU-750

Routing cost calculations are based upon work center data for hourly rates for setup and run labor. The work center also provides the burden rates as cost per hour for labor and machine burden, as well as labor burden percent.

## Cost Calculations

# Cost Calculations

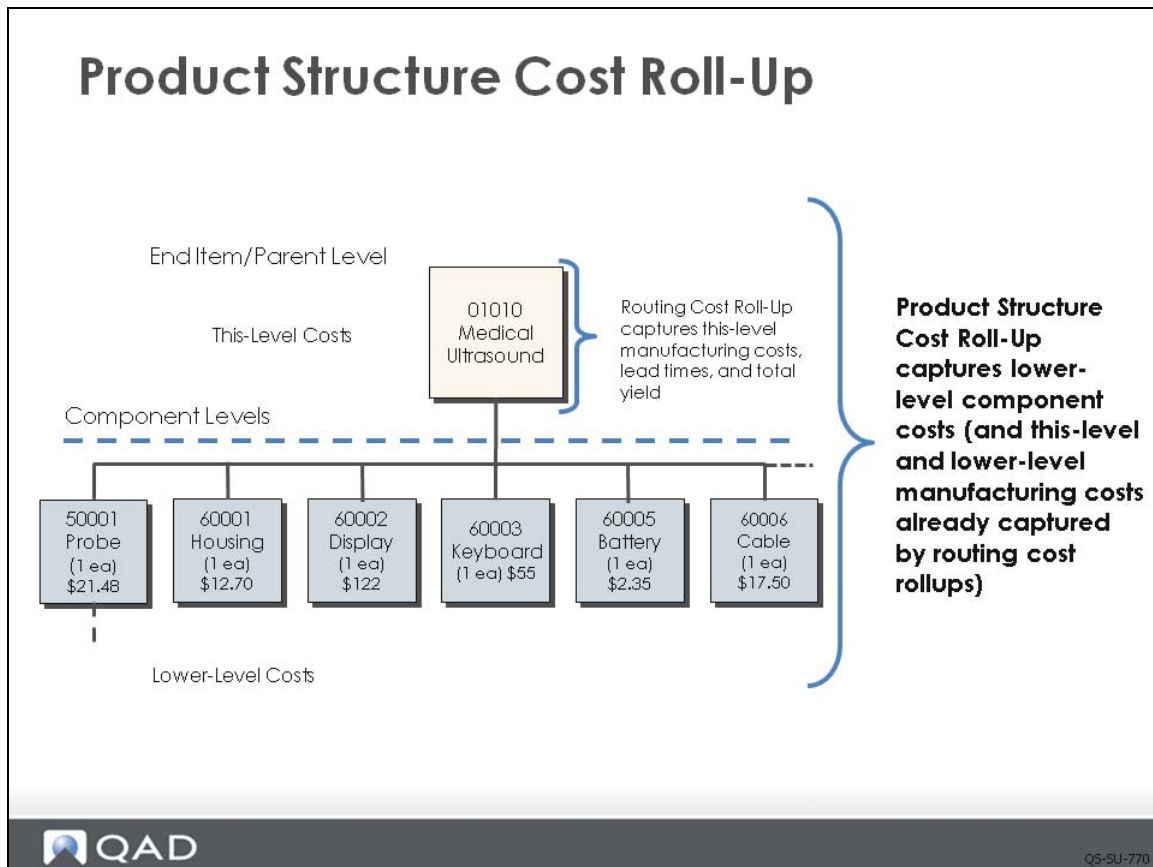
The screenshot shows the 'Routing Maintenance' window for Routing Code 01010. The window is titled 'Routing Maintenance' and has a menu bar with 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. Below the menu bar, there are fields for 'Routing Code: 01010', 'Work Center: 1000', and 'Machine:'. The main area displays the following information:

- Routing Code: 01010
- Medical Ultrasound
- Operation: 10
- Start Date:
- End Date:
- Standard Operation:
- Work Center: 1000
- Machine:
- Description: ASSEMBLE COMPONENTS
- Machines per Operation: 1
- Overlap Units: 0
- Queue Time: 0.25
- Wait Time: 0.25
- Setup Time: 0.5
- Run Time: 1.0
- Move Time: 0.0
- Start Date:
- End Date:
- Yield Percent: 100.00%
- Milestone Operation: ☒
- Subcontract LT: 0
- Setup Crew: 1.00
- Run Crew: 1.00
- Tool Code:
- Supplier:
- Inventory Value: 0.00
- Subcontract Cost: 0.00
- Comments: ☐

The QAD logo is visible in the bottom left corner, and the text 'QS-SU-760' is in the bottom right corner.

The routing records provide the setup and run times, as well as the machines per operations and operation yield percent. In the case of a subcontract operation, the routing provides the per item cost of the outside processing.

## Product Structure Cost Roll-Up



Product Structure Cost Roll-Up (13.12.13) updates the costs of parent items based on the costs of their lower-level components.

Components have information for the quantity required, expected scrap percentage, and the operation where they are required. Purchased items have material and may have overhead costs. Manufactured items also have labor, burden, and subcontract costs. Product Structure Cost Roll-Up uses these costs to calculate total cost by item, and lower-level run and setup times.

## Product Structure

## Product Structure

Product Structure Inquiry X

Go To Actions Copy Print Preview Attach

Parent Item/BOM Code: 01010 Output: PAGE

Parent Item/BOM Code: 01010 Medical Ultrasound EA  
As Of: 5/25/2010 Levels:  Rev:   
PCO Number:  ID:  Domain:  Output: PAGE

| Level  | Component Item | Description             | Quantity | Per | UM | Ph | T | Iss |
|--------|----------------|-------------------------|----------|-----|----|----|---|-----|
| Parent | 01010          | Medical Ultrasound      |          |     |    |    |   | EA  |
| 1      | 50001          | Probe Unit - 10 Mhz     | 1.0      |     | EA |    |   |     |
| 2      | 02003          | Standard Connector      | 1.0      |     | EA |    |   |     |
| 3      | 62050          | Beryllium Copper        | 0.0001   |     | r1 |    |   |     |
| 3      | 62050          | Discrete P0             | 0.0001   |     | r1 |    |   |     |
| 3      | 90031          | Beryllium Copper        | 0.0001   |     | r1 |    |   |     |
| 3      | 90031          | Discrete P0             | 0.0001   |     | r1 |    |   |     |
| 3      | 90031          | Packaging               | 2.0      |     | EA |    |   |     |
| 2      | 60004          | Transducer - 10 Mhz     | 1.0      |     | EA |    |   |     |
| 1      | 60001          | Durable Plastic Housing | 1.0      |     | EA |    |   |     |
| 1      | 60002          | Display / Readout       | 1.0      |     | EA |    |   |     |
| 1      | 60003          | Keyboard                | 1.0      |     | EA |    |   |     |
| 1      | 60005          | Battery                 | 1.0      |     | EA |    |   |     |
| 1      | 60006          | Monitor Cable           | 1.0      |     | EA |    |   |     |
| 1      | 60007          | Movable Cart            | 1.0      |     | EA |    |   |     |
| 1      | 60008          | Printer                 | 1.0      |     | EA |    |   |     |
| 1      | 60017          | Mouse Pad               | 1.0      |     | EA |    |   |     |
| 1      | 60018          | Dust Cover              | 1.0      |     | EA |    |   |     |
| 1      | 60050          | Base Unit / CPU         | 1.0      |     | EA |    |   |     |
| 1      | 90093          | Shipping Carton         | 1.0      |     | EA |    |   |     |

13.6
Product Structure Inquiry
bmpsiq.p



QS-SU-771

Product Structure Inquiry (13.6) shows how many of each components are required to make a medical ultrasound.

Item Cost Data

# Item Cost Data

Item Cost Maintenance

Go To

Actions

Copy

Print

Preview

Attach

Item Number: 50001

Description: Probe Unit - 10 Mhz

Unit of Measure: EA

Totals

|         |         |       |          |                          |          |                          |
|---------|---------|-------|----------|--------------------------|----------|--------------------------|
| Totals: | 6.25882 | 15.22 | 21.47882 | <input type="checkbox"/> | 03/17/11 | <input type="checkbox"/> |
|---------|---------|-------|----------|--------------------------|----------|--------------------------|

GL Cost Data (GL Cost Source Site: 10-100 / Set: Standard)

| Element  | This Level | Lower Level | Total   | Pri                                 | Category | A/O                      |
|----------|------------|-------------|---------|-------------------------------------|----------|--------------------------|
| Material | 0.00       | 15.22       | 15.22   | <input checked="" type="checkbox"/> | Material | <input type="checkbox"/> |
| Labor    | 6.17       | 0.00        | 6.17    | <input checked="" type="checkbox"/> | Labor    | <input type="checkbox"/> |
| Burden   | 0.08882    | 0.00        | 0.08882 | <input checked="" type="checkbox"/> | Burden   | <input type="checkbox"/> |
| Overhead | 0.00       | 0.00        | 0.00    | <input checked="" type="checkbox"/> | Overhead | <input type="checkbox"/> |
| Subcontr | 0.00       | 0.00        | 0.00    | <input checked="" type="checkbox"/> | Subcontr | <input type="checkbox"/> |
|          |            |             |         | <input type="checkbox"/>            |          | <input type="checkbox"/> |

QAD

QS-SU-772

The item cost data displays the material cost of each component of the end item (01010). This cost is multiplied by the quantity per unit and rolled up to the parent-level cost.

## Move Current Cost Set to GL Set



By default, the system maintains two cost sets for each item-site:

- Current, which reflects today's cost for an item
- GL, which is used for all general ledger transactions

When costs change, you can update and verify the change in the current cost set first, then use Current Cost Set Move to GL Set (1.4.22) to reflect the change in the GL cost set. Current Cost Set Move to GL Set is typically used only at regular, widely spaced intervals, usually annually.

By convention, QMI does all its work in the current cost set, checking each step when it is completed. When satisfied that the costs are correct, the entire current cost set is moved (copied) to the GL cost set.

## Example

The following example shows how QMI:

- Sets up a standard order quantity of 5 for item 01010 (medical ultrasound)
- Rolls up costs for item 01010 based on its routing
- Rolls up costs for item 01010 based on its product structure
- Copies costs from the current cost set to the GL cost set for all component items

## Review Standard Order Quantity for Item

### Review Standard Order Quantity

Item Planning Maintenance

Go To Actions Copy Print Preview Attach

Item Number: 01010      Description: Medical Ultrasound  
Unit of Measure: EA

Item Planning Data

Mstr Sched: ☒
Plan Orders: ☒
Time Fence: 0
MRP Required: ☒
Order Policy: POQ
Order Qty: 5
Batch Qty:
Order Period: 7
Safety Stock: 0
Safety Time: 0
Reorder Point: 0
Item Rev: D
Issue Policy: ☒

Buyer/Planner: 1-01
Supplier:
PO Site:
Purchase/Manufacture: M
Configuration Type:
Inspect: 1.0
Ins LT: 0
Mfg LT: 4
ATP Enforcement: NONE
Family ATP:
ATP Horizon: 0
Run Seq 1:
2:

Phantom:
Minimum Order: 1
Maximum Order: 5
Order Multiple: 1
Op Based Yield:
Yield Percent: 100.00%
Run Time: 17.000
Setup Time: 7.500
EMT Type: NON-EMT
Auto EMT Processing:
Network Code:
Routing Code: U-001
BOM/Formula:
Replenishment Method: Orders

QS-SU-790

QMI has set up a standard order quantity of 5 for its medical ultrasound (01010), which is used to amortize setup costs. This information needs to be entered before rolling up the routing costs. The standard order quantity is entered in Item Planning Maintenance (1.4.7), or the Item Planning Data frame of Item Master Maintenance (1.4.1).

The standard order quantity should be what you will normally produce in a single lot, batch, or work order. In this case, the setup cost will be spread over the production of 5 units. The order quantity for each item is usually based on some aspect of production that is important to the company. A multiple of the units produced in an hour or a shift is common.

Some firms with high setup costs will want very large standard order quantities to spread the setup cost over many units of production. A just-in-time (JIT) environment typically invests in dedicated capacity in order to keep the order quantity or kanban very low.



## Routing Cost Roll-Up

### Example: Routing Cost Roll-Up

Routing Cost Roll-Up

Go To Actions Copy Print Preview Attach

Site: 10-100 Cost Set: Current Item Number: 01010

Site: 10-100 Ultrasound Mfg Site  
Cost Set: Current Default Current Cost Set [ LAST / CUPR ]

Item Number: 01010 To: 01010

Item Type:   
As of Date: 6/2/2010

Roll-up Labor Time: ☒  
Roll-up Setup Time: ☒  
Roll-up Lead Time: ☒  
Roll-up Item Yield: ☒  
Include Yield in Cost: ☒  
Roll-up Labor Cost: ☒  
Roll-up Burden Cost: ☒  
Roll-up Subcontract Cost: ☒  
Update Items without Routings: ☒  
Update Items At This Site Only: ☒  
Output:  
Batch ID:

Using Routing Cost Roll-Up (14.13.13), QMI is ready to roll up the routing costs for item 01010 medical ultrasound at site 10-100. The rollup is for the current cost set, not the GL cost set. Notice all the check boxes that can be used to leave out some elements of cost for unique or special purposes. Care should be used when leaving out any element of cost.

You can roll up either current or GL costs. The default is to roll up current costs. Although you can roll up GL costs when they change, it is safer to roll up current costs and then copy them to the GL.

After rolling up the routing costs, it is a good idea to verify that the rollup was successful. This can be verified in Item-Site Cost Inquiry, shown next.

## Verify Routing Cost Roll-Up

## Example: Verify Routing Cost Roll-Up

Item-Site Cost Inquiry - 5/26/20... x

QAD Item-Site Cost Inquiry 05/26/10

Item Number: 01010 Medical Ultrasound  
Inv Site: 10-100 UM: EA Output: PAGE

Price: 2,500.00 Item Price Data  
Fiscal Class: Tax: No Tax Class:

|         |          |        |           |           |          |
|---------|----------|--------|-----------|-----------|----------|
| Totals: | 13.36452 | Totals | 231.96882 | 245.33333 | 05/26/10 |
|---------|----------|--------|-----------|-----------|----------|

GL Cost Data (GL Cost Source Site: 10-100 / Set: Standard)

| Element  | This Level | Lower Level | Total Pri | Category | A/O         |
|----------|------------|-------------|-----------|----------|-------------|
| Material | 0.00       | 225.71      | 225.71    | Yes      | Material No |
| Labor    | 13.17      | 6.17        | 19.34     | Yes      | Labor No    |
| Burden   | 0.19452    | 0.08882     | 0.28333   | Yes      | Burden No   |
| Overhead | 0.00       | 0.00        | 0.00      | Yes      | Overhead No |
| Subcontr | 0.00       | 0.00        | 0.00      | Yes      | Subcontr No |

|         |          |        |           |           |          |
|---------|----------|--------|-----------|-----------|----------|
| Totals: | 13.36452 | Totals | 231.96882 | 245.33333 | 03/01/10 |
|---------|----------|--------|-----------|-----------|----------|

Current Cost Data (GL Cost Source Site: 10-100 / Set: Current)

| Element  | This Level | Lower Level | Total Pri | Category | A/O         |
|----------|------------|-------------|-----------|----------|-------------|
| Material | 0.00       | 225.71      | 225.71    | Yes      | Material No |
| Labor    | 13.17      | 6.17        | 19.34     | Yes      | Labor No    |
| Burden   | 0.19452    | 0.08882     | 0.28333   | Yes      | Burden No   |
| Overhead | 0.00       | 0.00        | 0.00      | Yes      | Overhead No |
| Subcontr | 0.00       | 0.00        | 0.00      | Yes      | Subcontr No |

1.4.10 Item-Site Cost Inquiry ppptiq03.p

Using Item-Site Cost Inquiry (1.4.10), QMI verifies that the current cost set routing costs (labor and burden) were rolled up for item 01010 at site 10-100.

The columns on the cost screens total up. The total cost for labor and burden at this level—in this example 13.36452—is displayed above the column.

**Note** Since the product structure rollup has not been done, the item has no material costs yet. There are also no GL costs yet.

After completing and verifying the routing cost rollup, the product structure cost rollup can be initiated.

## Product Structure Cost Roll-Up

### Product Structure Cost Roll-Up

Product Structure Cost Roll-Up

Go To Actions Copy Print Preview Attach

Item: 01010 Site: 10-100 Cost Set: Current

Site: 10-100

Cost Set: Current Default Current Cost Set

[ LAST / CURR ]

Item Number: 01010

To: 01010

Prod Line:

Item Type:

Group:

To:

To:

To:

As of Date: 5/26/2010

Low Level Material: ☒

Low Level Labor: ☒

Low Level Burden: ☒

Low Level Overhead: ☒

Low Level Subcontract: ☒

Low Level Labor Time: ☐

Low Level Setup Time: ☐

Print Audit Trail: ☒

Set Cost Update Field for

All/Changed Only: All

Include Yield %: ☒

Output:

Batch ID:



QS-SU-820

Using Product Structure Cost Roll-Up (13.12.13), QMI rolls up its product structure costs for item 01010 at site 10-100. This includes the material costs for the lower-level components, such as the material and burden costs at this level.

Again notice that QMI is rolling up the current cost set, not the GL cost set.

## Verify Costs

**Item-Site Cost Inquiry** 05/26/10

QAD

Item Number: 01010 Medical Ultrasound  
 Inv Site: 10-100 UM: EA Output: PAGE

Price: 2,500.00 Item Price Data  
 Fiscal Class: Tax: No Tax Class:

| Totals:                                                        |            | 13.36452    | 231.96882 | 245.33333 | 05/26/10     |
|----------------------------------------------------------------|------------|-------------|-----------|-----------|--------------|
| GL Cost Data (GL Cost Source Site: 10-100 / Set: Standard)     |            |             |           |           |              |
| Element                                                        | This Level | Lower Level | Total     | Pri       | Category A/O |
| Material                                                       | 0.00       | 225.71      | 225.71    | Yes       | Material No  |
| Labor                                                          | 13.17      | 6.17        | 19.34     | Yes       | Labor No     |
| Burden                                                         | 0.19452    | 0.08882     | 0.28333   | Yes       | Burden No    |
| Overhead                                                       | 0.00       | 0.00        | 0.00      | Yes       | Overhead No  |
| Subcontr                                                       | 0.00       | 0.00        | 0.00      | Yes       | Subcontr No  |
| Totals:                                                        |            | 13.36452    | 231.96882 | 245.33333 | 05/26/10     |
| Current Cost Data (GL Cost Source Site: 10-100 / Set: Current) |            |             |           |           |              |
| Element                                                        | This Level | Lower Level | Total     | Pri       | Category A/O |
| Material                                                       | 0.00       | 225.71      | 225.71    | Yes       | Material No  |
| Labor                                                          | 13.17      | 6.17        | 19.34     | Yes       | Labor No     |
| Burden                                                         | 0.19452    | 0.08882     | 0.28333   | Yes       | Burden No    |
| Overhead                                                       | 0.00       | 0.00        | 0.00      | Yes       | Overhead No  |
| Subcontr                                                       | 0.00       | 0.00        | 0.00      | Yes       | Subcontr No  |

1.4.10 Item-Site Cost Inquiry ppptiq03.p

QAD QS-SU-830

Using Item-Site Cost Inquiry (1.4.10) again, QMI verifies that the current cost set product structure costs (lower-level components) were rolled up correctly for item 01010 at site 10-100. Total cost is \$245.33333 per unit.

## Move Current Cost Set to GL

Current Cost Set Move to GL S...

Go To Actions Copy Print Preview Attach

Item: 01010 From: 10-100 Item Number: 01010

| Site               | Cost Set | Site       | Cost Set |
|--------------------|----------|------------|----------|
| From: 10-100       | Current  | To: 10-100 | Standard |
| Item Number: 01010 |          | To: 01010  |          |
| Prod Line:         |          | To:        |          |
| Item Type:         |          | To:        |          |
| Group:             |          | To:        |          |
| ABC Class:         |          | To:        |          |
| Pur/Mfg:           |          | To:        |          |
| Buyer/Planner:     |          | To:        |          |

Change Allowed: 10.0% To: + 10.0%

Copy Material Cost: ☒

Copy Labor Cost: ☒

Copy Burden Cost: ☒

Copy Overhead Cost: ☒

Copy Subcontract Cost: ☒

Sum Costs To MTL TL For DRP: ☐

Output: printer

Batch ID:

QAD QS-SU-840

QMI now wants the general ledger to reflect the cost information entered in the current cost set for all of the component items in 01010 at site 10-100, so they are ready to copy and move current costs into the GL using Current Cost Set Move to GL Set (1.4.22).

By leaving the item number selection range blank, all records in the system are selected. This is appropriate since the site only has the five sample items. Note the other selection criteria that could be used. Note also the check boxes for which costs to copy. QMI wants to copy all costs.

### Percent Change Allowed

This field restricts the cost movement to items whose GL costs would change only within the indicated range. To accept the movement of all costs regardless of the difference from the previous GL costs, enter all 9's in the .NET UI interface. (In the terminal view, enter a question mark (?) in this field and its corresponding To field to match all values.)

You can look at the potential consequences before actually moving the current costs to GL costs. To do this, set Pct Change Allowed to 0%. The proposed changes will be displayed on the output device you have chosen, but not copied to the GL costs.

**Note** When first establishing costs for new items or in a new system, the present GL cost would be zero. The percent change from nothing to something is mathematically undefined since it would require division by zero.

## Current Cost Set Move to GL Set

## Current Cost Set move to GL Set



**Current Cost Set Move to GL Set**  
**10USA**

05/26/10

| Item Number<br>Cost Total | UM         | Material | Labor | Burden  | Overhead | Subcontract |
|---------------------------|------------|----------|-------|---------|----------|-------------|
| 01010                     | EA Current | 225.71   | 19.34 | 0.28333 | 0.00     | 0.00        |
| 245.33333                 |            |          |       |         |          |             |
| Medical Ultrasound        | Standard   | 225.71   | 19.34 | 0.28333 | 0.00     | 0.00        |
| 245.33333                 |            |          |       |         |          |             |
| 245.33333                 | New Cost   | 225.71   | 19.34 | 0.28333 | 0.00     | 0.00        |
| 0.0%                      | % Change   | 0.0%     | 0.0%  | 0.0%    | 0.0%     | 0.0%        |
| 0.00                      | GL Amt Chg | 0.00     | 0.00  | 0.00    | 0.00     | 0.00        |

End of Report



QS-SU-841

Executing Current Cost Set Move to GL Set (1.4.22) produces a report that can be output to Page and should look like the one shown here.

## Verify Costs in Current and GL Cost Sets

## Verify Cost in Current and GL Cost Sets

Item-Site Cost Inquiry 05/26/10

QAD

Item Number: 01010 Medical Ultrasound  
Inv Site: 10-100 UM: EA Output: PAGE

Price: 2,500.00 Item Price Data  
Fiscal Class: Tax: No Tax Class:

| GL Cost Data (GL Cost Source Site: 10-100 / Set: Standard) |                 | Totals           |                  | 05/26/10 |              |
|------------------------------------------------------------|-----------------|------------------|------------------|----------|--------------|
| Element                                                    | This Level      | Lower Level      | Total            | Pri      | Category A/0 |
| Material                                                   | 0.00            | 225.71           | 225.71           | Yes      | Material No  |
| Labor                                                      | 13.17           | 6.17             | 19.34            | Yes      | Labor No     |
| Burden                                                     | 0.19452         | 0.08882          | 0.28333          | Yes      | Burden No    |
| Overhead                                                   | 0.00            | 0.00             | 0.00             | Yes      | Overhead No  |
| Subcontr                                                   | 0.00            | 0.00             | 0.00             | Yes      | Subcontr No  |
| <b>Totals:</b>                                             | <b>13.36452</b> | <b>231.96882</b> | <b>245.33333</b> |          |              |

| Current Cost Data (GL Cost Source Site: 10-100 / Set: Current) |                 | Totals           |                  | 05/26/10 |              |
|----------------------------------------------------------------|-----------------|------------------|------------------|----------|--------------|
| Element                                                        | This Level      | Lower Level      | Total            | Pri      | Category A/0 |
| Material                                                       | 0.00            | 225.71           | 225.71           | Yes      | Material No  |
| Labor                                                          | 13.17           | 6.17             | 19.34            | Yes      | Labor No     |
| Burden                                                         | 0.19452         | 0.08882          | 0.28333          | Yes      | Burden No    |
| Overhead                                                       | 0.00            | 0.00             | 0.00             | Yes      | Overhead No  |
| Subcontr                                                       | 0.00            | 0.00             | 0.00             | Yes      | Subcontr No  |
| <b>Totals:</b>                                                 | <b>13.36452</b> | <b>231.96882</b> | <b>245.33333</b> |          |              |

1.4.10 Item-Site Cost Inquiry ppptiq03.p

QAD QS-SU-850

QMI can use Item-Site Cost Inquiry (1.4.10) again; this time to verify that the costs for item 01010 now shown in the GL are as expected. That is, the GL costs should be the same as the current costs, and they are.

## Enter Item Price in Item Cost Maintenance

### Item Cost Maintenance

Item Cost Maintenance
Go To
Actions
Copy
Print
Preview
Attach

Item: 01010
Item Number: 01010
Tax Class:

Item Number: 01010
Description: Medical Ultrasound

Unit of Measure: EA

**Item Price Data**

Price:

Tax: ☐

Tax Class:

Fiscal Class: ▼

**GL Cost Data**

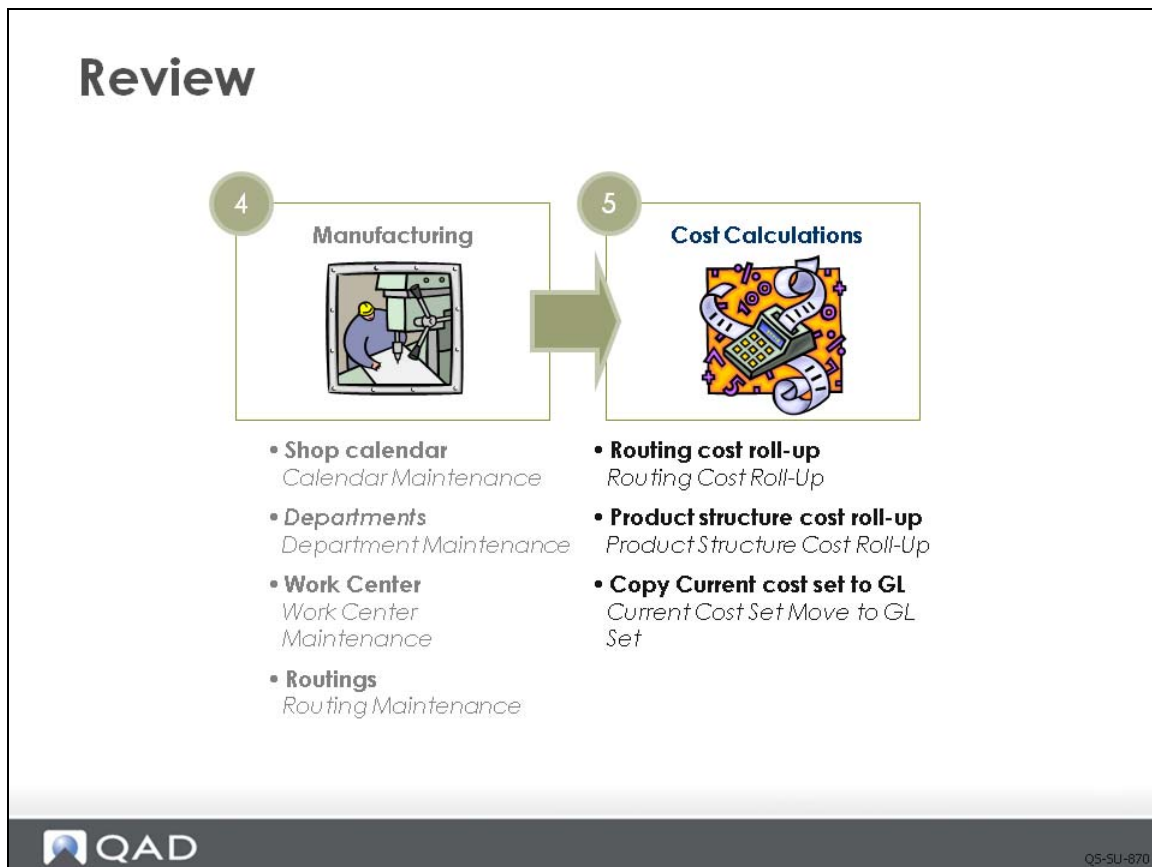
| Element | This Level | Lower Level | Total | Pri                      | Category | A/D                      |
|---------|------------|-------------|-------|--------------------------|----------|--------------------------|
|         |            |             |       | <input type="checkbox"/> |          | <input type="checkbox"/> |

QAD
QS-SU-851

Now that the standard cost of producing a medical ultrasound has been established, QMI can return to the Item Cost Maintenance (1.4.9) screen and add the retail price to be charged for this item. QMI has decided to price this medical ultrasound at \$2,500.00.



## Review



This chapter introduced how product costs are developed using:

- Routing cost rollups, which capture this-level manufacturing costs, lead times, and total yield
- Product structure cost rollups, which capture lower-level component costs and all costs previously captured by routing cost rollups

You also saw how up-to-date costs reflected in the current cost set can be moved to the GL cost set to update that cost set as appropriate.

## Exercise 5

### Check Standard Order Quantity for Item

- 1 In the Order Qty field of Item Planning Maintenance (1.4.7), add a standard order quantity of 10 to item 01010. This is the number of units that the cost of setup time is spread over.

### Calculate Amount of Labor, Burden, and Subcontract Costs for Manufactured Items

**Important** Manufactured components must be calculated first.

- 2 Use Routing Cost Roll-Up (14.13.13) to roll up the routing cost.

| Field       | Data                       |
|-------------|----------------------------|
| Site        | 10-100; click Next         |
| Cost Set    | Current; click Next        |
| Item Number | 50001 to 50001; click Next |

| Field       | Data                       |
|-------------|----------------------------|
| Site        | 10-100; click Next         |
| Cost Set    | Current; click Next        |
| Item Number | 01010 to 01010; click Next |

Use the default settings for all other fields and update.

**Note** This function does not generate any output.

- 3 Use Item Routing Cost Report (14.13.15) or Item-Site Cost Inquiry (1.4.10) to verify that the standard costs were correctly calculated for labor and burden.

### Calculate Amount of Lower-Level Material, Labor, Burden, and Subcontract Costs

**Important** Manufactured components must be calculated first.

Use Product Structure Cost Roll-Up (13.12.13) to roll up the product structure. Key fields to populate are:

| Field       | Data                       |
|-------------|----------------------------|
| Site        | 10-100; click Next         |
| Cost Set    | Current; click Next        |
| Item Number | 50001 to 50001; click Next |

| Field       | Data                       |
|-------------|----------------------------|
| Site        | 10-100; click Next         |
| Cost Set    | Current; click Next        |
| Item Number | 01010 to 01010; click Next |

Use Item-Site Cost Inquiry (1.4.10) to check to see if your standard costs were correctly calculated for lower-level costs.

**Important** If your rolled up costs are incorrect, the error has its source in one of the data elements you added. Review your entries in the work center, the product structure, the routing record, and the item planning data. Check these values against the values shown in the example screen shots.



# Purchasing

This chapter covers the purchasing process including requisitions, types of purchase orders, order receipt, and supplier invoicing and payment.

*Overview*

*Key Concepts*

*Example*

*Review*

*Exercise 6*

## Overview



This chapter examines the procurement process, from initial requisition to material receipt will be examined. Key concepts are discussed, followed by an example that illustrates the purchasing flow, a review, and a hands-on exercise.

## Chapter Topics

The topics covered in this chapter include:

- Key Concepts
  - Supplier
  - Requisitions
  - Types of Purchase Orders
  - Order Receipt
  - Supplier Invoices and Payment Processing
- Example
  - Verify Supplier Data
  - Verify Purchasing Control Settings
  - Create Purchase Order
  - Receive Items and Create Receiver

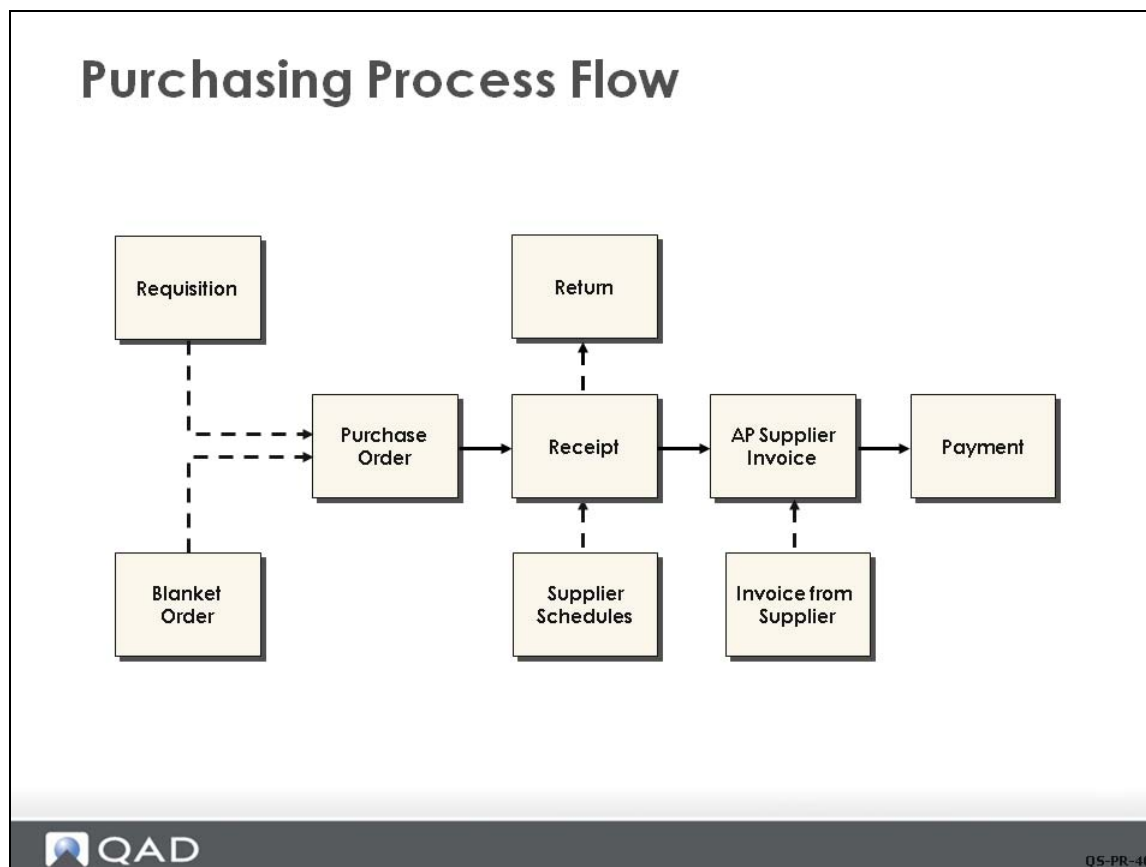
- Review
- Exercise

## Learning Objectives

**When you finish this chapter, you should be able to:**

- Describe the purchase flow.
- Explain how the system handles the different numbering systems that suppliers and customers use for the same item.
- Explain how the system handles the different units of measure that suppliers and customers use for the same item.
- Describe the purchase requisition flow.
- Describe the three kinds of purchase orders that QAD EE supports.

## Key Concepts



Purchasing lets you manage all aspects of ordering and receiving materials and services, including requisitions, approvals, purchase orders, receipts, and returns. It supports purchasing of products as well as non-product materials and services—such as subcontracting services—and gives you the means to support discrete, process, and just-in-time (JIT) manufacturing.

While purchasing supports the purchase of everything—from office supplies to capital equipment for production—this course limits the example to purchasing direct material for manufacturing.

A purchase involves several steps. Often the first step is a requisition, which is the result of demands recognized by material requirements planning (MRP). An order is next, either a purchase order, a blanket order, or a supplier schedule. When the ordered goods arrive, a record is made called a receiver. If the goods are returned to the supplier, another record is made. The system keeps a record of each step.

After goods are received, Accounts Payable manages the receipt of an invoice from your supplier and matching it with the receiving documents generated by the system so that payments can be made.

You will review several of these stages of the purchasing process in more detail on the following pages, but before you can perform purchasing functions, a supplier must exist in the system. So this chapter begins with a discussion about entering supplier information.



## Supplier

### Purchasing: Supplier

|      | QMI            | Supplier               |
|------|----------------|------------------------|
| Item | 6001 Mouse Pad | Bridgefield Industries |
| UOM  | EA             | CS                     |

|      | QMI              | Supplier               |
|------|------------------|------------------------|
| Item | 60018 Dust Cover | Bridgefield Industries |
| UOM  | EA               | CS                     |



QS-PR-050

Prior to using purchasing functions, you need to set up information for each of your suppliers. Supplier Create, located under Accounts Payable in the Finance system, is used to create the supplier record and set up the accounting information needed. QMI's key supplier for purchased components is Bridgeville Industries. The finance staff of QMI has set up this vendor with supplier code 10S1002.

In addition to setting up accounting data for the supplier, QMI needs to set up supplier data particular to manufacturing. This is done in Supplier Data Maintenance under the Addresses menu in Master Data. This data includes contact names and phone numbers, shipping data, and other information of a non-financial nature.

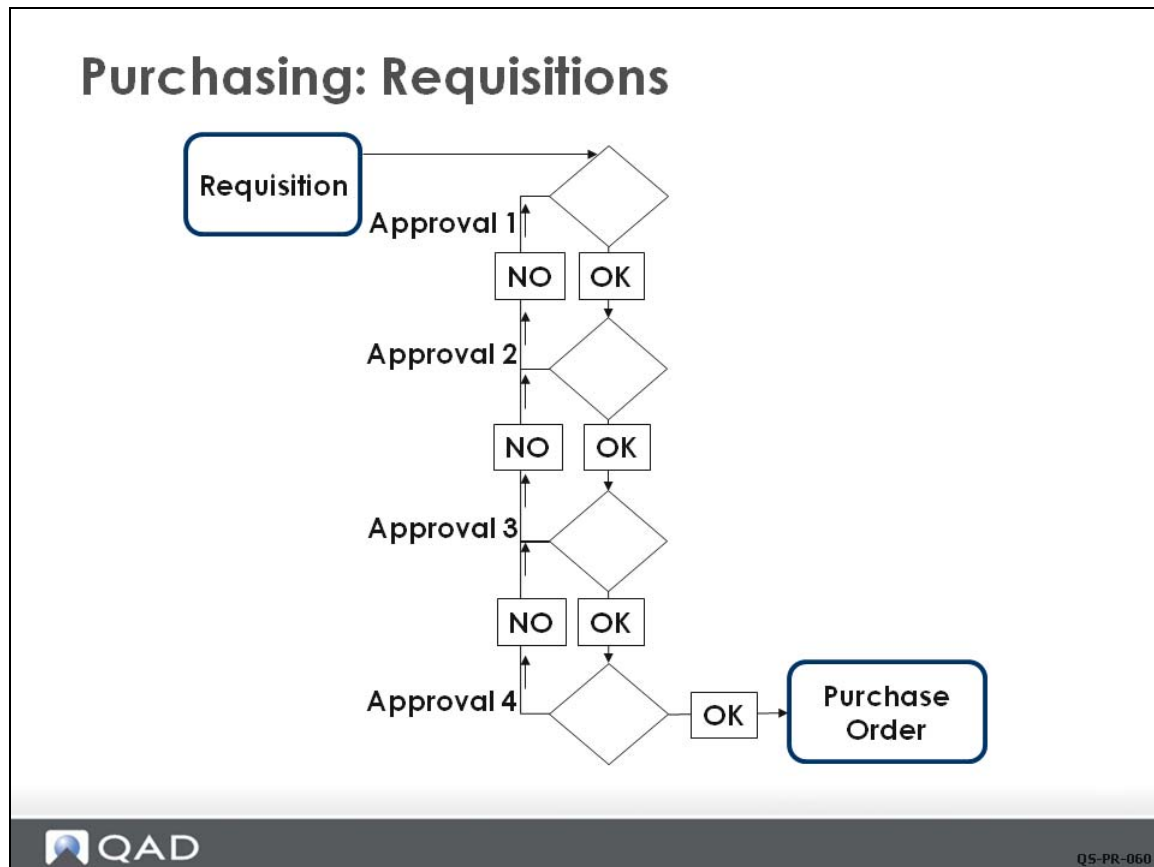
### Supplier Items

Supplier items are used to cross-reference your item number with your supplier's item number. Later, in Purchasing, you can reference the supplier's item number instead of your own, and the system will find your item number for you.

### Unit of Measure

Unit of measure conversions can be set up so that a unit of measure for a purchase order line can be different than the item master unit of measure. Then, when the item is received, it is converted to the item master unit of measure.

## Requisitions

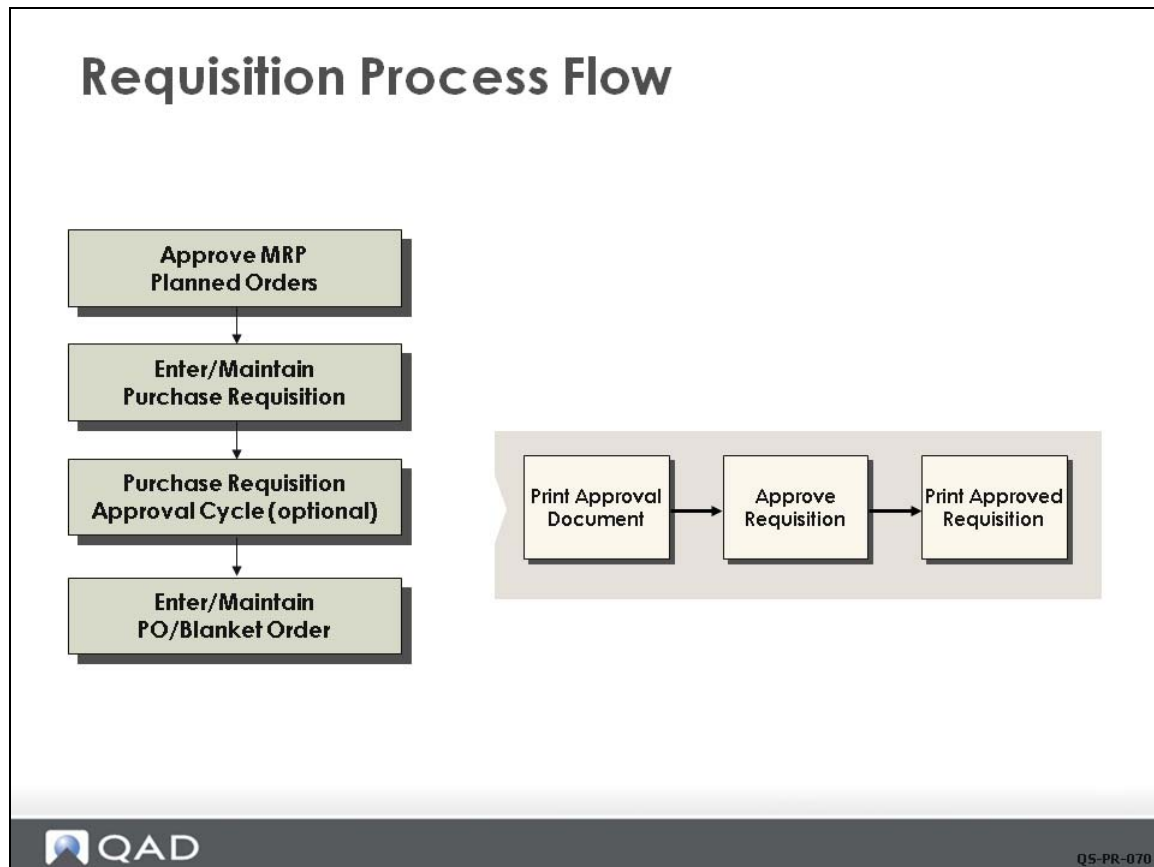


A requisition is a record stating that an item is needed. Requisitions specify quantity, date needed, and place to be delivered. A requisition is often the first step of a purchase, although you can issue a purchase order without it. Some companies also require multiple approvals before requisitions become orders. Once the requisition's information is transferred to a purchase order or a blanket order, the requisition is deleted.

**Note** QAD EE offers two requisition modules: Purchase Requisitions and Global Requisitions. Both are located in the Purchasing folder under the Supply Chain menu. Global Requisitions offer considerably more functionality (with more complexity). You should have a clear understanding of the differences between the two before making an implementation decision. You can only use one or the other requisition module at a time, and there are consequences associated with changing. This course discusses only Purchase Requisitions.

**Note** A separate Global Requisitions course exists and purchase requisitions are covered in more detail in the purchasing course.

## Requisition Process Flow



You can create standard requisitions manually with Purchase Requisition Maintenance or by approving an MRP planned order with Planned Purchase Order Approval. The system refers to requisitions by requisition number.

### Approval Process

Companies using requisitions may choose to go through a requisition approval process. Approval levels can be defined to establish approval requirements by product line, site, requested by, and purchase expense account. Then, whenever a requisition is created, it is automatically assigned an approval code. This determines the approval level based on the requisition cost. The approval level indicates the person who must sign off on the requisition before the item can be purchased. Multiple approval levels can be recorded for each requisition.

A \$50,000 purchase may need regional manager approval, but the purchasing manager and division manager must sign off first before it is sent to the regional manager.

### Printed Requisitions

Requisition documents can be printed for each item, listing the approved requisitions for that item with the quantity and due date.

Supplier-item quotes can be printed on the requisition document. These are similar to manual “buy cards” (used in many purchasing departments) because they list the supplier options.

## Types of Purchase Orders

### Types of Purchase Orders

- Blanket purchase order
- Supplier Schedules
- Discrete purchase orders



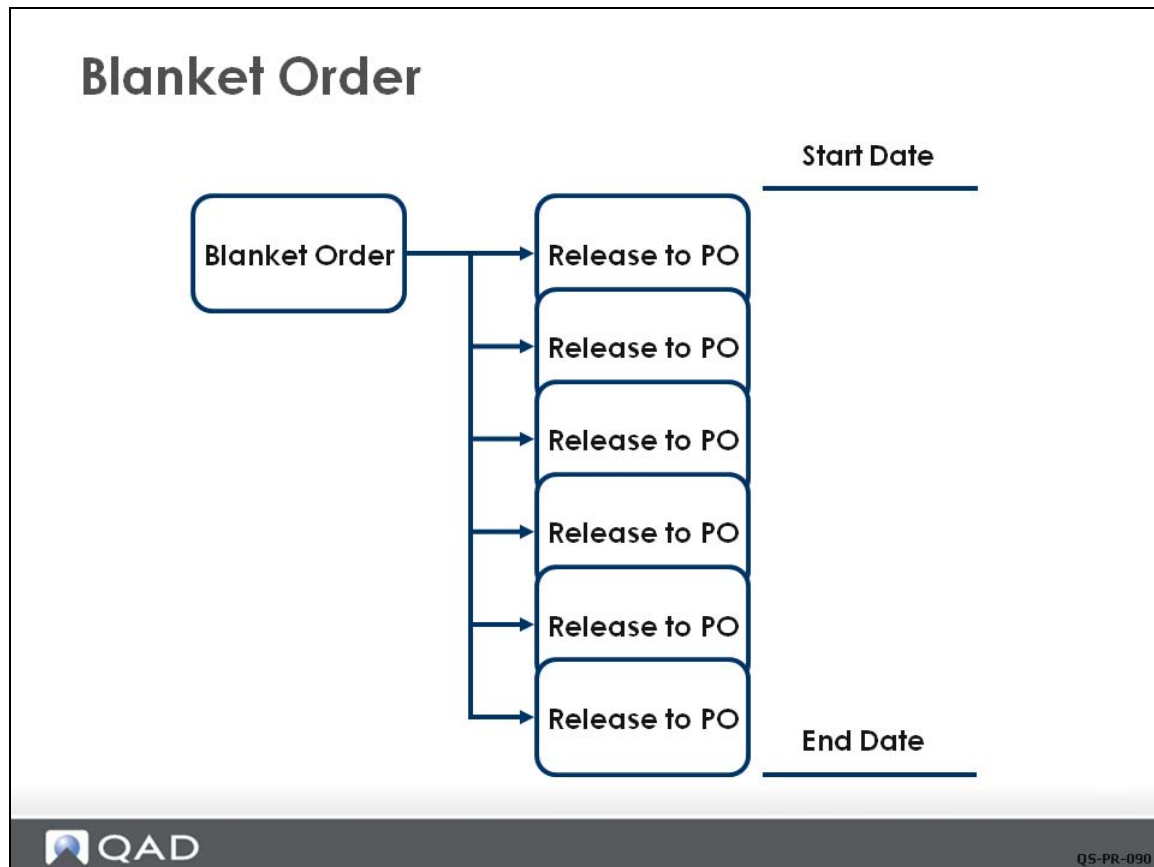
QS-PR-080

QAD EE supports three kinds of purchase orders:

- Blanket purchase orders
- Supplier schedules
- Discrete purchase orders

Although all three kinds of orders are described in this section, the emphasis is on discrete purchase orders. The Example section is based upon a discrete PO.

## Blanket Orders

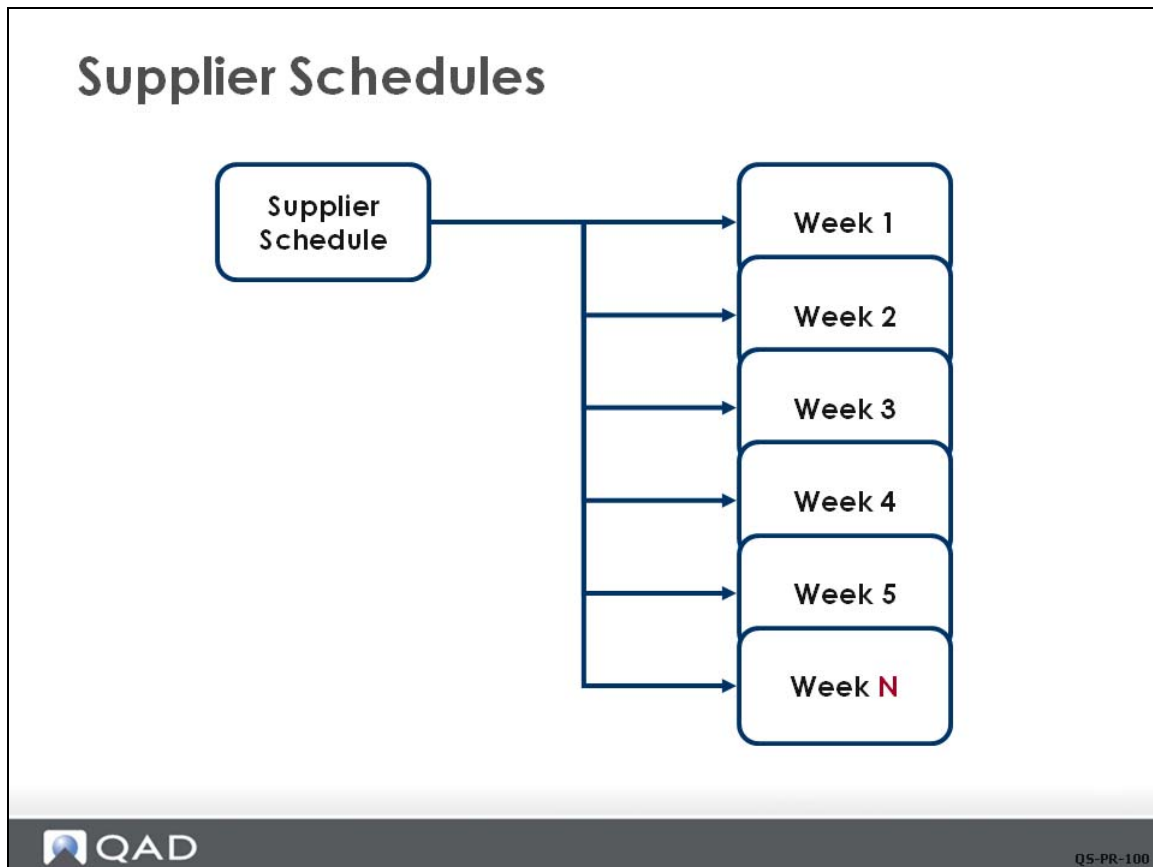


Use blanket orders for multiple deliveries of stock items, where an ongoing relationship with the supplier is assumed, but exact delivery dates are yet to be determined. Quantities and due dates can be entered up to the time when a blanket order becomes a purchase order. See figure above.

For example, QMI buys all of its components from Bridgeville Industries. Each week, the requirements change and are too small to get quantity discounts. The purchasing manager could negotiate an annual contract with Bridgeville Industries to get better pricing based on the estimated annual usage of purchased items. This pricing could be documented with a blanket order.

Each week a discrete purchase order would be released from the blanket order for the following week's requirement. A weekly release is only one example; the actual release cycle is user defined. The blanket order keeps track of totals ordered to date.

## Supplier Schedules

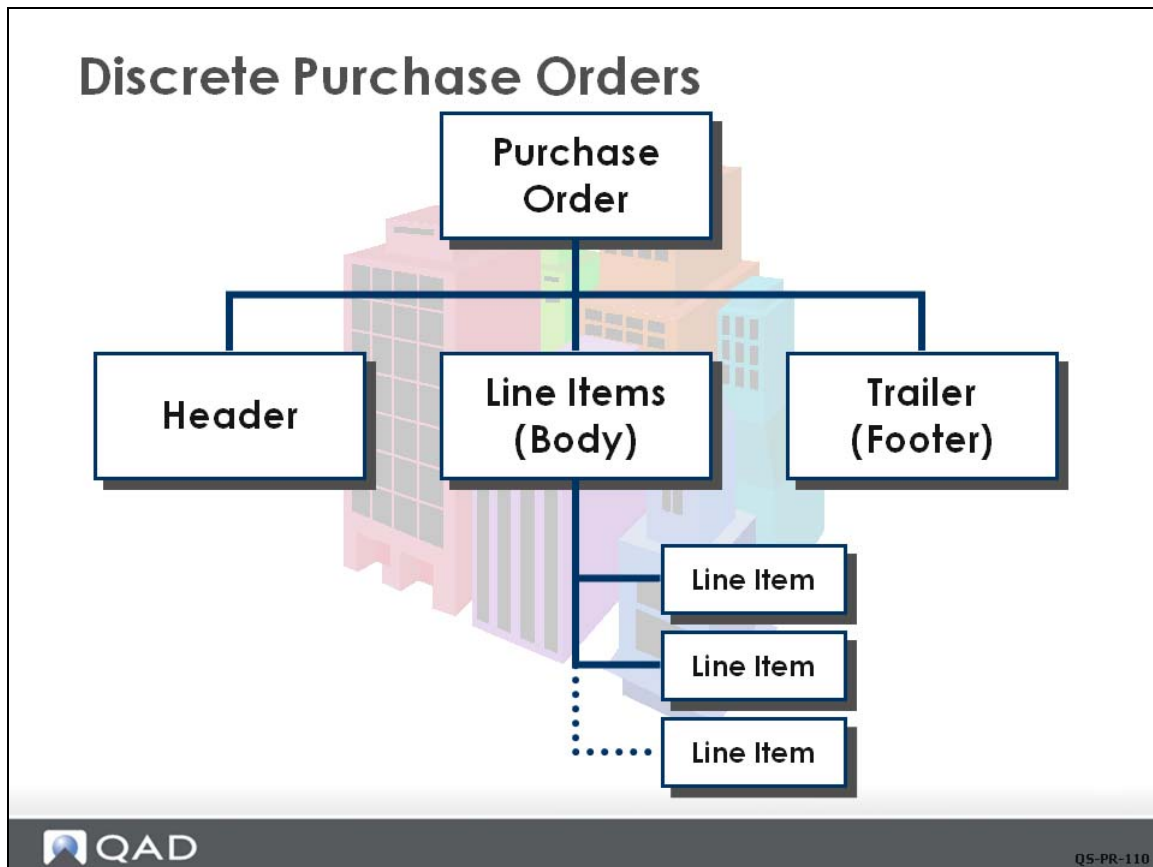


A supplier schedule is an agreement with a supplier that provides long-range planning data. Supplier schedules specify dates and even hours of delivery for the near term, and inform MRP and the supplier about long-term plans. These are used for high-volume, repetitive purchasing, often in a JIT environment. See figure above.

A manufacturer of circuit boards needs circuit board blanks supplied each week. The manufacturer knows its exact needs for the next four weeks and its approximate needs for the next 12 months. The supplier of the blanks uses the information in the supplier schedule to plan orders for raw materials and to plan production and deliveries.

Supplier schedules are designed for use with EDI (Electronic Data Interchange) and as such eliminate most of the paperwork associated with the purchasing process.

## Discrete Purchase Orders

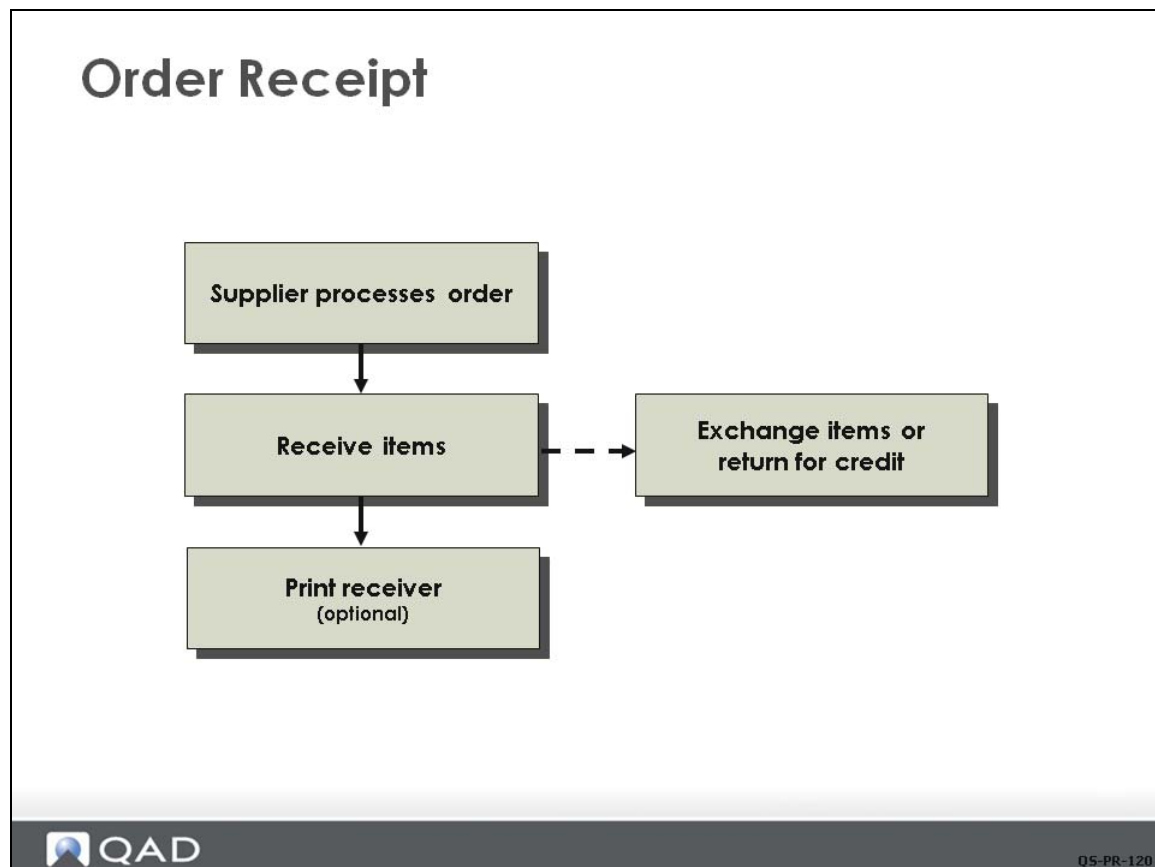


Use discrete purchase orders for single transactions with a supplier, where no assumption that further transactions will occur is made. Purchase orders contain a single delivery date for each line item. MRP treats purchase order items as supply and assumes that ordered amounts will be available on the delivery date. Receipts can be processed against these purchase orders. You will see how to process a discrete PO in the Example section.

The diagram shows the three main sections to the purchase order:

- The header contains data that applies to the entire order. This includes the PO number, the supplier, the buyer, and other data.
- The line items detail the specific items being purchased. This includes item numbers and descriptions, quantities, and prices.
- The trailer records the final data applying to the entire order such as taxes and shipping charges.

## Order Receipt



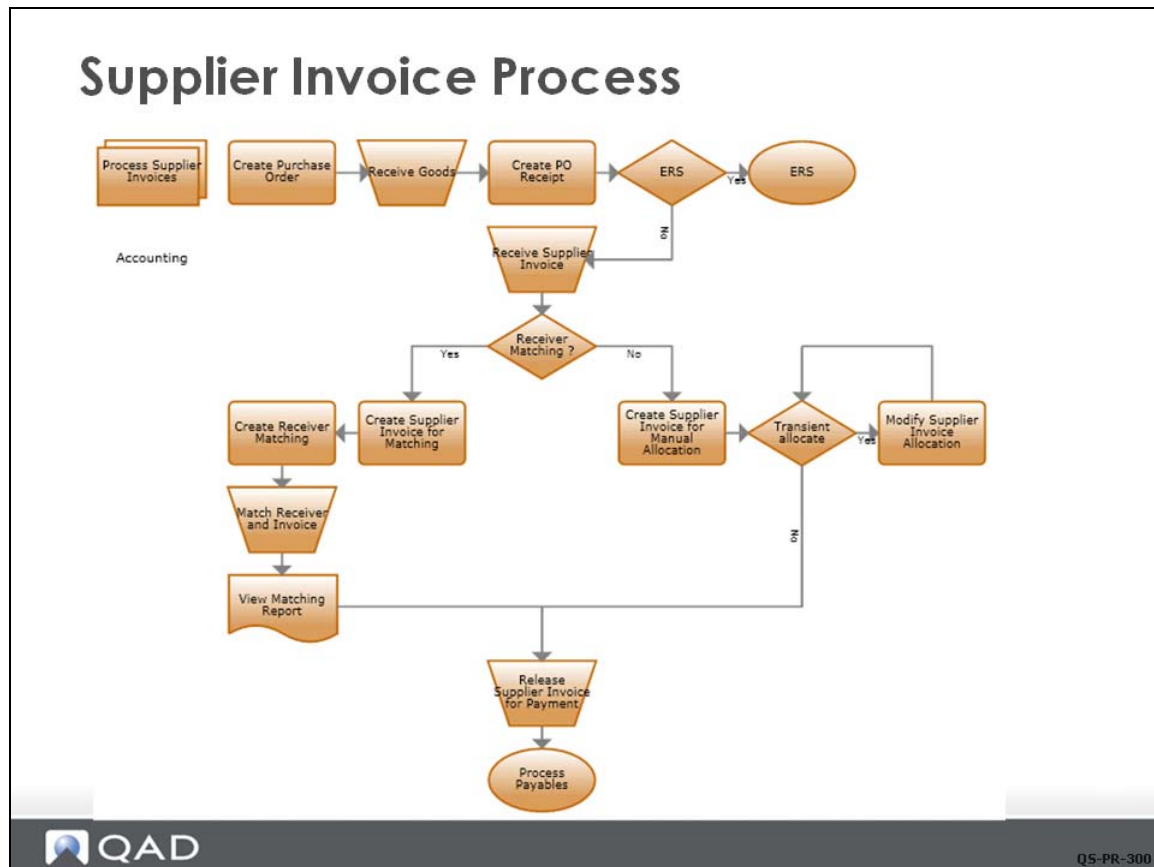
This slide illustrates the order receipt process.

Purchase order receipt transactions are performed when items on an open purchase order are received into inventory. When material is received, inventory is updated as well as the open order quantity on the PO.

All PO receipts and returns generate receivers for matching with supplier invoices in Accounts Payable. A receiver is a record that goods have been received into inventory. Receivers update inventory balances and allow Accounts Payable to verify quantities and prices before paying suppliers. Receiving documents can be printed and attached to the items or routed to the Accounts Payable department.



## Supplier Invoicing



The Accounts Payable department records amounts owed to vendors and processes and prints payments for those amounts. Often, an Accounts Payable department uses supplier invoices to document internal approval and help ensure the accuracy of invoices it receives.

A supplier invoice is a document in the system based on the invoice from the supplier. When approved, the supplier invoice authorizes payment to the supplier.

The Accounts Payable department uses the Supplier Invoice function (28.1.1) to create, view, modify, and delete supplier invoices and credit notes and:

- Create initial invoices to enter supplier documents immediately into the system.
- Match current invoices against original purchase order receipts.
- Prepare invoices for allocation and allocate the invoice.
- Approve invoices.
- Place invoices on payment hold or release invoices for payment that are currently on hold.
- Reverse incorrect invoices and their postings, and optionally replace these with new invoices.

## Processing AP Payments

### AP Payment Instruments

- Electronic Transfer
  - Use Payment Selection Execute
  - Uses EDI for Payment format transformation
- Check Payment
  - Use Supplier Check Print
  - With or without Payment-in-Process (PIP) account; with PIP is recommended
- Other Payment Instruments
  - Drafts, similar to checks
  - Paper transfers, similar to electronic transfer
  - Promissory notes/summary statements, similar to checks
  - Cash, processed directly in Bank/Cash entry

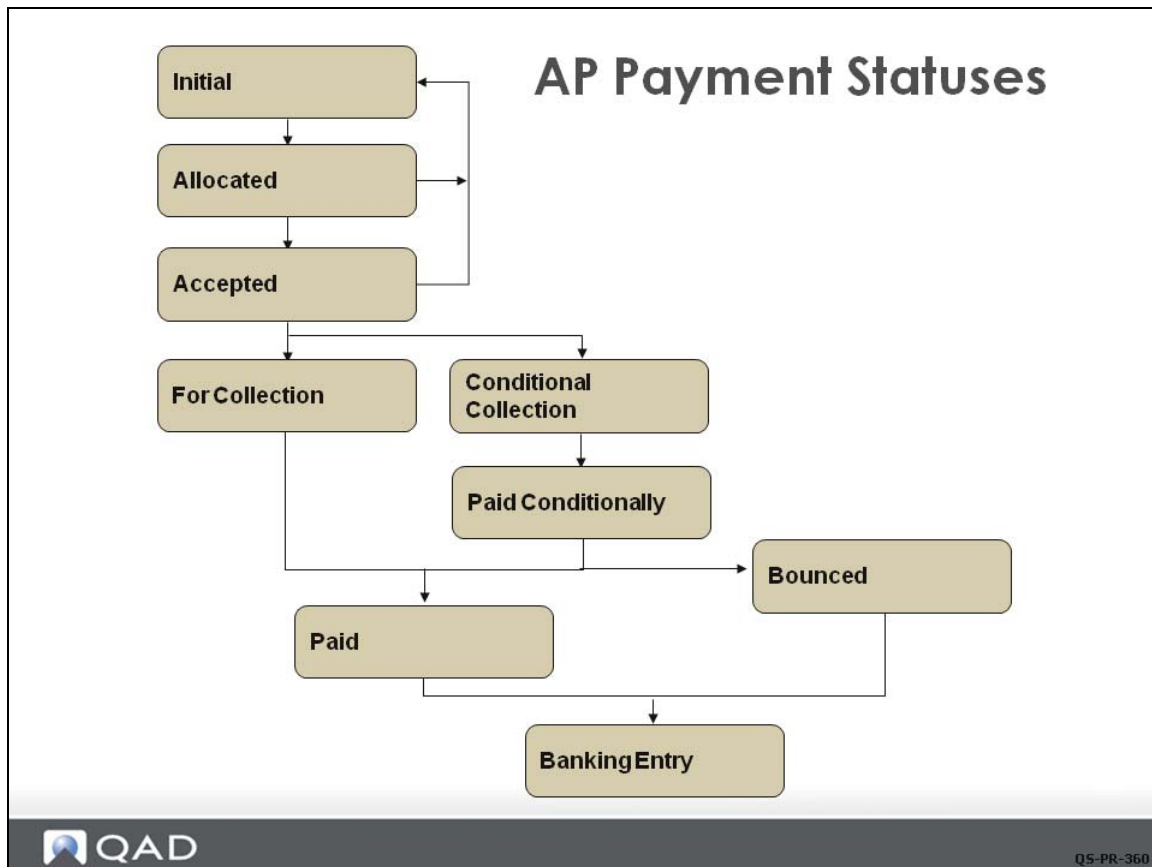


QS-PR-310

After supplier invoices are approved for payment, the AP department has a range of instruments available for actually paying the suppliers other than check or electronic payment:

- Draft. The draft or bill of exchange is a negotiable security signed and dated by its issuer (the bank). It contains an unconditional order or instruction to pay a fixed amount to the supplier on the agreed due date. Once signed, the draft is considered a collection instrument. Its form, content, and legal consequences are governed by law.
- Paper Transfer. The transfer payment instrument is an order for payment that you submit to your bank. The bank ensures that the amount is transferred to the supplier's bank account. Transfers are in paper format.
- Promissory Notes. The promissory note is a promise to pay the supplier, instead of an unconditional payment order. The promissory note carries more risk for the beneficiary and has fewer legal consequences for the issuer if payment is defaulted summary statements: You send summary statements to the supplier. Factoring companies and banks that provide credit card services use summary statements.

## AP Payment Statuses



Payment processing is controlled by payment status codes. Different payment instruments follow different status sequences. The particular flow is determined during financial setup. At a minimum, the Paid and Bounced statuses are used. Typically, a For Collection status is used for payments sent to the bank. The Initial status is for an initial payment registration.

You can define an account for each status through which the payment is processed, or use one GL account to record the transitions. For example, if you are processing a check through the Initial, Allocated, For Collection, and Paid statuses, you can define a GL account of type Supplier Payment for each status. This approach supports detailed reporting requirements.

Each status transition usually generates a posting, which updates the account associated with the status and bank or liability accounts.

All of this processing is managed within Enterprise Financials and is not covered in this class.

## Example

The example in this chapter shows the following purchasing activities:

- Review supplier data.
- Set up a unit of measure conversion for 60017 (mouse pad), which the supplier only sells in a case with 100 items.
- Set up a supplier item so that the system knows that QMI's item 60017 is the same as supplier item SCC62050.
- Review Purchasing Control settings.
- Create a purchase order to buy all of the component items for 01010 in sufficient quantities to build 10 medical ultrasound devices.
- Receive those items into inventory.

## Verify Supplier Data

**Supplier Create**

Supplier Code: 10S1002 Active: ☒

Business Relation: 10-S1002

Attachments

Business Relation | Accounting | Payment | Banking | Defaults | Tax Info | Comments

Name: Bridgeville Industries

Address: 3390 Linco Road

Zip/City: 49127 Stevensville

Country Code: USA USA - TAX PURPOSE

State: MI Michigan

County:

Telephone:

Fax:

E-Mail:

Internet:

QAD Q5-PR-130

The Finance Department uses the Supplier Activities (28.20.1) to create, view, modify, or delete a supplier. Account details cannot be modified if transactions already exist. A record can only be deleted if it is not referred to in the system, but it can be marked inactive.

Suppliers can be saved in draft format when Draft instances is selected in System/User Settings, Change System Setting. When a record is saved in draft format, none of the system validations are executed. You can then return later to complete the record by choosing the Supplier Browse Drafts activity and selecting the record you want to finish from the list. See *User Guide: Introduction to QAD Enterprise Applications* for details on drafts.

After creating a supplier here, specify additional operational data in Supplier Data Maintenance (2.3.1). An e-mail is automatically sent to the members of the SupplierNotify role responsible for creating this data when a new supplier is created.

## Business Relation Create

**Business Relation Create**

Go To Actions Tools Attach Print Preview

Attachments

Business Relation: Medical Distributors

Name: Medical Distributors, Inc.

Search Name: Medical Distributors, Inc.

Second Name:

Third Name:

Group Name:

Active: ☒

Address Info: General Defaults

| Address | Zip Code | City | Name | Search Name | Telephone |
|---------|----------|------|------|-------------|-----------|
|         |          |      |      |             |           |

Export to Excel  
Delete a Row  
Insert a New Row  
Columns...  
Reset to Initial Settings  
Print...

QAD QS-PR-131

Before a supplier can be created, a business relation must exist. Every supplier references a business relation for address details. QMI's Finance Department uses the Business Relation activities (36.1.4.3) to create, view, modify, and delete business relation records. You can also use the Excel Integration option to export records to or load records from an Excel spreadsheet.

Business relations can be saved in draft format when Draft Instances is selected in System/User Settings, Change System Setting. When you save a record in draft format, none of the system validations are executed. You can then return later to complete the record by choosing the Business Relation Browse Drafts activity (36.1.4.3.6) and selecting the record you want to finish from the list.

## Verify Supplier Data

### Verify Supplier Data

Supplier Data Maintenance
Go To
Actions
Copy
Print
Preview
Attach

Supplier: 10S1002
Site:
Carrier:

Supplier Address

Supplier: 10S1002 Business Relation: 10-S1002

Name: Bridgeville Industries Active: ☒

Address: 3390 Linco Road Added:

Address:

Address:

City: Stevensville State: MI Post: 49127 Format:

Country: USA County:

Attention: Elizabeth Clear [2]:

Telephone: [2]:

Fax: [2]:

Supplier Data

Sort Name: Bridgeville Industries Currency: USD

Supplier: RMS Language: us

Ship Via: PER INSTRUCTIONS Daybook Set: 10PURCH

Remarks: Site:

Carrier: Kanban Supplier:

Purchase Contact: Promotion Group:

After the supplier record has been set up by QMI finance, QMI purchasing verifies data and adds vendor-specific information that is used during the creation of purchase orders.

The first frame of Supplier Data Maintenance (2.3.1) displays the address information entered by finance. Purchasing will add contact and shipping information.

## Supplier Pricing Data

# Supplier Pricing Data

Supplier Data Maintenance

Go To Actions Copy Print Preview Attach

Supplier: 10S1002
Price Table:
Discount Table:

Supplier Address

Supplier: 10S1002

Business Relation: 10-S1002

Name: Bridgeville Industries

Active: ☒

Address: 3390 Linco Road

Added:

Address:

Address:

City: Stevensville

State: MI

Post: 49127

Format:

Country: USA

County:

Attention: Elizabeth Clear

[2]

Telephone:

[2]

Fax:

[2]

Supplier Pricing Data

Buyer: 3-02

Price Table:

Discount Table:

Fixed Price: ☒

In the second frame, you can add the buyer code, price, and discount tables if you are using those. When Fixed Price is checked, the same field will also be checked on POs created for this supplier. This indicates that the negotiated prices with this supplier cannot normally be changed.



## Enterprise Material Transfer Data

# Enterprise Material Transfer Data

Supplier Data Maintenance X

Go To Actions Copy Print Preview Attach

Supplier: 10S1002

Supplier Address

Supplier: 10S1002  
Name: Bridgeville Industries  
Address: 3390 Linco Road  
Address:  
Address:  
City: Stevensville  
Country:  
Attention: Elizabeth Clear  
Telephone:  
Fax:

Business Relation: 10-S1002  
Active: ☒  
Added:  
State: MI  
Post: 49127  
USA  
County:  
[2]:  
[2]:  
[2]:

Format:

Enterprise Material Transfer Data

Send SO Price: ☐  
Send Credit Held SO: ☐  
Auto EMT Processing: ☐  
Automatic PO Receipt: ☐

SO Price Reduction: 0.00%  
Use SO Reduction Price: ☐

The third frame is used for Enterprise Material Transfer—also called back-to-back sales orders/purchase orders—a special case situation that is covered in its own training material.

## Supplier Terms Data

### Supplier Terms Data

Supplier Data Maintenance
 X

Go To Actions Copy Print Preview Attach

Supplier: 10S1002

Supplier Address

|                              |           |                                             |         |
|------------------------------|-----------|---------------------------------------------|---------|
| Supplier: 10S1002            |           | Business Relation: 10-S1002                 |         |
| Name: Bridgeville Industries |           | Active: <input checked="" type="checkbox"/> |         |
| Address: 3390 Linco Road     |           | Added:                                      |         |
| Address:                     |           |                                             |         |
| Address:                     |           |                                             |         |
| City: Stevensville           | State: MI | Post: 49127                                 | Format: |
| Country:                     | USA       | County:                                     |         |
| Attention: Elizabeth Clear   | [2]       |                                             |         |
| Telephone:                   | [2]       |                                             |         |
| Fax:                         | [2]       |                                             |         |

Supplier Terms Data

|                                                 |                         |
|-------------------------------------------------|-------------------------|
| Cr Terms: 30D                                   | Discount Percent: 0.00% |
| Partial OK: <input checked="" type="checkbox"/> |                         |
| DB Number:                                      | CoC Number:             |


QS-PR-143

The fourth frame displays the credit terms set up by finance (30D means payable in one month). The Partial OK field is checked, meaning purchase orders do not need to be delivered complete. This is a default for this supplier that can be changed on each PO.

## Set Up UOM Conversion

Unit of Measure Maintenance

Go To Actions Copy Print Preview Attach

Item Number: 60017

Unit of Measure: EA

Alternate UM: CS

Item Number: 60017 Mouse Pad

UM Conversion: 100.0000

QAD Q5-PR-150

QMI's base unit of measure for the mouse pad (item 60017) is each (EA). The supplier, Bridgeville Industries, only sells the mouse pads in a case of 100. The Purchasing Department uses Unit of Measure Maintenance (1.13) to enter a UOM conversion for the mouse pad so the system can convert a case to a specific quantity.

To do this, the buyer defines an item-specific unit of measure of conversion that applies only to item 60017 as shown in the slide above.

To define a generic conversion—such as from Inch to Centimeter—enter IN in Unit of Measure, CM in Alternate UM, leave Item Number blank, and enter 2.54 in the UM conversion field. The system can then convert anything measured in centimeters into inches. If you wanted the system to be able to convert from IN to CM, add another conversion with CM in the Unit of Measure field and IN in the Alternate UM field and 0.394 in the UM conversion field.

### Discussion

What does this information from our supplier about order size indicate QMI should do about the item planning data?

## Add Supplier Item

**Add Supplier Item**

Supplier Item Maintenance

Go To Actions Copy Print Preview Attach

Item Number: 60017 Mouse Pad  
 Supplier: 10S1002 Bridgeville Industries  
 Supplier Item: SCC62050

Unit of Measure: EA  
 Supplier Lead Time: 0  
 Use SO Reduction Price: 0.00%  
 Currency: USD  
 Quote Price: 0.49  
 Quote Date: 4/5/2011  
 Quote Qty: 100.0  
 Price List:  
 Manufacturer:  
 Manufacturer Item:  
 Comment:

QAD QS-PR-150

Enter information obtained from the supplier, Bridgeville Industries, about the mouse pads in Supplier Item Maintenance (1.19). Note that the supplier's item number for QMI's 60017 is SCC62050.

Typically, suppliers do not use the same numbering scheme that their customers do. By entering the supplier item information in the system, the buyer can use either the supplier's item number or QMI's item number on purchase orders and the system recognizes these as the same item.

### Additional Notes

- Note the Quote Price field of 0.49 and the Quote Quantity of 100.
- Supplier lead time is 0 days. This drives the purchase lead time entered in Item Master Maintenance for this item.
- Note also the fields for the manufacturer of an item. Often items are purchased from distributors, but can also be bought directly from the manufacturer.

**Important** A powerful feature of entering supplier items in the system is that the Supplier Item Browse can search on either item or supplier. This lets you inquire on all the suppliers that could supply an item, or all the items you purchase from each supplier.

## Verify Purchasing Control Settings

**Verify Purchase Control Settings**

Purchasing Control x

Go To Actions Copy Print Preview Attach

Ship-To: 10-100 Inspection Location: 030

Ship-To: 10-100

PO Prefix: P10  
Next Purchase Order: 00010002  
Receiver Prefix: R10  
Next Receiver: 00010069  
Sort PO By: Site  
Receive Alt: ☐  
Apprvd Reqs for POs: ☐  
Inspection Location: 030

Price Table Required: ☐  
Discrete Discount Table Req: ☐  
Schedule Discount Table Required: ☐  
Ln Format S/M: Single  
PO Header Comments: ☐  
PO Line Comments: ☐  
Cancel Backorders: ☐  
Keep Booking History: ☒

Receiver Type: 1  
Sequential Receiver: ☒

Type: 0 - Do not print receivers  
1 - Print for each shipment  
2 - Print for each item/shipment

Tolerance Percent: 10.00 (Acceptance Limit For Overshipments)  
Tolerance Cost: 100.00 (Acceptance Limit For Overshipments)

QAD Q5-PR-165

The settings in Purchasing Control (5.24) affect the purchase process. The Ship-To field is the default site code where most shipments are received. The site code is linked to QMI's company address record. This lets the system print the ship-to address on all purchase orders. The ship-to address can be modified on each purchase order line if necessary.

The PO Prefix field is set to P10 and Receiver Prefix to R10. Since the Receiver Type is set to 1, each line item on the PO will generate a receiver, so receiver numbers will index differently than PO numbers.

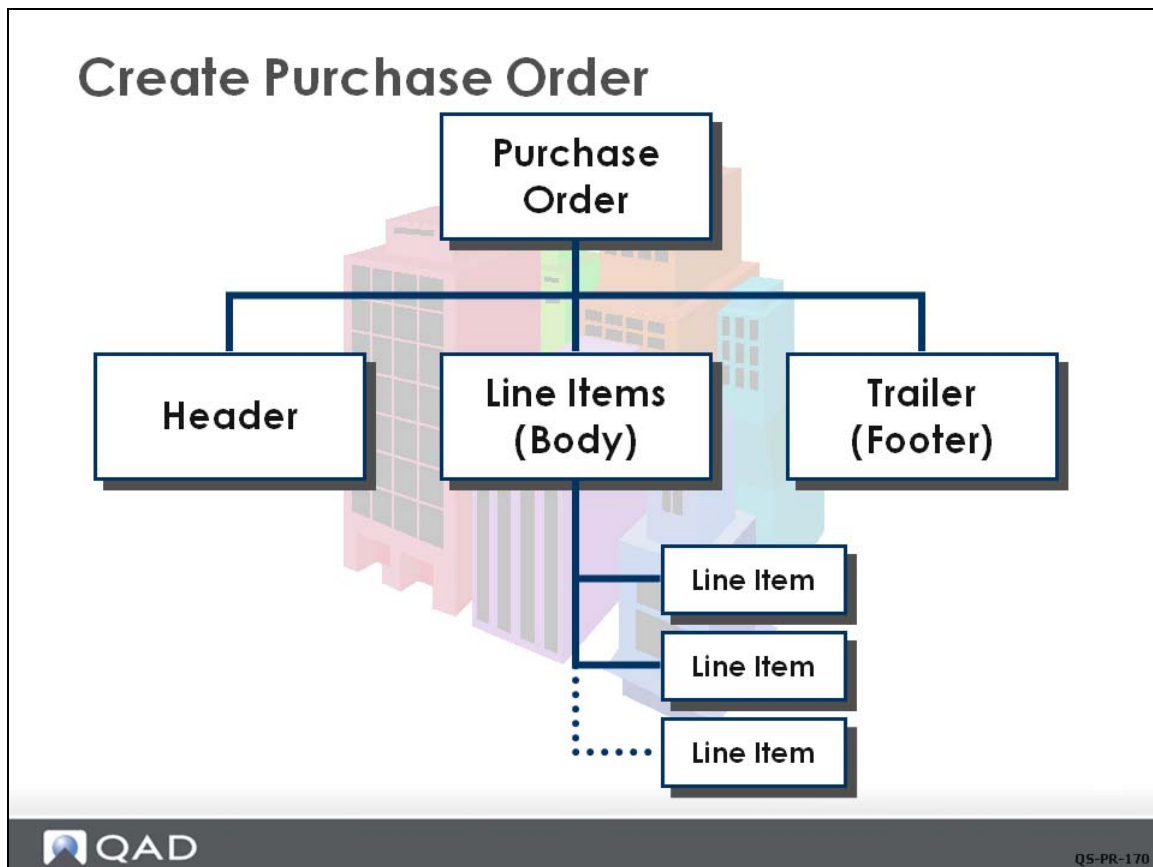
All the fields on the right except Keep Booking History are unchecked.

The tolerance fields set the limits for overshipments. The settings indicate that any item receipt with a count 10% greater than the PO quantity or a value of 100 currency units greater than the PO value will be rejected.

The single entry line format lets you customize due dates, sites, tax statuses, and other information for each line item on a purchase order. Multiple entry lets you enter basic information such as item number, quantity, and price for several lines on a single screen.

PO header and line comments are used when you need to add significant detail to either a purchase order header (referring to the entire order), or to line item detail (applies only to the specific line). The control settings set the default for each new order.

## Create Purchase Order



Before beginning to create the PO, remember the three key elements of the purchase order:

- The header contains data that applies to the entire order.
- The line items detail the specific items being purchased.
- The trailer records the final data applying to the entire order such as taxes and shipping charges.

## Enter Header Information

**Enter Header Information**

Purchase Order Maintenance

Go To Actions Copy Print Preview Attach

Purchase Order: P1010001 Supplier: 10S1002 Price Tbl:

Header Lines Trailer

Header Details Tax Info Logistics Delivery ERS Consignment Comments

Header

Purchase Order: P1010001 Supplier: 10S1002 Ship-To: 10-100

Supplier

Bridgeville Industries  
3390 Linco Road

Stevensville MI 49127

USA - TAX PURPOSE

Ship To

QMI -USA Division  
30 Ridgedale Ave

East Hanover  
USA - TAX PURP

Details

Order Date: 10/6/2010 Price Tbl: Disc Tbl: Ln Disc: 0.00

Due Date: 10/6/2010 Buyer: 3-02 Bill To: 10-100

Sales/Job: Daybook Set: 10PURCH

Contract: Project:

Remarks:

Currency: USD Language: us

Taxable: Fixed Price: Credit Terms: 30D Entered By: rgk

Requested By: Comments:

**Tax Info**

Tax Usage: Tax Environment: USA Tax Class: Taxable: ☒ Tax In:

QAD QS-PR-180

In Purchase Order Maintenance (5.7), QMI's buyer enters a purchase order for the components required to build 10 medical ultrasound units.

The first part of the order has header information such as PO number, assigned by the system based on the prefix and number set up in Purchasing Control; the supplier name, Bridgeville Industries; ship-to address, QMI receiving site 10-100; credit terms; currency; tax information; and order and due dates (both default to today's date). In this example, the system automatically generates the purchase order number; however, you can assign PO numbers manually.

**Note** Setting the due date on the order header sets the default due date on all line items. If you know all the line items will have different due dates, or if you are using requisitions that have the due date, you can leave the header due date blank.

The tax information pops up in a separate window when you click Next or press Enter after completing the header screen. This data defaults from Global Tax Management and is not normally modified in Purchase Order Maintenance. Accept the defaults and click Next to advance.

## Questions

Some of the information that was set up in Supplier Maintenance and Purchasing Control is now seen in the order created:

- What default information came from the supplier record (Supplier Data Maintenance)?
- What effect do the Purchasing Control settings have?

## Enter Line 1 Data

The screenshot displays the 'Purchase Order Maintenance' window for Purchase Order P1010001, Supplier 10S1002, and Site 10-100. The 'Line Details' tab is active, showing a table with one line item:

| Ln | Site   | Req | Item Number | Qty Ordered | UM | Unit Cost | Disc% |
|----|--------|-----|-------------|-------------|----|-----------|-------|
| 1  | 10-100 |     | 62050       | 1.0         | RL | 1700.00   | 0.00  |

Below the table, the 'Line Details' section contains various fields for item-specific information:

- Qty Received: 0.0, Due Date: 10/6/2010, CRT Int: 0.00
- Qty to Ret: 0.0, Pur Acct: 6610, Mech, ADM
- Single Lot: ☐ Performance Date:
- Location: 020, Need Date:
- Item Revision:  Sales/Job:
- Status:  Fixed Price: ☒
- Supplier Item:
- Manufacturer:
- Description: Beryllium Copper
- Project:  Type:
- Taxable: ☒ Cmnts:
- Inspect Req: ☐ UM Conversion: 1.0000
- Stock UM Quantity: 1.0, RL
- Update Avg/Last Cost: ☒
- Extended Net Cost: 1,700.00

The QAD logo is visible in the bottom left corner, and the text 'QS-PR-190' is in the bottom right corner.

For line 1, QMI's buyer enters an order for 1 roll, item 62050. The unit of measure and unit cost information default from the information entered earlier in Item Master Maintenance.

### Additional Notes

Each line specifies a particular item being ordered, its order quantity, and price. Line details include any exceptions to header information, such as a delivery date or receiving site, that apply to this line item only and not the whole order.

The format for PO lines was set to single line entry in Purchasing Control. This format shows us one line item at a time with all the detail in the frame below. This lets you verify the data that has defaulted, and modify any data you need to change. Once the four items are set up on the PO, you look at the PO in multi-line format to see what that looks like.

### Questions

Look at some of the other default information. Where does the following default information come from?

- Location
- Pur Acct



## Enter Line 2 Data

## Enter Line 2 Data

Purchase Order Maintenance
Go To
Actions
Copy
Print
Preview
Attach

Purchase Order: P1010001
Supplier: 10S1002
Site: 10-100
Item

Header
Lines
Trailer

Lines
Line Details
Tax Info
Comments

Header
Purchase Order: P1010001
Supplier: 10S1002
Ln Format S/M: Single

| Ln | Site   | Req | Item Number | Qty Ordered | UM | Unit Cost | Disc% |
|----|--------|-----|-------------|-------------|----|-----------|-------|
| 2  | 10-100 |     | 60050       | 10.0        | EA | 375.00    | 0.00  |

Line Details

Qty Received: 0.0
Due Date: 10/6/2010
CRT Int: 0.00

Qty to Rel: 0.0
Pur Acct: 6610
Mech
ADM

Single Lot: ☒
Performance Date:
Project:

Location: 030
Need Date:
Type:

Item Revision:
Sales/Job:
Taxable:

Status:
Fixed Price: ☒
Inspect Req: ☒
Cmnts:

Supplier Item:
UM Conversion: 1.0000

Manufacturer:
Stock UM Quantity: 10.0
EA

Description: Base Unit / CPU
Update Avg/Last Cost: ☒

Extended Net Cost: 3,750.00

QAD
QS-PR-200

For line 2, the buyer enters an order for 10 CPUs 60050. Note that the system fills in the unit cost of \$375.00.

## Enter Line 3 Data

## Enter Line 3 Data

Purchase Order Maintenance

Go To Actions Copy Print Preview Attach

Purchase Order: P1010001 Supplier: 10S1002 Site: 10-100 Item

Header Lines Trailer

Lines Line Details Tax Info Comments

Header

Purchase Order: P1010001 Supplier: 10S1002 Ln Format S/M: Single

Lines

| Ln | Site   | Req | Item Number | Qty Ordered | UM | Unit Cost | Disc% |
|----|--------|-----|-------------|-------------|----|-----------|-------|
| 3  | 10-100 |     | 60008       | 10.0        | EA | 269.00    | 0.00  |

Line Details

Qty Received: 0.0 Due Date: 10/6/2010 CRT Int: 0.00

Qty to Ret: 0.0 Pur Acct: 6610 Mech ADM

Single Lot: Performance Date: Project:

Location: 020 Need Date: Type:

Item Revision: Sales/Job: Taxable:

Status: Fixed Price: Inspect Req: Cmnts:

Supplier Item: UM Conversion: 1.0000

Manufacturer: Stock UM Quantity: 10.0 EA

Description: Printer Update Avg/Last Cost:

Extended Net Cost: 2,690.00

QAD

QS-PR-210

For line 3, the buyer enters an order for 10 printers (item 60008).

## Enter Line 4 Data

## Enter Line 4 Data

Purchase Order Maintenance

Go To Actions Copy Print Preview Attach

Purchase Order: P1010001 Supplier: 10S1002 Site: 10-100 Item

Header Lines Trailer

Lines Line Details Tax Info Comments

Header

Purchase Order: P1010001 Supplier: 10S1002 Ln Format S/M: Single

Lines

| Ln | Site   | Req | Item Number | Qty Ordered | UM | Unit Cost | Disc% |
|----|--------|-----|-------------|-------------|----|-----------|-------|
| 4  | 10-100 |     | 60002       | 10.0        | EA | 122.00    | 0.00  |

Line Details

Qty Received: 0.0 Due Date: 10/6/2010 CRT Int: 0.00

Qty to Rel: 0.0 Pur Acct: 6610 Mech ADM

Single Lot: Performance Date: Project:

Location: 020 Need Date: Type:

Item Revision: Sales/Job: Taxable:

Status: Fixed Price: Inspect Req: Cmnts:

Supplier Item: UM Conversion: 1.0000

Manufacturer: Stock UM Quantity: 10.0 EA

Description: Display / Readout Update Avg/Last Cost:

Extended Net Cost: 1,220.00

QAD

QS-PR-215

For line 4, the buyer orders 10 each of the display/readout, item 60002.

## Enter Trailer Information

### Enter Trailer Information

Purchase Order Maintenance
✕

Go To
Actions
Copy
Print
Preview
Attach

Purchase Order: P1010001
Supplier: 10S1002

Header
Lines
Trailer

▶ Trailer
▶ Tax Info
▶ Trailer Information

Header

Purchase Order: P1010001
Supplier: 10S1002
Ship-To: 10-100

Trailer

|                     |          |               |             |          |
|---------------------|----------|---------------|-------------|----------|
| Non-Taxable:        | 7,660.00 | Currency: USD | Line Total: | 9,360.00 |
| Taxable:            | 1,700.00 |               | Total Tax:  | 127.50   |
| Tax Date: 10/6/2010 |          |               | Total:      | 9,487.50 |

View/Edit Tax Detail:

Trailer Information

|                                               |   |                 |                  |
|-----------------------------------------------|---|-----------------|------------------|
| Order Revision:                               | 0 | Amount Prepaid: | 0.00             |
| Order Rev Date:                               |   | Status:         |                  |
| Print PO: <input checked="" type="checkbox"/> |   | Close Date:     |                  |
| EDI PO: <input type="checkbox"/>              |   | FOB:            |                  |
| Deliver To:                                   |   | Ship Via:       | PER INSTRUCTIONS |

QAD

QS-PR-220

The last frame shows the trailer information, which contains tax and order status information for all line items. The 9,487.50 is the total value of the four line items on this order plus tax. Note the order is selected for printing.

If you change the order, the system prompts you to update the revision number. You would normally do this to keep track of how many changes have been made to the order.

## Receive Items

### Example: Receive Items

Purchase Order Receipts
Go To
Actions
Copy
Print
Preview

Order: P1010001
Supplier: 10S1002
Status:
Effective: 10/6/2010

Packing Slip: 123456
Move to Next Operation: ☒

Receiver: Bridgeville Industries

Receive All: ☒

Comments:
Ship Date:

| Ln | Item Number | UM | Qty Open | UM | Receipt Qty | UM | Project | Due Date  | T |
|----|-------------|----|----------|----|-------------|----|---------|-----------|---|
| 1  | 62050       | rl | 1.0      | rl | 1.0         | rl |         | 10/6/2010 |   |
| 2  | 60050       | EA | 10.0     | EA | 0.0         | EA |         | 10/6/2010 |   |
| 3  | 60008       | EA | 10.0     | EA | 10.0        | EA |         | 10/6/2010 |   |
| 4  | 60002       | EA | 10.0     | EA | 10.0        | EA |         | 10/6/2010 |   |

Line: 
Unit of Measure:
Site:
Loc:

Quantity:
ID:
Lot/Ser:

Packing Qty:
OP:
Reference:

Cancel B/O: ☐
Supplier Lot:

Item Number:
Multi Entry: ☐
Chg Attribute: ☐

Supplier Item:
Cmnts: ☐

Q5-PR-240

Bridgeville Industries, the supplier, includes a packing list with the shipment. This document includes QMI's purchase order number, their sales order number, QMI's ship-to address, their ship-from address, items and quantities ordered, items and quantities shipped, and other information, such as any back orders. This order is marked that it must be shipped complete.

The receiving transaction has a field to include the packing slip number your supplier provides.

Bridgeville Industries has delivered all of the items ordered by QMI. Using Purchase Order Receipts (5.13.1), the Receiving Department records the delivery by first entering the purchase order number, which identifies the line items and the quantity open (ordered but not received), and then by entering the packing slip number.

Since the packing list indicates the order has been shipped complete, receiving personnel can save a few steps by checking Receive All. This prefills the transaction frame with all the information needed to process the receipt.

However, one item on the order (620050) is serial-controlled, so the system cannot automatically process its receipt and the Receipt Quantity defaults to 0. The receiving clerk checks Multi-Entry and enters the serial number of each item received. If the numbers are in sequence, the system generates them based on the first number entered.

## Receive Serialized Items

### Example: Receive Serialized Item

The screenshot shows the 'Purchase Order Receipts' window. At the top, there's a header with 'Order: P1010001', 'Supplier: 10S1002', 'Status:', and 'Packing Slip:'. Below this is a table with columns: Ln, Item Number, UM, Qty Open, UM, Receipt Qty, UM, Project, Due Date, and T. The first row shows '1 62050 rl 1.0 rl 1.0 rl 10/6/2010'. Below the table, there's a section for 'Line: 2' with 'Unit of Measure: EA', 'Site: 10-100', and 'Loc: 030'. It also shows 'Quantity: 10.0', 'ID:', 'Lot/Ser:', 'Packing Qty: 0.0', 'OP: 0', and 'Reference:'. At the bottom, there's a table with columns: Location, Lot/Serial, Ref, Supplier Lot, and Quantity. The 'Lot/Serial' field is highlighted with a red box and contains the value '102310'.



QS-PR-240a

The system displays a frame for the Receiving Clerk to enter the serial numbers. In this case the supplier has shipped 10 items that are in serial number order. The clerk enters the first number, clicks Next, and then enters a quantity of 10 (the number previously ordered on line 2 of the PO).

The system displays a prompt requesting confirmation for creating the serial numbers, and then displays the inventory detail in the middle frame.

When complete, the clerk clicks Back to continue the receipt.

## Display PO Lines

### Display PO Lines

Purchase Order Receipts X

Go To ▾ Actions ▾ Copy ▾ Print Preview Attach ▾

Order: P1010001      Supplier: 10S1002      Status:      Packing Slip:

| Ln | Item Number | UM | Qty Open | UM | Receipt Qty | UM | Project | Due Date  | T |
|----|-------------|----|----------|----|-------------|----|---------|-----------|---|
| 2  | 60050       | EA | 10.0     | EA | 10.0        | EA |         | 10/6/2010 |   |
| 3  | 60008       | EA | 10.0     | EA | 10.0        | EA |         | 10/6/2010 |   |
| 4  | 60002       | EA | 10.0     | EA | 10.0        | EA |         | 10/6/2010 |   |

Display purchase order lines being received

Line:  
 Quantity:  
 Packing Qty:  
 Cancel B/O: ☐  
 Item Number:

Unit of Meas:  
 ID:  
 OP:

Lot/Ser:  
 Reference:  
 Supplier Lot:  
 Multi Entry: ☐  
 Chg Attribute: ☐

Loc:

QS-PR-241

This screen pulls the data from the purchase order. If all the data agrees with the packing slip and receiving inspection, the receipt of all items can be completed by clicking Next. This will cause a pop-up window to appear prompting to view the orders lines, as shown here.

## Purchase Order Receipts

### Purchase Order Receipts

Purchase Order Receipts X

Go To Actions Copy Print Preview

Order: P1010001
Supplier: 10S1002
Status:
Packing Slip:

| Ln | Item Number | Site   | Location Ref | Lot/Serial | Supplier Lot | Quantity |
|----|-------------|--------|--------------|------------|--------------|----------|
| 1  | 62050       | 10-100 | 020          |            |              | 1.0      |
| 2  | 60050       | 10-100 | 030          | 10234      |              | 1.0      |
| 2  | 60050       | 10-100 | 030          | 10235      |              | 1.0      |
| 2  | 60050       | 10-100 | 030          | 10236      |              | 1.0      |
| 2  | 60050       | 10-100 | 030          | 10237      |              | 1.0      |
| 2  | 60050       | 10-100 | 030          | 10238      |              | 1.0      |
| 2  | 60050       | 10-100 | 030          | 10239      |              | 1.0      |
| 2  | 60050       | 10-100 | 030          | 10240      |              | 1.0      |
| 2  | 60050       | 10-100 | 030          | 10241      |              | 1.0      |
| 2  | 60050       | 10-100 | 030          | 10242      |              | 1.0      |
| 2  | 60050       | 10-100 | 030          | 10243      |              | 1.0      |

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Clicking Yes brings up a frame showing the transactions the system is about to complete. In this case, the clerk must click Next to see all items since each of the serial-controlled items displays on its own line. Clicking Next displays another prompt requesting confirmation for the transaction.

Clicking Yes to the second prompt completes the transaction, which closes the line items on the PO. Since this PO has no other lines, the PO status is also set to closed.

Inventory transactions are posted to the inventory accounts and the inventory detail records are updated. The Supplier Accounts Payable accounts are updated and AP is now ready to voucher the invoice when it arrives and complete its three-way matching. The invoice quantity and price must match the purchase order quantity and price and the receipt quantity before payment can be made.



## Review Inventory Levels

### Review Inventory Levels

Inventory Detail by Item Browse

Actions Setup Cancel Add to Favorites

Search (1)

Created equals 4/9/2012 Search Clear All

Viewing 1 - 11 of 11 Records per page: 100

| Item Number | Site   | Qty On Hand - Inv Mstr | Qty On Hand - Inv Detail | Location | Lot/Serial | Ref | Status | Expire |
|-------------|--------|------------------------|--------------------------|----------|------------|-----|--------|--------|
| 60050       | 10-100 | 218.0                  | 1.0                      | 030      | 102310     |     | N-Y-N  |        |
| 60050       | 10-100 | 218.0                  | 1.0                      | 030      | 102311     |     | N-Y-N  |        |
| 60050       | 10-100 | 218.0                  | 1.0                      | 030      | 102312     |     | N-Y-N  |        |
| 60050       | 10-100 | 218.0                  | 1.0                      | 030      | 102313     |     | N-Y-N  |        |
| 60050       | 10-100 | 218.0                  | 1.0                      | 030      | 102314     |     | N-Y-N  |        |
| 60050       | 10-100 | 218.0                  | 1.0                      | 030      | 102315     |     | N-Y-N  |        |
| 60050       | 10-100 | 218.0                  | 1.0                      | 030      | 102316     |     | N-Y-N  |        |
| 60050       | 10-100 | 218.0                  | 1.0                      | 030      | 102317     |     | N-Y-N  |        |
| 60050       | 10-100 | 218.0                  | 1.0                      | 030      | 102318     |     | N-Y-N  |        |
| 60050       | 10-100 | 218.0                  | 1.0                      | 030      | 102319     |     | N-Y-N  |        |
| 62050       | 10-100 | 1.0                    | 1.0                      | 020      |            |     | Y-Y-Y  |        |

QAD QS-PR-280

Concerned about the unit of measure conversion on the beryllium copper? Or any other aspect of the transaction? Use Inventory Detail by Item Browse (3.2) to verify the transactions were completed as expected.

The browse shows the inventory of items just received, all in the correct location, with the correct status and with the correct quantities.

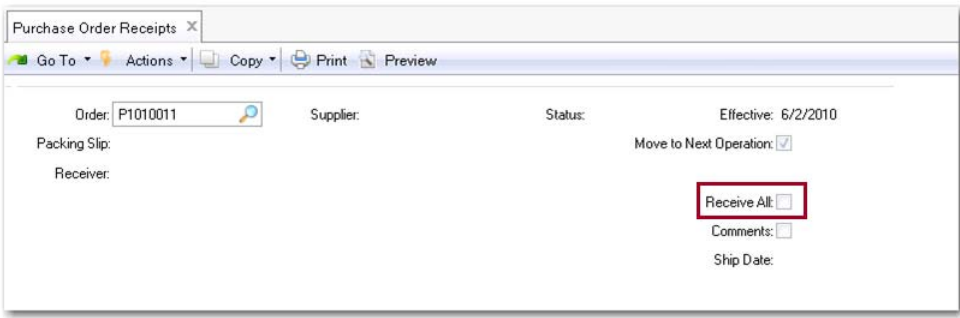
### Discussion

The status column displays the inventory status code associated with the location. Can you explain why the items received into the inspection location (030) are set to N-Y-N?

If you need help, see “Inventory Status Codes” on page 52.

## Non-Standard Receipt

# Non-Standard Receipt



Purchase Order Receipts

Go To Actions Copy Print Preview

Order: P1010011 Supplier: Status: Effective: 6/2/2010

Packing Slip: Receiver: Move to Next Operation: ☒

Receive All: ☐ Comments: ☐ Ship Date:

 QAD

Q5-PR-249

Now you will look at how to handle PO receipts in a non-standard situation. In this example, the PO is the same as the previous one, except the PO number is different. The first screen shows the Receive All box left unchecked.

## Non-Standard Receipt

**Non-Standard Receipt**

Purchase Order Receipts x

Go To Actions Copy Print Preview Attach

Unit of Measure: RL Site: 10-100 ID:

Order: P1010011 Supplier: 10S1002 Status: Packing Slip:

| Ln | Item Number | UM | Qty Open | UM | Receipt Qty | UM | Project | Due Date | T |
|----|-------------|----|----------|----|-------------|----|---------|----------|---|
| 1  | 62050       | RL | 0.0      | RL | 0.0         | RL |         | 6/2/2010 |   |
| 2  | 60050       | EA | 10.0     | EA | 0.0         | EA |         | 6/2/2010 |   |
| 3  | 60008       | EA | 10.0     | EA | 0.0         | EA |         | 6/2/2010 |   |
| 4  | 60002       | EA | 10.0     | EA | 0.0         | EA |         | 6/2/2010 |   |

Line: 1 Unit of Measure: RL Site: 10-100 Loc: 020

Quantity: 0.000000000 ID: Lot/Ser: OP: 0 Reference: Supplier Lot: Multi Entry: Chg Attribute: Cancel B/O: Item Number: 62050 Supplier Item: Cmnts:

QAD QS-PR-250

This brings up the receipt screen but, because Receive All was unchecked, the Quantity to be received is blank. You can use the lower frame to manually enter each line item and the quantity being received. In subsequent frames, the Receiving Department enters both the actual quantity received for each line (Quantity field) and the quantity indicated on the packing slip (Packing Qty field). This step is especially important when a discrepancy exists between the quantity listed on the packing slip and the actual quantity received. The line detail frame can also be used to indicate inventory location the material is put away in, if it is different than the default.

In this case the quantities are the same. Complete the line item data and click Next to update the quantity to be received column in the top frame; then you can proceed to the next line item.

Note the field Cancel Back Order. In some cases, a shipment is short a few items. This field lets you receive the item short and cancel the back order, thus closing the PO line. Of course, you will want to notify your supplier so they do not try to ship the additional items.

In the final frames, the Receiving Department confirms that all information listed is correct and the system processes the order receipt. A trailer frame is displayed to review any taxes.

## Questions

Where did the following default information come from: Supplier, Location, Site

If this had been a partial order, how would you handle that in QAD EE?

## Purchase Receipt Document

Purchase Receipt Document

RECEIVER
Page: 1

Supplier: 10S1002  
Bridgeville Industries  
3390 Linco Road  
Stevensville, MI 49127  
USA - TAX PURPOSE

Receiver: R1010006  
Receipt Date: 06/02/10  
Print Date: 06/02/10  
Purchase Order: P1010011  
PO Revision: 0

Packing Slip:  
Remarks:

Ship Date: 06/02/10

| Ln            | Item Number                               | UM         | Pack Slip Qty | Receipt Qty | Location | Req By |
|---------------|-------------------------------------------|------------|---------------|-------------|----------|--------|
| 2             | 60050<br>Base Unit / CPU<br>ERS Option: 1 | EA         | 0.0           | 10.0        |          |        |
| Req By: _____ |                                           |            |               |             |          |        |
| Site          | Location                                  | Lot/Serial | Reference T   | Tran        | Qty      |        |
| 10-100        | 030                                       | 5500       |               |             | 1.0      |        |
| 10-100        | 030                                       | 5501       |               |             | 1.0      |        |
| 10-100        | 030                                       | 5502       |               |             | 1.0      |        |
| 10-100        | 030                                       | 5503       |               |             | 1.0      |        |
| 10-100        | 030                                       | 5504       |               |             | 1.0      |        |
| 10-100        | 030                                       | 5505       |               |             | 1.0      |        |
| 10-100        | 030                                       | 5506       |               |             | 1.0      |        |
| 10-100        | 030                                       | 5507       |               |             | 1.0      |        |
| 10-100        | 030                                       | 5508       |               |             | 1.0      |        |
| 10-100        | 030                                       | 5509       |               |             | 1.0      |        |
| Loc Total     |                                           |            |               |             | 10.0     |        |

| Ln | Item Number                       | UM | Pack Slip Qty | Receipt Qty | Location      | Req By |
|----|-----------------------------------|----|---------------|-------------|---------------|--------|
| 3  | 60008<br>Printer<br>ERS Option: 1 | EA | 0.0           | 10.0        | 020<br>10-100 |        |

Q5-PR-262

In the final frames, the Receiving Department confirms that all information listed is correct and the system processes the order receipt. A printed copy of the receiver would look like the image here. Remember Purchasing Control was set to create one receiver for each line item. QMI has now received enough components to manufacture 10 medical ultrasounds.

### Additional Notes

Several settings in Purchasing Control affect purchase receipts:

- The Receiver Type field determines whether receivers are created for each order or for each item on the order or not printed at all.
- Tolerance Percent and Tolerance Cost determine how the system manages receipts that exceed the order quantity.

## Review Transactions Detail Inquiry

The screenshot displays the 'Transactions Detail Inquiry' window. The title bar includes 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach' buttons. Below the title bar, the 'Output: PAGE' is indicated. The main content area shows transaction details for Tran Nbr 4396. The details are organized into two columns. The left column contains: Tran Nbr: 4396, Trans Type: RCT-PO, Date: 5/27/2010, Time: 10:21, Effective Date: 5/27/2010, Remarks, User ID: qmi, Program: poporc.p, Currency: USD, Qty Change: 1.0, Shipper Number, and Ship Date: 5/27/2010. The right column contains: Order: P1010002, Revision: 0, Item Number: 62050, Description: Beryllium Copper, Unit of Measure: RL, Address: 10S1002, Name: Bridgeville Industri, SD/Job, Ship Type, Price: 1,700.00, and IMC. The bottom of the window features the QAD logo and the text 'Q5-PR-263'.

|                 |           |                  |                      |          |
|-----------------|-----------|------------------|----------------------|----------|
| Tran Nbr:       | 4396      | Order:           | P1010002             | R1010002 |
| Trans Type:     | RCT-PO    | Revision:        | 0                    |          |
| Date:           | 5/27/2010 | Item Number:     | 62050                |          |
| Time:           | 10:21     | Description:     | Beryllium Copper     |          |
| Effective Date: | 5/27/2010 | Unit of Measure: | RL                   |          |
| Remarks:        |           | Address:         | 10S1002              |          |
| User ID:        | qmi       | Name:            | Bridgeville Industri |          |
| Program:        | poporc.p  | SD/Job:          |                      |          |
| Currency:       | USD       | Ship Type:       |                      |          |
| Qty Change:     | 1.0       | Price:           | 1,700.00             |          |
| Shipper Number: |           | IMC:             |                      |          |
| Ship Date:      | 5/27/2010 |                  |                      |          |

Using Transactions Detail Inquiry (3.21.1), you can review the detail of the transactions created for the receipt of item 62050, beryllium copper. The second frame gives the complete detail including inventory, cost and GL account details.

When you enter this screen, the first transaction you see is the last one processed by the system. This first frame gives a high-level overview of the transaction. Use the up arrow on your keyboard to scroll back through the transactions to see the PO receipts just made.

## Review Transactions



Transactions Detail Inquiry 10/06/10

---

Transaction: 27980    Display E-Signature Details: Yes    Output: PAGE  
 ===== E-Signature Details =====  
 Category: InvTran  
 This data is currently unsigned  
 ===== End of e-signature details =====

|                          |                               |          |
|--------------------------|-------------------------------|----------|
| Tran Nbr: 27980          | Order: P1010001               | R1010068 |
| Trans Type: RCT-PO       | Revision: 0                   |          |
| Date: 10/06/10           | Item Number: 62050            |          |
| Time: 15:17              | Description: Beryllium Copper |          |
| Effective Date: 10/06/10 | Unit of Measure: RL           |          |
| Remarks:                 | Address: 1051002              |          |
| User ID: rgk             | Name: Bridgeville Industri    |          |
| Program: poporc.p        | SO/Job:                       |          |
| Currency: USD            | Ship Types                    |          |
| Qty Change: 1.0          | Price: 1,700.00               |          |
| Shipper Number:          | IMC:                          |          |
| Ship Date: 10/06/10      |                               |          |

|                                                                                                                  |                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Site: 10-100<br>Location: 020<br>Lot/Serial:<br>Inv Status: Y-Y-Y<br>Supplier Lot:<br>Grade/Assay:<br>Reference: | <b>Inventory Data</b><br>Begin Balance: 0.0<br>Quantity Change: 1.0<br>Qty Short: 0.0<br>Begin Loc Bal: 0.0<br>Loc Qty Change: 1.0<br>Expire Date:<br>Batch: |
|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                               |                                                                             |
|-----------------------------------------------|-----------------------------------------------------------------------------|
| Material: 0.00<br>Labor: 0.00<br>Burden: 0.00 | <b>Cost Data</b><br>Overhead: 0.00<br>Subcontract: 0.00<br>Cost Total: 0.00 |
|-----------------------------------------------|-----------------------------------------------------------------------------|

|                  |      |               |
|------------------|------|---------------|
| Debit Acct: 1500 | Mech | RCT-PO        |
| Cr Account: 2520 | Mech |               |
| Amount: 0.00     |      |               |
| GL Reference:    |      | Reference ID: |

|                                    |      |                              |
|------------------------------------|------|------------------------------|
| Debit Acct: 6710                   | Mech | RCT-PO                       |
| Cr Account: 2520                   | Mech | ADM                          |
| Amount: 1,827.50                   |      |                              |
| GL Reference: 2010/RCT-PO000000018 |      | Reference ID: IC101006000003 |



QS-PR-270

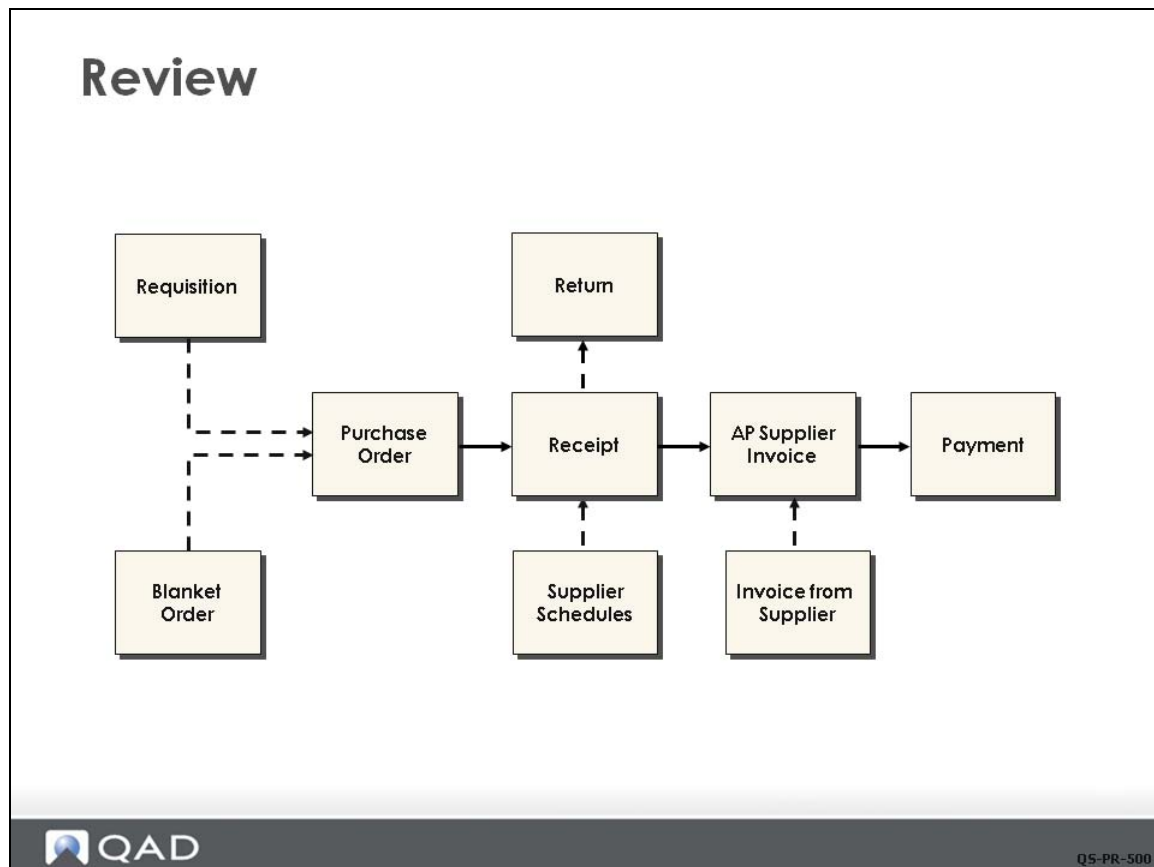
In the first GL transaction, the inventory account (1500) is debited and the PO receipts account (2520) is credited \$1700.00, the total standard cost of the roll of copper.

The reference ID is the number needed to track this transaction in the General Ledger. It includes these elements:

- IC indicates the transaction was generated by Inventory Control.
- Next is a date code 101006
- The final segment is a sequential number, in this case 3.

The GL Reference shows the year and daybook plus sequence number.

## Review



Here is a review of the highlights of the purchasing and accounts payable flow.

- **Purchase Order.** The starting point for payment processing is the purchase order—a contract that confirms your intent to buy. It lists items, quantities, and prices, along with related charges such as taxes and freight. The order also states your billing and shipping addresses, and the credit terms you have negotiated with the supplier. Purchase orders can originate from requisitions, blanket orders, or can be created directly.
- **PO Receipt.** When the items are delivered to your Receiving Department, a receiving document is recorded (PO receipt). The receiver confirms the received items and quantities against the purchase order. Receipts can also be based on supplier scheduled orders.
- **Invoice.** The supplier sends you an invoice to confirm your liability to pay for the items under the conditions specified on the purchase order.
- **Supplier Invoice.** Before you can pay the invoice, you need to verify that the items you received are what you originally ordered and that the supplier has charged you the correct price. To do this, you record a supplier invoice in Accounts Payable. When you enter the supplier invoice, you reference the purchase order and the invoice. The system then retrieves the receivers associated with the purchase order so that you can record invoice lines against them. If the invoiced items and quantities match the receiver, the receiver is closed.
- **Payment.** Supplier invoices are then selected for payment and are processed by printing checks, electronic funds transfer, drafts or other payment instruments. The process is managed through status codes from initial receipt to paid status.

## Exercise 6

### Supplier Data

- 1 Use Supplier Data Maintenance (2.3.1) to review supplier contact information and other data for supplier 10S1002.

Click Next at the e-mail pop-up until you reach the Supplier Terms Data frame.

| Field      | Data                   |
|------------|------------------------|
| Supplier   | 10S1002                |
| Name       | Bridgeville Industries |
| Cr Terms   | 30D (1 month)          |
| Partial OK | Unchecked              |

Verify that the Partial OK field is unchecked. Click Next until the Supplier field is highlighted, then click Back.

### Supplier Items

Supplier items are used to cross-reference your item number with your supplier's item number. You can also document the supplier's quoted price for the item. Later, you can reference the supplier's item number instead of your own on a purchase order, and the system will find your item number for you.

- 2 Use Supplier Item Maintenance (1.19) to create a record that cross-references your item numbers 60017 and 60018 to your supplier's item numbers.

| Field              | Data                 |
|--------------------|----------------------|
| Item Number        | 60017                |
| Supplier           | 10S1002              |
| Supplier Item      | SCC60017; click Next |
| Unit of Measure    | EA                   |
| Supplier Lead Time | 5                    |
| Currency           | USD                  |
| Quote Price        | 0.49                 |
| Quote Qty          | 100                  |

Update and exit the record.

| Field              | Data                 |
|--------------------|----------------------|
| Item Number        | 60018                |
| Supplier           | 10S1002              |
| Supplier Item      | SCC60018; click Next |
| Unit of Measure    | EA                   |
| Supplier Lead Time | 5                    |
| Currency           | USD                  |
| Quote Price        | 2.99                 |
| Quote Qty          | 100                  |



## Purchasing Control

- 3 Use Purchasing Control (5.24) and update settings as follows:

| Field              | Data           |
|--------------------|----------------|
| Ship To            | 10-100         |
| PO Prefix          | P10            |
| Next PO            | System Default |
| Receiver Prefix    | R10            |
| Next Receiver      | System Default |
| Ln Format S/M      | Single         |
| PO Header Comments | No (unchecked) |
| PO Line Comments   | No (unchecked) |

Let all other fields default. Update and exit.

## Create Purchase Orders for Component Items

- 4 Use Purchase Order Maintenance (5.7) to place an order for the components 60017 and 60018; all other components are already in inventory.

Purchase Order = [leave the purchase order number blank to default to the next number from Purchasing Control]

| Field          | Data                  |
|----------------|-----------------------|
| Purchase Order | Record for reference: |
| Supplier       | 10S1002; click Next   |

Order and Due Date will default to today's date

| Field        | Data                                    |
|--------------|-----------------------------------------|
| Site         | 10-100 (used as a default for the line) |
| Credit Terms | 30D (defaults from the supplier record) |

Click Next twice.

Go to the line item data.

- 5 In the line item information, set up purchase order lines for each component for the calculated amount. Key fields to populate are:

| PO Line | Site   | Supplier Item No. | Qty Ordered | UM | Unit Cost |
|---------|--------|-------------------|-------------|----|-----------|
| Line 1  | 10-100 | SCC60017          | 100         | EA | 0.49      |
| Line 2  | 10-100 | SCC60018          | 100         | EA | 2.99      |

When you click Next after entering the supplier item, notice how the system switches the ordered item to your item number. This is because of the data you previously set up in Supplier Item Maintenance.

Notice the field Update Avg/Last Cost is checked. This indicates that when these items are received, the current cost of the item will be updated to reflect any difference between the last current cost and the prices on this PO. If you do not want this updated, you can uncheck this box and the current cost will not change.

- 6 When Ln 3 is highlighted click End Lines, Trailer, Next twice, then Back.

### Record Receipts Against a Purchase Order

The supplier has sent the material you ordered for your components. Receive the items into inventory.

- 7 Use Purchase Order Receipts (5.13.1). Key fields to populate are:

| Field        | Data                                                  |
|--------------|-------------------------------------------------------|
| Order        | PO Number or use lookup (starts with P10); click Next |
| Supplier     | Displays from the PO record                           |
| Packing Slip | Enter any number you want                             |
| Receiver     | <blank>                                               |
| Ship Date    | <blank>                                               |
| Receive All  | Yes (Checked; very important for fast simple receipt) |

Click Next 3 times, review each screen.

This will bring up a window showing the two line items from the PO. The data should look like this.

| Line | Item  | UM | Qty Open | Receipt Qty |
|------|-------|----|----------|-------------|
| 1    | 60017 | EA | 100      | 100         |
| 2    | 60018 | EA | 100      | 100         |

If all the information is correct click Next.

This brings up a prompt: Display purchase order lines being received. Click Yes.

This brings up a frame with the receipt details that should look like this:

| Ln | Item  | Site   | Location | Quantity |
|----|-------|--------|----------|----------|
| 1  | 60017 | 10-100 | 020      | 100      |
| 2  | 60018 | 10-100 | 020      | 100      |

All items should be received into inventory location 020.

If all the information is correct, click Next, verify the data is correct when prompted, and clicking Yes completes the receipt transaction.

If you need to go back and fix something, click No, and you will have the opportunity to go back and fix any problems.

The last screen shows the trailer section. Be sure to click Next; otherwise, your receipt will not be saved.

- 8 Use Inventory Detail by Item Browse (3.2) to review the inventory levels for your component items. Enter the following search criteria:

| Field       | Operator  | Data  |
|-------------|-----------|-------|
| Item Number | Starts At | 60017 |

This selection criteria will display items beginning with those you received into site 10-100.

- 9 Use Transactions Detail Inquiry (3.21.1) to review the transactions you created when you did the receipt. The default transaction number that displays is for the last receipt (item 60018).

Scroll through the records you created in these activities by using the up and down arrows on your keyboard in the Transaction Number field. Look at the transaction type to understand what created the transaction.

Look at the GL detail and find the GL transaction number that was created for the last purchase order receipt. What accounts were debited and credited?



# Work Orders

This chapter covers how work orders drive the manufacturing process, and how to use shop floor control functions to report labor during the process.

*Overview*

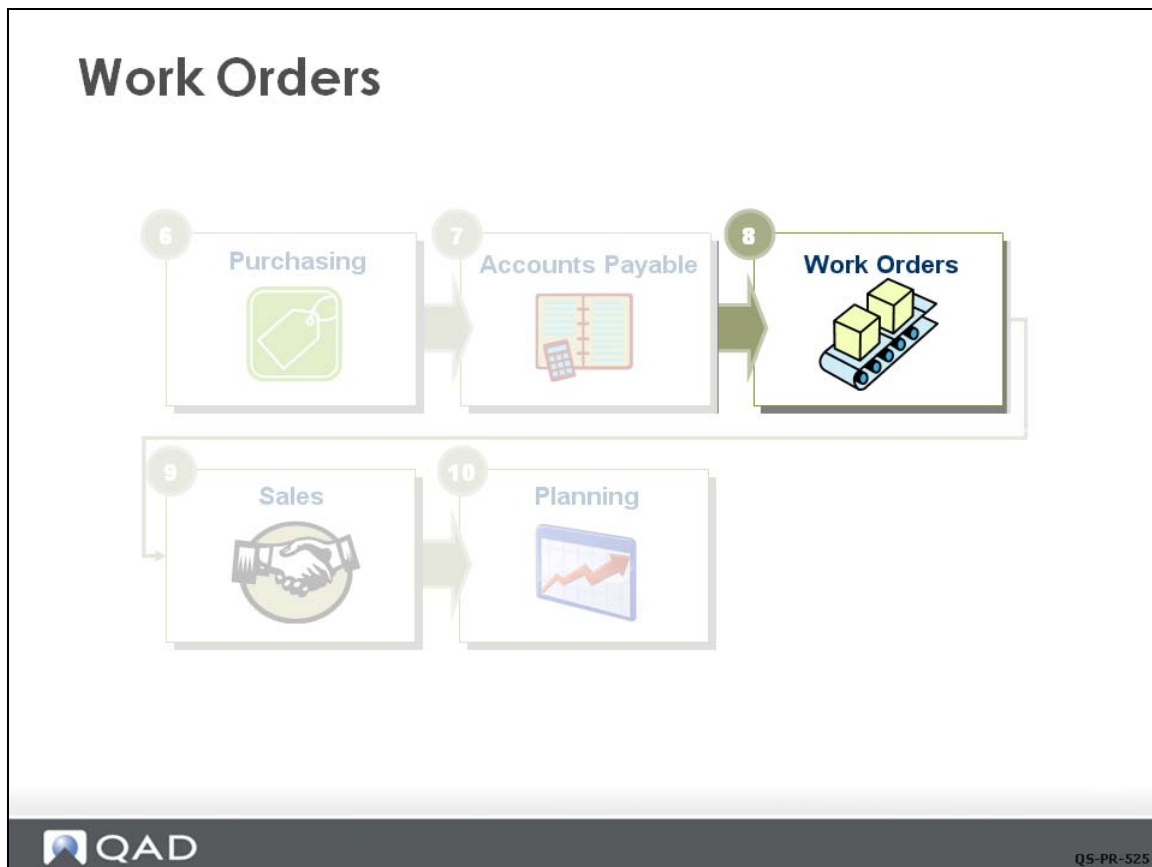
*Key Concepts*

*Example*

*Review*

*Exercise 7*

## Overview



A work order is an authorization to produce a specific quantity of an item by a specific date. This chapter further defines what a work order is and reviews typical stages of the work order life cycle. After discussing key concepts, an example covers the work order life cycle from creation to close.

## Chapter Topics

The topics covered in this chapter include:

- Key Concepts
  - Manufacturing Overview
  - Work Orders
  - WO Type and Status
  - WO Bill of Material and Routing
  - WO Life Cycle
  - WO Release and Component Issue
  - Shop Floor Control
  - WO Receipt and Close
  - Variances

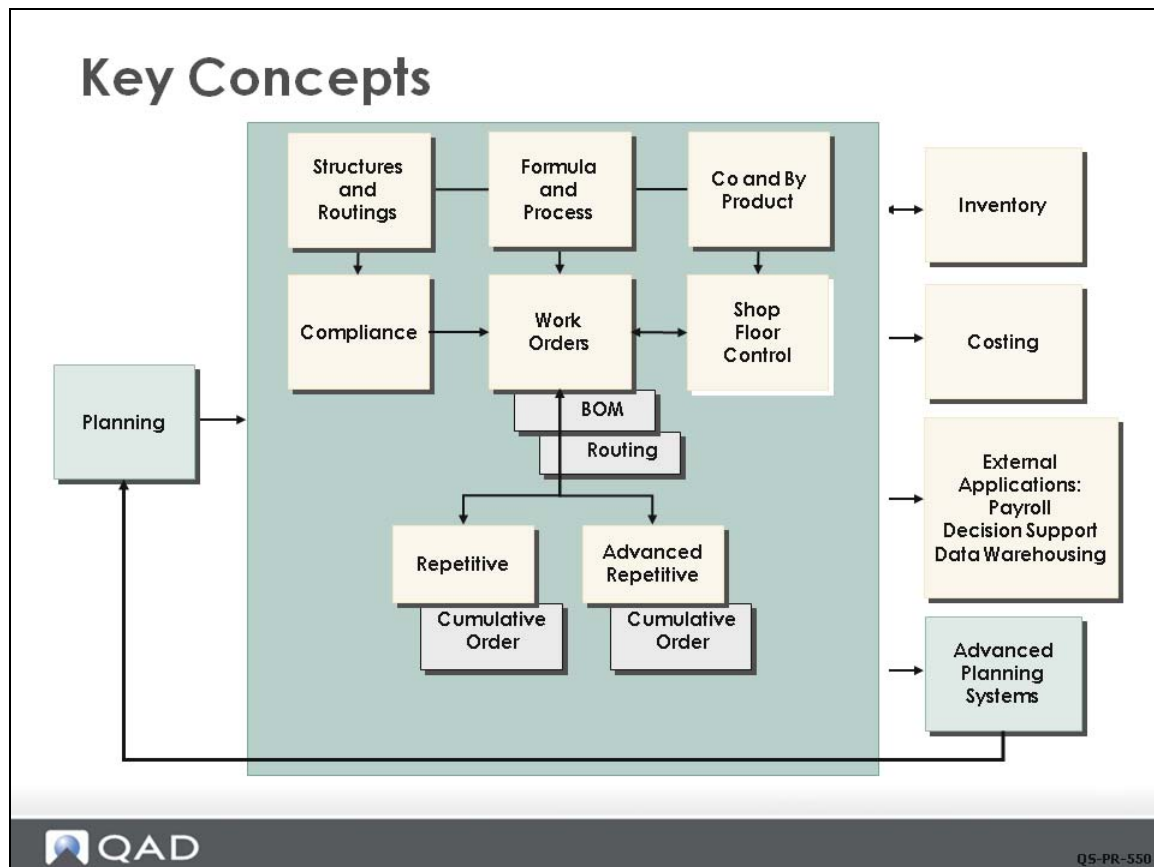
- Example
  - Review Employee
  - Review Work Order Control Settings
  - Create and Release Work Order
  - Review Picklist, Routing, and Status
  - Issue Components and Review the Effect
  - Report Labor and Review the Effect
  - Receive and Close Work Order
- Review
- Exercise

## Learning Objectives

**When you finish this chapter, you should be able to:**

- Describe the work order process flow
- List work order types and status codes
- Provide examples of rate, usage, and method variances
- Enter and release a work order
- Issue components
- Record labor
- Receive and close a work order

## Key Concepts



### Manufacturing Overview

QAD EE manufacturing modules handle internal supply and demand. Material is moved out of inventory into production, processed or assembled, and returned to an inventory location. At the center of much of this activity is the Work Orders module, as shown in the slide. In the process of using work orders you:

- Define bills of material and product structures in the Product Structures module.
- Define routings and operations in the Routings/Work Centers module.
- Create planned orders to fill demand with Material Requirements Planning.
- Monitor and report on the progress of work orders in the Shop Floor Control module.

### Manufacturing Environments

QAD EE provides features that support different manufacturing environments.

The Work Orders and Shop Floor Control modules are typically used to manage job shop type manufacturing and low to intermediate volume mixed product manufacturing. The Advanced Repetitive or Repetitive modules manage manufacturing in an assembly line or process flow environment.



Formula and Process routings and structures are used to support formula or recipe based processes and these can also utilize co-product and by-product structures to facilitate disassembly processes or processes that create a main product and related products. The Lean Manufacturing module provides support for Kanban and Flow manufacturing. These advanced functions are covered in detail in their own training materials and are not covered in this course.

This class focuses on discrete work orders created in the Work Orders module. Understanding the concepts behind work orders is critical to understanding any of the other manufacturing processes.

## Work Order

### Work Order

| Work Order 123456 |                    |     |         |
|-------------------|--------------------|-----|---------|
| Item              | Description        | Qty | Date    |
| 01010             | Medical Ultrasound | 1   | 5/28/XX |



QS-PR-560

A work order is an authorization to produce a specific quantity of an item for a specific date. A work order can represent a manufacturing production order, a repetitive schedule, or a sequenced production line.

Work orders are typically created in response to current or projected demand for an item. Work orders can also be used to build up inventory in anticipation of future demand when there is unused manufacturing capacity.

### Elements of a Work Order

Important elements of a work order include:

- The type identifies the source of the order and indicates how it should be processed.
- The status determines where a work order is in its life cycle.
- The bill of material (BOM) lists the quantities of components required to fulfill an order.
- The routing lists the operations required to complete the order.

These elements are examined on the following pages.

## Work Order Type

### Work Order Type

- **Blank** = Standard
- **F**inal Assembly
- **R**ework
- **E**xpense
- **S**cheduled
- **C**umulative
- **W** = Flow



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The work order type indicates how the work order will move through production and how it affects other modules, especially the financial modules.

Most work orders are entered with a blank type. These represent normal manufacturing orders with a standard product structure and routing. The other types indicate special kinds of work orders. All work order types are similar in terms of planning, inventory, and accounting. They differ in their default bills, routings, and status codes.

Joint order sets are a special case associated with Co/By Product orders. Joint order sets can be created for regular work orders that are type code blank. See the related training materials on Joint Products for detailed information. Rework and Expense work orders can share the same work order number as a joint order set, but are not considered part of the joint order set. For example, a work order for co-product or by-product can be reworked using the original work order number. The type code must be blank for a base process work order.

**Note** Each work order is uniquely identified by the combination of the work order number and the work order ID number. For scheduled orders, the work order number is typically the number of the item being scheduled, and the work order ID becomes the unique identifier.

Expense and Rework orders are always created by users.

The system generates work orders of type S, C, F, or W.

#### S (Scheduled)

Generated by the system when a Repetitive schedule is entered. The work order number is the item number scheduled for production. Scheduled orders can be tracked using Repetitive feedback functions or released to create work orders. To release it, change the status field from exploded to allocated or to released. The system will automatically change the Type to blank and will treat it like a normal work order. The system will also update the repetitive schedule to exclude the order.

#### C (Cumulative)

Generated by the system to track repetitive production costs. These cannot be processed by work order functions. Cumulative orders are associated with both regular and sequenced repetitive line schedules.

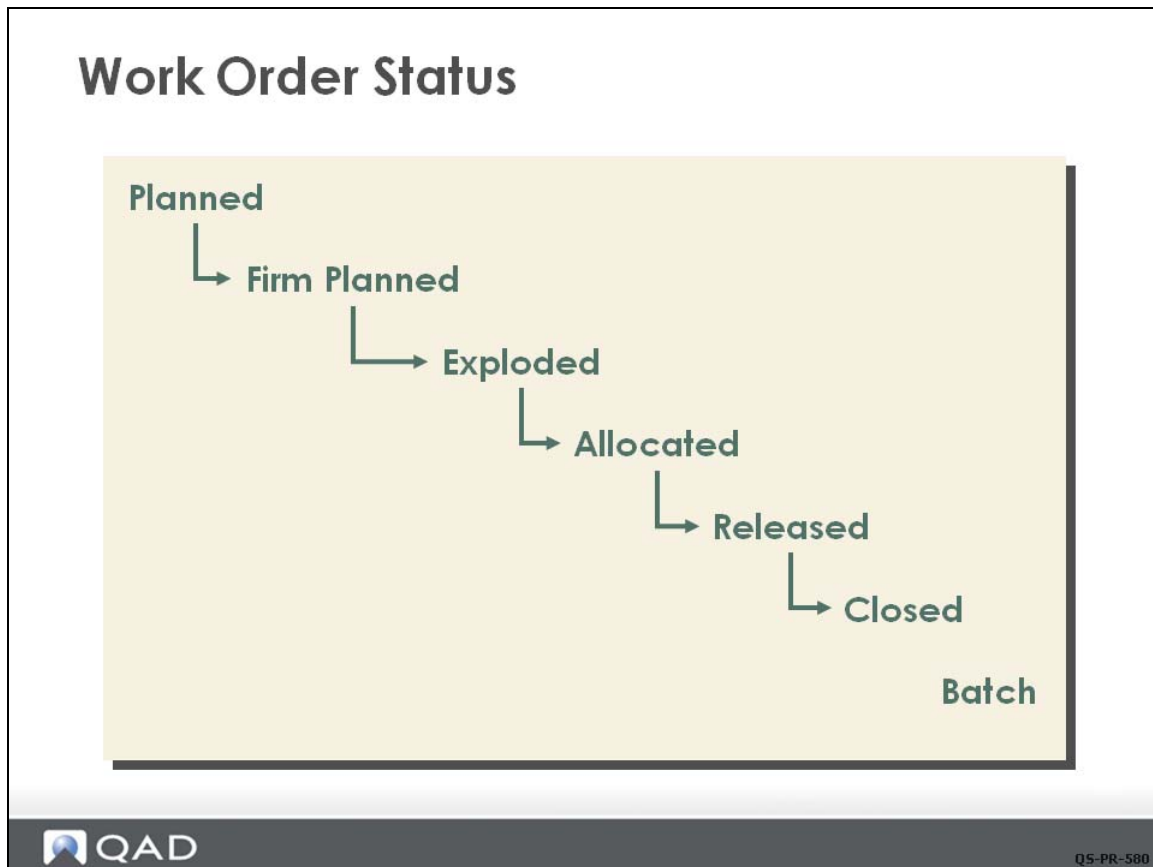
#### F (Final Assembly)

Generated when a sales order for a configured product is released to manufacturing. The work order number will be the sales order number with a decimal and number to correspond to the sales order line number. It uses the standard routing for the item, but the product structure contains only the items chosen on the sales order configuration. These orders are released and processed as regular work orders. You must specify Type F in Multiple WO Release/Print to release the work order, however.

#### W (Flow)

Generated when you use Flow Schedule Maintenance to create a flow scheduled order that does not reference an existing work order. These cannot be processed by work order functions.

## Work Order Status



Work order status codes correspond to stages in a work order's life cycle.

- A standard work order is usually created by MRP, which treats the work order as a source of supply. At this point, the order status is Planned.
- When someone reviews the MRP output and confirms the order, it is Firm Planned. Any work order created manually is by default Firm Planned.
- The supply created by the work order also generates demand for component items; when that demand is calculated, the work order is Exploded.
- At this point, the demand represented by the order has not affected inventory; when inventory is set aside for the order, it is Allocated.
- When work is ready to begin, the work order is Released.
- When work is finished, it is Closed.

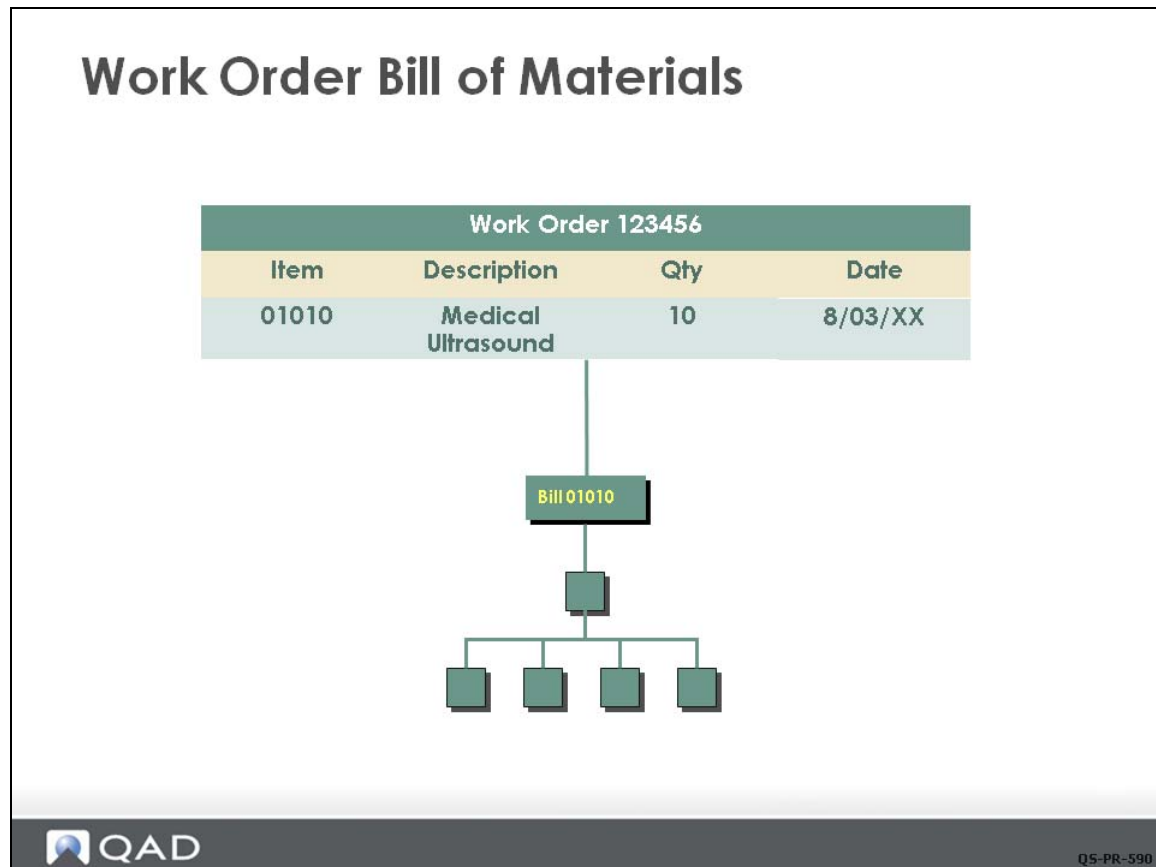
The status of a work order determines how much control you have over its bill, routing, inventory allocations, inventory transactions, and labor feedback.

- You cannot make any changes to orders with status Planned. These are managed by MRP.
- For orders with status Firm Planned, you can change the dates and quantities as needed, and specify an approved alternate bill or routing
- For orders with status Exploded, Allocated, or Released, bills and routings can be modified or alternate ones specified

A work order progresses from one status code to the next and, unless prematurely released, does not return to an earlier status. Most orders will progress from status firm planned to released in one step using the function Work Order Release/Print.

**Note** Manually exploding a work order is a special case usually done to capture the current bill of material before an impending engineering change. Manually allocating a work order is often done to consume the last of a component item that is being phased out. In this case the inventory of the component would be allocated for that specific order.

## Work Order Bill of Material

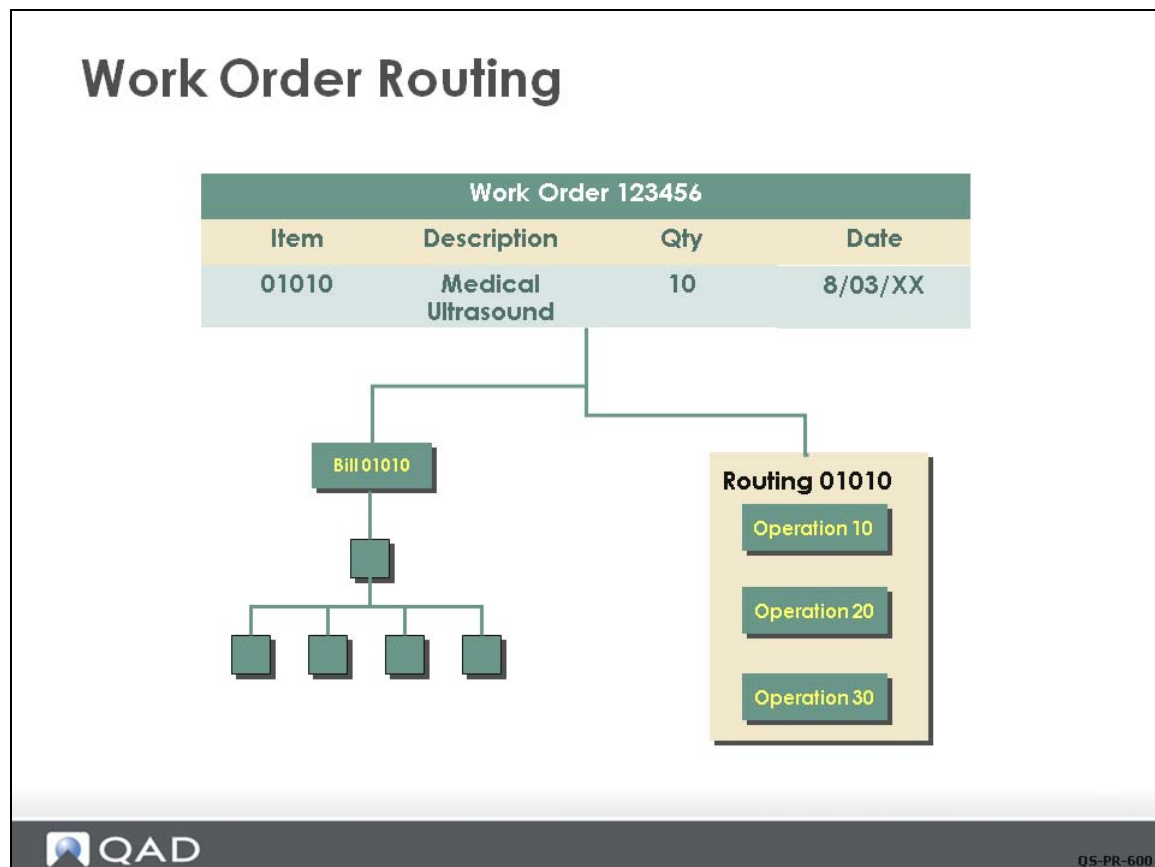


The work order bill of material (BOM) is derived from the item's product structure, defined in Product Structure Maintenance (or Formula Maintenance) and the quantity ordered. Inventory allocations and issues are based on the bill. MRP uses the bill of materials to calculate component demand.

When a work order is created, the product structure for the item is copied into it. This product structure with the order quantity of the work order then becomes the work order bill of material and is specific to that work order. As work progresses, required changes can be made to this copy using Work Order Bill Maintenance (16.13.1). This way, what actually happens can be compared to the standard. When many substitute items are available for assembly, this feature supports what is often called "as built" documentation.

Once created, the work order bill of material is not affected by changes to the product structure.

## Work Order Routing



Work order routings, identified by routing codes, specify the operations, or steps, required to manufacture an item. You set up routings and operations using the Routings/Work Centers module. Routings are automatically linked if the item number and routing number are the same. Or, you can manually link them in Item Master Maintenance or Item Planning Maintenance.

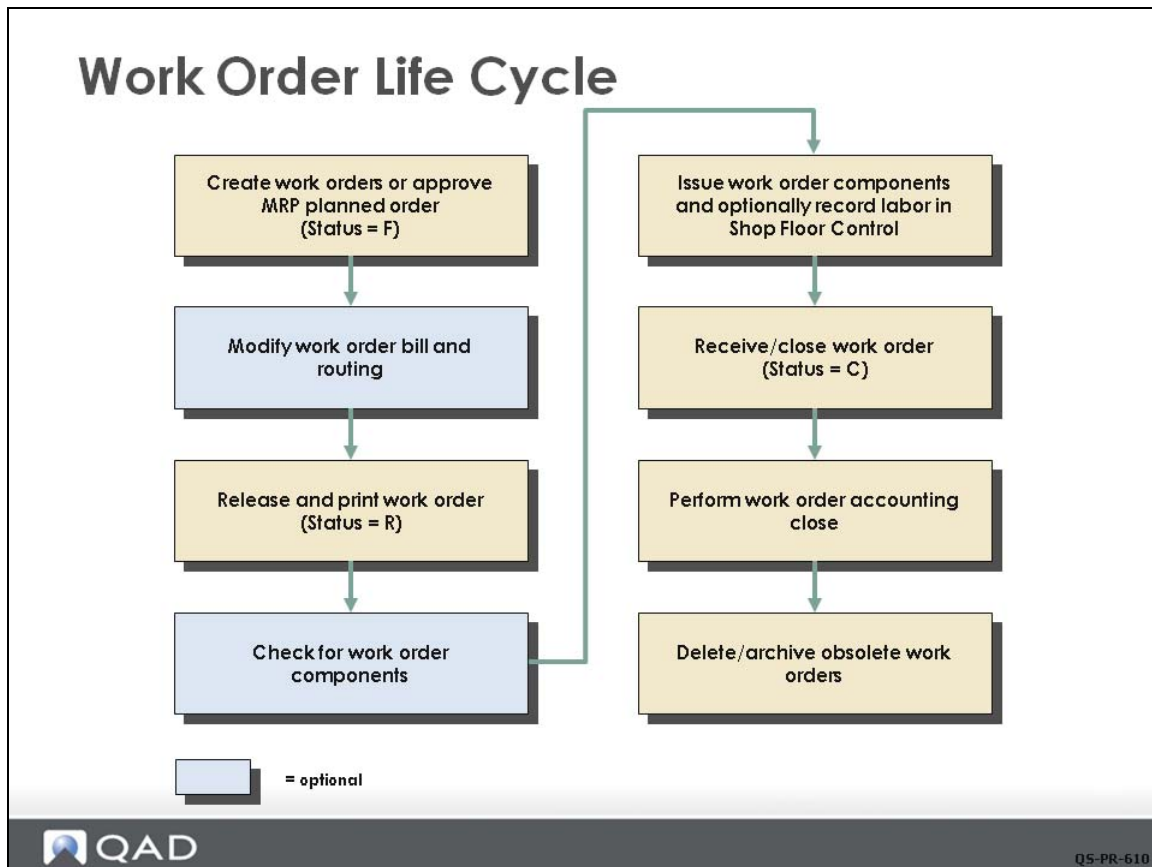
When a work order is created, the standard routing is copied into it. As work progresses, required changes can be made to this copy using Work Order Routing Maintenance (16.13.13). This way, what actually happens can be compared to the standard. You can monitor work order operations using the Shop Floor Control module.

Once the work order routing is created, changes to the item routing do not affect the work order.

Together the work order bill and routing let you capture “as built” documentation and otherwise record what actually occurred as opposed to what was planned. This does not prevent manufacturing variances but it does explain them.



## Work Order Life Cycle



Work orders are created manually (using Work Order Maintenance) or generated from MRP, repetitive, schedules or configured sales orders. Work orders are also generated when another work order is split, or when one is released that requires a routable component.

In a standard sequence, shown on this slide, after a work order has been created, it is released, materials are issued and received, the work order is closed, and the items are shipped.

On the next few pages, the following stages in the work order life cycle will be examined in detail:

- Release
- Issue of components
- Receipt
- Close

## Release Work Order

### Release Work Order

- Inventory can only be issued or received against a released work order
- You can release orders:
  - One at a time using Work Order Release/Print
  - At the same time using Multiple Work Order Release/Print
  - In Work Order Maintenance by changing the status to Released
- Releasing a work order has the following effects:
  - Items not previously allocated are detail allocated
  - Picklist is printed
  - First operation is moved to queue status (if Move First Op is Yes)



QS-PR-620

### Creating Picklists

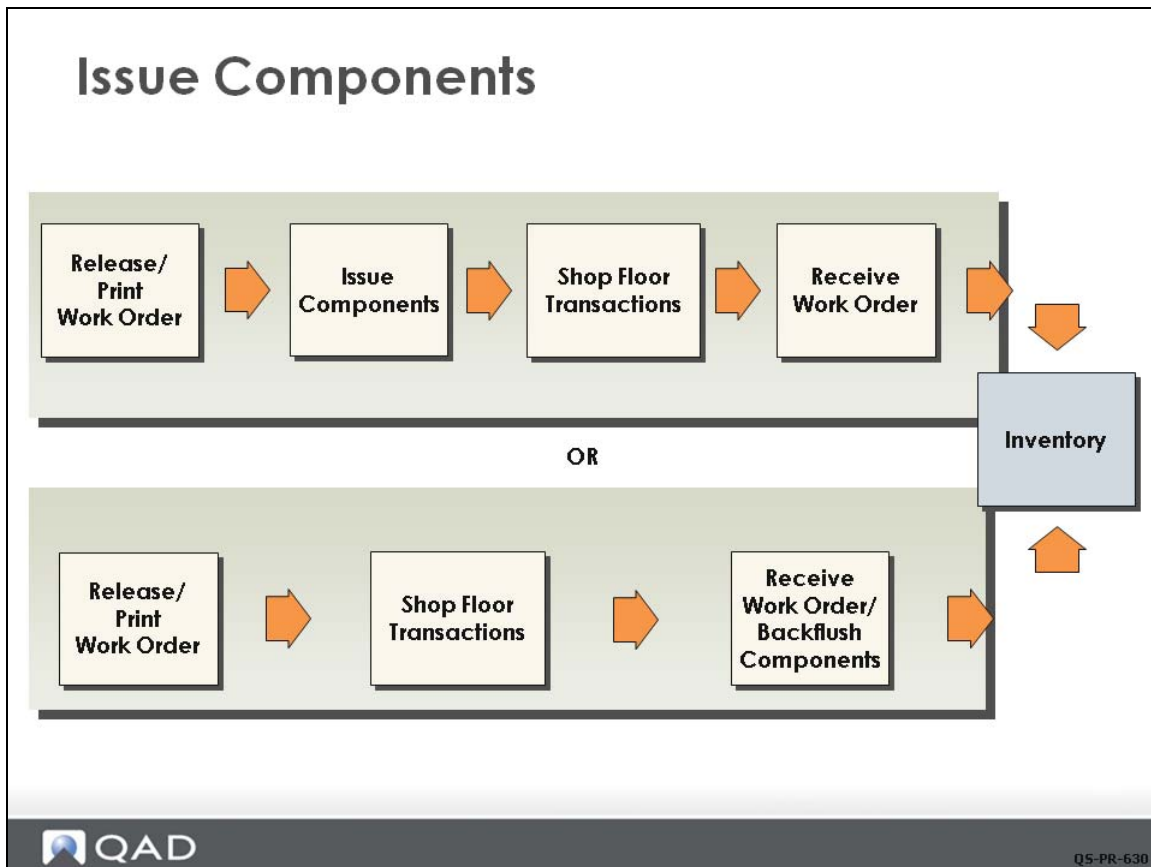
After you release a work order, you can print its picklist. The picklist lists the component requirements and the sites, locations, lot/serial numbers, and reference numbers for the items to be issued. The system creates detail allocations when an order is released, regardless of whether or not you print a picklist. Detail allocations reserve specific quantities in inventory for a work order.

### Printing the Routing Sheet

At the time of release you can also print the routing for the work order, which is the detailed list of operations and work centers the work order must be processed through. The combination of the work order, the picklist, and the routing sheet is often referred to as the shop or job packet.

You can release an order without printing a picklist and routing, but you cannot print a picklist for an order without releasing it.

## Issue Components



Work order operations begin when a work order is released and its components issued.

You can issue inventory to a work order in three ways:

- Directly with Work Order Component Issue (16.10), illustrated in the top row of the graphic)
- When completed products are received with Work Order Receipt Backflush (16.12), illustrated by the bottom row of the graphic
- Issue inventory, report labor, and receive items with Work Order Operation Backflush (16.19), also illustrated by the bottom row of the graphic

Inventory transactions occur at different points depending on the method you use. Component quantity on-hand is reduced at a later time using the backflush method.

Work Order Receipt Backflush combines the functions of Work Order Component Issue and Work Order Receipt. Either method keeps track of the inventory transactions used to issue components to a work order and excludes floor stock, which is issued using an unplanned issue transaction.

You can monitor work order operations using the Shop Floor Control module.

## Non-Standard Component Issue

## Non-Standard Component Issue

Work Order Component Issue
Go To Actions Copy Print Preview Attach

Work Order: 1001 ID: 2280904 Item: Item N

Work Order: 1001 ID: 2280904 Op: Effective: 5/27/2010

Item Number: 01010 W/O Stat: R Issue Alloc: ☐

Medical Ultrasound Issue Picked: ☒

Document:

| Item Number | Qty Open | Qty Alloc | Qty Picked | Qty to Iss | Qty B/O |
|-------------|----------|-----------|------------|------------|---------|
| 50001       | 0.0      | 0.0       | 0.0        | 0.0        | 0.0     |
| 60001       | 0.0      | 0.0       | 0.0        | 0.0        | 0.0     |
| 60002       | 0.0      | 0.0       | 0.0        | 0.0        | 0.0     |

Item Number: Op: Site: Loc:

Description: Lot/Serial:

Quantity: UM: Reference:

Substitute: ☐ Cancel B/O: ☐ Multi Entry: ☐

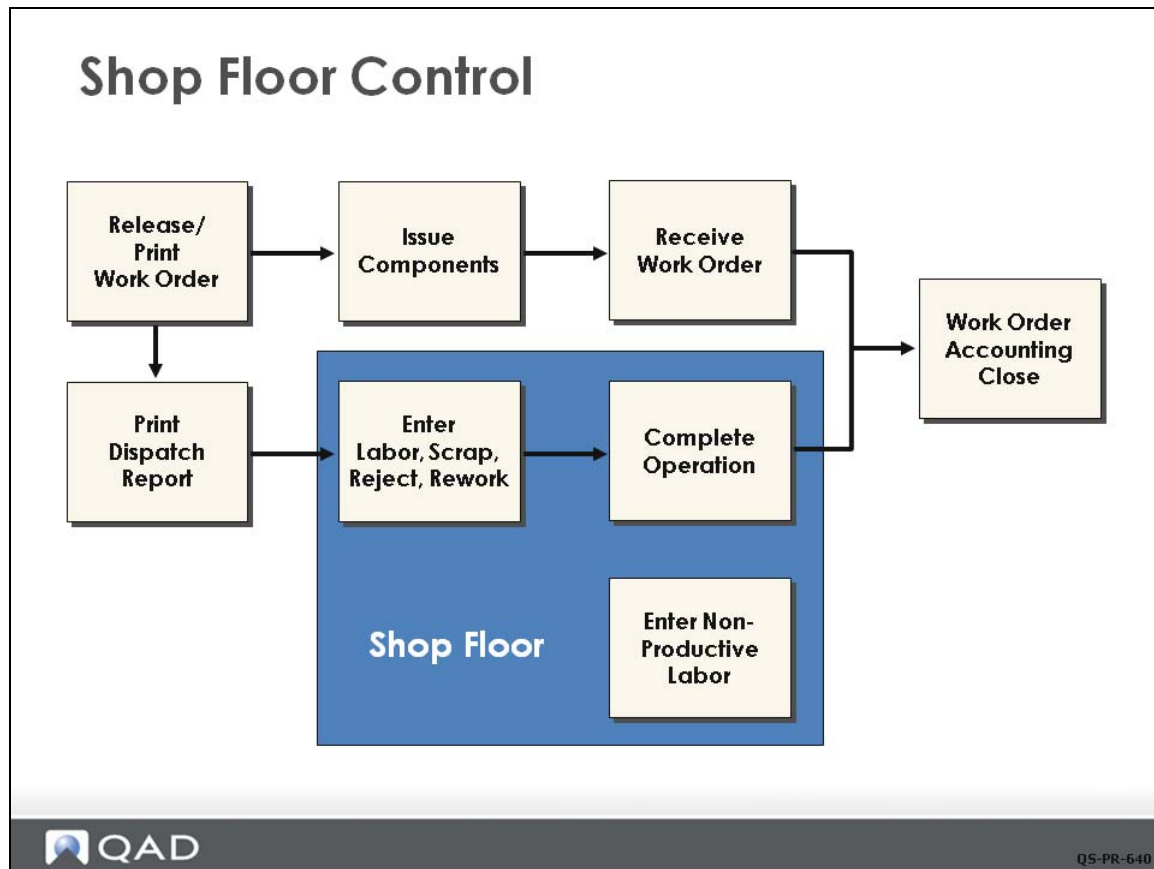
Document:

Q5-PR-635

In the case of a nonstandard issue, you use the lower frame of the issue screen to manually enter the correct data. Examples of when this is used include issuing an approved substitute item in place of the standard item or issuing material from a different location. A common situation is needing to issue material from two (or more) locations to get the full quantity required.

Once data in the lower frame is filled in and you click Next, the transaction proceeds normally.

## Shop Floor Control



Once a work order is released, shop floor functions track its progress to record labor and to record material usage and completions. Shop floor requires that at least one employee is set up. The slide shows the relationship between shop floor reporting and the work order process flow.

### Operation Status

Labor feedback is done by work order, employee, or work center/machine. In all cases you must identify a released work order. When labor is recorded, operation status is updated to either Setup, Run, or Complete. When work moves to the next operation, its status changes to Queue.

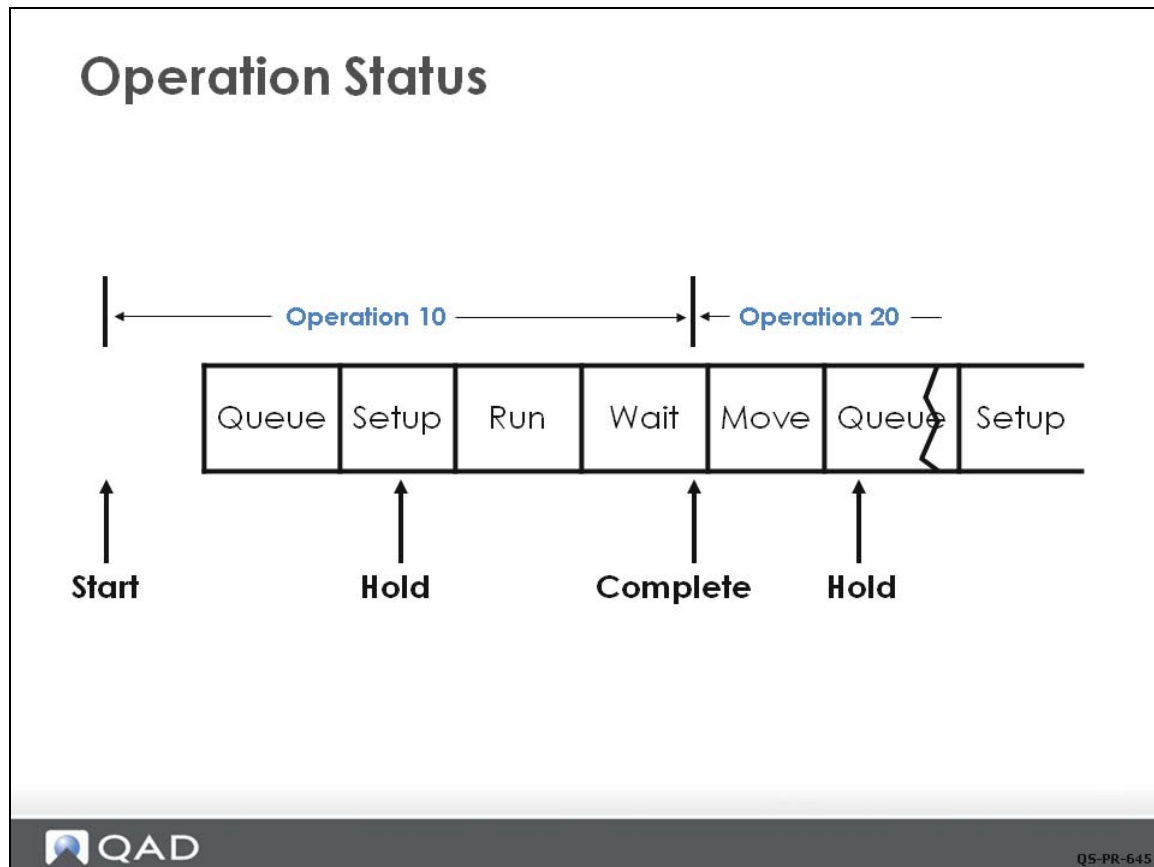
### Labor Reporting

If labor is reported only at a few key operations, called milestones, the Operation Complete Transaction can be used to complete the current operation and the ones that have come before it. If no labor has been reported against these previous operations, actual labor is set to the labor that should have occurred to make the quantity reported complete, referred to as earned labor.

### Nonproductive Time

In order to account for all work hours, nonproductive time can also be recorded. This is time not spent working on a specific manufacturing order, such as cleanup time, downtime, meetings, breaks, or time spent waiting for work.

## Operation Status



Operation status codes are used to indicate the detailed status of an individual operation. The status codes can be entered manually using Work Order Routing Maintenance (16.13.13) or automatically set when the Shop Floor Control labor feedback transactions are used. The system uses the following status codes:

**Queue (Q).** The first operation can be set to Queue automatically upon releasing the work order if Move Next Operation is Yes in Shop Floor Control (16.20.24). Succeeding operations can be set to Queue automatically when the previous operation is reported Complete.

**Setup (S).** If setup time is reported, the status is changed to Setup.

**Run (R).** When run time is reported the status is updated to Run.

**Complete (C).** The operation status is Complete when all work at that operation is finished.

**Hold (H).** An order can be manually placed on hold at any time. This is usually done when work is stopped for some reason, such as running out of material or equipment malfunctions, or because the worker is reassigned to another task.

Not all operations use all lead-time elements, nor do all status codes need to be reported. A very short operation can be at status Queue and then reported complete, with any setup and or run time reported at that moment. The wait and move times are not status codes but elements of lead time. They are referred to as inter-operation times since they have no labor content but do require time that must be scheduled. Examples are paint drying time or transport time between operations in different buildings.

## Receiving Work Orders

### Receiving Work Orders



#### When a work order is received:

- **Inventory increases by amount of receipt**
- **Open order quantity decreases**
- **Reject quantity written off to Scrap**



QS-PR-650

When a work order is completed on the shop floor, the items are typically sent to the stockroom.

- Use Work Order Receipt (16.11) to receive items, close the order, and backflush components of final assembly work orders.
- If you did not issue items previously, issue them when completed products are received with Work Order Receipt Backflush (16.12).
- Use Work Order Operation Backflush (16.19) to issue items, report labor, and receive completed items at an operation.

If you use the Shop Floor Control module, you can enter labor feedback and test results at receipt, and report individual operations as completed.

When a work order is received:

- Inventory increases by the amount of the receipt.
- The open order quantity decreases by the amount of the receipt.
- Any reject quantity is written off to the Scrap account and not placed in inventory.

After the work order has been received, it is ready to close.

## Close Work Order

# Close Work Order

| Work Order 123456 |             |         |
|-------------------|-------------|---------|
| Item              | Description | Date    |
| 01010             |             | 8/03/XX |

Issues and Receipts

...but labor reporting okay until operation closed in SFC or until Work Order Accounting Closed is run

Q5-PR-660

Work orders are typically closed when all the items are received. For most purposes, this ends the life cycle. If a partial receipt is made, the work order can be left open to receive the balance of the items at a later time.

To close a work order:

- Change the order status to Closed. You can do this by setting Close to Yes when completed units are received using Work Order Receipt, or by using Work Order Maintenance.
- Run Work Order Accounting Close to post variances, clear WIP, and close outstanding operations. Execute this program regularly, at least at the end of each fiscal month, for completed orders.

The system prevents component issues and work order receipts for a closed work order. However, additional labor can be reported until either the operations are closed in Shop Floor Control, or Work Order Accounting Close is executed.

To process inventory for a closed work order, you must change its status back to Released.

Executing Work Order Accounting Close:

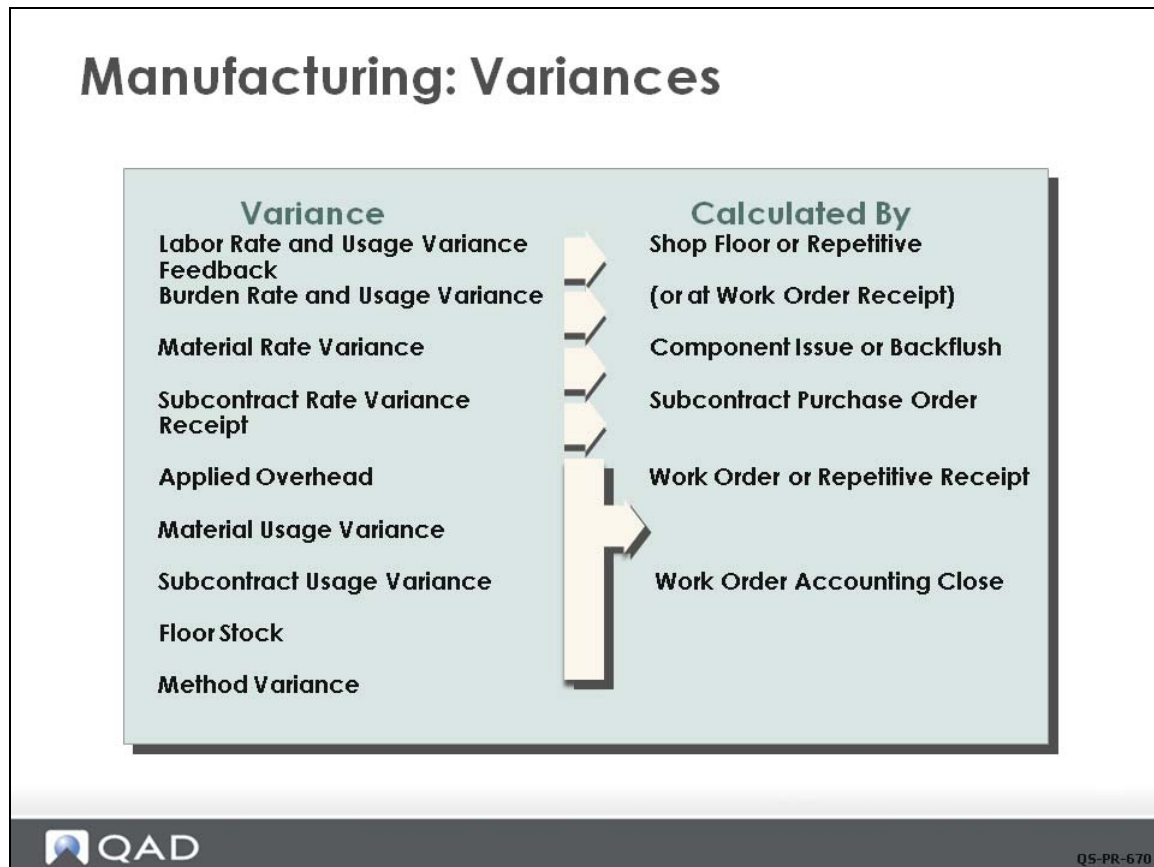
- Completes open work order operations.
- Calculates and posts work order variances for material, labor, burden, and subcontract costs.



- Calculates and posts usage variances when the labor quantity used differs from the standard. For example, if an operation scheduled for 5 hours took 6, a 1 hour labor usage variance is posted.
- Calculates and posts rate variances for material and subcontract when cost used differs from standard cost. If pay rates are defined in Actual Pay Rate Maintenance, rate variances are also calculated for labor.  
For example, when the standard subcontract cost is \$10 and the PO cost is \$12, the subcontract rate variance is \$2.
- Reconciles the WIP account for closed work orders by calculating and posting method change variances for any residual variances. WIP balances cannot be changed after the work order variances are posted.
- Updates current labor and subcontract costs.
- Posts floor stock amounts.

**Important** Work Order Accounting Close is normally an accounting or finance function done in conjunction with the period end close. It should be carefully coordinated with other period end accounting processes and controlled by internal procedures.

## Variances



One important aspect of the entire manufacturing process is the management of cost. In a standard cost system, each item has a standard cost calculated based on the standard bill and routing. But each time the item is made, the cost may be somewhat different. These differences are tracked as variances. In QAD EE, variances are calculated and posted automatically throughout the manufacturing process. The illustration above lists the variances and when they are calculated.

**Rate Variance.** This reflects a difference between the standard cost and the price actually paid. The employee who did the work is paid more or less than the standard work center rate, the subcontractor charged more or less, or the material used had a different GL cost than the item listed on the work order bill. This last cause of variance may mean that a substitute item was used, or that materials were issued from another site with a different cost. It could also mean that the GL cost has changed since the work order bill was created.

**Usage Variance.** Usage variance reflects a difference between the standard quantity and the quantity actually used—more or fewer hours or more or less material. Both are calculated based on the quantity of inputs that should have been used to get the quantity reported as received, referred to as earned hours or earned materials.

**Method Variance.** When a work order is completed, Work Order Accounting Close is run to clear out any balance remaining in work in process. After all other sources of costs and variances have been accounted for, any remaining amount in work in process is posted as a method variance.

## Example

The following simple example covers the following activities:

- An employee record is reviewed.
- Work order control settings are defined (Work Order Control).
- A work order to build 5 medical ultrasounds (item 01010) is created (Work Order Maintenance).
- The work order is released (Work Order Release/Print).
- All of the components are issued in quantities sufficient to build 5 medical ultrasound devices (Work Order Component Issue).
- Labor to assemble the medical ultrasound units is recorded; it involves three operations (Labor Feedback by Work Order).
- The work order is received and closed (Work Order Receipt).

## Review Employee Record

**Review Employee Record**

Employee Modify

Go To Actions Tools Attach Print Preview

Attachments

Employee Code: 11-EMP01 Active: ☒

Name: Angela Patens

Employee Business Relation

External Employee

Supplier Code:

Registration Currency:

User

Login:

Start Date: 01/01/2008

End Date:

Job Title:

Department Code:

Default Project:

QAD QS-PR-680

The employee record for Angela Patens has been set up by Finance/Human Resources. She has been assigned to the manufacturing department (0100) and has employee code 11-EMP01, which will be used for labor reporting.

Shop floor transactions must be recorded by an employee. Some firms who are not interested in tracking labor times and charges will create an administrative employee for reporting purposes only. This code is then used by everyone doing shop floor transactions. Another approach is to have the supervisor use their employee code to report labor for the entire department or work center.

## Define Control Settings

### Define Control Settings




QS-PR-690

QMI's Production Manager has configured Work Order Control (16.24) settings so that:

- Work order ID numbers are automatically generated by the system.
- The next number generated will be 1000.
- The routing comments is checked.
- The work order release function sets the status of the first operation to Queue (Move First Operation selected).

### Move First Operation

This field is typically set to Yes. The released order then appears on the dispatch list for the specified work center and the Queue status indicates it is waiting to be started. If a lengthy picking effort is required, the work order may not be ready as soon as it is released. In that case, this field would be set to No. Operation Move would be used to change the status later.

### Work Order and Routing Comments

The comments screens are always available and can be invoked for any work order as needed. The selection here, if checked, would bring up the comments screen automatically for every work order. This is useful if internal procedures require the use of comments for some reason on every order. In many cases, comments are only used occasionally and is selected as needed.

## Create Work Order

In Work Order Maintenance (16.1), notice that the WO number is based on the Work Order Control setting. Post Variances at SFC has a check mark, based on the setting in Work Order Accounting Control (36.9.11). When checked, variances are posted when shop floor transactions are processed rather than when Work Order Accounting Close is run.

**Type.** The work order type is blank, which means that this is a normal manufacturing order with a standard product structure and routing.

**Work Order Status.** This work order has a status of F (Firm Planned), so this order has been reviewed and confirmed, or manually created.

**Due Date.** The order date and the release date default to the system date (today). The system has calculated the due date based on the lead time calculated from the standard times in the routing, multiplied by the order quantity. If you leave Release Date blank and enter a due date, the system calculates the release date.

**Routing Code.** The routing U-001 has been specified. This code was defined in Routing Maintenance. If an alternate route is needed for this work order, specify it here.

**BOM/Formula Code.** The BOM field is blank, so the system accesses the BOM code that matches the item number on the work order. The BOM code was defined in Product Structure Maintenance. If an alternate bill is needed for this work order, specify it here.

Several additional frames display when you click Next, used for special cases beyond the scope of this course. Accept the defaults and continue to click Next until the cursor returns to the first field.

## Release Work Order

**Work Order Release/Print**

Go To Actions Copy Print Preview Attach

Work Order: 1001 ID: 2280904

Work Order: 1001

ID: 2280904

Batch:

Deliver To:

Print Bar Code:

Operation:

Print Picklist:

Print Routing:

Print Co/By-Products:

Item Number: 01010

Release Date: 5/27/2010

Medical Ultrasound

Quantity Ordered: 5.0

Quantity Completed: 0.0

Sales/Job:

Remarks:

Include zero required:

Include zero open:

Reprint picked quantities:

Print floor stock items:

Print Co/By-Products as First or Last Doc: First

**QAD** QS-PR-710

Using Work Order Release/Print (16.6), QMI's Production Manager releases the work order for 5 medical ultrasound units. Based on the selections above, a picklist of required component items and a route sheet listing operations are printed. If you have a printer, you can direct the output to the printer and get a hard copy of the picklist and routing sheet. Otherwise, direct the output to Page to view the picklist and routing on your monitor.

The secondary pop-up window shown here is used in special case situations. Accept the defaults and click Next to complete the request.

Once all entries in the Work Order Release/Print screen have been completed, the status of the order changes from F (firm planned) to R (released). During this process the work order has been exploded and allocated, then released in one step.

The release function generates a document with two parts that can be printed or viewed on your monitor:

- A picklist for selecting component items from inventory
- A routing sheet listing the operations and work centers

## Review Picklist

## Review Picklist

**Work Order Release/Print**

**10USA**

04/10/12 17:30:13

**Page:1**

Work Order Picklist

Work Order: 1001

ID: 2326383

Batch:

Item Number: 01010

Remarks: Medical Ultrasound

Qty Ordered: 5.0

Issue Date: 04/10/12

Rev: D

Work Order Due Date: 04/16/12

Sales/Job:

Deliver To:

EA

| Item Number | Rev | Site Location           | Lot/Serial Ref | Required Qty to Issue | UM | Issued |
|-------------|-----|-------------------------|----------------|-----------------------|----|--------|
| 50001       | AA  | 10-100                  |                | 5.0                   | EA |        |
|             |     | Probe Unit - 10 Mhz     |                |                       |    |        |
|             |     | 020                     | 50001-0911-10  | 1.0                   | (  | )      |
|             |     | 020                     | 50001-0911-11  | 1.0                   | (  | )      |
|             |     | 020                     | 50001-0911-12  | 1.0                   | (  | )      |
|             |     | 020                     | 50001-0911-13  | 1.0                   | (  | )      |
|             |     | 020                     | 50001-0911-14  | 1.0                   | (  | )      |
| 60001       |     | 10-100                  |                | 5.0                   | EA |        |
|             |     | Durable Plastic Housing |                |                       |    |        |
|             |     | 020                     |                | 5.0                   | (  | )      |
| 60002       |     | 10-100                  |                | 5.0                   | EA |        |
|             |     | Display / Readout       |                |                       |    |        |
|             |     | 020                     |                | 5.0                   | (  | )      |

QS-PR-720

The printed picklist lists the medical ultrasound component items, the quantities to issue and the site (10-100) and location (020) to pick from. Note the parentheses, which can be used by the issuing stock clerk to initial the picklist to indicate which items have been issued.



## Review Routing

## Review Routing



**Work Order Release/Print**  
**10USA**

04/10/12 17:30:13  
**Page:3**

Work Order Routing

Work Order: 1001  
ID: 2326383  
Batch:  
Item Number: 01010  
Remarks: Medical Ultrasound  
Qty Ordered: 5.0 EA

Rev: D  
Work Order Due Date: 04/16/12  
Sales/Job:  
Deliver To:

| Op | Work Center                                                      | Std Op | Tooling Supplier | Setup Time | Run Time | Actual | By  |
|----|------------------------------------------------------------------|--------|------------------|------------|----------|--------|-----|
| 10 | 1000 Mach: 1001<br>General Assembly-Ultra<br>ASSEMBLE COMPONENTS |        |                  | 5.0        |          |        | ( ) |
|    |                                                                  |        |                  | 50.0       |          |        | ( ) |
| 20 | 1050 Mach: 1001<br>Product Test-Ultra<br>TEST FINISHED UNIT      |        |                  | 2.0        |          |        | ( ) |
|    |                                                                  |        |                  | 25.0       |          |        | ( ) |
| 30 | 1060 Mach: 1001<br>Packaging -Ultra<br>PACK FOR SHIPPING         |        |                  | 0.5        |          |        | ( ) |
|    |                                                                  |        |                  | 10.0       |          |        | ( ) |

16.6
Work Order Release/Print
woworl.p


QS-PR-730

The printed routing sheet lists the operations 10-20-30, and standard setup and run times to manufacture 5 units. The route specifies which work center the work should be done in and the short description of the task.

## Review Work Order Status

### Review Work Order Status

Work Order Browse
×

Actions ▾
Print
Add to Favorites
Chart
Chart Designer
Refresh ▾
New
Edit

Search  
 Work Order ▾ starts at ▾

Viewing 1 - 5 of 5
Records per page: 100 ▾

| Item Number | Site   | Work Order    | ID      | Quantity Open | Due Date   | Sales/Job | Work Order Status |
|-------------|--------|---------------|---------|---------------|------------|-----------|-------------------|
| ▶ 01010     | 10-100 | 1000          | 2280902 | 5.0           | 05/28/2010 |           | F                 |
| 01010       | 10-100 | 1001          | 2280904 | 5.0           | 05/28/2010 |           | R                 |
| 01010       | 10-100 | 1002          | 2280921 | 5.0           | 05/28/2010 |           | R                 |
| 02001       | 10-200 |               | 2280899 | 1,000.0       | 05/31/2010 |           | R                 |
| 70050       | 10-500 | QADDEMO-70050 | 2280900 | 10,000.0      | 05/13/2010 |           | F                 |

QAD

QS-PR-740

The Work Order Browse (16.2) now shows that the status of work order 1001 has indeed changed from F (firm planned) to R (released).

In the process of releasing the order, the work order bill of material was exploded and allocated. This background processing changed its status from Firm to Exploded to Allocated to Released in what was for the user just one step.

In Work Order Control, the Move First Operation field was selected, so in addition to the order status being set to Released, the operation status for the first operation has been changed to status Queue.

## Work Order Component Issue

### Work Order Component Issue

Go To Actions Copy Print Preview Attach

Work Order: 1001

Item Number: 01010

Medical Ultrasound

Document:

ID: 2326383

ST: R

Op:

Effective: 4/10/2012

Issue Alloc: ☐

Issue Picked: ☒

| Item Number | Qty Open | Qty Alloc | Qty Picked | Qty to Iss | Qty B/O |
|-------------|----------|-----------|------------|------------|---------|
| 50001       | 5.0      | 0.0       | 5.0        | 5.0        | 0.0     |
| 60001       | 5.0      | 0.0       | 5.0        | 5.0        | 0.0     |
| 60002       | 5.0      | 0.0       | 5.0        | 5.0        | 0.0     |

Item Number:  Op:  Site:  Loc:

Description:  Lot/Serial:

Quantity:  UM:  Reference:

Substitute: ☐ Cancel B/O: ☐ Multi Entry: ☐

Document:

QS-PR-745

The released work order is now in the stock room to have the components issued. QMI stock room personnel will use Work Order Component Issue (16.10) to do this using the work order number as shown here. Since this will be a standard component issue, check the Issue Picked box. The system then uses the work order bill of material to retrieve the detail item allocation information generated when the work order was released.

In this example, all components were picked from the locations printed on the work order picklist, so they can be issued automatically by setting Issue Picked to Yes. This reduces manual entry because it sets the default sites, locations, lot/serial numbers, references, and quantities from the detail allocations on the picklist. To proceed with the transaction, click Next.

## Display Items Being Issued

### Work Order Component Issue

Work Order Component Issue X

Go To Actions Copy Print Preview Attach

Work Order: 1001  
 Item Number: 01010  
 Medical Ultrasound  
 Document:

ID: 2326383  
 ST: R

Op:  
 Effective: 4/10/2012  
 Issue Alloc: ☐  
 Issue Picked: ☒

| Item Number | Qty Open | Qty Alloc | Qty Picked | Qty to Iss | Qty B/O |
|-------------|----------|-----------|------------|------------|---------|
| 50001       | 5.0      | 0.0       | 5.0        | 5.0        | 0.0     |
| 60001       | 5.0      | 0.0       | 5.0        | 5.0        | 0.0     |
| 60002       | 5.0      |           | 5.0        | 5.0        | 0.0     |

Display items being issued

Item Number:  
 Description:  
 Quantity:  
 Substitute: ☐  
 Document:

Op:  
 UM:  
 Cancel B/O: ☐

Site:  
 Lot/Serial:  
 Reference:  
 Multi Entry: ☐

Loc:

QS-PR-751

A dialog box prompts if you want to see the issue transaction. Click Yes.

## Work Order Component Issue

Work Order Component Issue

Go To Actions Copy Print Preview Attach

Work Order: 1001  
Item Number: 01010  
Medical Ultrasound  
Document:

ID: 2326383  
ST: R

Op:  
Effective: 4/10/2012  
Issue Alloc: ☐  
Issue Picked: ☒

| Item Number | Site   | Location | Lot/Serial    | Ref | Quantity |
|-------------|--------|----------|---------------|-----|----------|
| 50001       | 10-100 | 020      | 50001-0911-10 |     | 1.0      |
| 50001       | 10-100 | 020      | 50001-0911-11 |     | 1.0      |
| 50001       | 10-100 | 020      | 50001-0911-12 |     | 1.0      |
| 50001       | 10-100 | 020      | 50001-0911-13 |     | 1.0      |
| 50001       | 10-100 | 020      | 50001-0911-14 |     | 1.0      |
| 60001       | 10-100 | 020      |               |     | 5.0      |
| 60002       | 10-100 | 020      |               |     | 5.0      |
| 60003       | 10-100 | 020      |               |     | 5.0      |
| 60005       | 10-100 | 020      |               |     | 5.0      |
| 60006       | 10-100 | 020      |               |     | 5.0      |



QS-PR-752

This screen shows the actual inventory transactions that are about to be made, including item number, site, location, and quantity. If all is correct, click Next to bring up a final verification.

If all is correct, click Yes and the inventory transactions are updated.

Click No to return to the transaction frame to make corrections. Completing this transaction removes the components from the inventory location and issues them to Work in Process (WIP) at the GL standard cost. The work order and the component items are now delivered to the first work center on the route for assembly to begin.

## Non-Standard Component Issue

### Non-Standard Component Issue

Work Order Component Issue

Go To Actions Copy Print Preview Attach

Work Order: 1002 ID: 2280921 Item: Item Number

Work Order: 1002 ID: 2280921 Op: Effective: 5/27/2010  
Item Number: 01010 W/O Stat: R Issue Alloc: ☐  
Medical Ultrasound Issue Picked: ☒  
Document:

| Item Number | Qty Open | Qty Alloc | Qty Picked | Qty to Iss | Qty B/O |
|-------------|----------|-----------|------------|------------|---------|
| 50001       | 0.0      | 0.0       | 0.0        | 0.0        | 0.0     |
| 60001       | 0.0      | 0.0       | 0.0        | 0.0        | 0.0     |
| 60002       | 0.0      | 0.0       | 0.0        | 0.0        | 0.0     |

Item Number: Op: Site: Loc:  
Description: Lot/Serial:  
Quantity: UM: Reference:  
Substitute: ☐ Cancel B/O: ☐ Multi Entry: ☐  
Document:

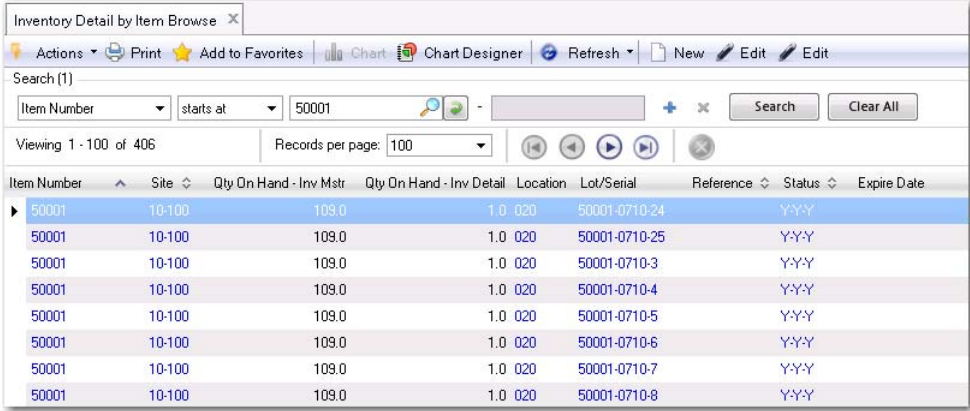

Q5-PR-759

When you need to issue a non-standard item, you use the lower frame of the issue screen to manually enter the correct data. Examples of when this is used include issuing an approved substitute item in place of the standard item or issuing material from a different location. Another common situation occurs when you need to issue material from two or more locations to get the full quantity of the item.

Once the data in the lower frame is filled in and you click Next, the transaction proceeds as normal.

## Review Inventory

## Review Inventory



The screenshot shows the 'Inventory Detail by Item Browse' window. The search criteria are set to 'Item Number' starting at '50001'. The table displays the following data:

| Item Number | Site   | Qty On Hand - Inv Mstr | Qty On Hand - Inv Detail | Location | Lot/Serial    | Reference | Status | Expire Date |
|-------------|--------|------------------------|--------------------------|----------|---------------|-----------|--------|-------------|
| 50001       | 10-100 | 109.0                  | 1.0                      | 020      | 50001-0710-24 |           | Y-Y-Y  |             |
| 50001       | 10-100 | 109.0                  | 1.0                      | 020      | 50001-0710-25 |           | Y-Y-Y  |             |
| 50001       | 10-100 | 109.0                  | 1.0                      | 020      | 50001-0710-3  |           | Y-Y-Y  |             |
| 50001       | 10-100 | 109.0                  | 1.0                      | 020      | 50001-0710-4  |           | Y-Y-Y  |             |
| 50001       | 10-100 | 109.0                  | 1.0                      | 020      | 50001-0710-5  |           | Y-Y-Y  |             |
| 50001       | 10-100 | 109.0                  | 1.0                      | 020      | 50001-0710-6  |           | Y-Y-Y  |             |
| 50001       | 10-100 | 109.0                  | 1.0                      | 020      | 50001-0710-7  |           | Y-Y-Y  |             |
| 50001       | 10-100 | 109.0                  | 1.0                      | 020      | 50001-0710-8  |           | Y-Y-Y  |             |

The QAD logo is visible in the bottom left corner, and the text 'QS-PR-765' is in the bottom right corner.

Review the on-hand inventory using Inventory Detail by Item Browse (3.2). You can see you still have enough components to build additional ultrasound units. A partial list is shown above.

## Record Labor

**Record Labor**

Labor Feedback by Work Order

Go To Actions Copy Print Preview Attach

Work Order: 1001 ID: 2326383  
 Operation: 10 ASSEMBLE COMPONENTS Op Status: QUEUE  
 Document:  
 Employee: 11-emp01 Angela Patens Pay Code:  
 Department: 0400 Work Center: 1000 Time Ind: Hours Minutes  
 Shift: Machine: 1001 Project:

Quantity Completed: 5.0 Effective Date: 4/10/2012  
 Rejects: ☐ Operation Complete: ☒  
 Rework: ☐ Move to Next Operation: ☒  
 Previous Ops Complete: ☒  
 Start Setup: 01:00:00  
 Elapsed/Stop Setup: 01:30:00 Elapsed Setup: 0.000  
 Start Run: 01:30:00  
 Elapsed/Stop Run: 06:30:00 Elapsed Run: 0.000  
 Comment:  
 Down Time: 00:00:00 Down Time Reason:

QAD QS-PR-760

Now that the work order is released to production, its status can be updated using shop floor transactions. Shop floor transactions are posted against the work order and operation. They must be entered with a valid employee code. In this simplified example, all of the shop floor reporting will be done by the senior assembler, Angela Patens, employee 11-EMP01.

When the route for the medical ultrasound was set up, each operation defaulted to milestone. This indicates that each operation is to be reported when it is complete.

Angela Patens uses Labor Feedback by Work Order (16.20.1) to record labor for operation 10 on the work order. In addition to the employee ID, other information included is the work order number, operation, and work center, which must be recorded on all labor feedback transactions. When you enter the work order and operation, the system defaults the department and work center with the standard department and work center for the route and operation. These should be changed if the work is done in a non-standard work center.

Based on the quantity of units completed (5) and routing details for operation 10 (entered in Routing Maintenance), the setup time should be 1 hour and run time 5 hours (5 units × 1.0 hr/unit). If actual setup or run time varied from the standard times, usage variances are generated. Depending on how you organize your shop floor reporting, you can use either the elapsed time for the operation, or enter the start and stop time for the operation.

If you are reporting labor before the completion of the operation—for example, at the end of a shift—but the work is not complete, then the Operation Complete field would be unchecked, and only the units complete would be reported.



The check box for Move Next Operation, if checked, will change the status of the next operation to Queue, and move the quantity complete from this operation into WIP at the next operation.

The check box for Previous Operations Completed, if checked, will close all previous operations with the processing of this transaction.

Operations 20 and 30 will be reported in the same manner. This example uses standard times for each operation.

## Questions

What information is provided by the Department 0400?

GL accounts for manufacturing costs are attached to the department in Department Maintenance.

What information is provided by the Work Center 1000?

Rates are specified at the work center level. These include the standard labor rates per hour for setup and run operations, and the variable burden rates that apply to all work done in the work center.

## Review Labor Transactions

## Review Labor Transactions



**Operation Transaction Detail  
Inq**

04/10/12

Tran Nbr: 30501    Display E-Signature Details: No    Output: PAGE

Type: LABOR

Transaction Date: 04/10/12 18:16:07    Work Order: 1001

Effective Date: 04/10/12 Shift:    ID: 2326383    Op: 10

Employee: 11-emp01 Angela Patens

Item Number: 01010    Quantity Completed: 5.0

Medical Ultrasound    Qty Rejected: 0.0

Site: 10-100    Line:    Reject Reason:

Work Center: 1000    Machine: 1001    Qty Rework: 0.0

Department: 0400    Rework Reason:

Qty Scrapped: 0.0

Std Setup Time: 0.5    Actual Setup Time: 0.5

Std Run Time: 10.0    Actual Run Time: 5.0

Labor Cost Std: 1,262.50    Labor Cost: 137.50

Burden Cost Std: 3.67    Burden Cost: 0.40

Subcontract Std: 0.00    Subcontract Cost: 0.00

| GL Reference<br>Reference ID           | Amount   | G/L Transactions |         |          |    | Project |
|----------------------------------------|----------|------------------|---------|----------|----|---------|
|                                        |          | DR Acct          | CR Acct | Sub-Acct | CC |         |
| 2012/SYS-DB000000001<br>W0120410000001 | 12.50    | 1550             |         | Mech     |    | mfg     |
| 2012/SYS-DB000000002<br>W0120410000002 | 125.00   | 1550             |         | Mech     |    | mfg     |
| 2012/SYS-DB000000003<br>W0120410000003 | 1,125.00 | 1550             |         | Mech     |    | mfg     |
| 2012/SYS-DB000000004<br>W0120410000004 | 0.04     | 1550             |         | Mech     |    | mfg     |
| 2012/SYS-DB000000005<br>W0120410000005 | 0.36     | 1550             |         | Mech     |    | mfg     |
| 2012/SYS-DB000000006<br>W0120410000006 | 3.26     | 1550             |         | Mech     |    | mfg     |



QS-PR-770

The labor transactions created when labor was reported for can be reviewed in Operation Transaction Detail Inquiry (16.20.13.9). This shows standard and actual setup and run times and the GL effects.

Accounts affected are Work in Process, Labor Absorbed, and Burden Absorbed.

## Review Work Order Route Operation Status

Work Order: 1001 ID: 2326383  
 Item Number: 01010 Medical Ultrasound  
 Operation: 10

Standard Operation:  
 Operation Description: ASSEMBLE COMPONENTS  
 Work Center: 1000 Machine: 1001 General Assembly-Ultra

Qty Ordered: 5.0 Std Setup Time: 5.0 Act Setup Time: 0.5  
 Qty WIP: 0.0 Std Run Time: 10.0 Act Run: 5.0  
 Run Complete: 5.0  
 Sub Complete: 0.0 Std Move Time: 0.0 Machines per Op: 1  
 Qty Reject: 0.0 Queue: 0.25  
 Qty Rework: 0.0 Wait Time: 0.25 Op Status: C  
 Start Date: 3/30/2012 Subcontract Cost: 0.00 Tool Code:  
 Due Date: 4/10/2012 Setup Crew: 1.00 Supplier:  
 Run Crew: 4.00 Yield%: 100.00%  
 Overlap Units: 0 Subcontract LT: 0 Comments: ☒

QAD QS-PR-780

When the Production Manager created work order 1001 in Work Order Maintenance, the system automatically generated a work order routing. This routing tracks the status of each operation and the quantities recorded complete at each operation. It also shows the actual setup and run times.

This screen shows that Operation 10 is complete (Op Status = C). No units of 01010 are in process at this operation (Qty WIP = 0.0), and 5 have been completed (Run Complete = 5.0).

If you reviewed operation 20, you would see that its status has been changed to Q (Queue).

If additional changes to operation 10 reporting are needed, you can use Work Order Routing Maintenance to change the operation status from C (Complete) to R (Run), allowing additional labor reporting to be done.

## Receive and Close Work Order

# Receive and Close Work Order

Work Order Receipt X

Go To Actions Copy Print Preview Attach

Work Order: 1001 ID: 2326383 Effective: 4/10/2012

Remarks: Batch:

Item Number: 01010 Lot/Serial Control: S UM: EA

Description: Medical Ultrasound WO Stat: R

Open Quantity: 5.0 Automatic Lot Numbers: ☐

Document:

Quantity: 0.0

UM: EA

Conversion: 1.0000

Scrapped Qty: 0.0

UM: EA

UM Conversion: 1.0000

Site: 10-100

Location: 010

Lot/Serial:

Reference:

Multi Entry: ☐

Set Attributes: ☐

Total Units: 0.0

QS-PR-790

Using Work Order Receipt (16.11), QMI receives the 5 medical ultrasound units into its finished goods location (010) and closes the order.

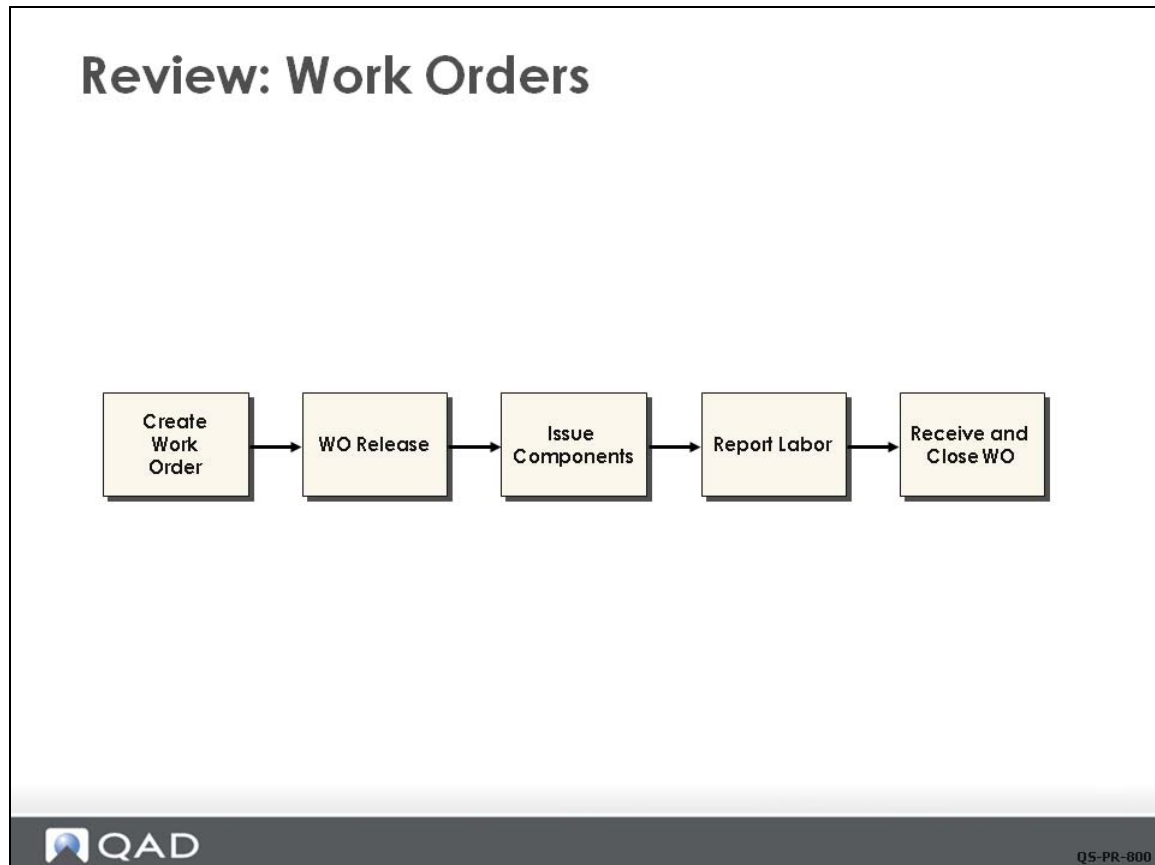
A dialog box prompts if the information is correct. This brings up a screen that displays the inventory transaction that is about to occur. Another pop-up window displays the transaction about to be processed and asks for confirmation that all is correct. Clicking Yes completes the work order close and the inventory update.

This increases (debits) the Inventory account and decreases (credits) the WIP account for the total standard GL cost.

### Additional Notes

Work Order Accounting Close is an additional step in the work order life cycle that is usually taken at the end of each GL calendar period as part of the period-end closing process.

## Review



This chapter discussed work order types and status codes, and explained the variances that can occur in the work order cycle. You then saw how work orders flow through the system and learned that they are:

- Created in Work Order Maintenance
- Released in Work Order Release/Print
- Issued components by Work Order Component Issue
- Reported in Labor Feedback by Work Order
- Received and closed in Work Order Receipt

For much more detail on work orders and how special situations are managed, see the training guide for work orders.

## Exercise 7

### In the following exercise you will:

- Review an employee record.
- Define control settings.
- Manually add and release a work order.
- Issue components to a work order.
- Report labor to a work order.
- Receive and close a work order

**Note** Remember, if you are uncertain about a given transaction and how to fill in the data fields, refer back to the appropriate section of the example.

### Review Employee Record

- 1 Use Employee View (36.1.7.3) to review the record for employee 10-EMP01. An employee is required for shop floor reporting.

### Define Control Settings

- 2 Select Work Order Control (16.24) and make sure that the settings are as follows:

| Field                | Data                                  |
|----------------------|---------------------------------------|
| Auto W/O Numbers     | Yes                                   |
| Next W/O Nbr         | [default] or a setting of your choice |
| Work Order Comments  | No (unchecked)                        |
| Routing Comments     | No (unchecked)                        |
| Move First Operation | Yes (checked)                         |

### Manually Add and Release a Work Order

- 3 Use Work Order Maintenance (16.1) to add a new work order record.
  - Let the next work order number and ID number default from the control program.
  - Create a work order for 20 units of item 01010 at site 10-100. Work order status is F (firm planned).
  - Let the other field values default. Click Next until the Work Order field is highlighted, then click Back.
- 4 Use Work Order Release/Print (16.6) to release the work order you created.
  - This function will also print the work order picklist and routing, also known as the shop paper. Accept all other default values.

**Note** If your system is configured with a printer, you may want to print your work order picklist and routing. If you do not have a printer, direct the output to Page to view the documents on your monitor.

**Tip** Use the lookup function to find your work order. Output to Page or file if you want to save a copy of the picklist and routing.

- Review picklist and routing.
- Find the new status of the order using Work Order Browse (16.2). What is it?

### Issue Work Order Components

- 5 Use Work Order Component Issue (16.10) to issue components from your inventory to your work order. Select Issue Picked to make your transaction more automatic.

**Note** By overriding the data in the transaction frame, you can change the quantity issued or the location from which the items are issued. In this exercise you should accept the default values since no inventory should exist in any other locations.

- 6 Update and exit.

### Report Labor to a Work Order

- 7 Manually calculate how much labor for setup and run time you need to complete all 20 units at each operation. (These numbers are on the routing that was printed for the work order.)

Assume the shop has now built the units.

- 8 Use Labor Feedback by Work Order (16.20.1) to report labor and units completed at each operation on your routing, based on your calculation above. Use employee 10-EMP01.
- At each operation (10, 20, and 30) report the units completed and the elapsed setup and run times.
  - Change Time Ind field to Decimal Hours.
  - In Operation Transaction Detail Inquiry (16.20.13.9), you could look at the transactions created when you reported labor.
- 9 Use Work Order Routing Maintenance (16.13.13) to review your work order routing. Check how many units have been completed at each operation and how much labor was used for each operation.

### Receive and Close a Work Order

- 10 Use Work Order Receipt (16.11) to receive all 20 medical ultrasounds from the work order into inventory at site 10-100, location 010.

| Field       | Data      |
|-------------|-----------|
| Quantity    | 20        |
| Lot/Serial  | MDF950001 |
| Multi Entry | Yes       |
| Close       | Yes       |

- Click Next until you are prompted: Create List of Serial Numbers? Click Yes.
- Click Next until you see MDF950020.
- Click Back until you are prompted: Display Items and Lot/Serial Detail? Click Yes.
- When prompted Is all information correct?, click Yes.





# Sales Orders/Invoices

This chapter describes the how to create sales orders, allocate inventory, print picklists, ship orders, as well as invoicing and processing AR payments.

*Overview*

*Key Concepts*

*Example*

*Review*

*Exercise 8*

## Overview



This chapter describes the various activities associated with getting a product to a customer. Typically the sales department is responsible for recording orders, processing shipments, and invoicing. Each of these activities is discussed, followed by an example to illustrate the process.

## Chapter Topics

The topics covered in this chapter include:

- Key Concepts
  - Sales Order Process Flow
  - Document Layout
  - Allocation of Inventory
  - Picklists
  - Shipment
  - Invoice Management
- Example
  - Review Customer Record
  - Define Control Settings
  - Enter Sales Order and Print Sales Order

Print Packing List and Ship Sales Order

Review Inventory Detail

Review Invoice and Post and Print Invoice

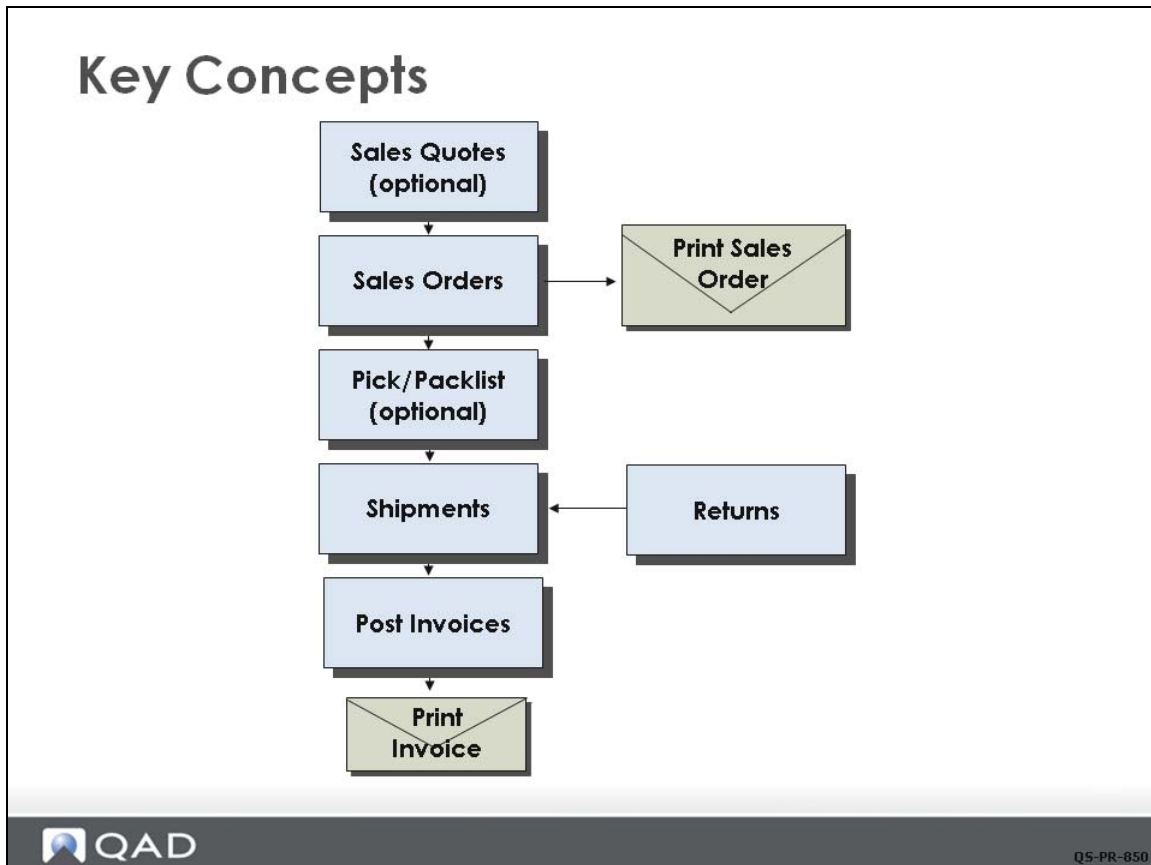
- Review
- Exercises

## Learning Objectives

**When you finish this chapter, you should be able to:**

- Describe the basic sales order process flow.
- Explain the different types of information contained in a sales order document header, line item, and trailer sections.
- Explain the differences between general and detail allocations.
- Describe the basic invoice process flow.
- Describe the basic payment process flow.
- Enter, print and ship a sales order.
- Post and print an invoice.

## Key Concepts



A customer sale can begin as a sales order or a sales quote. Both represent offers to sell the customer certain items at a certain price at a certain time. The sales order also represents a commitment from the customer to purchase the items, but a sales quote does not. Consequently, sales quotes are not considered by MRP.

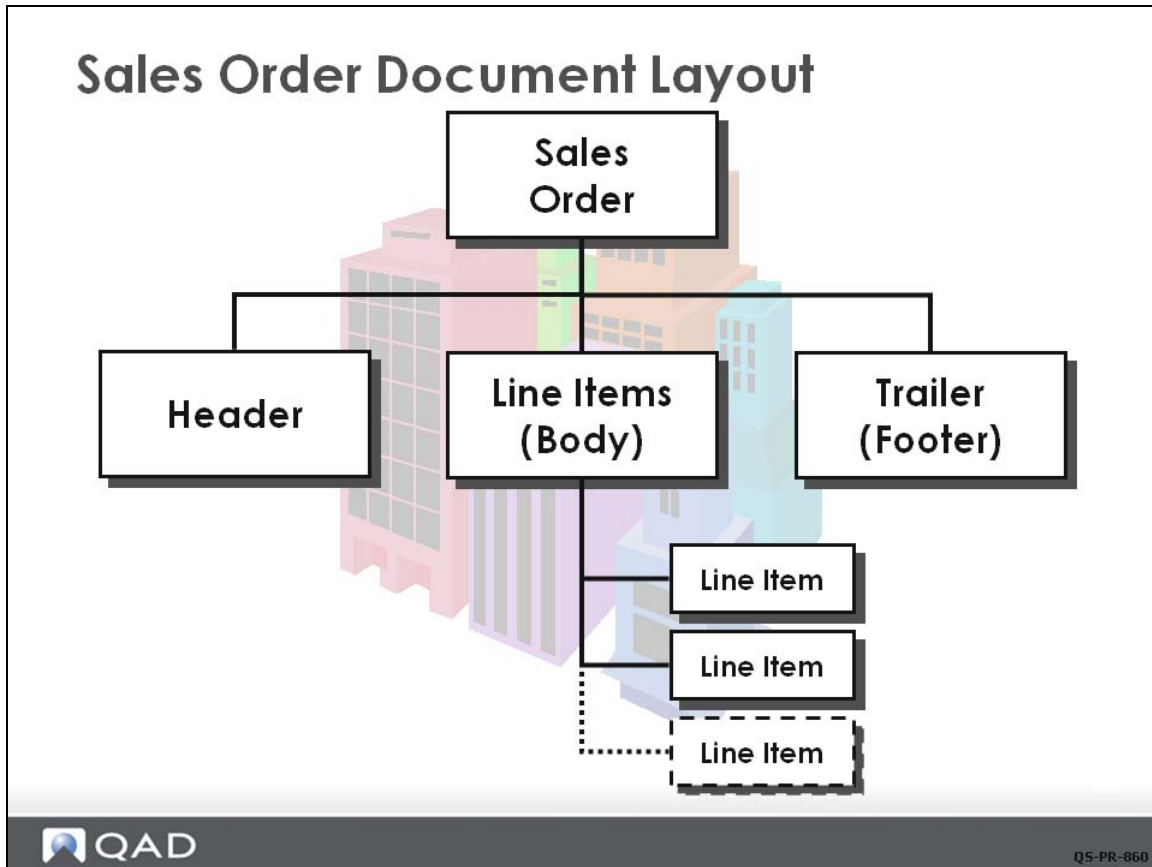
A hard-copy document of the order can be printed and sent to the customer.

After a sales order has been entered and is ready to be shipped, a picklist can be printed. When the picklist is generated, any allocated quantities on the order are incremented as picked. The picklist document can be placed inside the shipping box as a packing list. Inventory is not decremented until items are actually shipped.

The shipment transaction creates a pending invoice that does not increment Sales until the invoice is posted to Accounts Receivable. Posting the invoice assigns the invoice number based on financial setup and generates the documents that can be printed and sent to the customer.

Once invoices are posted, financial processing continues with accounts receivable functions.

## Sales Order Document Layout



In QAD EE, a sales order document has three main parts, entered and printed in sequence:

**Header.** Contains the general terms of the order and default values for line items. Comments may follow, describing in more detail the terms or instructions associated with this order.

**Line Items.** Specifies a particular item being ordered, its order quantity, and price. Lists any exceptions to header information, such as a date or address that applies to only the line item and not the whole order. Comments may follow each line item, describing in more detail the item, its specifications, or packaging instructions. Each order can have many line items.

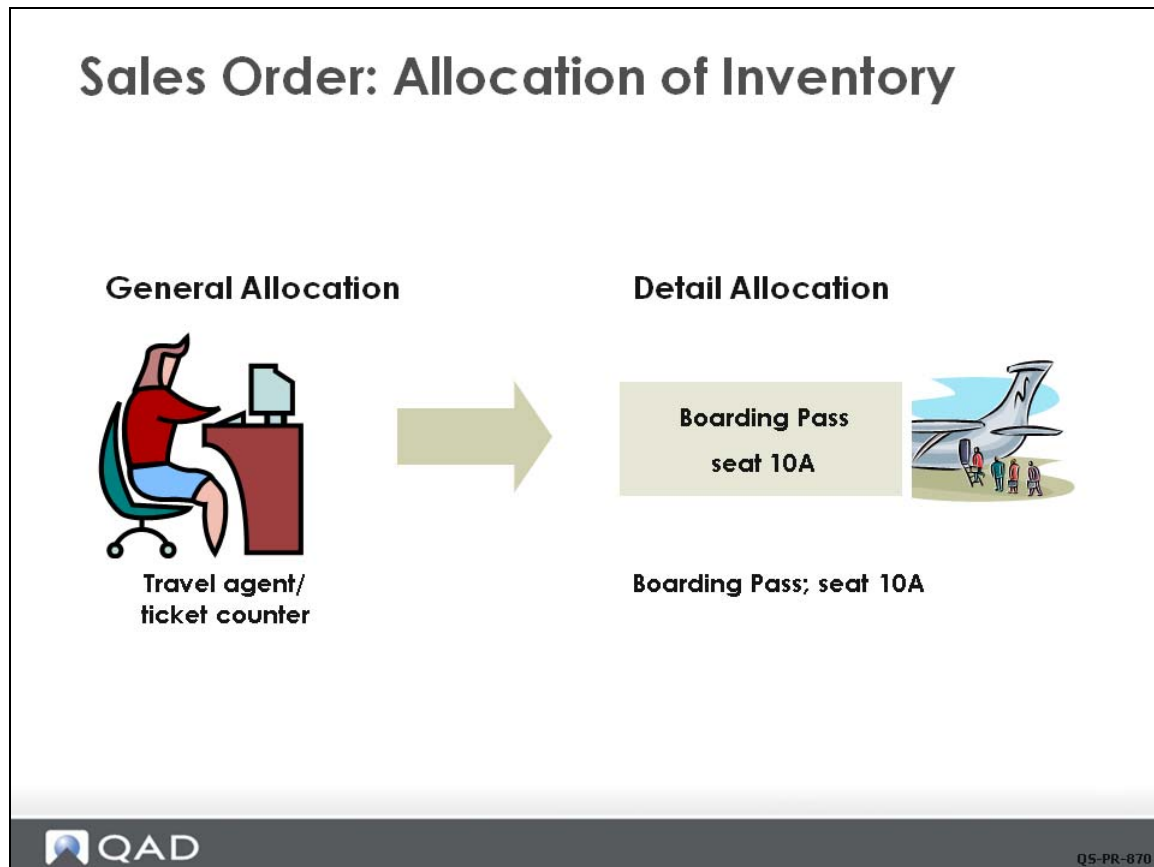
**Trailer.** Contains tax, shipping, and order status information for all line items. Freight can be calculated automatically on a bulk or unit basis. These charges are not subject to commission or discount, and may or may not be taxable.

Comments can be entered manually on quotes and orders or copied from preexisting master comments and modified as needed. Master comments are useful for storing standard information such as:

- Item specifications and quality requirements
- Item descriptions in other languages
- Export documentation and packaging instructions

Each master comment is identified by a reference code, type, language, and page number (up to 99 pages of text).

## Allocation of Inventory



QAD EE uses allocations to reserve inventory. Particular quantities can be set aside or allocated to specific sales orders and work orders. For both sales orders and work orders, allocations help ensure that inventory is available when it is needed. For sales orders, allocations also enable the sales department to determine which items are shipped for specific orders and prevents you from promising the same item to two or more customers.

### General and Detail Allocations

When inventory is to be allocated, the system distinguishes between a general allocation and a detail allocation.

- A general allocation reserves inventory at a particular site, but it does not specify a specific location or lot/serial numbers. This is similar to when you buy an airline ticket. The airline allocates a seat for you. This is a general allocation—you have a seat but you do not know which one.
- Detail allocations enable you to reserve exact items of inventory at a specific location by specifying lot and/or serial numbers, expiration dates, sites, and/or locations. Detail allocation is normally done automatically when the picklist is prepared, but it can be done manually during the order-entry process. In the airline example, detail allocation happens when you get a boarding pass—now you know what seat you are in. It is detail allocated to you and no one else should be assigned to the same seat.

### Automatic or Manual

Allocations can be done at several stages, automatically or manually. For sales orders, general allocations can be created during order entry, depending upon the setting in Sales Order Control. The system automatically converts general allocations to detail allocations when picklists are printed. You can also override the system by manually creating detail allocations during order entry. Like the airline boarding pass example, most errors occur when humans try to manipulate the system and override the system allocations.

## Printing Picklists

**Printing Picklists**

Sales Order Packing List - 5/27\_ X

QMI -USA Division  
30 Ridgedale Avenue  
East Hanover, NJ 7950  
USA - TAX PURPOSE

P A C K I N G L I S T

Order Number: 10S10001 Page: 1  
Order Date: 05/27/10  
Print Date: 05/27/10

Sold To: 10C1003  
Pacific Health Care Systems  
600 Calle de Los Caminos  
Los Angeles, CA 90212  
USA - TAX PURPOSE

Ship To: 10C1003  
Pacific Health Care Systems  
600 Calle de Los Caminos  
Los Angeles, CA 90212  
USA - TAX PURPOSE

Salespersons: 10SP01  
Credit Terms: 2M  
Remarks:

Purchase Order:  
Ship Via: FEDX  
FOB Point:  
2 months after month end of invoice date

| Ln | Item Number                                | Site<br>T Location | Lot/Serial | Qty Open<br>Qty to Ship | Due<br>UM | Shipped |
|----|--------------------------------------------|--------------------|------------|-------------------------|-----------|---------|
| 1  | 01010<br>Revision: D<br>Medical Ultrasound | 10-100             |            | 5.0 EA                  | 06/04/10  |         |
|    |                                            | 010                | 4          | 1.0                     | ( )       |         |
|    |                                            | 010                | 5          | 1.0                     | ( )       |         |

7.9.13 sosopk.p

QAD QS-PR-880

Once customer-ordered items have been completed or when stock items are available for shipment, sales personnel can initiate picklist printing for the sales order.

The picklist shows what items to pick to fill an order and what site or location to pick them from. If you created detailed allocations in Sales Order Maintenance—including lot/serial numbers and lot reference numbers—this information appears on the picklist. If you performed a general allocation for the sales order, the system automatically converts the general allocation to a detail allocation when it prints the picklist.

To print a picklist for a sales order, use Sales Order Packing List (7.9.13). You can only print picklists for sales orders not on credit hold. A sample picklist is shown here.

After printing the picklist, the system updates the values displayed in Sales Order Maintenance for the quantity allocated and quantity picked.

**Note** The terms picklist and packing list are used interchangeably.



## Shipment

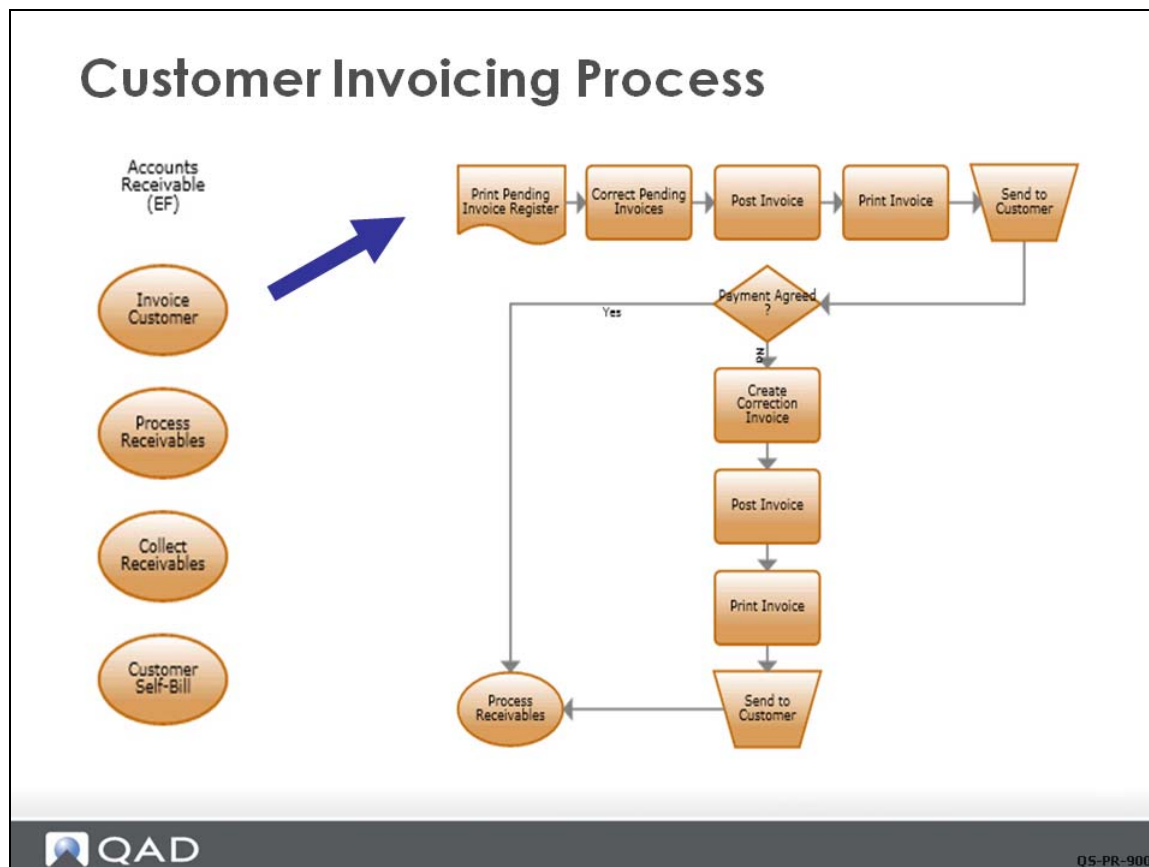


After the items listed on the sales order picklist have been picked, they are packed and shipping paperwork is prepared. Following actual shipment, the shipping transaction can be processed.

Processing the transaction physically decreases the quantity on hand for each of the items that was shipped and generates a GL transaction to decrease (credit) Inventory and increase (debit) Cost of Sales accounts.

Shipping a sales order automatically marks it as ready for invoicing. Typically, an invoice document is generated for each shipment. You ship the items and post it to Accounts Receivable. Posting generates the printed documents to be sent to the customer. However, you can combine multiple shipments and sales orders on one invoice.

## Invoice Management



A sales order shipment automatically creates a pending invoice. While in the pending status, changes can be made to fields such as credit terms, commission percentage, price, and discount.

After a pending invoice is reviewed, it can be posted and printed. Post and print are combined in QAD EE; only a posted invoice can be printed. However, a preview function lets you see what the invoice looks like before you print it. You can select invoices to process by specific sales order number or range of numbers, or by a shipping date or range of dates. The date on the invoice is the system date unless you change it.

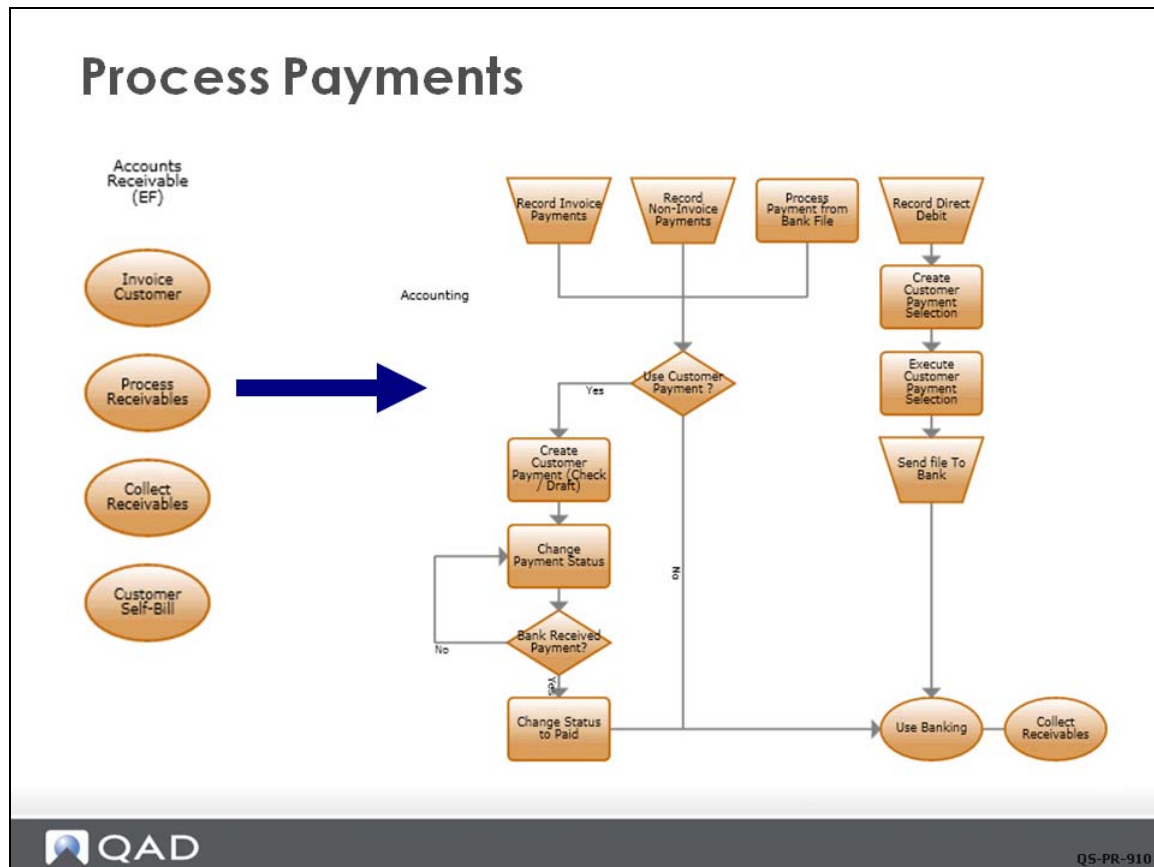
Posting assigns a number to the invoice based on daybooks and daybook sets defined during financial setup. Daybooks support assigning different invoice sequence numbers for each site, and different numbers for sales invoices and strictly financial invoices.

The post function updates the customer's open account balance and also updates GL account balances for Sales and AR, salesperson quota and commission history, sales tax journals and sales analysis history.

Posting deletes complete sales orders. However, you can use invoice history to reviewing problems, configured product information, or reprinting invoices.

If the customer disagrees with any aspect of the invoice, a correction invoice can be created, which is linked to the original invoice, and then printed and posted to correct account balances and maintain an audit trail of changes.

## Processing Payment



When processing customer transfer payments, you can use Banking functions to record the payments directly in your bank account while allocating the payment directly to invoices.

For other payment instruments, such as check payments, draft payments, and direct debit payments, you typically use Customer Payment and Customer Payment Selection functions to complete the payment process. These functions let you process a payment through a series of statuses, with postings to payment accounts for each status change. In this way, the payment is fully recorded in the AR sub-ledger, from allocation of the payment to an invoice to acknowledgement from the bank that the payment amount has been transferred to your bank account.

Once the amount is paid, you use Banking functions to update your account statement. The Payment functions handle all types of payment instrument (including checks, drafts, credit card, and direct debits), and both paper and electronic payment formats.

Payment processing is handled entirely within the Enterprise Financials modules and is not covered in this class.

## Example

In the following example, QMI's Sales Department:

- Reviews settings for a customer
- Defines settings in Sales Order Control
- Enters a sales order for 5 medical ultrasounds sold to Pacific Health Care Systems at \$2500.00 per unit
- Prints the sales order and packing list
- Ships 5 medical ultrasound units to Pacific Health Care Systems

The Accounts Receivable Department then:

- Posts and prints an invoice for this sale

## Review Customer Record

### Review Customer Record

Customer Data Maintenance
 Go To Actions Copy Print Preview Attach

Customer: 10C1003
Customer: 10C1003
Salespsn1: 10SP01

---

Customer Address

Customer: 10C1003

Business Relation: 10-C1003

Name: Pacific Health Care Systems

Active: ☒

Address: 600 Calle de Los Caminos

Added: 2/8/2010

Address:

Address:

City: Los Angeles

State: CA

Post: 90212

Format: After

Country: USA - TAX PURPOSE

USA

County: Los Angeles

Attention: Casey

[2]

Telephone:

[2]

Fax:

[2]

---

Customer Data

Sort Name: Pacific Health Care Systems

Type: DIST

Salespsn1: 10SP01

Multiple: ☐

Region: US-E

Ship Via: FEDX

Currency: USD

Resale:

Site: 10-100

Remarks:

Lang: us

Q5-PR-920

Before QMI's Customer Service Representative (CSR) can enter a sales order, a customer record must exist in the system. The Finance Department has already set up the basic customer data as it relates to accounting. Now the CSR review the data in Customer Data Maintenance (2.1.1) and adds sales or service specific information such as contact names and phone numbers and region or type codes if needed. The CSR can also specify default sales persons and the site code from which QMI normally ship to this customer.

Several additional frames exist in Customer Data Maintenance that let you set defaults for sales order processing. For example, you can indicate that this customer accepts partial shipments and whether fixed pricing is to be used. Since these are default settings, each sales order can be changed as required.

## Address Tax Data

# Address Tax Data

Address Tax Data

Taxable: ☐

Tax Zone: USA-CA-LA

Tax Class:

Tax Usage:

Tax In: ☐

Tax ID - Federal:

State/VAT ID:

Tax ID - Misc 1:

Tax ID - Misc 2:

Tax ID - Misc 3:

In City: ☒

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When you click Next, a tax information window pops up. Tax data is set up by Finance and rarely changed during sales order processing.

## Customer Credit Data

## Review Customer Record

**Customer Data**

|                                                                                  |                                                                                                 |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Partial OK: <input checked="" type="checkbox"/>                                  | Class: <span style="border: 1px solid #ccc; padding: 2px;">DIST</span>                          |
| Discount Tbl: <span style="border: 1px solid #ccc; padding: 2px;"></span>        | SIC: <span style="border: 1px solid #ccc; padding: 2px;"></span>                                |
| Fixed Price: <input checked="" type="checkbox"/>                                 | Invoice by Authorization: <input type="checkbox"/>                                              |
| Daybook Set: <span style="border: 1px solid #ccc; padding: 2px;">10-SALES</span> | RSS Calendar Option: <span style="border: 1px solid #ccc; padding: 2px;">1</span> Customer/Shop |
|                                                                                  | Non-Sales Order Price List: <span style="border: 1px solid #ccc; padding: 2px;"></span>         |

**Customer Credit Data**

|                                                                            |           |            |
|----------------------------------------------------------------------------|-----------|------------|
| Disc Pct: <span style="border: 1px solid #ccc; padding: 2px;">0.00%</span> | Terms: 2M | Last Sale: |
| PO Required: <input type="checkbox"/>                                      | Bill To:  |            |

**Customer Freight Data**

|                                                                                |    |
|--------------------------------------------------------------------------------|----|
| Freight List: <span style="border: 1px solid #ccc; padding: 2px;">10FRT</span> |    |
| Min Frt Wt: <span style="border: 1px solid #ccc; padding: 2px;">1</span>       | KG |
| Freight Terms: <span style="border: 1px solid #ccc; padding: 2px;">ADD</span>  |    |

**Enterprise Material Transfer Data**

|                                                                              |                                                                                    |                                            |
|------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------|
| EMT Type: <span style="border: 1px solid #ccc; padding: 2px;">NON-EMT</span> | Customer Shipping LT: <span style="border: 1px solid #ccc; padding: 2px;">0</span> | Confirmed EMT SO: <input type="checkbox"/> |
|                                                                              |                                                                                    | EMT Credit Flow: <input type="checkbox"/>  |

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QS-PR-930

QMI Finance has entered customer credit data for Pacific Health Care Systems with terms of 2M (payment is due in two months). You can also see that the bill-to address code is the same as the customer sold-to address code.

If QMI used predefined freight rate tables and freight lists and or freight terms, they would enter the data in this frame for this customer. Freight lists are covered in detail in the training guide on sales order management.

The last frame in Customer Data Maintenance is for setting up Enterprise Material Transfer (EMT), also called back-to-back orders. This functionality is also covered in detail in its own training course.

## Define Control Settings

**Sales Order Control**

Use Which Calc for Qty Available to Allocate: 1

Allocate Sales Order Lines Due in Days: 10 (0 for no allocations)

Limit Allocate to Avail Only: ☒ Detail Allocations: ☐

ATP Enforcement Enabled: ☐ ATP Horizon: 15

Family ATP Calculation: 1 Calculate Promise Date: ☒

Pick Only Allocated Lines: ☒ Sales Order Prefix: 10S

Are Sales Orders Printed: ☒ Next Sales Order: 10000

Keep Booking History: ☒ Shipping Lead Time: 1

Sales Order Header Comments: ☐

Sales Order Line Comments: ☐

Default to Primary Ship-To: ☐

Ln Format S/M: Single

Next Batch: 00000326 FOB:

Integrate with SA: ☒ Integrate with TrM: ☐

Confirmed Orders: ☒ Fiscal Start Month: 1

In Sales Order Control (7.1.24), QMI has specified several standards and default settings pertaining to its sales orders:

- The default value for allocations in Sales Order Maintenance is general, since Detail Allocations is not selected.
- Sales orders have a prefix of 10S and the next number to be issued is 10000. (Your database may have a different starting number.)
- Sales order data is integrated with the Sales Analysis (SA) module because Integrate with SA is selected.
- On new sales orders, the default value will be confirmed for shipment since Confirmed Orders is selected.
- The default format for sales order line-item entry is Single (instead of Multiple), which lets QMI customize due dates, sites, tax status, and other information for each line item.



## Define Control Setting

### Define Control Settings

Sales Order Control

Go To Actions Copy Print Preview

Use Enterprise Material Transfer: ☒

EMT Type: NON-EMT

EMT Sequence: abcd

A-Item/Site  
B-Item  
C-Customer  
D-Sales Order Control

Automatic EMT Processing: ☒

Calculate Due Date: ☒

Direct Allocation: ☐

Direct Shipment Location: 140

Auto Accept Supplier Changes: ☒

Use Customer Currency On PO: ☒

Allow Mod/Del When SO Picked: ☐

Allow Mod/Del When Released to W/O: ☐

Allow Mod/Del When Shipped: ☐

Allow Non-Ack Deletes: ☐

Export Hold Sales Status: HD

**Not used in this course**

The next frame in Sales Order Control is used to complete the setup for Enterprise Material Transfer, which is covered in a separate training course.

## Define Control Settings: Forecast

# Define Control Settings: Forecast

Sales Order Control

Go To Actions Copy Print Preview

Auto Batch Confirmation: ☐

Confirmation Batch ID:

Confirmation Printer:

SO Edit ISB Defaults: ☒

Pending Inv Update ISB: ☒

SO Returns Update ISB: ☒

Forecast Consumption

Consume Forward:

Consume Back:

Check Customer Item Nbr First: ☒

Auto Batch Shipment: ☐

Shipment Batch ID:

Shipment Batch Printer:

QAD QS-PR-950

In the final frame of Sales Order Control, QMI has set forecast consumption to consume forward 10 periods and back 10 periods. How this is used by the system is discussed in the section on planning and forecasting.

## Enter Sales Order: Header Information

QMI's CSR enters a sales order for Pacific Health Care Systems (10C1003) in Sales Order Maintenance (7.1.1).

The CSR lets the system generate the sales order ID, which has a prefix of S10 based on the Sales Order Control setting. Other information defaults from the Sales Order Control also, such as site 10-100 and Confirmed for shipment (checked). The credit terms default from the customer record set up by Finance in Customer Create.

Some header elements, such as some date fields, Site, and Confirmed, become default values for line items; these can be changed during line-item entry. The system uses six date fields:

**Order Date.** The date an order is created; by defaults the system date but can be changed.

**Required Date.** The date the customer wants the items.

**Promise Date.** The date you say the customer can have the items.

**Due Date.** The real due date. In the case of a late order, the due date will be later than the promise date.

**Perform Date.** The date you will be held to for shipping performance. This is normally the same as promise date. This can change if the customer changes required date.

**Pricing Date.** Normally the order date, could be the due date. Used by date range based price lists to price items based on the price on a given date.

## Enter Sales Order: Freight Data

# Enter Sales Order: Freight Data

Freight Data

Salesperson 1: 10SP01

Multiple: ☐

Commission 1: 5.00%

Freight List: 10FRT KG

Frt Min Wgt: 1

Freight Terms: ADD

Calculate Freight: ☐

Display Weights: ☒

Entered By: mfg

Consignment: ☐

Consume Forecast: ☒

Detail Allocations: ☐

Allocate Days: 10

Comments: ☐

Import/Export: ☐

Clicking Next to advance through the sale order displays the pop-up for taxes, then the screen for freight and other defaults from Sales Order Control. Here you can change Consume Forecast, Detail Allocations, and Allocate Days if necessary.

## Enter Sales Order: Line Information

## Enter Sales Order: Line Information

Sales Order Maintenance X
Go To Actions Copy Print Preview Attach

Header Lines Trailer

Lines Line Details Freight Data Tax Info Comments

Header

Order: 10S1002 Sold-To: 10C1003 Ln For: Single Org:

Sales Order Line

| Ln | Item Number | Qty Ordered | UM | List Price | Discount | Net Price |
|----|-------------|-------------|----|------------|----------|-----------|
| 1  | 01010       | 5.0         | EA | 2,500.00   | 0.0      | 2,500.00  |

Line Details

Desc: Medical Ultrasound  
Loc: 010 Site: 10-100  
USD Cost: 1,805.45157

Sales Acct: 4010 mech ADM  
Disc Acct: 4200 Mech  
Confirmed: ☒ Required: 4/17/2012  
Promised: 4/17/2012 Due Date: 4/17/2012  
Perform Date: Pricing Date: 4/10/2012  
Credit Terms Int: 0.00 Ship Type: UM Conversion: 1.0000  
Consume Fcst: ☒ Detail Alloc: Taxable: ☐  
Freight List: 10FRT Comments:

Qty Allocated: 5.0  
Qty Picked: 0.0  
Qty Shipped: 0.0  
Qty to Invoice: 0.0  
Salesperson 1: 10SP01  
Commission 1: 5.00% Category: Fixed Price: ☒

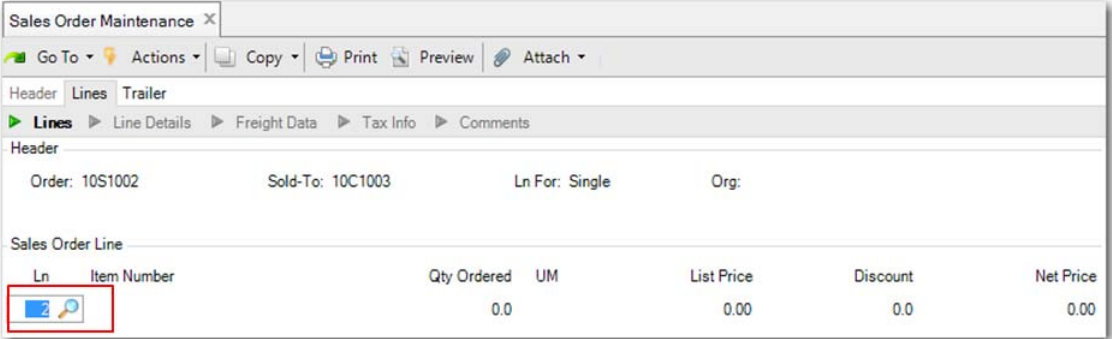
Lot/Serial:

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QS-PR-970

The CSR has entered an order for medical ultrasound units (item 01010); the list price of \$2500.00 defaults from information entered in the cost screens of Item Master Maintenance. The remaining information defaults from values previously entered in the sales order header, Sales Order Control, or Item Master Maintenance.

## Enter Sales Order: Line Information



The screenshot shows the 'Sales Order Maintenance' window. The 'Lines' tab is active, and the 'Header' sub-tab is selected. The 'Header' section displays the following information:

|                |                  |                |      |
|----------------|------------------|----------------|------|
| Order: 10S1002 | Sold-To: 10C1003 | Ln For: Single | Org: |
|----------------|------------------|----------------|------|

Below the header, the 'Sales Order Line' table is displayed. The first line is highlighted with a red box, indicating it is the current line being edited.

| Ln | Item Number | Qty Ordered | UM | List Price | Discount | Net Price |
|----|-------------|-------------|----|------------|----------|-----------|
| 1  |             | 0.0         |    | 0.00       | 0.0      | 0.00      |

The QAD logo is visible in the bottom left corner, and the document ID 'QS-PR-971' is in the bottom right corner.

After completing line 1, the system automatically goes to line 2. Since only one line is needed for this order, the CSR exits the next line by clicking End Lines, and then clicking Trailer to display the trailer frame.

## Enter Sales Order: Trailer Information

**Enter Sales Order: Trailer Information**

Sales Order Maintenance X

Go To Actions Copy Print Preview Attach

Header Lines **Trailer**

Trailer Tax Info Trailer Information

Header

Order: 10S1002 Sold-To: 10C1003 Bill To: 10C1003 Ship-To: 10C1003

Trailer

|                       |           |               |             |           |
|-----------------------|-----------|---------------|-------------|-----------|
| Non-Taxable:          | 12,520.53 | Currency: USD | Line Total: | 12,500.00 |
| Taxable:              | 0.00      | 0.00%         | Discount:   | 0.00      |
| Tax Date:             |           | Freight       | 20          | 20.53     |
| Containers:           | 0.00      | Freight       | 20          | 0.00      |
| Line Charges:         | 0.00      | Special       | 30          | 0.00      |
| View/Edit Tax Detail: |           |               | Total Tax:  | 0.00      |
|                       |           |               | Total:      | 12,520.53 |

Trailer Information

CR Initials: Print Sales Order: ☒

Credit card: Print Pack List: ☒

Action Status: Print Inv Hist: ☒

Revision: 0 EDI Inv Hist: ☐

EDI PO Ack: ☐ Partial OK: ☒

Prepaid: 0.00

FOB Point:

Ship Via: FEDX

BOL:

QAD QS-PR-980

The trailer frame is where the system calculates taxes and freight when these features are being used. You can also add any special service or other charges that apply to the entire order rather than a line item.

The lower frame of the trailer record has check boxes to print the sales order and the packing list. You can also maintain the revision level of the sales order to keep track of customer changes to the order. If Finance puts the customer on credit hold, the Action Status field will have some value in it such as H for hold.

## Print Sales Order

### Print Sales Order

Sales Order Print X

Go To Actions Copy Print Preview Attach

Sales Order: 10S1002
To: 10S1002

Sold-To: 10C1003
To: 10C1003

Order Date:
To:

Language ID: US
To:

Print Features and Options: ☐

Entity Code: 10-100

Form Code: 1

Print Sales Order Trailer: ☐

Discount Detail: None

Discount Summary: None

Increment Order Revision: ☒

Print Additional Line Charges: ☐

Update: ☒

Output: PAGE

Batch ID:

Q5-PR-990

Because the CSR selected Print Sales Order in Sales Order Maintenance, the sales order is available to print in Sales Order Print (7.1.3). As you can see from the print selection screen, you can select sales orders for printing based on a wide selection of criteria.

In this example, by specifying one sales order number in both the From and To fields, only the order just created is selected.

You can also direct the output to Page, which lets you view the sales order on your monitor.



## Sales Order Print

## Sales Order Print

Sales Order Print - 4/11/2012 8... X

QMI -USA Division  
30 Ridgedale Avenue  
East Hanover, NJ 07950  
USA - TAX PURPOSE

**S A L E S   O R D E R**

Order Number: 1051002   Revision: 0  
Order Date: 04/10/12   Page: 1  
Print Date: 04/11/12

Sold-To: 10C1003

Pacific Health Care Systems  
600 Calle de Los Caminos  
Los Angeles, CA 90212  
USA - TAX PURPOSE

Ship-To: 10C1003

Pacific Health Care Systems  
600 Calle de Los Caminos  
Los Angeles, CA 90212  
USA - TAX PURPOSE

Attention: Casey Hohman  
Telephone:

Salesperson(s): 10SP01

Credit Terms: 2M  
2 months after month end of invoice date  
Resale:  
Remarks:

Attention: Casey Hohman  
Telephone:

Purchase Order:  
Ship Via: FEDX  
FOB Point:

| Ln         | Item Number                 | Due Date | Qty | Open UM | Price    | Extended Price |
|------------|-----------------------------|----------|-----|---------|----------|----------------|
| 1          | 01010<br>Medical Ultrasound | 04/17/12 | 5.0 | EA      | 2,500.00 | 12,500.00      |
| USD Total: |                             |          |     |         |          | 12,500.00      |

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QS-PR-1000

A copy of the sales order is shown in this example.

After printing the sales order, the system sets Print Sales Order in Sales Order Maintenance to No. To reprint the order, set Print Sales Order to Yes and reprint using Sales Order Print.

## Print Sales Order Packing List

To print the packing list, the CSR uses Sales Order Packing List (7.9.13).

**Note** QAD EE uses the terms packing list and picklist interchangeably.

The shipping clerk can use the picklist to pick the items from inventory for shipment and can then be included with the shipment as a packing list. Alternatively, two copies of the packing list can be used if you need to keep a hard copy for internal purposes.

Because the CSR has selected Update, after printing the picklist, the system updates the values displayed in Sales Order Maintenance for the quantity allocated and quantity picked.

Set Update to No to print a simulated picklist for review without updating the sales order record.

## Sales Order Packing List Print

## Sales Order Packing List Print

Sales Order Packing List - 4/11\_ X

QMI -USA Division  
30 Ridgedale Avenue  
East Hanover, NJ 07950  
USA - TAX PURPOSE

Sold To: 10C1003  
  
Pacific Health Care Systems  
600 Calle de Los Caminos  
Los Angeles, CA 90212  
USA - TAX PURPOSE

Salespersons: 10SP01  
Credit Terms: 2M  
Remarks: 2 months after month end of invoice date

PACKING LIST

Order Number: 10S1002 Page: 1  
Order Date: 04/10/12  
Print Date: 04/11/12

Ship To: 10C1003  
  
Pacific Health Care Systems  
600 Calle de Los Caminos  
Los Angeles, CA 90212  
USA - TAX PURPOSE

Purchase Order:  
Ship Via: FEDX  
FOB Point:

| Ln | Item Number                                | Site<br>T Location | Lot/Serial    | Qty Open   | Due      |
|----|--------------------------------------------|--------------------|---------------|------------|----------|
|    |                                            |                    |               | to Ship UM | Shipped  |
| 1  | 01010<br>Revision: D<br>Medical Ultrasound | 10-100             |               | 5.0 EA     | 04/17/12 |
|    |                                            | 010                | 01010-1211-12 | 1.0 ( )    |          |
|    |                                            | 010                | 01010-1211-2  | 1.0 ( )    |          |
|    |                                            | 010                | 01010-1211-3  | 1.0 ( )    |          |
|    |                                            | 010                | 01010-1211-4  | 1.0 ( )    |          |
|    |                                            | 010                | 01010-1211-5  | 1.0 ( )    |          |

Q5-PR-1020

The picklist shows what items to pick to fill an order and what site or location to pick them from.

- If you created detailed allocations in Sales Order Maintenance—including lot/serial numbers and lot reference numbers—this information appears on the picklist.
- If you performed a general allocation for the sales order, the system automatically converts the general allocation to a detail allocation when it prints the picklist.

## Ship Sales Order

### Ship Sales Order

Sales Order Shipments X

Go To ▾
Actions ▾
Copy ▾
Print
Preview

Order: 10S1002  
 Effective: 4/11/2012  
 Document:

Ship Allocated: ☐  
 Ship Picked: ☒

Sold-To: 10C1003  
 Pacific Health Care Systems

Site:

Sales Order Line Items

| Ln | Item Number | T | Qty Alloc | Qty Picked | To Ship | Backorder | Site   |
|----|-------------|---|-----------|------------|---------|-----------|--------|
| 1  | 01010       |   | 0.0       | 5.0        | 5.0     | 0.0       | 10-100 |

Line:

Cancel B/O:

Site:

Loc:

Quantity:

Lot/Serial:

Item Number:

UM:

Reference:

Multi Entry: ☐

Description:

QAD
QS-PR-1030

To record the shipment of the order, approve the order for invoicing, and reduce the quantity on hand for the 5 medical ultrasound units shipped, the CSR uses Sales Order Shipments (7.9.15). Because QMI is using a picklist instead of detail allocations for this order, the CSR accepts the default for Ship Picked (Yes).

The middle frame (Sales Order Line Items) shows the open lines on this sales order ready for shipment. This order has one line for a quantity of 5. If necessary, modifications can be made to this line in the bottom frame. For example, if the location has changed, the new location can be entered here.

All items are picked and ready to ship in this example. Clicking Next displays a prompt asking if you want to see the inventory transaction. Click Yes and the system displays the complete inventory transaction.

## Ship Sales Order: Review Lines

### Ship Sales Order: Review Lines

Sales Order Shipments
X

Go To Actions Copy Print Preview

Order: 10S1002  
 Effective: 4/11/2012  
 Document:

Ship Allocated: ☐  
 Ship Picked: ☒

Sold-To: 10C1003  
 Pacific Health Care Systems

Site:

| Ln | Item Number | Site   | Location | Lot/Serial    | Quantity | UM |
|----|-------------|--------|----------|---------------|----------|----|
| 1  | 01010       | 10-100 | 010      | 01010-1211-12 | 1.0      | EA |
| 1  | 01010       | 10-100 | 010      | 01010-1211-2  | 1.0      | EA |
| 1  | 01010       | 10-100 | 010      | 01010-1211-3  | 1.0      | EA |
| 1  | 01010       | 10-100 | 010      | 01010-1211-4  | 1.0      | EA |
| 1  | 01010       | 10-100 | 010      | 01010-1211-5  | 1.0      | EA |

QAD
QS-PR-1040

The system displays the items to be shipped for final review. Click Next and a dialog box displays asking if all information is correct.

If the information is not correct, click No and the system returns to the previous frame where you can make corrections. Click Yes to advance to the trailer frame.

## Ship Sales Order: Trailer

**Ship Sales Order: Trailer**

Sales Order Shipments X

Go To Actions Copy Print Preview

Order: 10S1002 Ship Allocated: ☐ Sold-To: 10C1003 Site:  
 Effective: 4/11/2012 Ship Picked: ☒ Pacific Health Care Systems  
 Document:

|                     |           |               |             |           |
|---------------------|-----------|---------------|-------------|-----------|
| Non-Taxable:        | 12,520.53 | Currency: USD | Line Total: | 12,500.00 |
| Taxable:            | 0.00      | 0.00%         | Discount:   | 0.00      |
| Tax Date: 4/11/2012 |           | Freight       | 20          | 20.53     |
| Containers:         | 0.00      | Freight       | 20          | 0.00      |
| Line Charges:       | 0.00      | Special       | 30          | 0.00      |
|                     |           | Total Tax:    |             | 0.00      |
|                     |           | Total:        |             | 12,520.53 |

View/Edit Tax Detail: ☐

Ship Via:  Daybook Set:   
 Ship Date: 4/11/2012 ☐  
 BOL:   
 Remarks:

**QAD** QS-PR-1050

When you exit the line-items frame, the system brings up the trailer frame for taxes, freight, or other charges that apply to the entire order.

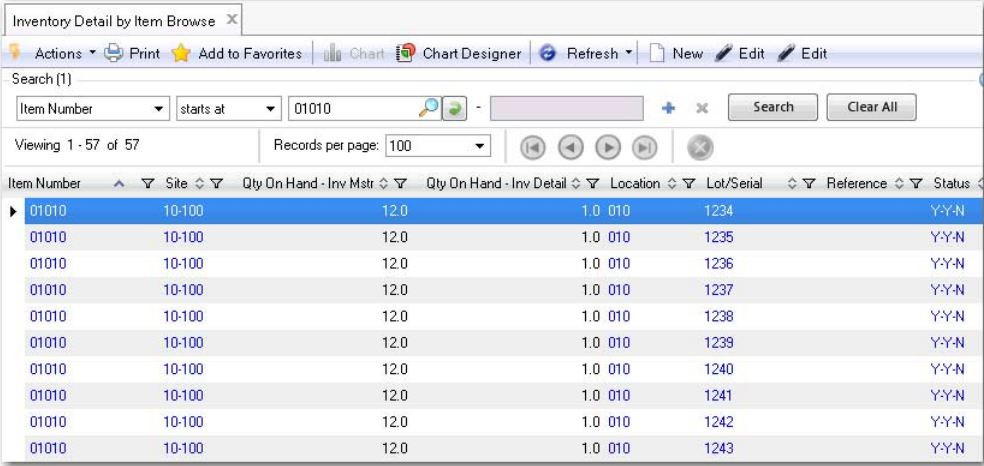
**Note** Three trailer codes can be displayed on the trailer. The codes are set up in Trailer Code Maintenance (2.19.13) where they are linked to the appropriate GL accounts. You can set up as many trailer codes as you need but only three can be displayed at a time.

In this example, you can see that a freight charge has been added to the order total.

The CSR selects Ready to Invoice and clicks Next, which completes the sales order shipment process.

## Review Inventory Detail

### Review Inventory Detail



Inventory Detail by Item Browse

Actions Print Add to Favorites Chart Chart Designer Refresh New Edit Edit

Search (1)

Item Number starts at 01010 Search Clear All

Viewing 1 - 57 of 57 Records per page: 100

| Item Number | Site   | Qty On Hand - Inv Mstr | Qty On Hand - Inv Detail | Location | Lot/Serial | Reference | Status |
|-------------|--------|------------------------|--------------------------|----------|------------|-----------|--------|
| 01010       | 10-100 | 12.0                   | 1.0                      | 010      | 1234       |           | Y-Y-N  |
| 01010       | 10-100 | 12.0                   | 1.0                      | 010      | 1235       |           | Y-Y-N  |
| 01010       | 10-100 | 12.0                   | 1.0                      | 010      | 1236       |           | Y-Y-N  |
| 01010       | 10-100 | 12.0                   | 1.0                      | 010      | 1237       |           | Y-Y-N  |
| 01010       | 10-100 | 12.0                   | 1.0                      | 010      | 1238       |           | Y-Y-N  |
| 01010       | 10-100 | 12.0                   | 1.0                      | 010      | 1239       |           | Y-Y-N  |
| 01010       | 10-100 | 12.0                   | 1.0                      | 010      | 1240       |           | Y-Y-N  |
| 01010       | 10-100 | 12.0                   | 1.0                      | 010      | 1241       |           | Y-Y-N  |
| 01010       | 10-100 | 12.0                   | 1.0                      | 010      | 1242       |           | Y-Y-N  |
| 01010       | 10-100 | 12.0                   | 1.0                      | 010      | 1243       |           | Y-Y-N  |

QAD QS-PR-1060

Use Inventory Detail by Item Browse (3.2) to see how many medical ultrasound units are remaining in inventory. This shows 12 units left in the 010 location at site 10-100.

## Transactions Detail Inquiry

### Transactions Detail Inquiry

Transactions Detail Inquiry X
Go To Actions Copy Print Preview Attach

Transaction: 197889      Display E-Signature Details: ☐      Output: [PAGE](#)

---

|                           |                                 |         |
|---------------------------|---------------------------------|---------|
| Tran Nbr: 197889          | Order: 10S1002                  | 2326385 |
| Trans Type: ISS-SO        | Revision: 1                     |         |
| Date: 4/11/2012           | Item Number: 01010              |         |
| Time: 12:08               | Description: Medical Ultrasound |         |
| Effective Date: 4/11/2012 | Unit of Measure: EA             |         |
| Remarks:                  | Address: 10C1003                |         |
| User ID: mfg              | Name: Pacific Health Care       |         |
| Program: sosois.p         | SO/Job: 10S1002                 |         |
| Currency: USD             | Ship Type:                      |         |
| Qty Change: -1.0          | Price: 2,500.00                 |         |
| Shipper Number:           | IMC:                            |         |
| Ship Date: 4/11/2012      |                                 |         |

QS-PR-1070

Transaction Detail Inquiry (3.21.1) provides information on the transaction number and type (ISS-SO), the program that created the transaction (sosois.p), the user who created this transaction, and the source of the transaction (10S10008). Other key information is shown, such as site and location and inventory data.

The most recent transaction displays by default. Notice that the Qty Change displayed is -1. Because the items shipped were serial-controlled, individual transactions were created for each item, rather than one transaction for a quantity of 5.

Click Next to review additional detail including the GL transactions.



## Transactions Detail Inquiry: GL Effects

## Transactions Detail: GL Effects

**Transactions Detail Inquiry**
04/11/12

Transaction: 197889    Display E-Signature Details: No    Output: PAGE

|                          |                                 |                          |
|--------------------------|---------------------------------|--------------------------|
| Tran Nbr: 197889         | Order: 10S1002                  | 2326385                  |
| Trans Type: ISS-SO       | Revision: 1                     |                          |
| Date: 04/11/12           | Item Number: 01010              |                          |
| Time: 12:08              | Description: Medical Ultrasound |                          |
| Effective Date: 04/11/12 | Unit of Measure: EA             |                          |
| Remarks:                 | Address: 10C1003                |                          |
| User ID: mfg             | Name: Pacific Health Care       |                          |
| Program: sosois.p        | SO/Job:                         | ISS-SO                   |
| Currency: USD            | Ship Type:                      | Debit Acct: 5300    Mech |
| Qty Change: -1.0         | Price:                          | Cr Account: 1500    Mech |
| Shipper Number:          | IMC:                            | Amount: 0.00             |
| Ship Date: 04/11/12      | GL Reference:                   | Reference ID:            |

|                                                                                                                               |                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Site: 10-100<br>Location: 010<br>Lot/Serial: 01010-1211-4<br>Inv Status: Y-Y-N<br>Supplier Lot:<br>Grade/Assay:<br>Reference: | <b>Inventory Data</b><br>Begin B:<br>Quantity C:<br>Qty<br>Begin L:<br>Loc Qty C:<br>Expir | Debit Acct: 5400    Mech<br>Cr Account: 1500    Mech<br>Amount: 0.00<br>GL Reference:<br><br>Debit Acct: 5010    Mech    ADM<br>Cr Account: 1500    Mech<br>Amount: 1,219.92<br>GL Reference: 2012/ISS-S0000000010<br><br>Debit Acct: 5100    Mech<br>Cr Account: 1500    Mech<br>Amount: 583.67<br>GL Reference: 2012/ISS-S0000000011<br><br>Debit Acct: 5200    Mech<br>Cr Account: 1500    Mech<br>Amount: 1.86<br>GL Reference: 2012/ISS-S0000000012 |
|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                            |                                                                                                      |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Cost Data</b><br>Material: 1,219.92<br>Labor: 583.67<br>Burden: 1.86157 | Reference ID: IC120411000010<br><br>Reference ID: IC120411000011<br><br>Reference ID: IC120411000012 |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|

QS-PR-1080

The GL effects of the sales order shipment are shown in the Transactions Detail Inquiry output. Notice that each of the GL transaction numbers starts with the letters IC. This indicates that these are inventory transactions. Additional transactions are generated when the invoice is posted.

## Review Pending Invoice

# Review Pending Invoice



**Pending Invoice Register**  
 10USA

04/11/12 12:23:37  
 Page:1

---

Invoice Number  
 Salespsn

Name  
 Bill To

Name  
 Sold-To

10SP01

Pacific Health Care Systems  
 10C1003

Pacific Health Care Systems  
 10C1003

---

Tax Environment: US/NJ

Tax Usage:

Sales Order: 10S1002 Ship-To: 10C1003 Pacific Health Care Systems

Order Date: 04/10/12 PO:

---

| Ln                     | Item Number                 | UM            | Sales  | Sub-Acct     | CC  | Invoiced Tax<br>Backorder TaxUsage | Price     | Extended Price | Extended Margin |
|------------------------|-----------------------------|---------------|--------|--------------|-----|------------------------------------|-----------|----------------|-----------------|
| 1                      | 01010                       | EA            | 4010   | mech         | ADM | 5.0 no<br>0.0                      | 2,500.00  | 12,500.00      | 3,472.74        |
|                        | Medical Ultrasound          |               |        |              |     |                                    |           |                |                 |
|                        | Lot/Serial Numbers Shipped: | Qty           | Expire | Reference    |     |                                    |           |                |                 |
|                        | 01010-1211-12               | 1.0           |        |              |     |                                    |           |                |                 |
|                        | 01010-1211-2                | 1.0           |        |              |     |                                    |           |                |                 |
|                        | 01010-1211-3                | 1.0           |        |              |     |                                    |           |                |                 |
|                        | 01010-1211-4                | 1.0           |        |              |     |                                    |           |                |                 |
|                        | 01010-1211-5                | 1.0           |        |              |     |                                    |           |                |                 |
| Non-Taxable: 12,520.53 |                             | Currency: USD |        | Line Total:  |     | 12,500.00                          |           |                |                 |
| Taxable: 0.00          |                             | 0.00%         |        | Discount:    |     | 0.00                               |           |                |                 |
| Tax Date: 04/11/12     |                             |               |        | Freight 20 : |     | 20.53                              |           |                |                 |
| Containers: 0.00       |                             |               |        | Freight 30 : |     | 0.00                               |           |                |                 |
| Line Charges: 0.00     |                             |               |        | Special 30 : |     | 0.00                               |           |                |                 |
|                        |                             |               |        | Total Tax:   |     | 0.00                               |           |                |                 |
|                        |                             |               |        | Total:       |     | 12,520.53                          |           |                |                 |
| USD Report Totals:     |                             |               |        |              |     | 12,520.53                          | 12,500.00 | 3,472.74       |                 |


QS-PR-1090

Shipping a sales order automatically generates the information required for an invoice, referred to as a pending invoice.

Use Pending Invoice Register (7.13.2) to produce a list of pending invoices, based on selection criteria such as a range of sales orders, ship-to addresses, bill-to addresses, or ship dates. This list shows the detail of what will appear on the invoice.

This example shows the pending invoice for the sales order just shipped. Notice that the invoice number in the listing is blank. That is because it is assigned when the invoice is posted and printed.

You can use Preview Invoice Print (7.13.3) to see an exact image—with the exception of a blank invoice number—of what the printed copy of the invoice will look like when you print and send a document to the customer.

### Additional Notes

The Extended Margin of 11,303.76, is the unit margin multiplied by the quantity shipped ( $2260.752 \times 5$  units shipped). The unit margin (2260.752) is the price (2500.00) less manufacturing cost (239.248).

The invoice total of 12,520.53 is calculated by multiplying the price per medical ultrasound (2500.00) by the total quantity (5) and adding the freight and trailer charges, if any.

## Invoice Post and Print

The company's customer service supervisor or Accounts Receivable (AR) administrator uses Invoice Post and Print (7.13.4) to produce an actual invoice from the pending invoice and post the transaction to the general ledger. The invoice number is assigned by the print function. The

first frame of the selection screen lets you select sales orders by the usual range of values. Be sure to check the Print Invoice box when you are ready to print hard-copy invoices. Several other frames display additional print options.

Notice the two printer choices for the two types of output from this function:

- The invoice post output is a report that could be sent to a printer with normal paper in the AR department.
- The invoice print output (the actual invoices) could be sent to a printer with letterhead or preprinted invoice paper.

You can also choose Page to direct the output to your monitor.

## Invoice Post and Print Sample



**Invoice Post and Print**  
**10USA**

04/11/12 12:41:36  
**Page:1**

Sales Journal Reference: 2012/CINV000000001    AR Batch: 653

| Invoice Number     | Bill To Name                        | Sold-To Name                        | Slspn  |
|--------------------|-------------------------------------|-------------------------------------|--------|
| 2012/CINV000000001 | 10C1003 Pacific Health Care Systems | 10C1003 Pacific Health Care Systems | 10SP01 |

Sales Order: 10S1002    Ship-To: 10C1003 Pacific Health Care Systems    Order Date: 04/10/12    PO:

| Ln | Item Number              | UM | Sales | Sub-Acct | CC  | Invoiced Backorder | Tax | Price    | Extended Price | Extended Margin |
|----|--------------------------|----|-------|----------|-----|--------------------|-----|----------|----------------|-----------------|
| 1  | 01010 Medical Ultrasound | EA | 4010  | mech     | ADM | 5.0<br>0.0         | No  | 2,500.00 | 12,500.00      | 3,472.74        |

Non-Taxable: 12,520.53  
 Taxable: 0.00  
 Tax Date: 04/11/12  
 Containers: 0.00  
 Line Charges: 0.00

Currency: USD  
 0.00% Discount: 0.00  
 Freight 20 : 20.53  
 Freight 20 : 0.00  
 Special 30 : 0.00  
 Total Tax: 0.00  
 Total: 12,520.53



**Invoice Post and Print**  
**10USA**

04/11/12 12:41:36  
**Page:2**

Sales Journal Reference: 2012/CINV000000001    AR Batch: 653

|         |      |       |     | Consolidated Dr | Consolidated Cr |                                      |
|---------|------|-------|-----|-----------------|-----------------|--------------------------------------|
| 10USACO | 1300 | Gserv |     | 04/11/12        | 12,520.53       | .00 Invoice 2012/CINV000000001       |
| 10USACO | 4010 | mech  | ADM | 04/11/12        | .00             | 12,500.00 Invoice 2012/CINV000000001 |
| 10USACO | 4691 |       |     | 04/11/12        | .00             | 20.53 Invoice 2012/CINV000000001     |
|         |      |       |     |                 | 12,520.53       | 12,520.53                            |
|         |      |       |     |                 | 12,520.53       | 12,520.53                            |


QS-PR-1130

The output of the invoice post transaction is shown here. Note the invoice number has now been assigned by the system based on criteria set up in the finance system.

The other details in this output are the same as those displayed in the pending invoice register.

If you print the invoice, it will look the same as the draft invoice seen earlier, but with the invoice number added.

## Invoice Print or Reprint

## Invoice Print or Reprint

QMI -USA Division  
30 Ridgedale Avenue  
East Hanover, NJ 07950

USA - TAX PURPOSE

Bill To: 10C1003  
Pacific Health Care Systems  
600 Calle de Los Caminos  
Los Angeles, CA 90212  
USA - TAX PURPOSE

Sales Order: 10S1002  
Order Date: 04/10/12  
Salesperson(s): 10SP01

Credit Terms: 2M  
2 months after month end of invoice date

Resale:  
Remarks:

**I N V O I C E**

Invoice: 2012/CINV000000001

Revision: 1  
Page: 1

Invoice Date: 04/11/12  
Print Date: 04/11/12

Sold To: 10C1003  
Pacific Health Care Systems  
600 Calle de Los Caminos  
Los Angeles, CA 90212  
USA - TAX PURPOSE

Ship Date: 04/11/12  
Purchase Order:  
Ship To: 10C1003  
Ship Via: FEDX  
BOL:  
FOB Point:

| Item Number        | UM | Shipped | Qty B/O Tax | Price    | Extended Price |
|--------------------|----|---------|-------------|----------|----------------|
| 01010              | EA | 5.0     | 0.0 No      | 2,500.00 | 12,500.00      |
| Medical Ultrasound |    |         |             |          |                |

\* \* \* D U P L I C A T E \* \* \*

|                        |               |                          |           |
|------------------------|---------------|--------------------------|-----------|
| Non-Taxable: 12,520.53 | Currency: USD | Line Total:              | 12,500.00 |
| Taxable: 0.00          | 0.00%         | Discount:                | 0.00      |
| Tax Date: 04/11/12     |               | Freight 20 :             | 20.53     |
| Containers: 0.00       |               | Freight 20 :             | 0.00      |
| Line Charges: 0.00     |               | Special 30 :             | 0.00      |
|                        |               | Total Tax:               | 0.00      |
|                        |               | Rounding Trailer Amount: | 0.00      |
|                        |               | Total:                   | 12,520.53 |

QS-PR-1135

**Note** The invoice format used by Invoice Print or Reprint (7.13.12) shown here is the standard provided with the system. Most companies create a custom format or use preprinted forms with the company logo or letterhead.

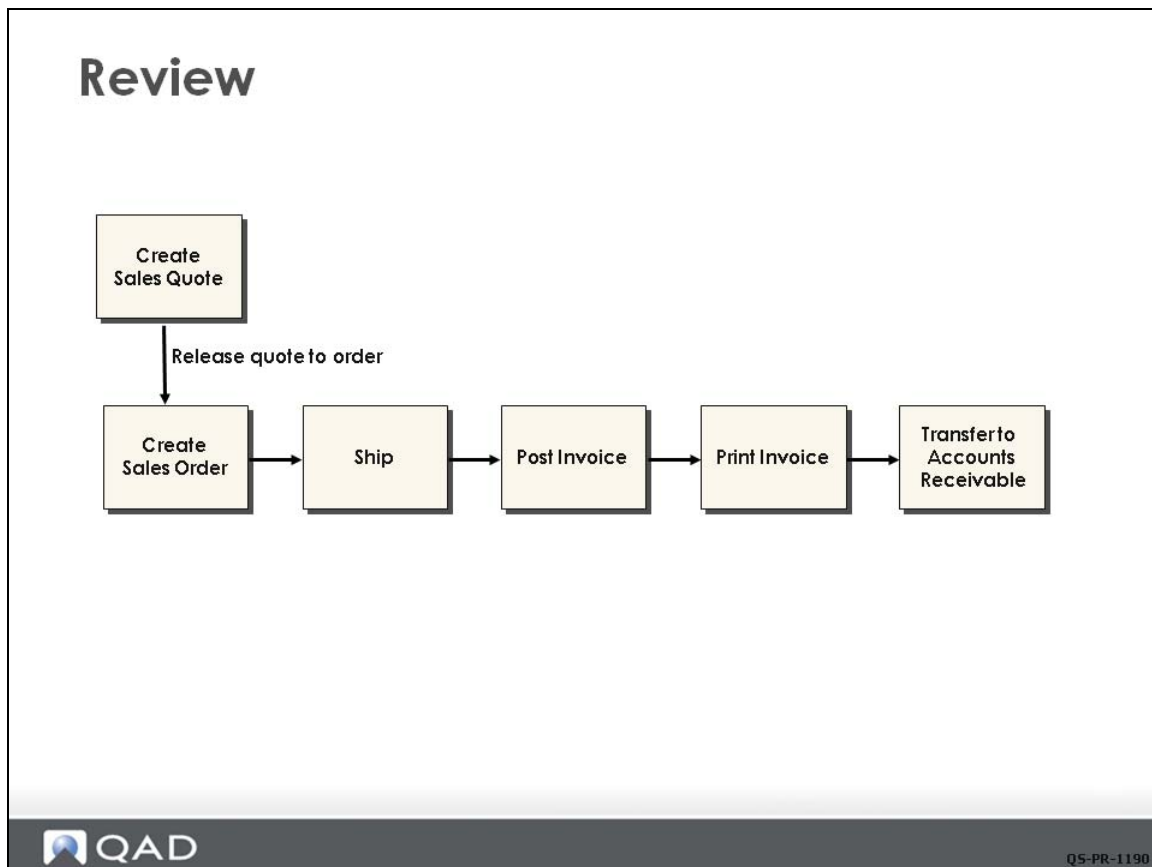
Since the invoice for the sales order in this example was already printed during invoice post, the system adds the comment DUPLICATE to this printed version.

Posting the invoice has these effects:

- Generates transactions in the Accounts Receivable module and updates the customer's open account balance
- Updates GL account balances for Sales and AR
- Updates salesperson quota and commission history
- Updates sales tax journals
- Updates sales analysis history

At this point responsibility for the collection of the payment is transferred to Accounts Receivable.

## Review



This chapter showed how a sales order records the customer's intent to buy, listing the items, quantities, price, sales tax, and other charges, and the shipping destination. For Accounts Receivable purposes, the order also records the remit-to address, credit terms, and whether the customer is approved for shipment.

Once the customer order is shipped, a sales invoice is generated. In QAD EE, an order that is marked as ready for invoicing is called a pending invoice. The invoice communicates the customer's obligation to pay and is sent to the bill-to address on the sales order. Usually, the pending invoice register is reviewed and corrections are made before the invoices are posted and then printed and sent to customers. Invoices are posted on a regular basis.

## Exercise 8

In the following exercise, you:

- Review a customer record.
- Modify Sales Order Control.
- Add a sales order record.
- Print a packing list and ship the sales order.
- Review customer balance.
- Post and review the invoice.

### Review a Customer Record

- 1 Use Customer Data Maintenance (2.1.1) to review the customer record for Pacific Health Care Systems (10C1003).

Information entered includes site code (10-100) and credit terms of 2M.

### Modify Sales Order Control

- 2 Use Sales Order Control (7.1.24) and set the following fields:

| Field                       | Data           |
|-----------------------------|----------------|
| <b>Found in First Frame</b> |                |
| Detail Allocations          | No (unchecked) |
| Sales Order Header Comments | No (unchecked) |
| Sales Order Line Comments   | No (unchecked) |
| Line Format                 | Single         |
| Sales Order Prefix          | System Default |
| Next Sales Order Number     | System Default |
| Integrate with SA           | Yes (checked)  |
| Integrate with TrM          | No (unchecked) |
| Confirmed Orders            | Yes (checked)  |
| <b>Found in Third Frame</b> |                |
| SO Edit ISB Defaults        | No (unchecked) |

Accept other defaults.

Click Next to save changes.

### Add a Sales Order Record

- 3 Use Sales Order Maintenance (7.1.1) to add a sales order.

Header information:

| Field  | Data                                 |
|--------|--------------------------------------|
| Order  | <blank>; click Next                  |
| Order: | Record the number for your reference |

| Field               | Data                               |
|---------------------|------------------------------------|
| Sold-To             | 10C1003; click Next                |
| Bill-To and Ship-To | Use default; click Next            |
| Order Date          | Default, today's date              |
| Credit Terms        | 2M (defaults from customer record) |
| Site                | 10-100                             |

Accept remaining default values.

Line 1 information:

| Field            | Data                                 |
|------------------|--------------------------------------|
| Item             | 01010                                |
| Site             | 10-100 (defaults from header)        |
| Quantity Ordered | 5                                    |
| List Price       | 2,500.00 (defaults from item master) |

Accept remaining default values and click Next through the several frames. Continue to click Next and respond Yes when prompted to confirm update.

The system is now ready for you to enter information for line 2. You are not entering a second line. Click End Lines then click Trailer.

Trailer information:

| Field             | Data |
|-------------------|------|
| Print Sales Order | Yes  |

Accept remaining default values.

- 4 Use Sales Order Print (7.1.3). Enter your sales order number in the Sales Order and To fields and direct the output to Page. Review your sales order. Is this what you expect?

### Print a Packing List and Ship the Sales Order

- 5 Use Sales Order Packing List (7.9.13) to print a packing list for your sales order. Select Update.

- 6 Use Sales Order Shipments (7.9.15) to record the shipment of the sales order.

When Ship Picked is Yes, the system automatically updates the quantity to ship. You can then modify the quantity that is actually being shipped and the location from where the items were taken.

| Field    | Data   |
|----------|--------|
| Line     | 1      |
| Quantity | 5      |
| Site     | 10-100 |
| Loc      | 010    |

Confirm that all information is correct.

- Respond Yes when prompted: Display sales order lines being shipped?
- Respond Yes when prompted: Is all information correct?



| Field            | Data |
|------------------|------|
| Ready to Invoice | Yes  |

Click Next until the Order field is highlighted, click Back.

- 7 Use Inventory Detail by Item Browse (3.2) to review your inventory. You should see that the inventory has decreased by the amount of the shipment.
- 8 Use Transactions Detail Inquiry (3.21.1) to review the inventory transaction and see which accounts were credited and debited when you shipped the sales order.

### Review Pending Invoices and Print an Invoice for the Shipment

- 9 Use Pending Invoice Register (7.13.2) to review the pending invoices outstanding.  
This report displays invoices that have not yet been printed and posted. You can also change the selection criteria to show invoices that have printed but not yet posted.
- 10 Use Preview Invoice Print (7.13.3) to review the invoice for your sales order.  
Direct the output to Page. This will let you review the invoice without actually printing a hard-copy document that is normally sent to your customer.

### Post the Invoice to Accounts Receivable

- 11 Post the invoice using Invoice Post and Print (7.13.4), updating the customer account balance, generating unposted GL transactions, debiting Sales, and updating sales and invoice history.

| Field                    | Data |
|--------------------------|------|
| Print Invoice            | Yes  |
| Print Lot/Serial Numbers | Yes  |

### Review a Customer Account (Optional)

To view the updated customer balance in the AR module may require some setup:

- The balance daemon must be running. This is a background process that monitors operational transactions that affect customer balances and updates them in the financial records. You can start it using Balance Daemon Start (36.14.16.2.4) in the System Administration menu.
  - The Crystal Reports runtime must be installed on your computer. If it is not, you will be prompted to install it before the report runs.
- 12 Use Customer Account Activity Report (27.17.3) to see the customer's (10C1003) open account balance.

Notice the type is I for invoice and the reference is the invoice number.



# Planning

This chapter provides a in-depth picture of the end-to-end planning process, from plan to perform, and shows how the concepts introduced in the previous chapters are all used together.

*Overview*

*Key Concepts*

*Example*

*Exercise 9*

*Exercise 10*

## Overview



Planning ensures the timely, efficient and economic movement of material to the marketplace. Material is probably the most visible element that is planned, but material plans need to be linked to plans for sales, manufacturing, and distribution operations, personnel, plant and equipment. When they are linked, all of these planning elements contribute to the balancing of supply, demand, and resources. This chapter reviews the interaction of some of these planning elements in the Example section, especially those among purchasing, manufacturing, and sales.

## Chapter Topics

First, the primary components of the planning system are introduced in the Key Concepts section.

- Key Concepts
  - Production Planning
  - Forecasting
  - Master Schedule
  - MRP and Action Messages
  - Item Planning Parameters
  - Planned Orders
- Example
  - Enter Forecast

Process Sales Order

Regenerate MRP

Process Purchase Order (approve planned orders)

Process Work Order (approve planned orders)

Post Transactions

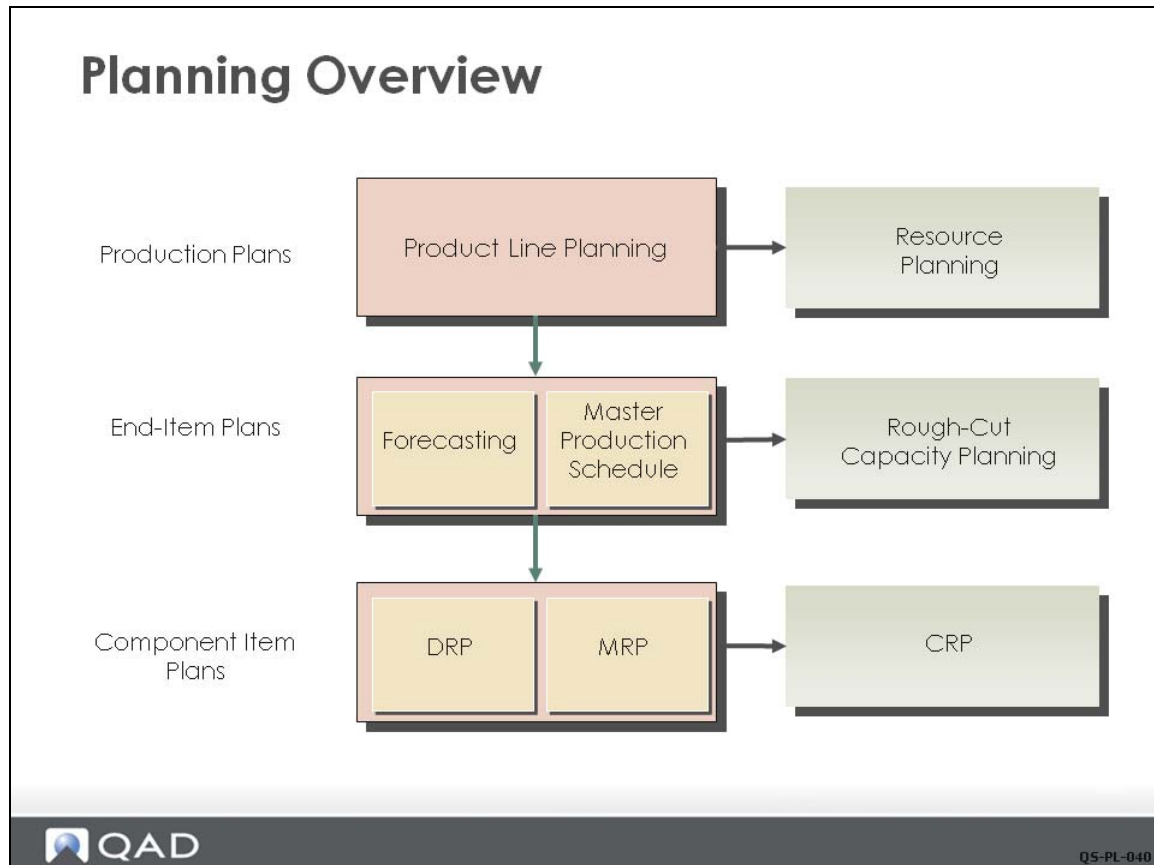
- Review
- Exercise

## Learning Objectives

**When you finish this chapter, you should be able to:**

- Provide examples of production plans, end-item plans, and component-item plans.
- Name the key input to the Master Schedule.
- Explain forecast consumption.
- Describe forward and backward consumption.
- Define the term Time Fence.
- Explain how Order Policy and Order Period are related.
- Enter a forecast.
- Read Master Schedule Summary and Detail Inquiries.
- Read MRP Summary and Detail Inquiries.
- Approve planned purchase and work orders.

## Key Concepts



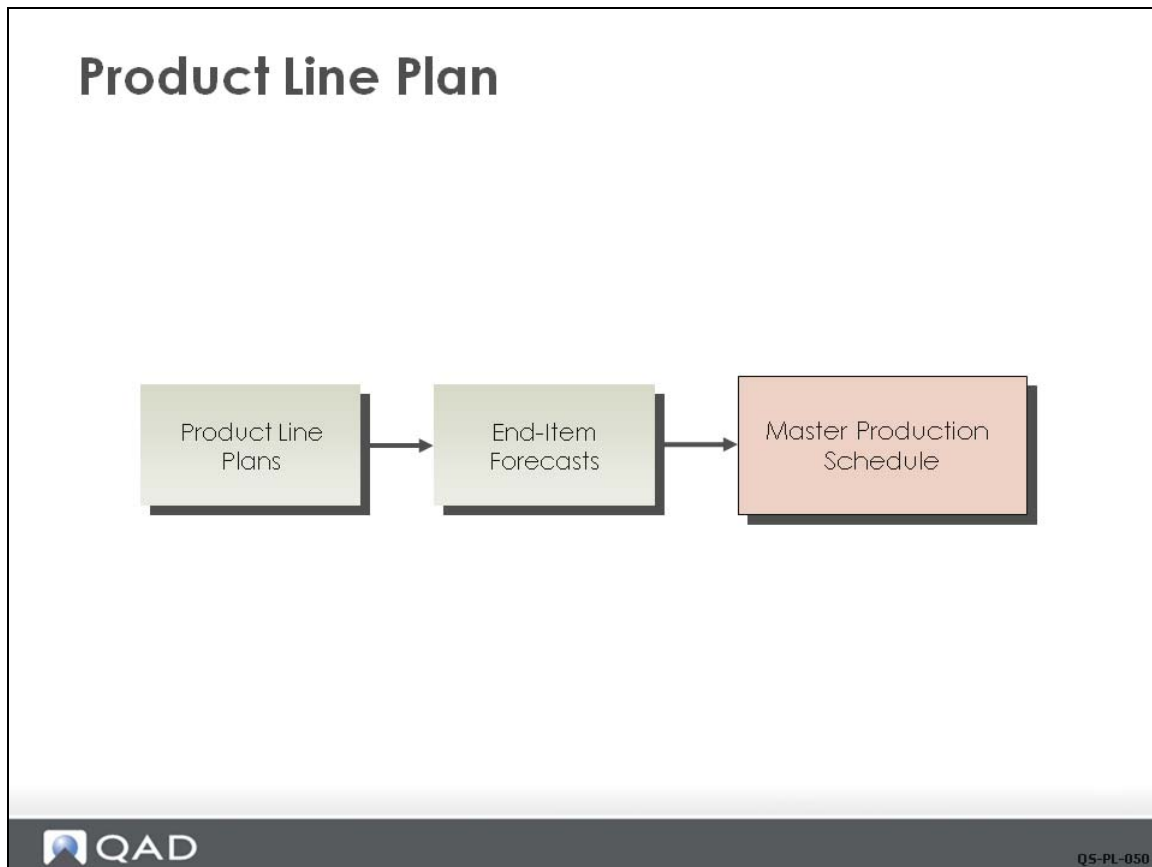
Within a corporation, planning is done at many levels by many different people. QAD EE provides an integrated set of planning tools that are useful at most of these levels. The primary components of the planning system are production planning, end-item planning, and component item planning.

**Production Planning.** At this level, product line planning functions are used to balance sales forecasts, production forecasts, and income forecasts for an entire product line, while meeting the profit goals established in the strategic plan. Often, these plans are created by different people and product line planning brings them together. Resource planning is used to determine whether you have the resources to meet the plans.

**End-Item Planning.** Once established, the product line plan is broken down into individual item forecasts. Both actual and forecast demands are reviewed by the Master Scheduler, who sets production levels in response to these demands. Rough-Cut Capacity Planning (RCCP) determines whether you have enough critical resources to meet the master schedule.

**Component Item Planning.** Material Requirements Planning (MRP) and Distribution Requirements Planning (DRP) both calculate the quantity of raw materials and components needed to support the master schedule. DRP generates planned orders for items to be transferred from another site. MRP generates planned orders for purchased and manufactured items. Capacity Requirements Planning (CRP) determines fairly precisely how this plan loads production resources at your site.

## Production Planning: Product Line Plan

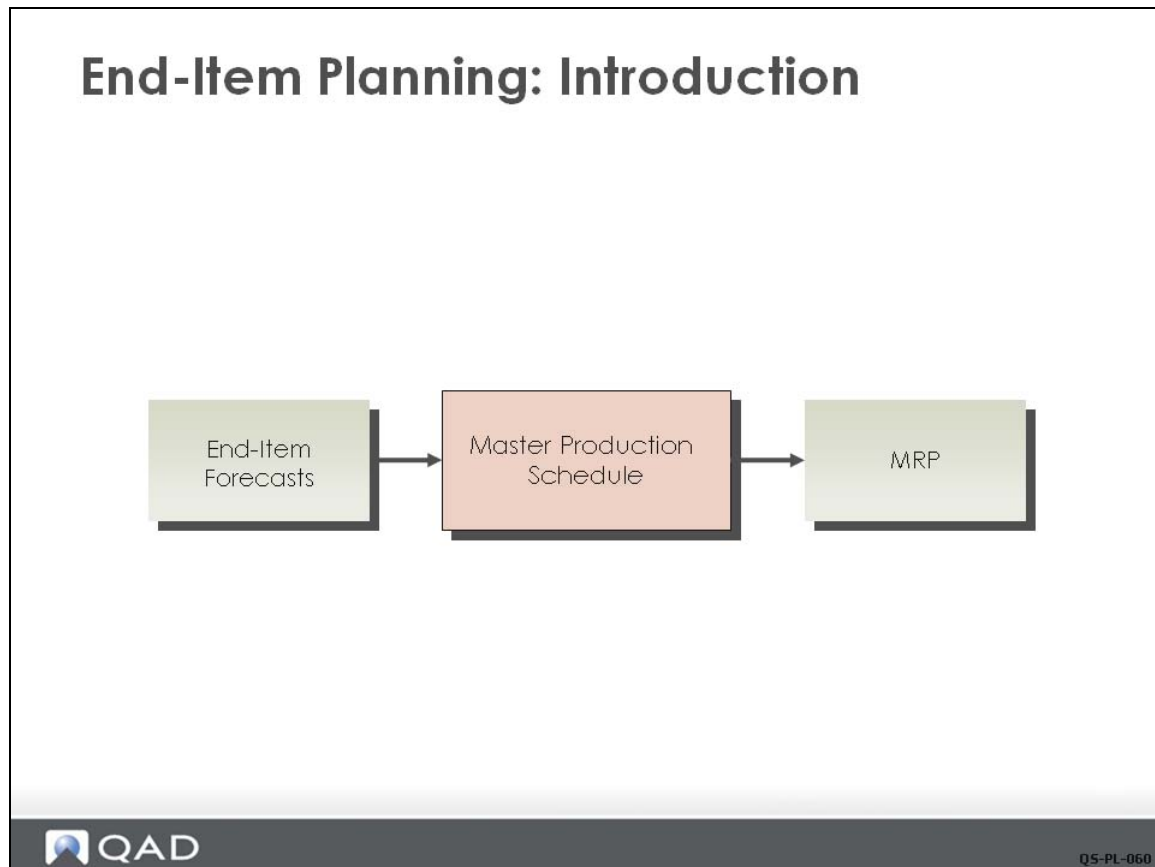


Product line plans generally cover 1 to 3 years, usually shown by months or quarters. They are composed of aggregate forecasts that are converted into end-item forecasts. These detailed forecasts provide input that the master scheduler uses to create a statement of production.

The purpose of a product line plan is to:

- Aggregate forecasts.
- Establish aggregate production goals (aligned to corporate goals).
- Plan efficient and cost effective use of production resources, such as machines and manpower.
- Outline the level of planned manufacturing output and its cost.
- Provide input to a master schedule and rough-cut capacity plan.
- Balance sales forecasts, production forecasts, and income forecasts for an entire product line.
- Determine whether there are enough resources, in aggregate, to meet the plan.

## End-Item Planning: Introduction



In QAD EE, end-item planning is done in the Forecast/Master Plan module. It begins with the master scheduler, who estimates the demand for a product and determine how many to produce. The planning horizon should be at least as long as the longest cumulative lead time in the system. Many companies like to plan and forecast 12 to 18 months into the future to ensure adequate resource planning and coverage for seasonal products.

**Inputs.** The primary inputs to the master scheduling process are actual and forecast demands. Forecast demands are derived from the product line plans but are much more detailed. Unlike product line plans, which express forecasts in terms of thousands of dollars of production for a complete line of items by month, forecasts are expressed in terms of quantities for a specific item and site by week. Products subject to seasonal demand can have forecasts that fluctuate widely from week to week. Seasonal build schedules are used to smooth these requirements, increasing production in advance of anticipated spikes in demand.

**Output.** The output of the master scheduling process is a detailed plan of the number of end items and the schedule for their production. The check on this plan is the availability of critical resources. If you want to make 50 items next week but your fabricator only makes 25 in a week, you cannot fulfill the plan. Detailed resource planning is done at this stage, looking at the actual schedule and its demands on resources as specified in item resource bills. In many cases, only bottleneck resources are reviewed.



## End-Item Planning: Forecasting



The forecast is an estimate of future demand for an item at a particular site, stated in terms of quantity per week. It is the starting point for developing an executable plan. In QAD EE, this is a shipment forecast, or the quantity of an item to be shipped (not ordered) that week. Forecasts are normally entered for items subject to independent demand, from sales orders or spares. Dependent demand—for components and raw materials—is calculated from this.

The system keeps a running total of the actual quantity to be shipped each week, determined by the due date on the sales order line item or customer schedule.

In summary, forecasts:

- Estimate future demand for an item
- Are typically a sales function
- Can be an integral part of master scheduling
- Represent one point of input to the master schedule

Source of independent demand can be created for any item, but is usually created for:

- End items
- Critical subassemblies
- Service parts

## Terminology

### Abnormal Sales Demand

Some sales order demand cannot be anticipated by the forecast and is considered abnormal sales demand. This demand could be generated by major new accounts or windfall orders, such as orders for roofing materials after a hurricane. Since abnormal sales demand was not anticipated by the forecast, it should not consume the forecast. This effectively adds abnormal sales order demand directly on top of the net forecast. A sales order demand is classified as abnormal by using the Consume Forecast option in Sales Order Maintenance.

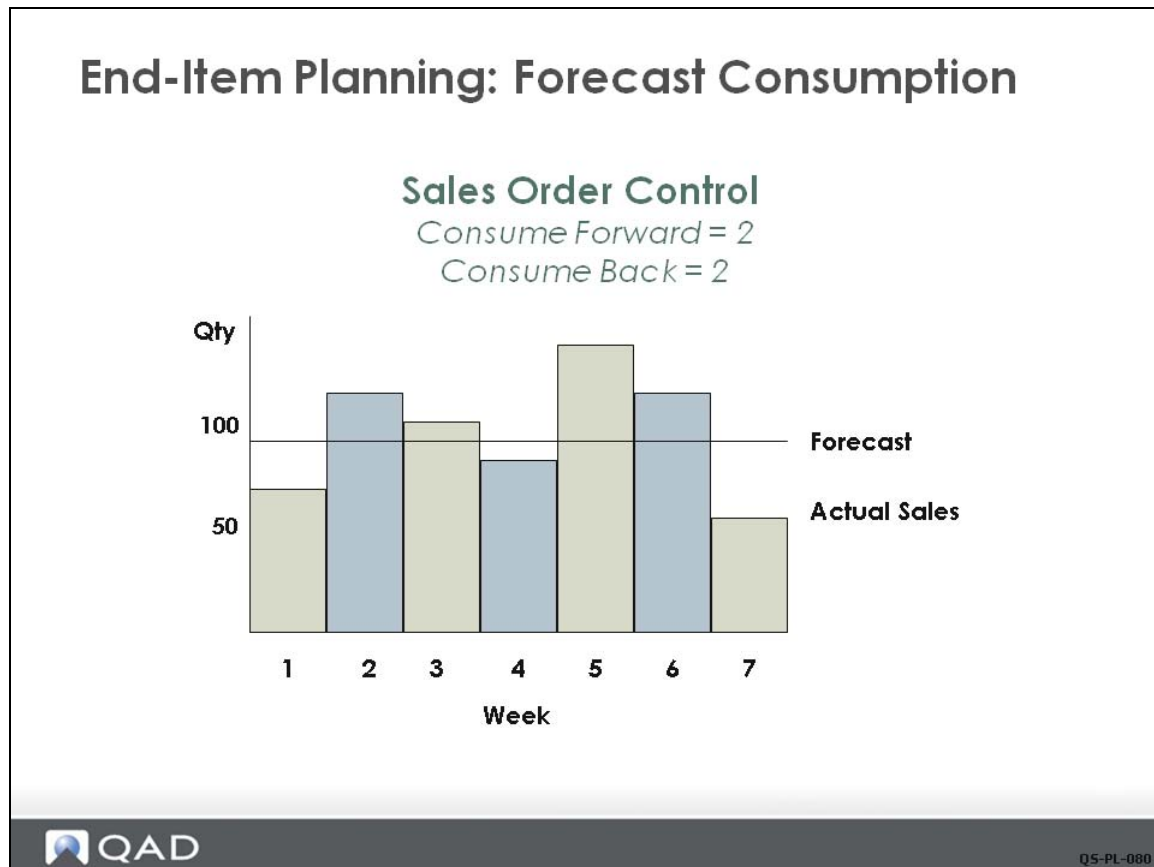
### Net Forecast

Net (remaining) Forecast is the amount of the forecast not sold in any given week. MRP always plans to make enough product to match actual orders (regular sales and abnormal), but it also plans production to satisfy any remaining forecast, since orders for this amount may still be expected.

### Production Forecast

Production Forecast is calculated by the system based on the forecast of sales of another product. For example, sales of disk drives are based on the forecast of computer sales. These are also planned by MRP.

## End-Item Planning: Forecast Consumption



Incoming sales orders and scheduled customer deliveries are netted against the forecast. The net (remaining) forecast is calculated as the original forecast less quantity sold (except abnormal sales). Planning sees total demand as actual sales (normal and abnormal), net forecast, and production forecast.

### Forecast Consumption

The process of netting sales order quantities from the forecast is called forecast consumption.

As a rule, forecasts are more accurate in the long term rather than the short term. Since forecasts are entered for one-week periods, actual shipments seldom correspond to the forecast for a single one-week period. Shipments may be predicted with more accuracy over a month or a quarter.

### Consume Forward/Backward

One method of managing this type of fluctuation is to expand the forecast window by using forward and backward consumption. As you would expect, when sales orders are booked, they consume the forecast in the week they are due. But if there is no unconsumed forecast in that week, the system looks at a specified number of weeks before and /or after it to check for unconsumed forecast. This method recognizes that unsold forecast may exist in other weeks that should be consumed.

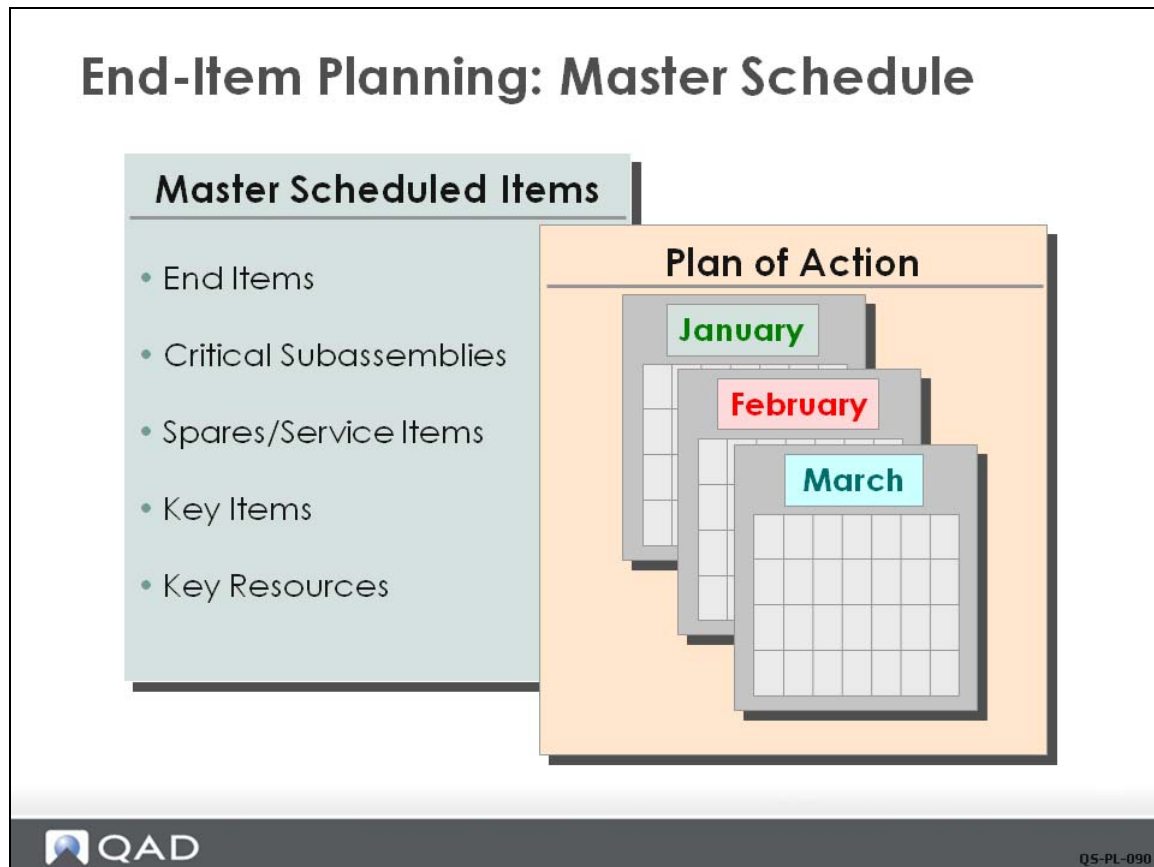
The rules for forecast consumption are set up in Sales Order Control.

Forecasts are often done by month (as in Forecast Simulation), then arithmetically spread to weeks.

- Using a forecast consumption value of forward one week and backward two weeks, plus the current week a sales order is booked in, gives a four week period for the actual sales to equal the original month forecast.
- Forward two weeks and backward one week, or backward three weeks and forward none, gives the same effect.

Most companies would choose to consume unconsumed forecast from prior periods before taking consumption from future periods.

## End-Item Planning: Master Schedule



Developed by site and item, a master schedule is the key plan that provides primary input to MRP. A master schedule is a statement of production determining which items to schedule, when orders are needed, and how much to produce.

Master scheduling can be done to anticipate sales as entered in the system and control production when no sales orders are used (in inventory replenishment or build-to-stock environments, for example).

Using master scheduling and MRP is an effective method to set production levels in response to actual and forecast demand (over a period roughly equivalent to the cumulative lead time), and determine in a rough way (RCCP) whether critical resources will constrain supply.

The master scheduler drives the entire production resource of a site. Producing the master schedule requires manpower, materials, manufacturing capability (capacity), cash flow, and management resources. As such the master schedule process should be controlled by internal procedures with top-level management commitment.

### Rough-Cut Capacity Planning (RCCP)

The rough-cut capacity plan provides a tool for:

- Careful evaluation of changes to the master schedule and their impact on material and capacity.
- Rough evaluation of potential capacity problems.

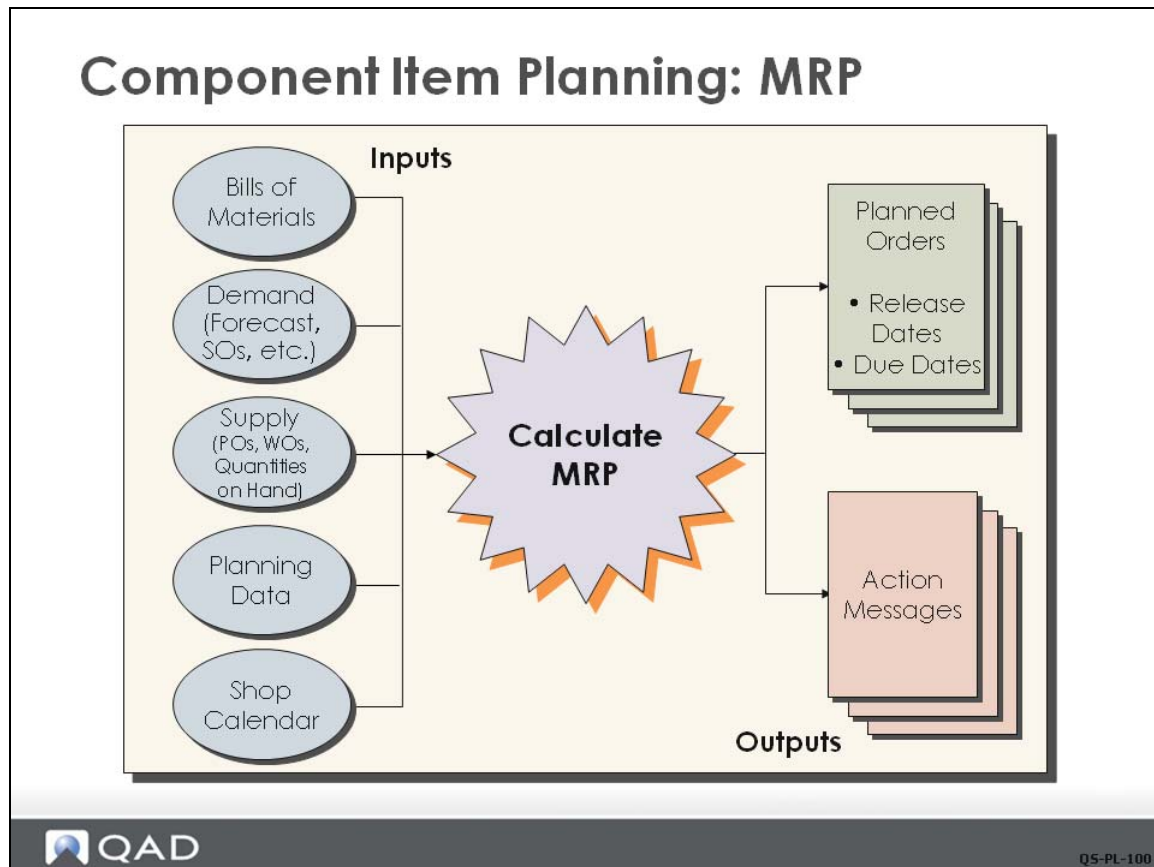
- Proper balancing of customer needs and manufacturing needs.
- Effective stabilization of MRP.

Normal uses of a master schedule include driving RCCP and MRP and planning future production.

The production plan is broken down into buildable units with specific dates for completion. The production plan will be met if the master schedule is developed to support it.

RCCP provides a high-level planning process for key resources that may constrain the execution of the manufacturing plan.

## Component Item Planning: MRP



The master schedule is a detailed schedule of production, but production can be achieved only if the component materials are available.

MRP and DRP explode the master schedule to calculate the demand for components based on the bill of materials (BOM). These components can be purchased, manufactured, or acquired internally from another site.

### MRP Inputs

- Sources of demand (forecast, production forecast, sales orders, gross requirements, seasonal build, safety stock)
- Sources of supply (nettable quantity on hand, purchase orders, work orders, repetitive schedules, quality orders)
- Item planning data, lead times, order policy, whether the item is manufactured or purchased
- Product structures/formulas
- Shop calendar

### MRP Outputs

The primary outputs of MRP are planned orders and action messages. Within the time fence, you just get action messages. Planned orders are generated outside of the item's time fence. Usually the planner reviews and approves MRP planned orders as either work orders or requisitions.

In summary, MRP is a time-phased priority planning system that calculates material requirements using product structures, inventory status, the master schedule, and open order dates.

Supply is scheduled and rescheduled to meet changing demand and maintain valid due dates

### MRP Options

The material requirements plan can be created using either net change, regenerative or selective methods.

*Net Change.* Net change MRP replans items for all selected sites that have changed since the last MRP run. The primary advantage of net change MRP is that it often takes less time to process than regenerative. A net change MRP run processed after correctly acting on action messages should yield the same result as a regenerative MRP.

*Regenerative MRP.* Regenerative MRP creates a completely new material plan for all selected sites starting at the top level, exploding new requirements, and continuing to lower-level components. (Remember each site is a separate MRP plan. Only DRP passes requirements between sites.) One advantage of regenerative MRP is that it guarantees that all plans are in complete synchronization and that all due dates are valid.

*Selective MRP.* Selective MRP is a special case situation and processes a limited set of user defined items, and could be used for what-if analysis.

### Capacity Requirements Planning (CRP)

MRP component planning is checked against the capacity requirements plan (CRP). CRP determines how much labor and how many machine resources are required for production, and it calculates workload for a department, work center, or machine. It is used for short to medium-range capacity management to determine and provide the resources required to meet MRP's detailed item schedules.

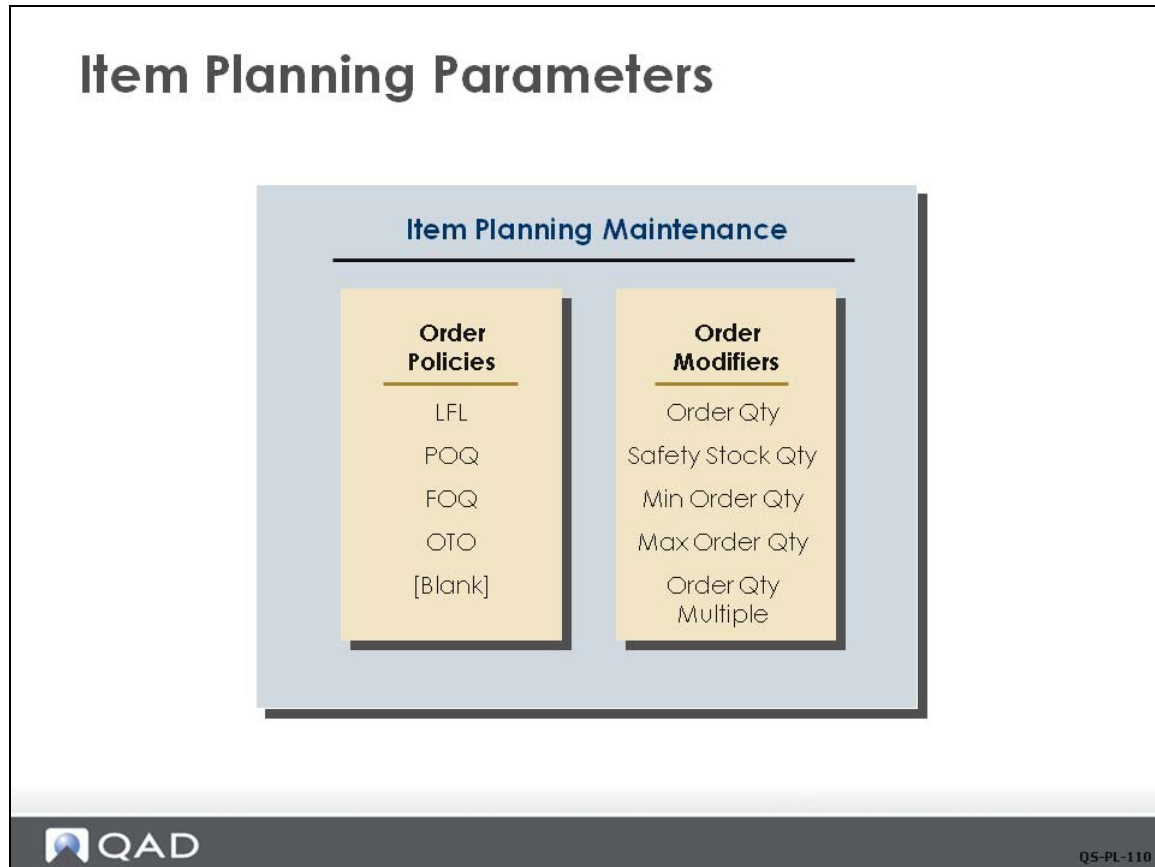
### Time Fence

Time fence is a policy or guideline established to note where various restrictions for changes in operating procedures take place. For example, changes to the master schedule can be accomplished easily beyond the cumulative lead time, while changes inside the cumulative lead time become increasingly more difficult (to a point where changes should be resisted). Time fences can be used to define these points.

A time fence is expressed in days and is defined in Item Planning Data Maintenance (1.4.7) or Item Site Planning Data Maintenance (1.4.17). It tells the system not to change any planned orders within that number of days, but instead to provide action messages telling the planner what the system suggests be done.



## Component Item Planning: Item Planning Parameters



QAD uses item planning parameters to determine how items are planned by MRP. General item planning parameters can be defined in either Item Master Maintenance (1.4.1) or Item Planning Maintenance (1.4.7). Site-specific parameters are entered in Item-Site Planning Maintenance (1.4.17). Any parameters not entered in Item-Site Planning Maintenance default from Item Master Maintenance or Item Planning Maintenance.

### Order Policies

Order policy determines the rules for planning orders. Order policies are used together with order modifiers to determine order quantities. There are four types of policies:

**Lot for Lot (LFL).** A lot sizing technique where MRP plans a separate supply order for each demand order. For example, sales orders exist for the same item with quantities of 5, 10, 15, and 20. MRP will plan four orders for 5, 10, 15, and 20 units.

**Period Order Quantity (POQ).** A lot sizing technique where lot size is equal to net requirements for a given time period expressed in days (Order Period field); for example, a 30-day order period would create one planned order for all requirements for the next 30 days. The calculation of the period does not begin until the first statement of demand. For example, if MRP is run today for an item with a 30-day period but the first demand order is five days in the future, the system then counts 30 days from five days from now to create the 30-day period bucket.

*Fixed Order Quantity (FOQ).* A demand rate lot sizing rule where a fixed quantity (Order Quantity field) must be ordered. For example FOQ is 100 and demand is 105. MRP will plan two orders for 100.

*One Time Only (OTO)* . A lot-sizing technique that produces an order only once, based on the due date of the first item required. This is typically used for projects such as creating an engineering drawing that occur only once in the manufacturing of a product.

*Order Policy Blank.* A blank order policy is used to prevent MRP from planning an item.

**Note** An order policy that is not recognized by the system (EOQ for example) defaults to LFL.

Two other parameters are used with order policy:

*Order Quantity.* This specified quantity is used in conjunction with the Fixed Order Quantity (FOQ) order policy. It is also used for all item cost and lead time calculations as the standard order quantity.

*Safety Stock Quantity.* This specified quantity is used as inventory reserve to compensate for unexpected demand and to maintain desired service levels. This applies to all order policies, including a blank.

## Order Modifiers

Order modifiers change planned order quantities. Minimum, maximum and multiple are order modifiers.

*Minimum Order Quantity.* This is the smallest order quantity that will be planned. Minimum quantities should only be used with items that have continuing demand, since the minimum order quantity could exceed the actual current demand. Items that have decimal demand values from yield or scrap calculations can be forced to whole numbers by setting this to 1 or to any whole number. Often the minimum quantity is a vendor-required minimum for purchased items.

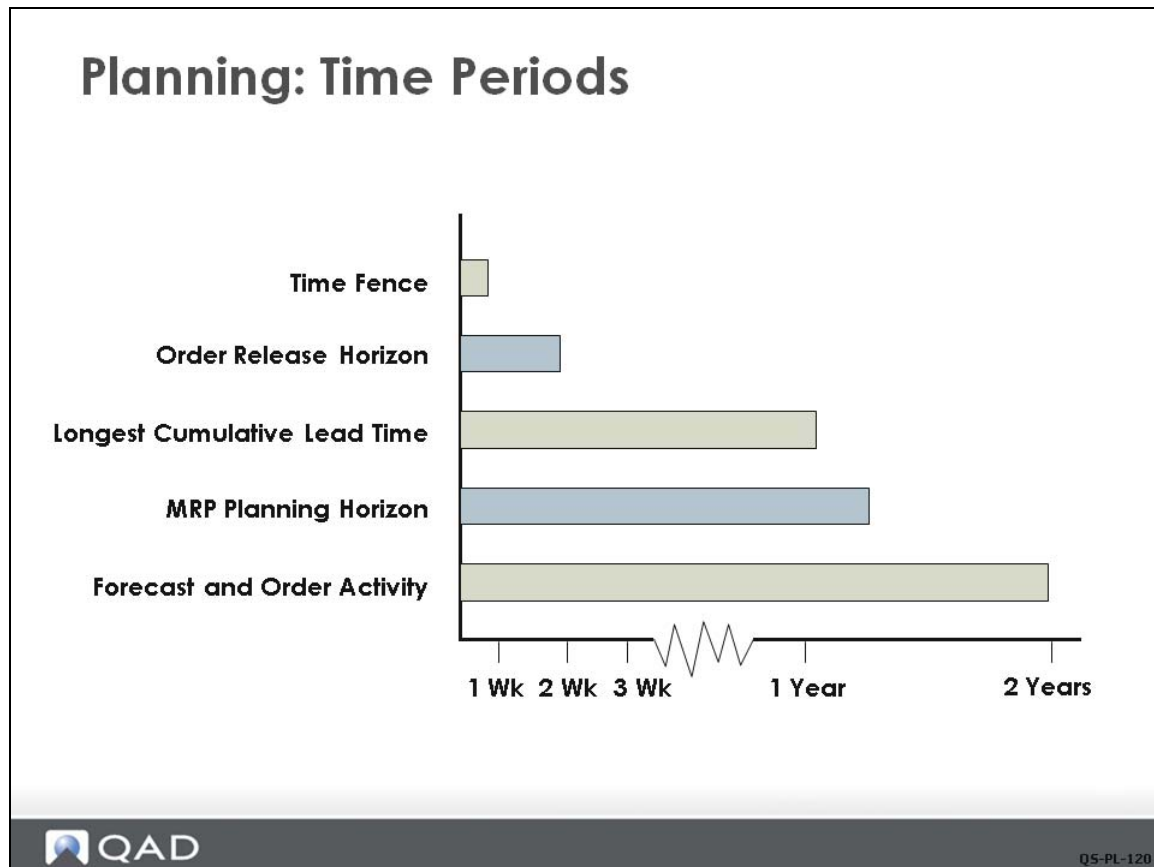
*Maximum Order Quantity.* MRP generates a warning message when a planned order quantity is larger than the specified maximum order quantity. Excessively large lot sizes may tie up a resource so that other orders are delayed unnecessarily. Further, setting a quantity limit can uncover data entry errors (for example, entry of 1,000 instead of 100).

*Order Quantity Multiple.* Planned orders will be created in multiples of this quantity. That is, if the order multiple is 100, planned orders will only be created for quantities of 100, 200, 300, and so on. Order multiples are appropriate for multiple cavity molding applications, packaging, and so on.

## Lead Time

Lead times determine when orders should be released to be available on their due date. Manufacturing lead time is for manufactured items; purchasing lead time plus inspection lead time is for purchased items. Safety lead time can be added to both. Lead time is calculated by the system using the operation times in the route and the standard order quantity for manufactured items. The lead time for purchased items is entered by the planner.

## Component Item Planning: Time Periods



### Planning Horizon

Before you run MRP, you set the MRP planning horizon. This specifies a period of time, in calendar days, over which MRP is to plan. MRP only processes material requirements within this horizon. The longer this horizon, the longer it takes MRP to plan. However, the planning horizon should be at least as long as the longest cumulative lead time, plus any associated preparation times. Usually, the master schedule also covers a time frame that is at least this long.

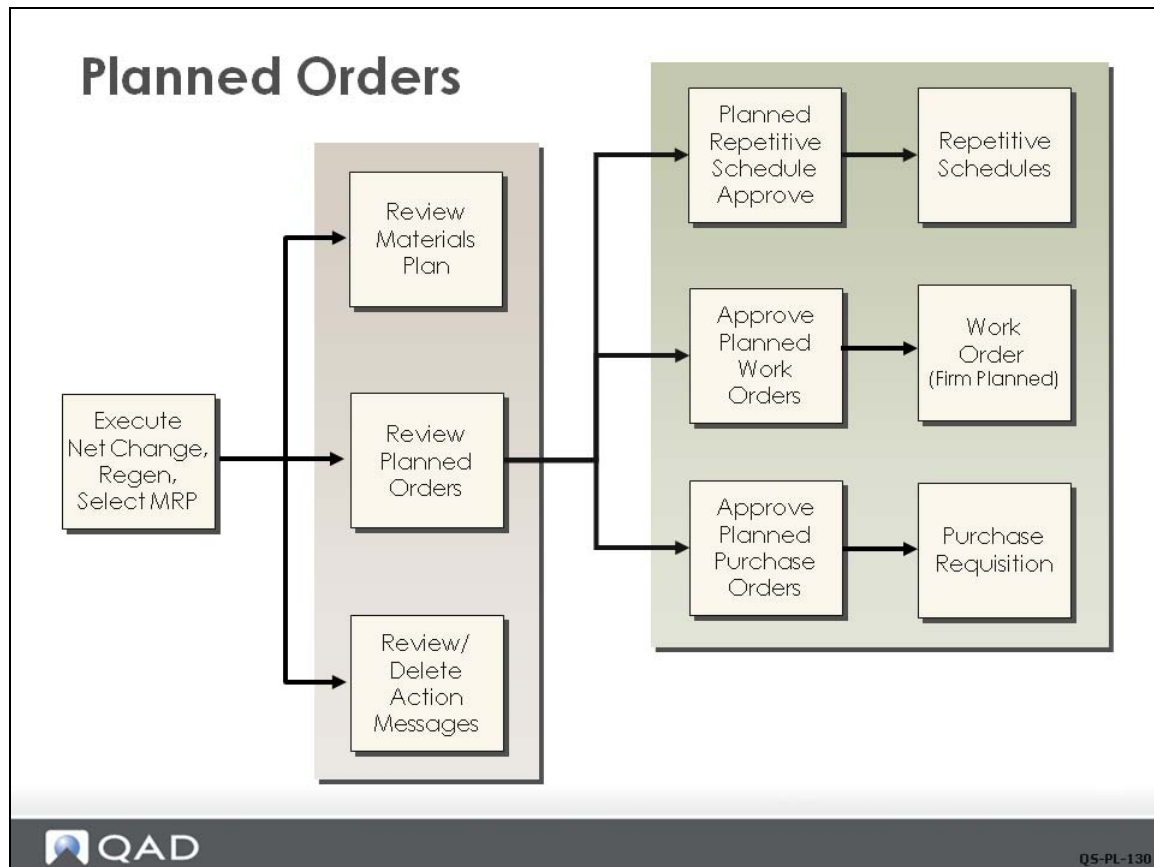
### Cumulative Lead Time

Cumulative lead time represents the longest planned length of time to obtain an item, assuming that neither it nor any of its components (if any) are in stock. For a manufactured item, this includes the time it takes to acquire raw materials, inspect them, make any subassemblies or components, and assemble and inspect the finished product. These times are entered in Item Planning Maintenance for each item in the fields Mfg LT, Pur LT, and Ins LT.

### Order Release Horizon

To provide visibility for what orders are due to be released, MRP generates Release Due action messages. Typically, you want to see these in advance, not just on the day the order is due for release. You can set the release horizon for any number of days. MRP generates Release Due messages only for orders due to be released within this number of days from today's date.

## Component Item Planning: Planned Orders



MRP creates planned orders to satisfy net requirements if the parameter for order policy is not blank, and Plan Orders is set to Yes in Item Master Maintenance. The system creates either planned work orders or planned purchase orders, based on the Pur/Mfg code.

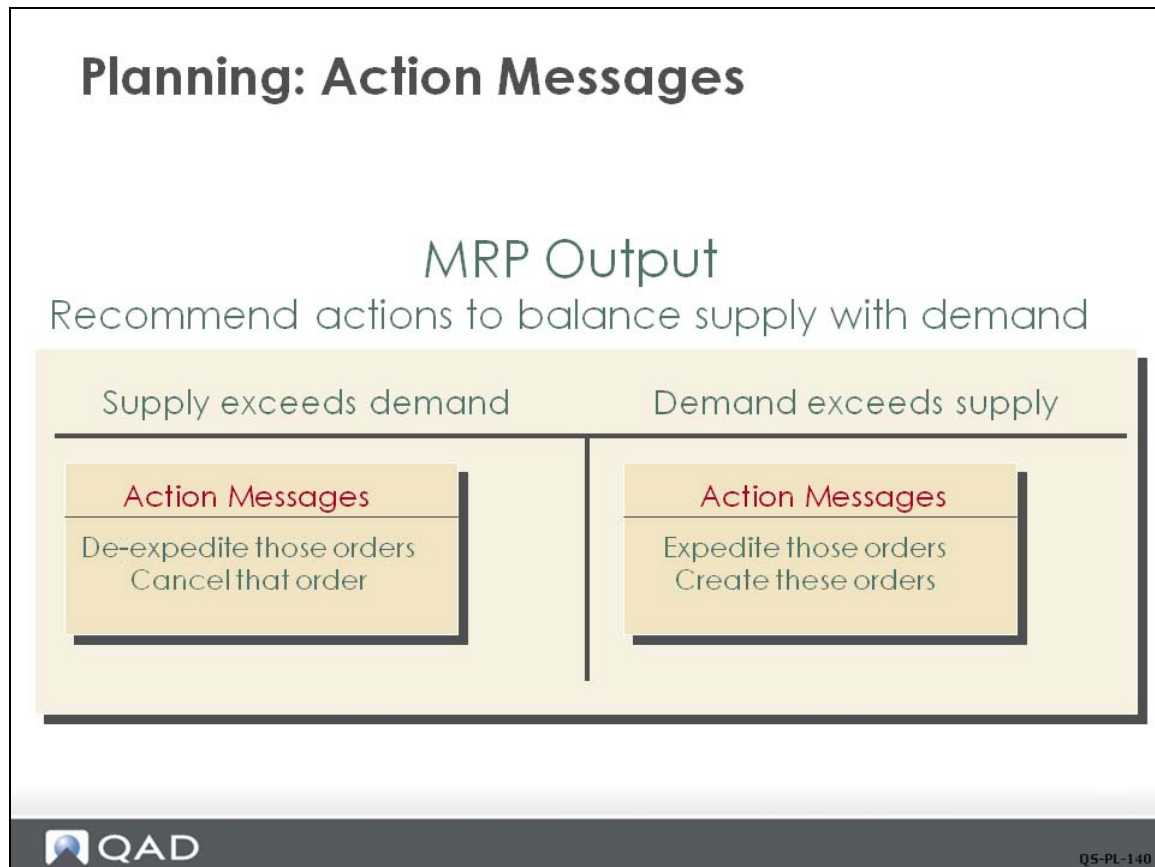
Internally, both planned work orders and planned purchase orders are stored as work orders with status Planned. The primary difference between them is that orders for purchased items are created without work order bills.

### Planned Order Approval

The process of approving planned work orders changes the status of work orders from Planned to Firm Planned. While planned orders can be modified or deleted by each successive MRP run, firm planned orders have due dates and quantities that are fixed with respect to the MRP planning process. The due dates and quantities for firm planned orders can be changed manually in Work Order Maintenance.

The process of approving planned purchase orders deletes the planned purchase orders and creates purchase requisitions. Purchase requisitions can be reviewed by buyers or purchasing agents and filled by purchase orders. Once the purchase order is released, it becomes supply for the item at that site.

## Component Item Planning: Action Messages



To project inventory balances and calculate net requirements, MRP reschedules purchase orders, work orders, and repetitive schedules and plans all activity based on the revised schedule. When it does this, it also generates action messages to alert planners to actions that should be taken to execute the plan, such as rescheduling, canceling, and releasing orders.

Usually the first thing the planner does after running MRP is to look at the action messages. Action messages can be reviewed online and deleted when the required action is taken. They can also be printed along with the detailed plan.

## Example

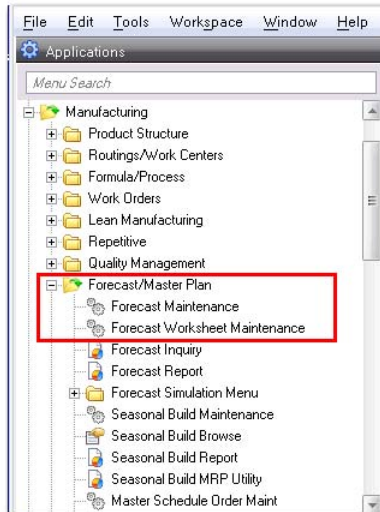
This section provides an example of how the planning process works. In this example, QMI:

- Enters a forecast for medical ultrasound units
- Enters a sales order that consumes demand
  - Line 1: normal SO, quantity = 5, due in two weeks
  - Line 2: abnormal SO, quantity = 5, due in five weeks
- Runs MRP
- Approves planned purchase orders
- Creates a purchase order using MRP requisitions for the component items
- Receives the PO
- Approves planned work orders
- Releases and issues work order
- Builds work order items and puts the items into stock
- Ships a sales order

In the process of reviewing the production schedule and MRP reports, you will see the effect of the manufacture and purchase lead times on release dates for the purchase orders and work orders in the example.

## Enter Forecast Item 01010

### Enter Forecast Item 01010



Q5-PL-150

QAD Enterprise Applications offers two screens for entering forecast data:

- Forecast Maintenance (22.1)
- Forecast Worksheet Maintenance (22.2)

## Forecast Maintenance

## Forecast Maintenance

Forecast Maintenance
Go To Actions Copy Print Preview Attach

Item Number: 01010      Site: 10-100

Item Number: 01010
Site: 10-100
Year: 2010

| Week         | Forecast                       | Week         | Forecast                       | Week         | Forecast                       | Week         | Forecast                       |
|--------------|--------------------------------|--------------|--------------------------------|--------------|--------------------------------|--------------|--------------------------------|
| 1/4/2010     | <input type="text" value="0"/> | 4/5/2010     | <input type="text" value="0"/> | 7/5/2010     | <input type="text" value="5"/> | 10/4/2010    | <input type="text" value="5"/> |
| 1/11/2010    | <input type="text" value="0"/> | 4/12/2010    | <input type="text" value="0"/> | 7/12/2010    | <input type="text" value="5"/> | 10/11/2010   | <input type="text" value="5"/> |
| 1/18/2010    | <input type="text" value="0"/> | 4/19/2010    | <input type="text" value="0"/> | 7/19/2010    | <input type="text" value="5"/> | 10/18/2010   | <input type="text" value="5"/> |
| 1/25/2010    | <input type="text" value="0"/> | 4/26/2010    | <input type="text" value="0"/> | 7/26/2010    | <input type="text" value="5"/> | 10/25/2010   | <input type="text" value="5"/> |
| 2/1/2010     | <input type="text" value="0"/> | 5/3/2010     | <input type="text" value="0"/> | 8/2/2010     | <input type="text" value="5"/> | 11/1/2010    | <input type="text" value="5"/> |
| 2/8/2010     | <input type="text" value="0"/> | 5/10/2010    | <input type="text" value="0"/> | 8/9/2010     | <input type="text" value="5"/> | 11/8/2010    | <input type="text" value="5"/> |
| 2/15/2010    | <input type="text" value="0"/> | 5/17/2010    | <input type="text" value="0"/> | 8/16/2010    | <input type="text" value="5"/> | 11/15/2010   | <input type="text" value="5"/> |
| 2/22/2010    | <input type="text" value="0"/> | 5/24/2010    | <input type="text" value="0"/> | 8/23/2010    | <input type="text" value="5"/> | 11/22/2010   | <input type="text" value="5"/> |
| 3/1/2010     | <input type="text" value="0"/> | 5/31/2010    | <input type="text" value="5"/> | 8/30/2010    | <input type="text" value="5"/> | 11/29/2010   | <input type="text" value="5"/> |
| 3/8/2010     | <input type="text" value="0"/> | 6/7/2010     | <input type="text" value="5"/> | 9/6/2010     | <input type="text" value="5"/> | 12/6/2010    | <input type="text" value="5"/> |
| 3/15/2010    | <input type="text" value="0"/> | 6/14/2010    | <input type="text" value="5"/> | 9/13/2010    | <input type="text" value="5"/> | 12/13/2010   | <input type="text" value="5"/> |
| 3/22/2010    | <input type="text" value="0"/> | 6/21/2010    | <input type="text" value="5"/> | 9/20/2010    | <input type="text" value="5"/> | 12/20/2010   | <input type="text" value="5"/> |
| 3/29/2010    | <input type="text" value="0"/> | 6/28/2010    | <input type="text" value="5"/> | 9/27/2010    | <input type="text" value="5"/> | 12/27/2010   | <input type="text" value="5"/> |
| <b>Total</b> | 0                              | <b>Total</b> | 25                             | <b>Total</b> | 65                             | <b>Total</b> | 65                             |

Item Description: Medical Ultrasound

Delete
Back
Next

QAD
QS-PL-155

Forecast Maintenance (22.1) provides 52 weekly buckets, so an entire year's forecast for a given item and site can be entered in one screen. If you are using forecast simulation, this screen can also be populated automatically with data from the forecast simulation calculation.



## Forecast Worksheet Maintenance

### Review Forecast Worksheet: Item 01010

Forecast Worksheet Maintena... x

Go To ▾ Actions ▾ Copy ▾ Print Preview Attach ▾

Item Number: 01010
Site: 10-100
Year: 2012

| Week         | Forecast                        | Sales | Abnormal | Prod Fcst | Net Forecast |
|--------------|---------------------------------|-------|----------|-----------|--------------|
| 14 4/2/2012  | <input type="text" value="5"/>  | 0     | 0        | 0         | 1            |
| 15 4/9/2012  | <input type="text" value="5"/>  | 5     | 0        | 0         | 0            |
| 16 4/16/2012 | <input type="text" value="5"/>  | 5     | 0        | 0         | 0            |
| 17 4/23/2012 | <input type="text" value="5"/>  | 12    | 0        | 0         | 0            |
| 18 4/30/2012 | <input type="text" value="10"/> | 0     | 0        | 0         | 3            |
| 19 5/7/2012  | <input type="text" value="10"/> | 0     | 0        | 0         | 10           |
| 20 5/14/2012 | <input type="text" value="10"/> | 0     | 0        | 0         | 0            |
| 21 5/21/2012 | <input type="text" value="10"/> | 24    | 0        | 0         | 0            |
| 22 5/28/2012 | <input type="text" value="10"/> | 0     | 0        | 0         | 6            |
| 23 6/4/2012  | <input type="text" value="5"/>  | 0     | 0        | 0         | 5            |
| 24 6/11/2012 | <input type="text" value="5"/>  | 0     | 0        | 0         | 5            |
| 25 6/18/2012 | <input type="text" value="5"/>  | 0     | 0        | 0         | 0            |
| 26 6/25/2012 | <input type="text" value="5"/>  | 12    | 0        | 0         | 0            |
| Totals       | 90                              | 58    | 0        | 0         | 30           |

Q5-PL-160

In Forecast Worksheet Maintenance (22.2), the system displays 13 weeks of forecast buckets at a time. Clicking Next advances to successive calendar quarters. In addition, this screen displays actual sales orders, abnormal sales orders, production forecasts, and net forecast.

Using Forecast Worksheet Maintenance, the QMI planner has entered forecasts for the number of medical ultrasound units that they expect to ship each week for the next few months, starting with April 5. Some orders already exist in the system. The planner has noted an increase in orders because of a special spring promotion, so he increases the forecast for five weeks from 5 to 10.

### Discussion

If it takes one person 1 day to assemble 5 units and the forecast for 30 on each five day week is reasonable, what action is necessary?

## Define Control Settings: Forecast Consumption

### Forecast Consumption

Sales Order Control x

Go To ▾
Actions ▾
Copy ▾
Print
Preview

Auto Batch Confirmation: ☐

SO Edit ISB Defaults: ☒

SO Returns Update ISB: ☒

Forecast Consumption

Consume Forward:

Consume Back:

Check Customer Item Nbr First: ☒

Confirmation Batch ID:

Confirmation Printer:

Pending Inv Update ISB: ☒

Auto Batch Shipment: ☐

Shipment Batch ID:

Shipment Batch Printer:

Q5-PL-170

In Sales Order Control (7.1.24), the QMI planner has set up rules for forecast consumption. In this example, whenever sales exceed forecast in a period, the system consumes the forecast, first by going back, then forward one period from the original forecast in the period the sales order is due. The system then continues to search backward and forward until the specified number of previous periods (2) and future periods (1) have been examined, or the entire sales order quantity has been applied.

## Enter Sales Order Line: Consume Forecast

### Enter Sales Order Line: Consume Forecast

**Sales Order Maintenance**

Go To Actions Copy Print Preview Attach

Header Lines Trailer

Lines Line Details Freight Data Tax Info Comments

Header

Order: 10S10001 Sold-To: 10C1003 Ln For: Single Org:

Sales Order Line

| Ln | Item Number | Qty Ordered | UM | List Price | Discount | Net Price |
|----|-------------|-------------|----|------------|----------|-----------|
| 1  | 01010       | 15.0        | EA | 2,500.00   | 0.0      | 2,500.00  |

Line Details

Desc: Medical Ultrasound

Loc: 010 Site: 10-100

USD Cost: 1,805.45157

Lot/Serial:

Qty Allocated: 15.0

Qty Picked: 0.0

Qty Shipped: 0.0

Qty to Invoice: 0.0

Salesperson 1: 10SP01

Commission 1: 5.00%

Category:

Fixed Price:

Sales Acct: 4010 mech ADM

Disc Acct: 4200 Mech

Confirmed: ☒ Required:

Promised: 4/12/2012 Due Date: 4/12/2012

Perform Date:

Pricing Date: 4/11/2012

Multiple: ☐

Credit Terms Int: 0.00

Ship Type:

UM Conversion: 1.0000

Consume Fcst: ☒

Detail Alloc: ☐

Taxable: ☐

Freight List: 10FRT

Comments:

In Sales Order Maintenance (7.1.1), the QMI customer service representative (CSR) has entered two sales order lines for its medical ultrasound (item 01010).

Line 1 (shown above) is for an order of 15 units due in two weeks. This order, once confirmed, will consume forecast because the Consume Forecast box has been selected.

Line 2 is shown on the next page.

## Enter Sales Order Line: Do Not Consume Forecast

### Enter SO Line: Do Not Consume Forecast

Sales Order Maintenance X

Go To Actions Copy Print Preview Attach

Header Lines Trailer

Lines Line Details Freight Data Tax Info Comments

Header

Order: 10S10001 Sold-To: 10C1003 Ln For: Single Org:

Sales Order Line

| Ln | Item Number | Qty Ordered | UM | List Price | Discount | Net Price |
|----|-------------|-------------|----|------------|----------|-----------|
| 2  | 01010       | 15.0        | EA | 2,500.00   | 0.0      | 2,500.00  |

Line Details

Desc: Medical Ultrasound  
Loc: 010 Site: 10-100  
USD Cost: 1,805.45157  
Lot/Serial:

Sales Acct: 4010 mech ADM  
Disc Acct: 4200 Mech  
Confirmed: ☒  
Required: 5/19/2012  
Promised: 5/19/2012  
Due Date: 5/19/2012  
Perform Date: 5/19/2012  
Pricing Date: 4/11/2012  
Multiple: ☐  
Fixed Price: ☒

Credit Terms Int: 0.00  
Ship Type:  
UM Conversion: 1.0000  
Consume Fcst: ☐  
Detail Alloc: ☐  
Taxable: ☐  
Freight List: 10FRT  
Comments:

Qty Allocated: 4.0  
Qty Picked: 0.0  
Qty Shipped: 0.0  
Qty to Invoice: 0.0  
Salesperson 1: 10SP01  
Commission 1: 5.00%  
Category:

Line 2 is for an order of 15 ultrasound units due in five weeks. This order will not consume forecast because the Consume Forecast box has not been selected.

### Additional Notes

Consume Forecast is not selected (unchecked) when the order quantity is considered abnormal and is planned in addition to the forecast. Perhaps the best definition of abnormal sales are those that were not anticipated in the forecast. This may be sales to new customers, new markets, or a current customer significantly increasing their volume. Businesses should establish their own rules and guidelines for sales order entry to determine when an order is considered abnormal.

### Discussion

What is the impact of an order for 30 medical ultrasound units due in two weeks on the QMI production department?

## Review Forecast Worksheet: Item 01010

| Review Forecast Worksheet: Item 01010   |          |              |          |            |              |  |
|-----------------------------------------|----------|--------------|----------|------------|--------------|--|
| Forecast Worksheet Maintenance          |          |              |          |            |              |  |
| Go To Actions Copy Print Preview Attach |          |              |          |            |              |  |
| Item Number: 01010                      |          | Site: 10-100 |          | Year: 2012 |              |  |
| Week                                    | Forecast | Sales        | Abnormal | Prod Fcst  | Net Forecast |  |
| 14 4/2/2012                             | 5        | 0            | 0        | 0          | 0            |  |
| 15 4/9/2012                             | 5        | 20           | 0        | 0          | 0            |  |
| 16 4/16/2012                            | 5        | 5            | 0        | 0          | 0            |  |
| 17 4/23/2012                            | 5        | 12           | 0        | 0          | 0            |  |
| 18 4/30/2012                            | 10       | 0            | 0        | 0          | 3            |  |
| 19 5/7/2012                             | 10       | 0            | 0        | 0          | 10           |  |
| 20 5/14/2012                            | 10       | 0            | 15       | 0          | 0            |  |
| 21 5/21/2012                            | 10       | 24           | 0        | 0          | 0            |  |
| 22 5/28/2012                            | 10       | 0            | 0        | 0          | 6            |  |
| 23 6/4/2012                             | 5        | 0            | 0        | 0          | 5            |  |
| 24 6/11/2012                            | 5        | 0            | 0        | 0          | 5            |  |
| 25 6/18/2012                            | 5        | 0            | 0        | 0          | 0            |  |
| 26 6/25/2012                            | 5        | 12           | 0        | 0          | 0            |  |
| Totals                                  | 90       | 73           | 15       | 0          | 29           |  |

Forecast Worksheet Maintenance (22.2) shows the effect of the new sales order on the net forecast:

- Line 1 for 15 units in week 15 consumes forecast. Sales for that week now shows 20 (previously it was 5).
- Line 2 for 15 units in week 20 does not consume forecast so the quantity of 15 displays in the Abnormal column.

The effect of the setting of Forecast Consumption in Sales Order Control (2 periods back and 1 forward) can be seen most clearly with the order for 24 units on week 21. This is 14 more than was forecast for this week.

- The system consumes the 10 for week 20
- Then it consumes the 10 for week 19 (not consumed by the abnormal demand).
- and then consumes 4 in week 21, leaving a net forecast of 6 remaining for that week.

**Note** MRP will always plan for the total demand, even when it exceeds forecast.

## Master Schedule Summary: Item 01010

**Master Schedule Summary: Item 01010**

Master Schedule Summary Inq. X

Run Export to Excel View as PDF

Item Number: 01010 Site: 10-100 Display Negative ATP: Start Date: 4/9/2012 End Date: Column Type: Week Per Column: 1 Columns: 12

Item Number: 01010 Medical Ultrasound MRP Required: Yes  
 Site: 10-100 Mfg LT: 4 Plan Orders: Yes Pur/Mfg: M  
 Qty on Hand: 24.0 EA Purchase LT: 0 Order Quantity: 0 Minimum Order: 1  
 Order Policy: POQ Safety Stock: 0 Yield Percent: 100.00% Maximum Order: 5  
 Order Period: 7 Safety Time: 0 Time Fence: 0 Order Multiple: 1

| Category                | Past | 4/9/2012 | 4/16/2012 | 4/23/2012 | 4/30/2012 |
|-------------------------|------|----------|-----------|-----------|-----------|
| Production Forecast     | 0    | 0        | 0         | 0         | 0         |
| Forecasts               | 0    | 0        | 0         | 0         | 3         |
| 2012-04-30 18 4/30/2012 | 0    | 0        | 0         | 0         | 3         |
| 2012-05-07 19 5/7/2012  | 0    | 0        | 0         | 0         | 0         |
| 2012-05-28 22 5/28/2012 | 0    | 0        | 0         | 0         | 0         |
| 2012-06-04 23 6/4/2012  | 0    | 0        | 0         | 0         | 0         |
| 2012-06-11 24 6/11/2012 | 0    | 0        | 0         | 0         | 0         |
| Sales Orders            | 60   | 20       | 0         | 12        | 0         |
| Gross Requirements      | 0    | 0        | 0         | 0         | 0         |
| Master Schedule         | 54   | 0        | 17        | 0         | 0         |
| Projected QOH           | 18   | -2       | 15        | 3         | 0         |
| Available to Promise    | 0    | -15      | 0         | 0         | 0         |
| Cumulative ATP          | 0    | -15      | -15       | -15       | -15       |

QAD Q5-PL-210

Master Schedule Summary Inquiry (22.18) shows the QMI master scheduler the planning data for the item at this site, such as lead times, order policy, order period, order quantity, whether the item is purchased or manufactured, and the current quantity on hand. Most importantly, though, this screen shows a summary of the master schedule demands for an item. This example shows item 01010 and the current plan to satisfy its demand.

The net forecast is provided in the Forecast row, and the total of the sales order quantities are shown in the Sales Orders row. Each row can be expended to show the details by clicking on the + sign on the right. The report can also be sent to Excel for further ease of data manipulation.

The Projected QOH (quantity on hand) is the calculated on-hand balance at the end of each period. In this example, there are 18 units in stock or on hand from past production, so demand in the first week makes the Projected QOH number negative. In week beginning 4/9, the sales order demand for 20 means that the Projected QOH is -2 (QOH - demand; 18- 20= -2).

The real key to this screen is the MRP Required field, highlighted in red, which is checked. This simply means something has changed since MRP was last run and that the displayed data is no longer accurate. MRP must be run again.

In this example, there is no inventory Available to Promise.

You will see the effect of running MRP when the QMI planner runs MRP later in this example.

## Master Schedule Summary Inquiry

Master Schedule Summary Inq...

Run Export to Excel View as PDF

Item Number: 01010 Site: 10-100 Display Negative ATP: Start Date: 5/24/2010 End Date: 6/30/2010 Column Type: Week Per Column: 1 Columns: 7

Item Number: 01010 Medical Ultrasound

|                     |                 |                        |                   |
|---------------------|-----------------|------------------------|-------------------|
| Site: 10-100        | Mfg LT: 1       | Plan Orders: Yes       | Poly Mfg: M       |
| Qty on Hand: 7.0 EA | Purchase LT: 0  | Order Quantity: 5      | Minimum Order: 1  |
| Order Policy: POQ   | Safety Stock: 0 | Yield Percent: 100.00% | Maximum Order: 5  |
| Order Period: 7     | Safety Time: 0  | Time Fence: 0          | Order Multiple: 1 |

QAD QS-PL-215

In Master Schedule Summary Inquiry (22.18), the display defaults to a period length of a week. In the input selection frame, you can select period lengths of days (D), weeks (W), or months (M).

You can also display multiple periods in each column by putting a number in the Per Column field. Specify a start date and end date to look at specific ranges of data.

For example, if your business worked 4, ten-hour days per week you might choose to make the period Days and display 4 periods per column.

## Item Planning Data

### Item Planning Data: Item 01010

Item Planning Maintenance

Go To Actions Copy Print Preview Attach

Item: 01010 Item Number: 01010 Supplier:

Item Number: 01010 Description: Medical Ultrasound

Unit of Measure: EA

Item Planning Data

Mstr Sched: ☒ Plan Orders: ☒

Time Fence: 0

MRP Required: ☒

Order Policy: POQ Order Qty: 5

Batch Qty:

Order Period: 7

Safety Stock: 0

Safety Time: 0

Reorder Point: 0

Item Rev: D

Issue Policy: ☒

Buyer/Planner: 1-01 Supplier: PD Site: Configuration Type: Inspect: 1.0 Ins LT: 0 Cum LT: 0 Mfg LT: 1 Pur LT: 0

Purchase/Manufacture: M

ATP Enforcement: NONE

Family ATP: ATP Horizon: 0 Run Seq 1: 2:

Phantom: Minimum Order: 1 Maximum Order: 5 Order Multiple: 1 Op Based Yield: Yield Percent: 100.00% Run Time: 1.260 Setup Time: 1.500 EMT Type: NON-EMT Auto EMT Processing:

Network Code: Routing Code: U-001 BOM/Formula:

The next few pages review some of the key planning-related settings that the QMI planner has set up in Item Planning Maintenance (1.4.7) for the medical ultrasound units and its components.

Since item 01010 is the end item subject to independent demand, it is master scheduled and the planner wants the system to plan orders. Both Mstr Sched and Plan Orders are enabled (checked). This means that this item will be master scheduled (forecasted in our example), and planned orders created by MRP.

**Note** MRP processes requirements the same whether the Mstr Sched box is checked or not. However, most reports and inquiries in the system can be selected for master scheduled items only. This is very useful for master schedulers since they can select only their items for review.

The Order Policy of POQ (Period Order Quantity) instructs MRP to calculate demand for this item over the number of calendar days specified as the Order Period (in the example, 7) and creates one order to satisfy this demand.

Item 01010 is a manufactured item, as indicated by an M in the Purchase/Manufacture field. It has a manufacturing lead time of 1 day, shown in the Mfg LT field. The lead time is based on the order quantity of 5. Because it is a manufactured item, the system displays the setup and run times for reference. Since 01010 is manufactured, no purchasing lead time is specified.



## Item Planning Data: Item 50001

## Review Planning Data: Item 60005

Item Planning Maintenance X

Go To Actions Copy Print Preview Attach

Item Number: 60005 Description: Battery  
Unit of Measure: EA

Item Planning Data  
Mstr Sched: ☐  
Plan Orders: ☒  
Time Fence: 0  
MRP Required: ☒  
Order Policy: POQ  
Order Qty: 0  
Batch Qty:  
Order Period: 7  
Safety Stock: 0  
Safety Time: 0  
Reorder Point: 25  
Item Rev:  
Issue Policy: ☒

Buyer/Planner: 1-02  
Supplier:  
PO Site:  
Purchase/Manufacture: P  
Configuration Type:  
Inspect: ☐  
1.0 Ins LT: 0  
Mfg LT: 0  
ATP Enforcement: NONE  
Family ATP: ☐  
ATP Horizon: 0  
Run Seq 1:  
2:

Phantom: ☐  
Minimum Order: 25  
Maximum Order: 2,000  
Order Multiple: 5  
Op Based Yield: ☐  
Yield Percent: 100.00%  
Run Time: 0.000  
Setup Time: 0.000  
EMT Type: NON-EMT  
Auto EMT Processing: ☐  
Network Code:  
Routing Code:  
BOM/Formula:  
Replenishment Method: Orders

Pur LT: 3

QAD

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Item 60005, the battery, is a purchased component required to assemble item 01010.

The Purchase/Manufacture field in this case is set to P. Most purchased component also have purchase lead times. Based on the planning information, the planner has indicated to MRP that these materials should be ordered in quantities to cover demand during an order period of 7 days, and that a purchase order for the component item should be released 3 days before the item is needed (Pur LT). Purchased items do not have setup or run time.

The field to note here is Order Multiple. Some purchased items must be ordered in multiples. In this case, the vendor has told us to purchase in multiples of 5.

### Discussion

Based on this overview and the discussion of forecast consumption, do you see that QMI may have an upcoming problem meeting demand? It currently takes 5 working days to make 25 units. How can QMI address the issue of increasing capacity?

**Note** For more detailed information on planning data and MRP, refer the courses on MRP and CRP and on Master Scheduling and RCCP.

## Item Planning Data: Item 02003

## Item Planning Data: Item 02003

Item Planning Maintenance

Go To Actions Copy Print Preview Attach

Item: 02003 Item Number: 02003 Supplier: 10S1002

Item Number: 02003 Description: Standard Connector  
Unit of Measure: EA

Item Planning Data

Mstr Sched: ☒ Plan Orders: ☒ Time Fence: 0 MRP Required: ☒ Order Policy: POQ Order Qty: 10 Batch Qty: Order Period: 7 Safety Stock: 0 Safety Time: 0 Reorder Point: 0 Item Rev: Issue Policy: ☒

Buyer/Planner: 2-01 Supplier: 10S1002 PO Site: Purchase/Manufacture: P Configuration Type: Inspect: 1.0 Ins LT: 0 Cum LT: 0 Mfg LT: Pur LT: 3 ATP Enforcement: NONE Family ATP: ATP Horizon: 0 Run Seq 1: 2

Phantom: ☐ Minimum Order: 10 Maximum Order: 0 Order Multiple: 2 Op Based Yield: Yield Percent: 100.00% Run Time: 0.002 Setup Time: 0.200 EMT Type: NON-EMT Auto EMT Processing: ☐ Network Code: Routing Code: 02001 BOM/Formula:

In this example, the planning data for the Standard Connector (item 02003) has been set to normally buy enough for 10 units: Order quantity 10, minimum order of 10, and a multiple of 2. Note the purchasing lead time of 3 days.

## Review MRP Control

### Review MRP Control

Q5-PL-270

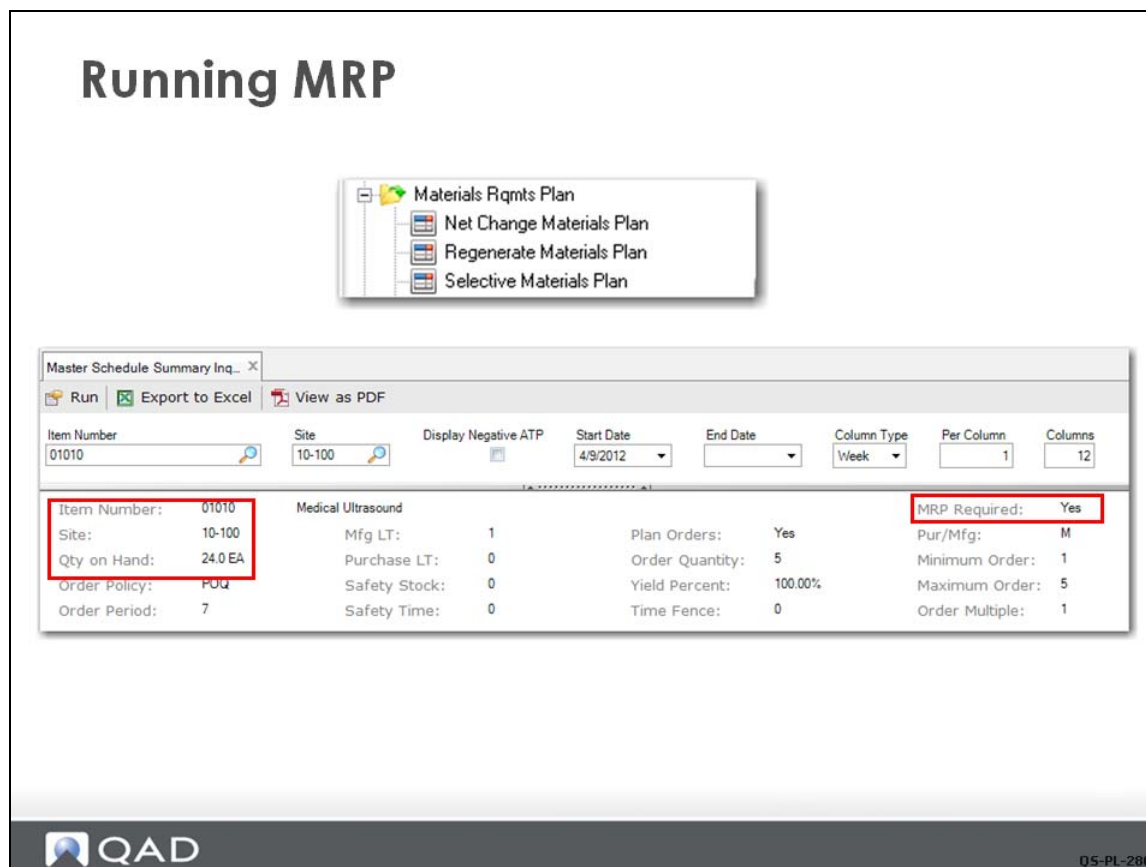
MRP Control (23.24) has important settings that affect MRP processing.

**MRP Horizon.** This is the number of days into the future MRP will plan and should be at least one day longer than the longest cumulative lead time in your system. For purposes of this course, 90 days is more than enough. In general, a planner would want to err on the side of planning too far into the future rather than not far enough.

**Summary Default.** Determines on which day of the week MRP and MPS summary inquires begin displaying data. This can be set to any day of the week, or Today. Typically, companies want the columns to be consistent and always display a week beginning with their normal start day. Setting the field to Today changes the start day of the display every day.

**Order Release Horizon.** Indicates the number of days into the future the system should look to find an order release date. This is very important for MRP action messages. For example, when set to 7, the system marks all planned orders due to be released in the next 7 days as due for release. If you have many planned orders and review them daily, you may want this set to one or two days. For purposes of this course, 7 days will work fine.

## Running MRP



The menu at the top of this slide shows the three ways to run MRP.

### Net Change Materials Plan

The normal method used on a routine daily or weekly basis is net change MRP (23.1), which selects all the items at a site with the MRP Required field set to Yes. The value of this field can be viewed in Master Schedule Summary Inquiry (22.18), as seen here.

When Regenerate Materials Plan (23.2) is first run, MRP Required is set to No for all items. In the normal course of business, almost any transaction for an item resets this field, indicating that MRP should be run again to recalculate the demand and supply for the item. Issues and receipts are obvious changes in inventory. Less obvious are changes in forecast or safety stock, or changes in item planning data, these also reset the field to Yes.

### Regenerate Materials Plan

Regenerate MRP runs against all items at a site and may take much longer than net change MRP, depending on how many inactive or obsolete items you have. This is the method often used when running MRP for the first time.

For both net change and regenerate, the only user selection is the site or range of sites. MRP is always calculated by site. If you have several sites in your database and run MRP for all the sites, each site has its own MRP output, completely separate from the others.

## Selective MRP

### Running Selective MRP

The screenshot shows the 'Selective Materials Plan' window with the following fields and options:

- Item Number:** 01010
- To:** 01010
- Site:** 10-100
- To:** 10-100
- Master Scheduled Items:** ☒
- Non Master Scheduled Items:** ☒
- MRP Items:** ☒
- DRP Items:** ☒
- Required Items Only:** ☒
- Resolve Low Level Codes:** ☒
- Synchronized Calculation:** ☒
- Synchronization Code:**
- Number of AppServer Threads:** 0
- Buyer/Planner:**
- Product Line:**
- Group:**
- Item Type:**
- Supplier:**
- Pur/Mfg:**
- Output:**
- Batch ID:**



QS-PL-290

Selective Materials Plan (23.3) lets the planner select specific items or groups or ranges of items. As can be seen in the selection screen above, there are many ways to limit the number of items that will be processed by this MRP method. While this is a powerful planning tool, you should remember that items excluded from the process may have an impact on items included in the process.

## Running MRP: Regenerate

### Running MRP: Regenerate

The screenshot shows a software window titled "Regenerate Materials Plan" with a standard menu bar (Go To, Actions, Copy, Print, Preview, Attach). Below the menu bar, there is a status bar showing "Site: 10-100" and a search icon. The main area of the dialog contains several input fields and checkboxes:

- "Site: 10-100" with a search icon.
- "To: 10-100" with a search icon.
- "Synchronized Calculation:" with a checked checkbox.
- "Synchronization Code:" with an empty text input field.
- "Number of AppServer Threads:" with a text input field containing the value "0".
- "Output:" label.
- "Batch ID:" label.



QS-PL-300

To recalculate demand and plan supply for all items at its site 10-100, the company's planner runs Regenerate Materials Plan (23.2). The site code, or range of site codes, is the only selection the planner uses. The other fields are technical settings used in multiple processor environments.

## Review Planned Orders

# Review Planned Orders

The screenshot shows the 'Planned Order Browse' window with a search bar and a table of planned orders. The table columns are: Item Number, Site, Work Order, ID, Buyer/Planner, Purchase/Manufacture, Qty Ordered, UM, and Rel Date. The first row is highlighted in blue.

| Item Number | Site   | Work Order | ID      | Buyer/Planner | Purchase/Manufacture | Qty Ordered | UM | Rel Date  |
|-------------|--------|------------|---------|---------------|----------------------|-------------|----|-----------|
| 01010       | 10-100 | 04110002   | 2326386 | 1-01          | M                    | 22.0        | EA | 5/24/2012 |
| 01010       | 10-100 | 04110003   | 2326387 | 1-01          | M                    | 5.0         | EA | 6/1/2012  |
| 01010       | 10-100 | 04110004   | 2326388 | 1-01          | M                    | 5.0         | EA | 6/8/2012  |
| 01010       | 10-100 | 04110005   | 2326389 | 1-01          | M                    | 12.0        | EA | 6/22/2012 |
| 01010       | 10-100 | 04110006   | 2326390 | 1-01          | M                    | 3.0         | EA | 6/29/2012 |
| 01010       | 10-100 | 04110007   | 2326391 | 1-01          | M                    | 5.0         | EA | 7/6/2012  |
| 01013       | 10-100 | 04110037   | 2326404 | 1-03          | P                    | 1,000.0     | BX | 6/22/2012 |
| 01020       | 10-100 | 04110008   | 2326392 | 1-01          | M                    | 9.0         | EA | 6/6/2012  |
| 01030       | 10-100 | 08020029   | 2286330 | 1-01          | M                    | 50.0        | EA | 4/9/2012  |
| 01030       | 10-100 | 08020030   | 2286331 | 1-01          | M                    | 25.0        | EA | 4/26/2012 |

QAD QS-PL-310

Planned Order Browse (23.9) shows the planned orders created by MRP based on the net forecast and sales orders for the end item 01010 and its components. MRP used the product structure and other planning data to create these orders.

The display shows the MRP planned order number, the work order ID, and the release date, as well as the purchase/manufacture code M or P. The first planned order shows a release date of 05/24/2012.

Action Message Browse X

Actions

Setup

Cancel

Add to Favorites

Search (2)

Item Number

starts at

Date

starts at

4/11/2012

Search

Clear All

Viewing 1 - 448 of 448

Records per page: All

| Item Number | Description                         | Date      | Message Detail                | Order    | Line/ID | Ac      | Buyer/Planner |
|-------------|-------------------------------------|-----------|-------------------------------|----------|---------|---------|---------------|
| 60010       | Peapared Layered Mat                | 4/12/2012 | Expedite Purchase Order       | PO051218 | 2       | 6,100.0 | 1-02          |
| 80002       | Biquanide Compound                  | 4/12/2012 | De-expedite Purchase Order    | PO011212 | 2       | 500.0   | 3-02          |
| 80031       | Ethanol Liquid                      | 4/13/2012 | De-expedite Purchase Order    | PO021212 | 3       | 950.0   | 3-02          |
| 80041       | Caromer 980 Powder/Thickening Agent | 4/13/2012 | Expedite Purchase Order       | PO061204 | 5       | 650.0   | 3-02          |
| 80036       | Benzyl Alcohol Liquid               | 4/13/2012 | De-expedite Purchase Order    | PO021212 | 5       | 55.0    | 3-02          |
| 80003       | Phenolic                            | 4/13/2012 | Expedite Purchase Order       | PO041220 | 1       | 1,000.0 | 3-02          |
| 80040       | Lidocaine Liquid                    | 4/13/2012 | De-expedite Purchase Order    | PO041212 | 8       | 425.0   | 3-02          |
| 50011       | Ultrasound Array                    | 4/15/2012 | Release due for Work Order    | W0412002 | 2322939 | 13.0    | 1-02          |
| 80060       | Simethicone                         | 4/16/2012 | De-expedite Purchase Order    | PO041204 | 8       | 500.0   | 5-02          |
| 80053       | Preservative                        | 4/16/2012 | De-expedite Purchase Order    | PO041217 | 1       | 6,250.0 | 4-02          |
| 90015       | 15 ml Tube                          | 4/16/2012 | De-expedite Purchase Order    | PO041216 | 1       | 125.05  | 3-02          |
| 50020       | Industrial Housing                  | 4/16/2012 | Release due for Planned Order | 08020087 | 2286375 | 15.0    | 1-02          |
| 50001       | Probe Unit - 10 Mhz                 | 4/16/2012 | De-expedite Work Order        | W0312020 | 2319027 | 25.0    | 1-02          |
| 60003       | Keyboard                            | 4/17/2012 | Expedite Purchase Order       | PO051205 | 1       | 25.0    | 1-02          |
| 50001       | Probe Unit - 10 Mhz                 | 4/17/2012 | Release due for Work Order    | W0412020 | 2322956 | 13.0    | 1-02          |

The recommended order in which to read this report is:

- Check the action message.
- Check the date column. This is the date associated with the action message.
- Check whether the item is a manufactured or purchased item. This indicates whether you need to approve a planned order as a work order or purchase requisition.
- Check the due date.

For some orders, a “Release due” message displays, indicating that these orders should be approved.



## Review Inquiries: Master Schedule Detail

### Master Schedule Detail: Item 01010

**Master Schedule Detail Inquiry**

04/11/12

Item Number: 01010  
 Medical Ultrasound

Site: 10-100    Start Date: 04/11/12  
 Output: PAGE

Item Number: 01010  
 Medical Ultrasound  
 Buyer/Planner: 1-01  
 Mstr Sched: Yes  
 MRP Required: No  
 Plan Orders: Yes  
 Issue Policy: Yes

Qty on Hand: 24.0  
 UM: EA  
 Order Policy: POQ  
 Order Period: 7  
 Time Fence: 0  
 Safety Time: 0  
 Safety Stock: 0

Site: 10-100  
 Pur/Mfg: M  
 Mfg LT: 1  
 Pur LT: 0  
 Ins LT: 0  
 Inspect: No  
 Yield Percent: 100.00%  
 Cum LT: 0

| Due Date | Gross Reqs | Mstr Sched | Proj QOH | Plan Ords | Details                                               |
|----------|------------|------------|----------|-----------|-------------------------------------------------------|
|          |            |            | 24       |           | Beginning Available                                   |
| 04/12/12 | 5          |            | 13       |           | S0: 10S10000 Line: 1                                  |
| 04/12/12 | 15         |            | -2       |           | S0: 10S10001 Line: 1                                  |
| 04/16/12 |            | 5          | 3        |           | W/O: 1001 ID: 2326383                                 |
| 04/20/12 |            |            | 15       | 12        | W/O: W0412028<br>ID: 2322964                          |
| 04/25/12 | 2          |            | 13       |           | Release Date 04/19/12<br>S0: S0041204 Line: 1         |
| 04/25/12 | 2          |            | 11       |           | S0: S0041207 Line: 1                                  |
| 04/25/12 | 1          |            | 10       |           | S0: S0041210 Line: 1                                  |
| 04/25/12 | 1          |            | 9        |           | S0: S0041210 Line: 5                                  |
| 04/25/12 | 1          |            | 8        |           | S0: S0041213 Line: 1                                  |
| 04/25/12 | 1          |            | 7        |           | S0: S0041213 Line: 5                                  |
| 04/25/12 | 2          |            | 5        |           | S0: S0041217 Line: 1                                  |
| 04/25/12 | 2          |            | 3        |           | S0: S0041217 Line: 3                                  |
| 04/30/12 | 3          |            | 0        |           | Forecast                                              |
| 05/07/12 | 10         |            | -10      |           | Forecast                                              |
| 05/19/12 | 15         |            | -25      |           | S0: 10S10001 Line: 2                                  |
| 05/20/12 |            |            | -4       | 21        | W/O: W0512028<br>ID: 2324188<br>Release Date 05/19/12 |

Q5-PL-330

The Master Schedule Detail Inquiry (22.21) provides more detail than the summary browse and the organization of data is different.

In the summary, the information is organized in general buckets of days, weeks, or months. In the detail, the information is organized chronologically by specific due dates, showing only dates that have a transaction.

The Master Schedule Detail Inquiry screen shows sources of demand—sales orders and forecasts in this example—and the MRP planned order to satisfy that demand along with the order's release date.

In this example, the system has an initial quantity on hand of 24 items (Proj QOH column). This quantity covers initial requirements (5 and 15), so the system does not plan to release an MRP planned order until 04/19/2012. The items created on that work order will be used to fill sales orders over the next week.

Another work order is due to release on 05/19/12 to cover forecasted need and additional sales orders.

## MRP Summary Inquiry

### MRP Summary Inquiry: Item 01010

MRP Summary Inquiry

Run

Export to Excel

View as PDF

Item Number

Site

Start Date

End Date

Column Type

Per Column

Columns

01010

10-100

4/9/2012

Week

1

12

Item Number: 01010 Medical Ultrasound

Qty on Hand: 24.0 EA

Buyer/Planner: 1-01

Master Schedule: Yes

MRP Required: No

Plan Orders: Yes

Issue Policy: Yes

Order Policy: POQ

Order Period: 7

Time Fence: 0

Safety Time: 0

Safety Stock: 0

Pur/Mfg: M

Mfg LT: 1

Purchase LT: 0

Inspect LT: 0

Inspect Req: No

Cumulative LT: 0

Site: 10-100

Minimum Order: 1

Maximum Order: 5

Order Multiple: 1

Order Quantity: 5

Yield Percent: 100.00%

| Category           | Past | 4/9/2012 | 4/16/2012 | 4/23/2012 | 4/30/2012 | 5/7/2012 | 5/14/2012 |
|--------------------|------|----------|-----------|-----------|-----------|----------|-----------|
| Gross Requirements | 60   | 20       | 0         | 12        | 3         | 10       |           |
| Sched Receipts     | 0    | 0        | 5         | 0         | 0         | 0        |           |
| Projected QOH      | 18   | -2       | 15        | 3         | 0         | -10      |           |
| Plan Ords Due      | 54   | 0        | 12        | 0         | 0         | 0        |           |
| Plan Ords Rel      | 54   | 0        | 12        | 0         | 0         | 0        |           |

QAD

QS-PL-340

The information in MRP Summary Inquiry (23.13) is similar to that shown in Master Schedule Summary Inquiry, but the MRP summary includes information about planned orders, which are MRP calculated. In general:

- The Master Schedule Summary Inquiry deals in more detail with demand, forecasts, and sales orders, and displays one row of supply: the Master Schedule.
- The MRP Summary Inquiry deals more with the supply orders, showing only one line of demand, the Gross Requirements. Then gives detail of when planned orders are due, must be released, and are scheduled for receipt.

Planned Orders Due are calculated to satisfy demand from sales orders, forecasts, and so on.

Planned Orders Release indicates when the planned orders should be released to meet the due date. MRP calculates by backward scheduling from the due date, using the lead time and shop calendar information.

Once a planned order is released, it becomes a scheduled receipt and no longer appears on the Plan Ord Rel line but rather on the Sched Receipt line.

## MRP Detail Inquiry: Item 01010

## MRP Detail Inquiry: Item 01010

**MRP Detail Inquiry**
04/11/12

Item Number: 01010      Site: 10-100    Start Date: 04/11/12  
 Medical Ultrasound      Output: PAGE

Item Number: 01010      Qty on Hand: 24.0      Site: 10-100  
 Medical Ultrasound      UM: EA      Pur/Mfg: M

Buyer/Planner: 1-01      Ord Pol: POQ      Min Order: 1      Mfg LT: 1  
 Mstr Sched: Yes Order Period: 7      Max Order: 5      Pur LT: 0

MRP Required: No      Time Fence: 0      Ord Mult: 1      Ins LT: 0  
 Plan Orders: Yes      Safety Time: 0      Order Qty: 5      Inspect: No  
 Issue Policy: Yes      Safety Stock: 0      Yield%: 100.00%      Cum LT: 0

| Due Date | Gross Reqs | Sched Rcpt | Proj QOH | Plan Ords | Details                      |
|----------|------------|------------|----------|-----------|------------------------------|
|          |            |            | 24       |           | Beginning Available          |
| 04/12/12 | 5          |            | 13       |           | SO: 10S10000 Line: 1         |
| 04/12/12 | 15         |            | -2       |           | SO: 10S10001 Line: 1         |
| 04/16/12 |            | 5          | 3        |           | W/O: 1001 ID: 2326383        |
| 04/20/12 |            |            | 15       | 12        | W/O: W0412028<br>ID: 2322964 |
|          |            |            |          |           | Release Date 04/19/12        |
| 04/25/12 | 2          |            | 13       |           | SO: S0041204 Line: 1         |
| 04/25/12 | 2          |            | 11       |           | SO: S0041207 Line: 1         |
| 04/25/12 | 1          |            | 10       |           | SO: S0041210 Line: 1         |
| 04/25/12 | 1          |            | 9        |           | SO: S0041210 Line: 5         |
| 04/25/12 | 1          |            | 8        |           | SO: S0041213 Line: 1         |
| 04/25/12 | 1          |            | 7        |           | SO: S0041213 Line: 5         |
| 04/25/12 | 2          |            | 5        |           | SO: S0041217 Line: 1         |
| 04/25/12 | 2          |            | 3        |           | SO: S0041217 Line: 3         |
| 04/30/12 | 3          |            | 0        |           | Forecast                     |
| 05/07/12 | 10         |            | -10      |           | Forecast                     |
| 05/19/12 | 15         |            | -25      |           | SO: 10S10001 Line: 2         |
| 05/20/12 |            |            | -4       | 21        | W/O: W0512028<br>ID: 2324188 |
|          |            |            |          |           | Release Date 05/19/12        |

QS-PL-350

The MRP Detail Inquiry (23.16) shows information in the same format as the Master Schedule Detail Inquiry, only it shows scheduled receipts instead of master scheduled quantities.

Forecasts are done in weekly buckets. Because the system makes no assumption about when in the week the demand occurs, all orders to satisfy forecast are due on the first work day of the week.

## MRP Summary Inquiry: Item 50001

## MRP Summary Inquiry: Item 50001

MRP Summary Inquiry x
Run
Export to Excel
View as PDF

Item Number: 50001
Site: 10-100
Start Date: 4/9/2012
End Date:
Column Type: Week
Per Column: 1
Columns: 12

---

Item Number: 50001
Probe Unit - 10 Mhz
Site: 10-100

Qty on Hand: 89.0 EA
Pur/Mfg: M

Buyer/Planner: 1-02
Order Policy: POQ
Mfg LT: 0
Minimum Order: 0

Master Schedule: No
Order Period: 7
Purchase LT: 0
Maximum Order: 0

MRP Required: No
Time Fence: 0
Inspect LT: 0
Order Multiple: 0

Plan Orders: Yes
Safety Time: 0
Inspect Req: No
Order Quantity: 0

Issue Policy: Yes
Safety Stock: 0
Cumulative LT: 0
Yield Percent: 100.00%

---

| Category           | Past | 4/9/2012 | 4/16/2012 | 4/23/2012 | 4/30/2012 | 5/7/2012 |
|--------------------|------|----------|-----------|-----------|-----------|----------|
| Gross Requirements | 100  | 15       | 27        | 15        | 15        | 15       |
| Sched Receipts     | 0    | 0        | 0         | 0         | 0         | 0        |
| Projected QOH      | 52   | 37       | 23        | 8         | -7        | -22      |
| Plan Ords Due      | 63   | 0        | 13        | 0         | 0         | 0        |
| Plan Ords Rel      | 63   | 0        | 13        | 0         | 0         | 0        |

QS-PL-360

This slide shows the MRP Summary Inquiry (23.13) for component 50001 (Probe Unit).

### Discussion

Why does QMI need 27 probes in week 04/16? Do you remember when the sales order line was due on the order created earlier?

The MRP Detail Inquiry may provide an answer.

## MRP Detail Inquiry: Item 50001

## MRP Detail Inquiry: Item 50001



04/11/12

### MRP Detail Inquiry

Item Number: 50001      Site: 10-100      Start Date: 04/10/12      Output: PAGE1000  
 Probe Unit - 10 Mhz

Item Number: 50001      Qty on Hand: 89.0      Site: 10-100  
 Probe Unit - 10 Mhz      UM: EA      Pur/Mfg: M

Buyer/Planner: 1-02      Ord Pol: POQ      Min Order: 0      Mfg LT: 0  
 Mstr Sched: No      Order Period: 7      Max Order: 0      Pur LT: 0  
 MRP Required: No      Time Fence: 0      Ord Mult: 0      Ins LT: 0  
 Plan Orders: Yes      Safety Time: 0      Order Qty: 0      Inspect: No  
 Issue Policy: Yes      Safety Stock: 0      Yield%: 100.00%      Cum LT: 0

| Due Date | Gross Reqs | Sched Rcpt | Proj QOH | Plan Ords | Details                                                               |
|----------|------------|------------|----------|-----------|-----------------------------------------------------------------------|
| 04/10/12 |            |            | 52       |           | Beginning Available                                                   |
| 04/10/12 | 15         |            | 37       |           | W/O: 10120003<br>ID: 2288626<br>Assem: 01040                          |
| 04/17/12 | 15         |            | 22       |           | W/O: 10250002<br>ID: 2296208<br>Assem: 01040                          |
| 04/18/12 |            |            | 35       | 13        | W/O: W0412020<br>ID: 2322956                                          |
| 04/19/12 | 12         |            | 23       |           | Release Date 04/17/12<br>W/O: W0412028<br>ID: 2322964<br>Assem: 01010 |
| 04/24/12 | 15         |            | 8        |           | W/O: 12130002<br>ID: 2299610<br>Assem: 01040                          |
| 05/01/12 | 15         |            | -7       |           | W/O: 12130003<br>ID: 2299611<br>Assem: 01040                          |
| 05/08/12 | 15         |            | -22      |           | W/O: 12130004<br>ID: 2299612<br>Assem: 01040                          |
| 05/15/12 | 15         |            | -37      |           | W/O: 12130005<br>ID: 2299613<br>Assem: 01040                          |


QS-PL-370

The MRP Detail Inquiry (23.16) for item 5001 shows the impact of new requirements for the parent end-item (01010). The system is planning work orders to assemble the probes for the orders that QMI created.

More orders for a component may become due for release earlier and for larger quantities than you expect because of a combination of factors:

- Sales orders are due in the middle of the week.
- Forecasts are due on Mondays.
- The lead time offset for assembly and purchase of components is combined.
- Demands must be combined on one planed order because of the POQ policy.

## MRP Summary Inquiry: Item 02003

## MRP Summary Inquiry: Item 02003

MRP Summary Inquiry
Run
Export to Excel
View as PDF

|             |        |            |          |             |            |         |
|-------------|--------|------------|----------|-------------|------------|---------|
| Item Number | Site   | Start Date | End Date | Column Type | Per Column | Columns |
| 02003       | 10-100 | 4/9/2012   |          | Week        | 1          | 12      |

|                     |                    |                 |                        |
|---------------------|--------------------|-----------------|------------------------|
| Item Number: 02003  | Standard Connector | Pur/Mfg: 0      | Site: 10-100           |
| Qty on Hand: 0.0 EA |                    | Mfg LT: 0       |                        |
| Buyer/Planner: 1-02 | Order Policy: FOQ  | Purchase LT: 0  | Minimum Order: 100     |
| Master Schedule: No | Order Period: 0    | Inspect LT: 0   | Maximum Order: 2,000   |
| MRP Required: No    | Time Fence: 0      | Inspect Req: No | Order Multiple: 100    |
| Plan Orders: Yes    | Safety Time: 0     | Cum LT: 0       | Order Quantity: 1,000  |
| Issue Policy: Yes   | Safety Stock: 100  |                 | Yield Percent: 100.00% |

| Category           | Past | 4/9/2012 | 4/16/2012 | 4/23/2012 | 4/30/2012 | 5/7/2012 |
|--------------------|------|----------|-----------|-----------|-----------|----------|
| Gross Requirements | 159  | 30       | 43        | 30        | 30        | 30       |
| Sched Receipts     | 0    | 0        | 0         | 0         | 0         | 0        |
| Projected QOH      | -159 | 811      | 768       | 738       | 708       | 678      |
| Plan Ords Due      | 0    | 1000     | 0         | 0         | 0         | 0        |
| Plan Ords Rel      | 0    | 1000     | 0         | 0         | 0         | 0        |

This MRP Summary Inquiry (23.13) shows the requirements and order schedule for the standard connector (item 02003).

The requirement to buy in cartons of 1000 makes it more difficult to see the connections between the lower-level component and the higher-level demand.

This is one reason it is so important to get good planning data, plan well ahead of lead time requirements, and trust the system.

## MRP Detail Inquiry: Item 02003

## MRP Detail Inquiry: Item 02003



**MRP Detail Inquiry**

04/11/12

Item Number: 02003      Site: 10-100    Start Date: 04/11/12  
Standard Connector      Output: PAGE1000

Item Number: 02003      Qty on Hand: 0.0      Site: 10-100  
Standard Connector      UM: EA      Pur/Mfg: D

Buyer/Planner: 1-02      Ord Pol: FQJ      Min Order: 100      Mfg LT: 0  
Mstr Sched: No      Order Period: 0      Max Order: 2,000      Pur LT: 0  
MRP Required: No      Time Fence: 0      Ord Mult: 100      Ins LT: 0  
Plan Orders: Yes      Safety Time: 0      Order Qty: 1,000      Inspect: No  
Issue Policy: Yes      Safety Stock: 100      Yield%: 100.00%      Cum LT: 0

| Due Date | Gross Reqs | Sched Rcpt | Proj QOH | Plan Ords | Details               |
|----------|------------|------------|----------|-----------|-----------------------|
| 04/11/12 |            |            | -189     |           | Beginning Available   |
| 04/11/12 |            |            | 811      | 1,000     | I/S: 08020077         |
|          |            |            |          |           | Site: 10-200          |
|          |            |            |          |           | Release Date 04/10/12 |
| 04/17/12 | 30         |            | 781      |           | W/O: 10250002         |
|          |            |            |          |           | ID: 2296208           |
|          |            |            |          |           | Assem: 01040          |
| 04/17/12 | 13         |            | 768      |           | W/O: W0412020         |
|          |            |            |          |           | ID: 2322956           |
|          |            |            |          |           | Assem: 50001          |
| 04/24/12 | 30         |            | 738      |           | W/O: 12130002         |
|          |            |            |          |           | ID: 2299610           |
|          |            |            |          |           | Assem: 01040          |
| 05/01/12 | 30         |            | 708      |           | W/O: 12130003         |
|          |            |            |          |           | ID: 2299611           |
|          |            |            |          |           | Assem: 01040          |
| 05/08/12 | 30         |            | 678      |           | W/O: 12130004         |
|          |            |            |          |           | ID: 2299612           |
|          |            |            |          |           | Assem: 01040          |



QS-PL-390

MRP Detail Inquiry (23.16) for item 02003 shows the higher-level work orders for the medical ultrasound assembly that are creating the demand for the connectors and the effect of the order multiple of 1000.

## MRP Summary Inquiry: Item 60003

## MRP Summary Inquiry: Item 60003

MRP Summary Inquiry X
Run
Export to Excel
View as PDF

Item Number: 60003
Site: 10-100
Start Date: 4/9/2012
End Date:
Column Type: Week
Per Column: 1
Columns: 12

Item Number: 60003    Keyboard    Site: 10-100  
Qty on Hand: 46.0 EA    Pur/Mfg: P  
Buyer/Planner: 1-02    Order Policy: POQ    Mfg LT: 1    Minimum Order: 20  
Master Schedule: Yes    Order Period: 7    Purchase LT: 5    Maximum Order: 1,000  
MRP Required: No    Time Fence: 0    Inspect LT: 0    Order Multiple: 1  
Plan Orders: Yes    Safety Time: 0    Inspect Req: No    Order Quantity: 0  
Issue Policy: Yes    Safety Stock: 0    Cumulative LT: 0    Yield Percent: 100.00%

| Category           | Past | 4/9/2012 | 4/16/2012 | 4/23/2012 | 4/30/2012 | 5/7/2012 |
|--------------------|------|----------|-----------|-----------|-----------|----------|
| Gross Requirements | 102  | 15       | 27        | 15        | 15        | 15       |
| Sched Receipts     | 63   | 13       | 0         | 0         | 0         | 0        |
| Projected QOH      | 7    | 5        | -22       | -37       | -32       | -27      |
| Plan Ords Due      | 0    | 0        | 0         | 0         | 20        | 20       |
| Plan Ords Rel      | 0    | 0        | 0         | 20        | 20        | 25       |

QS-PL-400

The MRP Summary Inquiry (23.13) for item 60003 (keyboard) shows an initial quantity on hand of 46. Since the keyboard is a purchased component, the detail inquiry shows a purchase order as a source of supply.



## MRP Detail Inquiry: Item 60003

## MRP Detail Inquiry: Item 60003

|                                                                                   |  |                                                |  |                                       |  |
|-----------------------------------------------------------------------------------|--|------------------------------------------------|--|---------------------------------------|--|
|  |  | <h2>MRP Detail Inquiry</h2>                    |  | 04/11/12                              |  |
| Item Number: 60003<br>Keyboard                                                    |  | Site: 10-100                                   |  | Start Date: 04/11/12<br>Output: PAGE  |  |
| Item Number: 60003<br>Buyer/Planner: 1-02    Ord Pol: POQ                         |  | Qty on Hand: 46.0<br>UM: EA                    |  | Site: 10-100<br>Pur Mfg: P            |  |
| Mstr Sched: Yes    Order Period: 7<br>MRP Required: No    Time Fence: 0           |  | Min Order: 20<br>Max Order: 1,000              |  | Mfg LT: 1<br>Pur LT: 5                |  |
| Plan Orders: Yes    Safety Time: 0<br>Issue Policy: Yes    Safety Stock: 0        |  | Ord Mult: 1<br>Order Qty: 0<br>Yield%: 100.00% |  | Ins LT: 0<br>Inspect: No<br>Cum LT: 0 |  |

| Due Date | Gross Reqs | Sched Rcpt | Proj QOH | Plan Ords | Details                                               |
|----------|------------|------------|----------|-----------|-------------------------------------------------------|
| 04/11/12 |            |            | -8       |           | Beginning Available                                   |
| 04/14/12 |            | 13         | 5        |           | PO: P0041205 Line: 1                                  |
| 04/17/12 | 15         |            | -10      |           | W/O: 10230002<br>ID: 2296208<br>Assem: 01040          |
| 04/19/12 | 12         |            | -22      |           | W/O: W0412028<br>ID: 2322964<br>Assem: 01010          |
| 04/24/12 | 15         |            | -37      |           | W/O: 12130002<br>ID: 2299610<br>Assem: 01040          |
| 05/01/12 | 15         |            | -52      |           | W/O: 12130003<br>ID: 2299611<br>Assem: 01040          |
| 05/01/12 |            |            | -32      | 20        | W/O: 08020111<br>ID: 2286399<br>Release Date 04/26/12 |
| 05/08/12 | 15         |            | -47      |           | W/O: 12130004<br>ID: 2299612<br>Assem: 01040          |

MRP Detail Inquiry (23.16) for item 60003 shows a purchase order receipt scheduled this week for a quantity of 5.

## Approve Planned Orders

### Approve Planned Orders

Planned Purchase Order Appr...
Go To
Actions
Copy
Print
Preview
Attach

Item Number:

Site:

Release Date:

To:

To:

To:

Default Approve: ☒

Buyer/Planner:

Include Kanban Replenished Items: ☐

Include Phantoms: ☐

Include Manufactured Items: ☐

Q5-PL-440

The QMI planner uses Planned Purchase Order Approval (23.11) to approve MRP planned purchase orders.

When you approve the MRP planned purchase orders, the system converts these orders into purchase requisitions. The planner:

- Selected a range of item numbers that includes only the components of the medical ultrasound and only for the local site.
- Selected a range of dates that will include any past due orders, but only looking a short time into the future. This will limit the number of orders selected.
- Set Default Approve to Yes so all planned orders will be selected for approval. If you do the selection by release date—for example all orders due to be released today, a common way to use this function—then you would want to check Default Approve.

If you are unsure, you can leave Default Approve unchecked and approve the orders individually. When there are many planners, orders are usually selected by buyer/planner code.

A review screen displays next.

## Approve Planned Orders

### Approve Planned Orders

Planned Purchase Order Appr...
Go To Actions Copy Print Preview Attach

| Ln | Req      | Item Number | Qty Ordered | Rel Date  | Due Date  | Appr                                |
|----|----------|-------------|-------------|-----------|-----------|-------------------------------------|
| 1  | 08020111 | 60003       | 20.0        | 4/26/2012 | 5/1/2012  | <input checked="" type="checkbox"/> |
| 2  | 08020112 | 60003       | 20.0        | 5/3/2012  | 5/8/2012  | <input checked="" type="checkbox"/> |
| 3  | 08020113 | 60003       | 25.0        | 5/10/2012 | 5/15/2012 | <input checked="" type="checkbox"/> |
| 4  | 04110038 | 60003       | 37.0        | 5/17/2012 | 5/22/2012 | <input checked="" type="checkbox"/> |
| 5  | 04110039 | 60003       | 20.0        | 5/24/2012 | 5/29/2012 | <input checked="" type="checkbox"/> |
| 6  | 04110040 | 60003       | 20.0        | 5/31/2012 | 6/5/2012  | <input checked="" type="checkbox"/> |
| 7  | 04110041 | 60003       | 20.0        | 6/7/2012  | 6/12/2012 | <input checked="" type="checkbox"/> |
| 8  | 04110042 | 60003       | 34.0        | 6/14/2012 | 6/19/2012 | <input checked="" type="checkbox"/> |
| 9  | 04110043 | 60003       | 20.0        | 6/21/2012 | 6/26/2012 | <input checked="" type="checkbox"/> |
| 10 | 04110044 | 60003       | 20.0        | 6/28/2012 | 7/3/2012  | <input checked="" type="checkbox"/> |

Ln Req Item Number Qty Ordered Rel Date Due Date Appr
0

QAD
QS-PL-450

The Appr box is already checked because Default Approved was checked in the previous selection screen. Clicking Next will bring up a verification window for confirmation. Clicking Yes will approve all orders, converting them into purchase requisitions. They are no longer planned orders.

If more orders need approval than will fit on one screen, clicking Next brings up the next ten orders for review. The system will cycle through as many screens as necessary to display all the orders included with your selection criteria.

If you are manually selecting orders for approval, or if you need to change a particular order's selection, use the lower frame. Enter the line number of the order you want to change, then click Next to the Approval check box and either check it or uncheck it, then click Next again.

A pop-up displays requesting confirmation of the approval. Clicking Yes will approve all orders, converting them into purchase requisitions. They are no longer planned orders.

If more orders need approval that will fit on one screen, clicking Next brings up the next ten orders for review. The system will cycle through as many screens as necessary to display all the orders included with your selection criteria.

## Review Purchase Requisition

### Review Purchase Requisition

Purchase Requisition Browse X

Actions ▾ Setup ▾ Cancel
⏮ ⏪ ⏩ ⏭ ⭐ Add to Favorites

Search

Item Number ▾

starts at ▾

-

+ ×

Search

Clear All

Viewing 1 - 20 of 20
Records per page: 100 ▾

| Item Number ▴ ▾ | Req Nbr ▴ ▾ | Quantity ▴ ▾ | Rel Date ▴ ▾ | Need Date ▴ ▾ | Req By ▴ ▾ |
|-----------------|-------------|--------------|--------------|---------------|------------|
| 60003           | 08020111    | 20.0         | 4/26/2012    | 5/1/2012      |            |
| 60003           | 08020112    | 20.0         | 5/3/2012     | 5/8/2012      |            |
| 60003           | 08020113    | 25.0         | 5/10/2012    | 5/15/2012     |            |
| 60003           | 04110038    | 37.0         | 5/17/2012    | 5/22/2012     |            |
| 60003           | 04110039    | 20.0         | 5/24/2012    | 5/29/2012     |            |
| 60003           | 04110040    | 20.0         | 5/31/2012    | 6/5/2012      |            |
| 60003           | 04110041    | 20.0         | 6/7/2012     | 6/12/2012     |            |
| 60003           | 04110042    | 34.0         | 6/14/2012    | 6/19/2012     |            |
| 60003           | 04110043    | 20.0         | 6/21/2012    | 6/26/2012     |            |
| 60003           | 04110044    | 20.0         | 6/28/2012    | 7/3/2012      |            |
| 60010           | 04110055    | 1,000.0      | 5/11/2012    | 5/14/2012     |            |
| 60010           | 04110056    | 1,000.0      | 5/11/2012    | 5/14/2012     |            |
| 60010           | 04110057    | 1,000.0      | 6/6/2012     | 6/7/2012      |            |

**QAD**

Q5-PL-470

In Purchase Requisition Browse (5.1.5), you can see that the system has converted the planned purchase orders into purchase requisitions. Notice the Release Date and Need Date.

The Release Date is when the purchase order should to be created and released to the vendor to ensure that the material will arrive when it is needed (Need Date). The Release Date takes into account the purchase lead time and any internal purchase inspection lead time. The purchase lead time is determined in consultation with the vendor and makes allowance for transport time.

## Create Purchase Order

### Create Purchase Order

**Purchase Order Maintenance**

Go To Actions Copy Print Preview Attach

Header Lines Trailer

Header Details Tax Info Logistics Delivery ERS Consignment Comments

**Header**

Purchase Order: P1010004 Supplier: 10S1002 Ship-To: 10-100

Supplier: Bridgeville Industries  
3390 Linco Road  
Stevensville MI 49127  
USA - TAX PURPOSE

Ship To: QMI -USA Division  
30 Ridgedale Avenue  
East Hanover NJ 07950  
USA - TAX PURPOSE

**Details**

Order Date: 4/11/2012 Price Tbl: Disc Tbl: Confirming: ☒ Imp/Exp: ☐  
 Due Date: 4/11/2012 Ln Disc: 0.00 Currency: USD Language: us  
 Buyer: 3-02 Site: Taxable: ☒ Fixed Price: ☒ Consign: ☐  
 Bill To: 10-100 Daybook Set: 10PURCH Credit Terms: 30D 0.00  
 Sales/Job: Contract: Project: Entered By: mfg  
 Contact: Requested By:  
 Remarks: Comments:

**QAD** Q5-PL-480

The QMI buyer will now create a purchase order to buy the required components based on the requisitions created from the MRP planned orders.

The purchase order is created in Purchase Order Maintenance (5.7) using the same basic procedure that was shown in the chapter on Purchasing. However, in this case, the line items will be created from requisitions rather than entered manually, which requires a few adjustments to the process.

When creating a PO from requisitions, leave the Due Date field on the PO header blank. This ensures that the line item due dates default from the requisition due date, not the PO header due date. This means each line item can have a different due date, based on the requisition need date.

## Add Purchase Order: Line 1 (60003)

## Add Purchase Order: Line 1 (60003)

The screenshot shows the 'Purchase Order Maintenance' window. The 'Lines' tab is active, displaying a table with one line item. A callout box points to the 'Item' field, indicating that the lookup icon should be used to see a popup window of requisitions.

| Ln | Site   | Req | Item | Qty Ordered | UM | Unit Cost | Disc% |
|----|--------|-----|------|-------------|----|-----------|-------|
| 1  | 10-100 |     |      | 0.0         |    | 0.00      | 0.00  |

**Line Details**

|                                      |                                       |                                                |
|--------------------------------------|---------------------------------------|------------------------------------------------|
| Qty Received:                        | Due Date:                             | CRT Int:                                       |
| Qty to Rel:                          |                                       | Pur Acct:                                      |
| Single Lot: <input type="checkbox"/> | Performance Date:                     | Project:                                       |
| Location:                            | Need Date:                            | Type:                                          |
| Item Revision:                       | Sales/Job:                            | Taxable: <input type="checkbox"/>              |
| Status:                              | Fixed Price: <input type="checkbox"/> | Inspect Req: <input type="checkbox"/>          |
| Supplier Item:                       |                                       | UM Conversion:                                 |
| Manufacturer:                        |                                       | Stock UM Quantity:                             |
| Description:                         |                                       | Update Avg/Last Cost: <input type="checkbox"/> |
|                                      |                                       | Extended Net Cost:                             |

**QAD** QS-PL-490

To create a line, the buyer only needs to enter the requisition number for the item (using the lookup) and the remaining fields are filled in based on the requisition. Using the requisition lookup, double-click the requisition number to add it to the PO. Then click Next until you cycle back to the line number field for the next item.

**Note** Once a requisition is added to a PO, the requisition record is deleted. It now exists only as purchase order line item.

## Add Purchase Order: Line 1

Purchase Order Maintenance X

Go To Actions Copy Print Preview Attach

Header Lines Trailer

Lines Line Details Tax Info Comments

Header

Purchase Order: P1010004 Supplier: 10S1002 Ln Format S/M: Single

Lines

| Ln     | Site | Req      | Item Number | Qty Ordered | UM | Unit Cost | Disc% |
|--------|------|----------|-------------|-------------|----|-----------|-------|
| 10-100 |      | 04110038 | 60003       | 37.0        | EA | 55.00     | 0.00  |

Line Details

Qty Received: 0.0 Due Date: 4/11/2012 CRT Int: 0.00

Qty to Rel: 0.0 Pur Acct: 6610 Mech ADM

Single Lot: ☐ Performance Date: 4/11/2012 Project:

Location: 020 Need Date: 5/22/2012 Type:

Item Revision: Sales/Job: Taxable: ☐

Status: Fixed Price: ☒ Inspect Req: ☐ Cmnts: ☐

Supplier Item: UM Conversion: 1.0000

Manufacturer: Stock UM Quantity: 37.0 EA

Description: Keyboard Update Avg/Last Cost: ☒ Extended Net Cost: 2,035.00



Q5-PL-500

Line 1 for item 60003 is shown here; the data defaults into the PO line from the requisition. If buyers have authority, they can override the requisition information and manually adjust the PO line item quantities, due date, or cost and discount. Buyers often, for example, have authority to increase the line item quantity slightly in order to get a quantity discount.

The buyer adds two more requisitions to the order before exiting the lines to complete the trailer.

## Add Purchase Order: Trailer

### Add Purchase Order: Trailer

Purchase Order Maintenance X

Go To Actions Copy Print Preview Attach

Header Lines **Trailer**

Trailer Tax Info Trailer Information

Header

Purchase Order: P1010004 Supplier: 10S1002 Ship-To: 10-100

Trailer

|                     |          |               |             |          |
|---------------------|----------|---------------|-------------|----------|
| Non-Taxable:        | 4,235.00 | Currency: USD | Line Total: | 4,235.00 |
| Taxable:            | 0.00     |               | Total Tax:  | 0.00     |
| Tax Date: 4/11/2012 |          |               | Total:      | 4,235.00 |

View/Edit Tax Detail:

Trailer Information

Order Revision: 0

Order Rev Date:

Amount Prepaid: 0.00

Print PO: ☒

Status:

EDI PO: ☐

Close Date:

FOB:

Deliver To:

Ship Via: PER INSTRUCTIONS

QAD
QS-PL-540

The trailer frame displays the total value of the order and completes the purchase order.



## Receive Purchase Order

**Receive Items**

Purchase Order Receipts X

Go To Actions Copy Print Preview

Order: p1010004 Supplier: 10S1002 Status: Effective: 4/12/2012

Packing Slip: Receiver: Bridgeville Industries

Move to Next Operation: ☒ **Receive All: ☒** Comments:

Purchase Order Receipts X

Go To Actions Copy Print Preview

Order: P1010004 Supplier: 10S1002 Status: Packing Slip:

| Ln | Item Number | UM | Qty Open | UM | Receipt Qty | UM | Project | Due Date  | T |
|----|-------------|----|----------|----|-------------|----|---------|-----------|---|
| 1  | 60003       | EA | 37.0     | EA | 37.0        | EA |         | 4/11/2012 |   |
| 2  | 60003       | EA | 20.0     | EA | 20.0        | EA |         | 4/11/2012 |   |
| 3  | 60003       | EA | 20.0     | EA | 20.0        | EA |         | 4/11/2012 |   |

QAD Q5-PL-550

In Purchase Order Receipts (5.13.1), the receiving clerk checks Receive All since the purchase order has been shipped complete. This sets up the receipt for simplified processing. If the vendor has provided a packing slip with a reference number, the number can be entered.

Next displays a screen with all the receiving data pre-filled. Click Next to proceed and click Yes when prompted to display the details about the receiving transactions about to be completed, including the default inventory location where the system expects the material to be placed. If all is correct click Next.

You can use Inventory Detail by Item Browse (3.2) to review the current inventory balances of the component items after the receipt.

## Review Planned Order Report or Browse

### Planned Order Report or Browse

Planned Order Browse

Actions Setup Cancel Add to Favorites

Search

Item Number starts at Search Clear All

Viewing 1 - 100 of 692 Records per page: 100

| Item Number | Site   | Work Order | ID      | Buyer/Planner | Purchase/Manufacture | Qty Ordered | UM | Rel Date  |
|-------------|--------|------------|---------|---------------|----------------------|-------------|----|-----------|
| 01010       | 10-100 | 04110002   | 2326386 | 1-01          | M                    | 22.0        | EA | 5/24/2012 |
| 01010       | 10-100 | 04110003   | 2326387 | 1-01          | M                    | 5.0         | EA | 6/1/2012  |
| 01010       | 10-100 | 04110004   | 2326388 | 1-01          | M                    | 5.0         | EA | 6/8/2012  |
| 01010       | 10-100 | 04110005   | 2326389 | 1-01          | M                    | 12.0        | EA | 6/22/2012 |
| 01010       | 10-100 | 04110006   | 2326390 | 1-01          | M                    | 3.0         | EA | 6/29/2012 |
| 01010       | 10-100 | 04110007   | 2326391 | 1-01          | M                    | 5.0         | EA | 7/6/2012  |
| 01013       | 10-100 | 04110037   | 2326404 | 1-03          | P                    | 1,000.0     | BX | 6/22/2012 |
| 01020       | 10-100 | 04110008   | 2326392 | 1-01          | M                    | 9.0         | EA | 6/6/2012  |
| 01030       | 10-100 | 08020029   | 2286330 | 1-01          | M                    | 50.0        | EA | 4/9/2012  |
| 01030       | 10-100 | 08020030   | 2286331 | 1-01          | M                    | 25.0        | EA | 4/26/2012 |
| 01030       | 10-100 | 08020031   | 2286332 | 1-01          | M                    | 25.0        | EA | 5/10/2012 |
| 01030       | 10-100 | 08020032   | 2286333 | 1-01          | M                    | 25.0        | EA | 5/31/2012 |
| 01030       | 10-100 | 08020033   | 2286334 | 1-01          | M                    | 25.0        | EA | 6/14/2012 |
| 01030       | 10-100 | 09070005   | 2288191 | 1-01          | M                    | 25.0        | EA | 7/5/2012  |



Q5-PL-590

The QMI planner and buyer have handled the planned purchase orders. Next, the planner focuses on the manufacturing orders.

The production control planner checks the Planned Order Report (23.12) or Browse (23.9) to see a list of the orders that MRP has planned but that are not firm planned yet. Once approved, MRP planned orders become firm planned orders. Remember, firm planned orders cannot be replanned by MRP so you do not want to approved MRP planned orders until you are ready to release them.

**Note** MRP planned purchase orders, when approved, become purchase requisitions. MRP planned work orders, when approved, become firm planned orders.

The Planned Order Browse shows both manufactured and purchased item planned orders. Note the M, P, or L in the Purchase/Manufacture column.

For this example, the planner decides to release the first planned order.

## Approve Planned Work Orders

### Approve Planned Work Orders

Planned Work Order Approval

Go To Actions Copy Print Preview Attach

Item Number: 01010 To: 01010

BOM/Formula: To:

Site: 10-100 To: 10-100

Release Date: To:

Default Approve: ☒

Buyer/Planner:

Include Phantoms: ☐

Include Kanban Replenished Items: ☐

Include Line Manufactured Items: ☐

Include Purchased Items: ☐



Q5-PL-600

The planner uses Planned Work Order Approval (23.10) to approve the MRP planned order. The planner has deselected Default Approve.

**Note** You can also choose orders by planner code or release date to limit the items displayed.

## Planned Work Order Approval: Line 1

## Planned Work Order Approval: Line 1

Planned Work Order Approval

Go To Actions Copy Print Preview Attach

| Ln | Work Order | ID      | Item Number | Qty Ordered | Rel Date  | OK                       |
|----|------------|---------|-------------|-------------|-----------|--------------------------|
| 1  | 04110002   | 2326386 | 01010       | 22.0        | 5/24/2012 | <input type="checkbox"/> |
| 2  | 04110003   | 2326387 | 01010       | 5.0         | 6/1/2012  | <input type="checkbox"/> |
| 3  | 04110004   | 2326388 | 01010       | 5.0         | 6/8/2012  | <input type="checkbox"/> |
| 4  | 04110005   | 2326389 | 01010       | 12.0        | 6/22/2012 | <input type="checkbox"/> |
| 5  | 04110006   | 2326390 | 01010       | 3.0         | 6/29/2012 | <input type="checkbox"/> |
| 6  | 04110007   | 2326391 | 01010       | 5.0         | 7/6/2012  | <input type="checkbox"/> |

| Ln | Work Order | ID      | Item Number | Qty Ordered | Rel Date  | OK                                  |
|----|------------|---------|-------------|-------------|-----------|-------------------------------------|
| 1  | 04110002   | 2326386 | 01010       | 22.0        | 5/24/2012 | <input checked="" type="checkbox"/> |



QS-PL-610

Because Default Approve was unchecked in the first frame of Planned Work Order Approval (23.10), the OK check box defaults to unchecked. After reviewing the list, the planner approves specific orders by entering the line number displayed in the upper window into the Ln field of the lower frame, clicking Next, and checking OK by clicking the cursor in the box.

Clicking Next moves the check mark to the upper window and clicking it again displays a confirmation message.

## Planned Work Order Approval: Line 1

Planned Work Order Approval X

Go To Actions Copy Print Preview Attach

| Ln | Work Order | ID      | Item Number | Qty Ordered | Rel Date  | OK                                  |
|----|------------|---------|-------------|-------------|-----------|-------------------------------------|
| 1  | 04110002   | 2326386 | 01010       | 22.0        | 5/24/2012 | <input checked="" type="checkbox"/> |
| 2  | 04110003   | 2326387 | 01010       | 5.0         | 6/1/2012  | <input type="checkbox"/>            |
| 3  | 04110004   | 2326388 | 01010       | 5.0         | 6/8/2012  | <input type="checkbox"/>            |
| 4  | 04110005   | 2326389 | 01010       | 12.0        | 6/22/2012 | <input type="checkbox"/>            |
| 5  | 04110006   | 2326390 | 01010       | 3.0         | 6/29/2012 | <input type="checkbox"/>            |
| 6  | 04110007   | 2326391 | 01010       | 5.0         | 7/6/2012  | <input type="checkbox"/>            |

Is all information correct

Yes No

| Ln | Work Order | ID | Item Number | Qty Ordered | Rel Date | OK                       |
|----|------------|----|-------------|-------------|----------|--------------------------|
| 0  |            |    |             |             |          | <input type="checkbox"/> |

Clicking Yes to the confirmation approves the planned order and makes it Firm Planned. When an order is firmed, you can no longer see it in Planned Work Order Browse.

## Review Work Order

The screenshot shows the 'Work Order Browse' window in the QAD system. The window has a title bar 'Work Order Browse' and a toolbar with buttons for 'Actions', 'Setup', 'Cancel', navigation icons, 'Add to Favorites', 'Create', and 'Modify'. Below the toolbar is a search section with two criteria: 'Item Number' set to 'starts at' and 'Work Order' set to 'equals'. The search results show 'Viewing 1 - 1 of 1' and 'Records per page: 100'. A table displays the search results with columns: Item Number, Item Description, Work Order, ID, Site, Status, Order Date, Release Date, Due Date, and Qty Open. The first row is highlighted in blue and contains the following data:

| Item Number | Item Description   | Work Order | ID      | Site   | Status | Order Date | Release Date | Due Date  | Qty Open |
|-------------|--------------------|------------|---------|--------|--------|------------|--------------|-----------|----------|
| 01010       | Medical Ultrasound | 04110002   | 2326386 | 10-100 | F      | 4/11/2012  | 5/24/2012    | 5/25/2012 |          |

The QAD logo is visible in the bottom left corner, and the text 'Q5-PL-630' is in the bottom right corner.

In this example, the planner uses Work Order Browse (16.2) to review work orders for item 01010 at site 10-100.

Since there are many orders, the planner adds another search criteria to the browse and searches for the specific order he just approved (04110002), which now has a status code of F (firm planned). This means that it is no longer under MRP control.

Note the different numbering scheme for MRP planned orders compared to the manually created order created earlier. The manually created order has a sequential number assigned from the counter in Work Order Control. The MRP orders have a date-coded sequential number.

## Verify Availability of Components

### Verify Availability of Components



**Work Order Component Check**
04/12/12

| Work Order<br>04110002        | ID     | Component Item | Short Only<br>No |           | Output<br>PAGE |
|-------------------------------|--------|----------------|------------------|-----------|----------------|
| Component Item                | Qty    | Req UM         | On Hand          | Qty Alloc | Qty Short      |
| 50001 Probe Unit - 10 Mhz     | 10-100 | 22.0 EA        | 89.0             | 0.0       | 0.0            |
| 60001 Durable Plastic Housing | 10-100 | 22.0 EA        | 777.0            | 0.0       | 0.0            |
| 60002 Display / Readout       | 10-100 | 22.0 EA        | 135.0            | 0.0       | 0.0            |
| 60003 Keyboard                | 10-100 | 22.0 EA        | 123.0            | 0.0       | 0.0            |
| 60005 Battery                 | 10-100 | 22.0 EA        | 1,209.0          | 0.0       | 0.0            |
| 60006 Monitor Cable           | 10-100 | 22.0 EA        | 125.0            | 0.0       | 0.0            |
| 60007 Movable Cart            | 10-100 | 22.0 EA        | 771.0            | 0.0       | 0.0            |
| 60008 Printer                 | 10-100 | 22.0 EA        | 235.0            | 0.0       | 0.0            |
| 60050 Base Unit / CPU         | 10-100 | 22.0 EA        | 183.0            | 0.0       | 0.0            |
| 90093 Shipping Carton         | 10-100 | 22.0 EA        | 545.0            | 0.0       | 0.0            |

16.3.18
Work Order Component Check
wowocc.p


Q5-PL-640

QMI's production activity control (PAC) manager uses Work Order Component Check (16.3.18) to verify the availability of components in inventory.

By default, this utility shows only those components that are short of the requirement for this order.

In the selection screen, you enter the specific work order you want to check. If you uncheck the Short Only box, you will see the display pictured here, which shows the specific quantities required for this order and the quantity on hand. In this example, each component has a sufficient quantity.

## Release Work Order

### Release Work Order

Work Order Release/Print X
 

Go To ▾ Actions ▾ Copy ▾ Print Preview Attach ▾

Work Order: 04110002

ID: 2326386

Batch:

Print Picklist: ☒

Print Routing: ☒

Print Co/By-Products: ☒

Item Number: 01010

Medical Ultrasound

Quantity Ordered: 22.0

Quantity Completed: 0.0

Sales/Job:

Remarks:

Deliver To:

Print Bar Code: ☐

Operation: ☒

Update Release Date: ☐

Release Date: 5/24/2012

Work Order Due Date: 5/25/2012

Work Order Status: F

Supplier:

Output:

Batch ID:

Q5-PL-650

The PAC manager releases the work order using Work Order Release/Print (16.6). Note the print selection options that have been chosen. Set the Output field to Page to view the result of releasing the work order.



## Work Order Release/Print: Picklist

## Work Order Release/Print



**Work Order Release/Print**  
**10USA**

04/12/12 00:37:21  
**Page:2**

Work Order Picklist

Work Order: 04110002  
ID: 2326386  
Batch:  
Item Number: 01010  
Remarks: Medical Ultrasound  
Qty Ordered: 22.0 EA

Issue Date: 05/24/12  
Rev: D  
Work Order Due Date: 05/25/12  
Sales/Job:  
Deliver To:

| Item Number             | Rev | Site Location | Lot/Serial Ref    | Required Qty to Issue | UM  | Issued |
|-------------------------|-----|---------------|-------------------|-----------------------|-----|--------|
| 50001                   |     |               | *** Continued *** |                       |     |        |
|                         |     | 020           | 50001-1011-2      | 1.0                   | ( ) |        |
|                         |     | 020           | 50001-1011-3      | 1.0                   | ( ) |        |
|                         |     | 020           | 50001-1011-4      | 1.0                   | ( ) |        |
|                         |     | 020           | 50001-1011-5      | 1.0                   | ( ) |        |
|                         |     | 020           | 50001-1011-6      | 1.0                   | ( ) |        |
| 60001                   |     | 10-100        |                   | 22.0                  | EA  |        |
| Durable Plastic Housing |     | 020           |                   | 22.0                  | ( ) |        |
| 60002                   |     | 10-100        |                   | 22.0                  | EA  |        |
| Display / Readout       |     | 020           |                   | 22.0                  | ( ) |        |
| 60003                   |     | 10-100        |                   | 22.0                  | EA  |        |
| Keyboard                |     | 020           |                   | 22.0                  | ( ) |        |


QS-PL-660

This slide shows the hard-copy work order picklist. This document would be routed to the stock room so the stock clerk can use it to issue the components to the work order.

## Work Order Release/Print: Routing

# Work Order Routing

  
QAD

Work Order Release/Print

10USA

04/12/12 00:37:21

Page:5

Work Order Routing

Work Order: 04110002  
ID: 2326386  
Batch:  
Item Number: 01010  
Remarks: Medical Ultrasound  
Qty Ordered: 22.0 EA

Rev: D

Work Order Due Date: 05/25/12

Sales/Job:  
Deliver To:

| Op | Work Center                                                      | Std Op | Tooling<br>Supplier | Setup Time<br>Run Time | Actual                       | By |
|----|------------------------------------------------------------------|--------|---------------------|------------------------|------------------------------|----|
| 10 | 1000 Mach: 1001<br>General Assembly-Ultra<br>ASSEMBLE COMPONENTS |        |                     | 5.0<br>220.0           | _____<br>_____<br>( )<br>( ) |    |
| 20 | 1050 Mach: 1001<br>Product Test-Ultra<br>TEST FINISHED UNIT      |        |                     | 2.0<br>110.0           | _____<br>_____<br>( )<br>( ) |    |
| 30 | 1060 Mach: 1001<br>Packaging -Ultra<br>PACK FOR SHIPPING         |        |                     | 0.5<br>44.0            | _____<br>_____<br>( )<br>( ) |    |

  
QAD

05-PL-678

## Issue Work Order Components

**Work Order Component Issue**

Go To Actions Copy Print Preview Attach

Work Order: 04110002 ID: 2326386 Op: Effective: 4/12/2012  
 Item Number: 01010 ST: R Issue Alloc: ☐  
 Medical Ultrasound Issue Picked: ☒  
 Document:

| Item Number | Qty Open | Qty Alloc | Qty Picked | Qty to Iss | Qty |
|-------------|----------|-----------|------------|------------|-----|
| 50001       | 22.0     | 0.0       | 22.0       | 22.0       |     |
| 60001       | 22.0     | 0.0       | 22.0       | 22.0       |     |
| 60002       | 22.0     |           | 22.0       | 22.0       |     |

Display items being issued  
 Yes No

Item Number: Op: Site: Loc:  
 Description: Lot/Serial:  
 Quantity: UOM: Reference:  
 Substitute: ☐ Cancel B/O: ☐ Multi Entry: ☐  
 Document:

**QAD** Q5-PL-680

The stock clerk issues the components using Work Order Component Issue (16.10). By checking Issue Picked in the header frame, the system pre-fills the transaction fields with the information from the work order picklist created in the previous step.

Click Yes to Display Items being Issued so you have an opportunity to verify that the correct items are being issued from the correct locations in the correct quantities. Then click Yes again when prompted to confirm the transaction and issue the components.

## Report Labor

**Report Labor**

Labor Feedback by Work Order

Go To Actions Copy Print Preview Attach

Work Order: 04110002 ID: 2326386  
 Operation: 30 PACK FOR SHIPPING Op Status: QUEUE  
 Document:  
 Employee: 10-emp01 Alex Erikson Pay Code:  
 Department: 0550 Work Center: 1060 Time Ind: Hours Minutes  
 Shift: Machine: 1001 Project:

Quantity Completed: 22.0 Effective Date: 4/12/2012

Rejects: ☐ Operation Complete: ☒  
 Rework: ☐ Move to Next Operation: ☐  
 Previous Ops Complete: ☒

Start Setup: 00:00:00 Elapsed Setup: 0.000  
 Elapsed/Stop Setup: 00:00:00  
 Start Run: 00:00:00 Elapsed Run: 0.000  
 Elapsed/Stop Run: 01:30:00

Comment:  
 Down Time: 00:00:00 Down Time Reason:

QAD Q5-PL-690

On the shop floor, Angela (employee 10-EMP01) uses Labor Feedback by Work Order (16.20.1) to report the labor for completing the 22 medical ultrasound units. Operation 30, shown here, is the last operation.

Each operation was recorded with Operation Complete selected. This means no intermediate reporting was done. Move Next Operation was selected, which set the status at the next operation to Queue. Previous Operations Complete was selected just to be sure all operations were closed in case anyone forgot to report it.

### Discussion

Where were the standard setup and run times defined?

## Receive and Close Work Order

Work Order Receipt

Go To Actions Copy Print Preview Attach

Work Order: 04110002 ID: 2326386 Effective: 4/12/2012

Remarks: Batch:

Item Number: 01010 Lot/Serial Control: S UM: EA

Description: Medical Ultrasound W/O Stat: R

Open Quantity: 22.0 Automatic Lot Numbers: ☐

Document:

Quantity: 22.0

UM: EA

Conversion: 1.0000

Scrapped Qty: 0.0

UM: EA

UM Conversion: 1.0000

Site: 10-100

Location: 010

Lot/Serial:

Reference:

Multi Entry: ☒

Set Attributes: ☐

Total Units: 22.0

Remarks:

Close: ☒

QAD Q5-PL-700

Using Work Order Receipt (16.11), the Finished Goods Inventory personnel receive the 22 units of 01010 and close the work order.

Note the check mark in Multi-Entry. The medical ultrasound is a serial number controlled item so each of the 22 units must be received individually. To streamline this, you can enter the first serial number and the system will generate a sequence of 21 more numbers for you.

After completing this, the clerk selects the Close box. This indicates the work order is complete and closed from a manufacturing standpoint. To do a partial receipt, enter the quantity being received into inventory and leave the Close box unchecked. This leaves the work order status R (Released) and open to receive the balance of the items at a latter time.

Clicking Next displays a prompt to review; clicking Next again displays a confirmation.

## Review MRP Summary

Review MRP Summary

MRP Summary Inquiry X

Run

Export to Excel

View as PDF

Item Number  
01010

Site  
10-100

Start Date  
4/9/2012

End Date

Column Type  
Week

Per Column  
1

Columns  
12

Item Number: 01010

Medical Ultrasound

Site: 10-100

Qty on Hand: 46.0 EA

Pur/Mfg: M

Buyer/Planner: 1-01

Order Policy: POQ

Mfg LT: 1

Minimum Order: 1

Master Schedule: Yes

Order Period: 7

Purchase LT: 0

Maximum Order: 5

MRP Required: Yes

Time Fence: 0

Inspect LT: 0

Order Multiple: 1

Plan Orders: Yes

Safety Time: 0

Inspect Req: No

Order Quantity: 5

Issue Policy: Yes

Safety Stock: 0

Cumulative LT: 0

Yield Percent: 100.00%

| Category             | Past | 4/9/2012 | 4/16/2012 | 4/23/2012 | 4/30/2012 | 5/7/2012 |
|----------------------|------|----------|-----------|-----------|-----------|----------|
| + Gross Requirements | 60   | 20       | 0         | 12        | 3         |          |
| + Sched Receipts     | 0    | 0        | 5         | 0         | 0         |          |
| Projected QOH        | 40   | 20       | 37        | 25        | 22        |          |
| + Plan Ords Due      | 54   | 0        | 12        | 0         | 0         |          |
| + Plan Ords Rel      | 54   | 0        | 12        | 0         | 0         |          |

QAD

Q5-PL-710

A quick review of the MRP Summary Inquiry (23.13) for item 01010 shows a much more balanced situation. Previous quantity on hand was 24 and now 46 items are on hand. None of the weeks show a projected negative quantity on hand, which means there should be enough inventory to meet orders.

## Ship Items on Sales Order

### Allocate Items to Sales Order

Sales Order Manual Allocations

Go To Actions Copy Print Preview Attach

Order: 10S10001 Sold-To: 10C1003 Pacific Health Care Systems Site: 10-100

| Ln | Item Number | T | Qty Allocated | Qty Picked | Qty B/O | Due Date  |
|----|-------------|---|---------------|------------|---------|-----------|
| 1  | 01010       |   | 15.0          | 0.0        | 0.0     | 4/12/2012 |
| 2  | 01010       |   | 0.0           | 0.0        | 15.0    | 5/19/2012 |

Ln Item Number T UM Qty Allocated Qty Picked Detail Allocations



Q5-PL-740

QMI's sales department has received the authorization from the customer to ship the first line (quantity of 15) on their sales order 10210001. Sales Order Control has been set to allocate orders 10 days before the shipment due date. In order to complete the shipment, 15 units of inventory (01010) need to be allocated to the sales order.

The system lets you do this in several ways:

- Edit the order in Sales Order Maintenance and set Detail Allocations to Yes. This can be time-consuming to navigate all the frames in the maintenance program.
- Create manual allocations with Sales Order Manual Allocations (7.1.6), shown here. These can be general or detail.
- Print a packing list and set Update to Yes. These allocations are always detailed and include serial numbers if required.

## Print Packing List



Q5-PL-750

After creating the general allocations to the sales order line, print a packing list with Sales Order Packing List (7.9.13) to create detail allocations. Make sure that the Update check box is selected.

The picklist can be used to pick the items from inventory for shipment and can then be included with the shipment as a packing list. Alternatively, two copies of the packing list can be used if you need to keep a hard copy for internal purposes.



## Ship Sales Order

Sales Order Shipments

Go To
Actions
Copy
Print
Preview

Order: 10S10001      Ship Allocated: ☐      Sold-To: 10C1003      Site:  
Effective: 4/12/2012      Ship Picked: ☒      Pacific Health Care Systems  
Document:

Sales Order Line Items

| Ln | Item Number | T | Qty Alloc | Qty Picked | To Ship | Backorder | Site   |
|----|-------------|---|-----------|------------|---------|-----------|--------|
| 1  | 01010       |   | 0.0       | 15.0       | 15.0    | 0.0       | 10-100 |
| 2  | 01010       |   | 0.0       | 0.0        | 0.0     | 15.0      | 10-100 |

Line:       Cancel B/O: ☐      Site:      Loc:  
Quantity:      Lot/Serial:  
Item Number:      UM:      Reference:      Multi Entry: ☐  
Description:



Q5-PL-770

With the packing list in hand, the QMI shipping department, pulls the inventory, packs it for shipment, and then processes the shipment transaction using Sales Order Shipments (7.9.15). Notice that the second line of the order has not been allocated and the 15 items on it display on the Backorder column. All of the items on line 1 are ready to ship.

The sales clerk continues to click Next and respond Yes when prompted to complete the transaction. The sales order remains open since not all of the items have shipped.

## Invoice Post and Print

### Invoice Post and Print

**10USA**

Sales Journal Reference: 2012/CINV000000002    AR Batch: 655

04/12/12 02:30

Page 1

| Invoice Number     | Bill To Name                        | Sold-To Name                        | Slspn  |
|--------------------|-------------------------------------|-------------------------------------|--------|
| 2012/CINV000000002 | 10C1003 Pacific Health Care Systems | 10C1003 Pacific Health Care Systems | 10SP01 |

Sales Order: 10S10001 Ship-To: 10C1003 Pacific Health Care Systems    Order Date: 04/11/12 PO:

| Ln | Item Number                 | UM | Sales | Sub-Acct | CC  | Invoiced<br>Backorder | Tax | Price    | Extended Price | Extended Margin |
|----|-----------------------------|----|-------|----------|-----|-----------------------|-----|----------|----------------|-----------------|
| 1  | 01010<br>Medical Ultrasound | EA | 4010  | mech     | ADM | 15.0<br>0.0           | No  | 2,500.00 | 37,500.00      | 10,418.23       |

Non-Taxable: 37,548.57    Currency: USD    Line Total: 37,500.00

Taxable: 0.00    Discount: 0.00

Tax Date: 04/12/12    Freight 20 : 48.57

Containers: 0.00    Freight 20 : 0.00

Line Charges: 0.00    Special 30 : 0.00

Total Tax: 0.00  
Total: 37,548.57

|         |      |       |     | Consolidated Dr |           | Consolidated Cr |     |                            |
|---------|------|-------|-----|-----------------|-----------|-----------------|-----|----------------------------|
| 10USACO | 1300 | Gserv |     | 04/12/12        | 37,548.57 |                 | .00 | Invoice 2012/CINV000000002 |
| 10USACO | 4010 | mech  | ADM | 04/12/12        | .00       | 37,500.00       |     | Invoice 2012/CINV000000002 |
| 10USACO | 4691 |       |     | 04/12/12        | .00       | 48.57           |     | Invoice 2012/CINV000000002 |
|         |      |       |     |                 | 37,548.57 | 37,548.57       |     |                            |
|         |      |       |     |                 | 37,548.57 | 37,548.57       |     |                            |

**QAD**

Q5-PL-800

Using Invoice Post and Print (7.13.4), process the shipment for invoicing.

Review the output of Invoice Post and Print by directing it to Page and viewing it on your monitor.

## Exercise 9

### Balance and Order Quantity Values

Use the accompanying table to determine in which periods orders are required and for what quantities. Assume no on-hand inventory exists. For example, looking at period 1 and its demand, the correct entry for LFL is 25. Looking at POQ 2 Periods, the correct entry is 55.

### Order Policy and Modifier

| Period                       | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |
|------------------------------|----|----|----|----|----|----|----|----|----|----|
| Demand                       | 25 | 30 | 20 | 35 | 25 | 30 | 25 | 35 | 30 | 25 |
| LFL                          | 25 |    |    |    |    |    |    |    |    |    |
| FOQ = 35                     |    |    |    |    |    |    |    |    |    |    |
| POQ 2 Periods                | 55 |    |    |    |    |    |    |    |    |    |
| POQ 2 Periods Min Qty = 60   |    |    |    |    |    |    |    |    |    |    |
| POQ 2 Periods Multi Qty = 25 |    |    |    |    |    |    |    |    |    |    |

### Enter a Forecast for Parent Item

**Note** This exercise uses different quantities than the prior examples provided in the text.

- 1 Use Forecast Worksheet Maintenance (22.2) to enter a forecast for parent item 01010 at site 10-100 for the next five weeks.

| Field       | Data         |
|-------------|--------------|
| Item Number | 01010        |
| Site        | 10-100       |
| Year        | Current year |

Click Next until you are at the current week

Enter a weekly forecast of 20 for each of the next five weeks.

Be sure to continue through all the frames. Only 13 weeks are displayed at a time. The next few frames contain weeks 14 through 26, weeks 27 through 39, and weeks 40 through 52.

### Define Control Setting for Forward/Back Forecast Consumption

- 2 Use Sales Order Control (7.1.24) to enter values that affect forecast consumption.

Accept all defaults, click Next until you reach:

| Field           | Data |
|-----------------|------|
| Consume Forward | 10   |
| Consume Back    | 10   |

Also make sure SO Edit ISB Defaults to No (unchecked) to avoid unnecessary pop-ups in Sales Order Maintenance.

### Enter a Sales Order

- 3 Use Sales Order Maintenance (7.1.1) to enter a sales order with three lines.

Write down the order number here for later reference: \_\_\_\_\_

In the header, accept all defaults except for the following:

| Field   | Data    |
|---------|---------|
| Sold-To | 10C1003 |
| Bill-To | 10C1003 |
| Ship-To | 10C1003 |

#### Line 1

| Field            | Data              |
|------------------|-------------------|
| Item             | 01010             |
| Site             | 10-100            |
| Quantity         | 20                |
| Due Date         | 7 days from today |
| Consume Forecast | Yes               |

#### Line 2

| Field            | Data               |
|------------------|--------------------|
| Item             | 01010              |
| Site             | 10-100             |
| Quantity         | 20                 |
| Due Date         | 14 days from today |
| Consume Forecast | No                 |

#### Line 3

| Field            | Data               |
|------------------|--------------------|
| Item             | 01010              |
| Site             | 10-100             |
| Quantity         | 20                 |
| Due Date         | 21 days from today |
| Consume Forecast | Yes                |

- 4 At line 4 click End Lines. Click Trailer. Click Next. Enter your initials in CR Initials. Click Next, then Back.

### Review Forecast

- 5 Use Forecast Worksheet Maintenance (22.2) to review forecast for item 01010. Notice that sales of the first 20 consumes forecast. Sales of second 20 does not consume any forecast.

### Review Master Schedule Summary

- 6 Use Master Schedule Summary Inquiry (22.18) to review item 01010 at site 10-100.

| Field       | Data                       |
|-------------|----------------------------|
| Item        | 01010                      |
| Site        | 10-100                     |
| Start Date  | Monday of the current week |
| Column Type | W (weekly)                 |
| Per Column  | 1                          |

Click Run.

The display screen has two sections. In the top section, locate the following fields and record the values:

QOH (quantity on hand): \_\_\_\_\_

MRP Required: Yes/No \_\_\_\_\_

Plan Orders: Yes/No \_\_\_\_\_

Order Policy: \_\_\_\_\_

Review the bottom frame. Notice forecast amounts, sales order amounts, projected QOH, available to promise (ATP), and cumulative ATP.

### Review Planning Data and Run Regenerate MRP

- 7 Use Item Planning Maintenance (1.4.7) to review planning data for item 01010, and add the following data if necessary:

| Field                   | Data               |
|-------------------------|--------------------|
| Order Policy            | POQ                |
| Order Period            | 7                  |
| Order Quantity          | 20                 |
| Manufacturing Lead Time | System calculation |
| Order Multiple          | 1                  |

- 8 Use Regenerate Materials Plan (23.2) for site 10-100.

**Note** Enter your initials in the printer field; there is no output.

- 9 Use Master Schedule Summary Inquiry (22.18) to review item 01010 at site 10-100.

Make sure the master schedule meets the forecast demand of parent item 01010.

- 10 Use Master Schedule Detail Inquiry (22.21) to review. What information does it provide that the Master Schedule Summary Inquiry did not provide?

### Review Action Messages and Approve Planned Orders

- 11 Use MRP Summary Inquiry (23.13) and MRP Detail Inquiry (23.16) to review parent item 01010 and component items such as 60017 and 60018 at site 10-100.

- 12 Use Action Message Browse (23.6) to review each of the items.

- 13** Use Planned Purchase Order Approval (23.11) to approve any MRP-planned work orders based on Action Message Browse.

| Field           | Data                                       |
|-----------------|--------------------------------------------|
| Item Number     | <blank>                                    |
| Site            | 10-100 to 10-100                           |
| Release Date    | <blank> to today's date or end of the week |
| Default Approve | Yes                                        |

Approve orders (pop-up confirmation window displays; click Yes).

- 14** Use Purchase Requisition Browse (5.1.5) to check for items 60017 and 60018 to ensure that planned orders have been changed to purchase requisitions.

## Exercise 10

In the following exercise, you go through the basic processing functions and look at how they affect planning. During this exercise you:

- Add purchase orders (POs) using purchase requisitions and receive them.
- Release MRP-approved work orders, issue components, report labor, receive, and close work orders.
- Add, ship, and invoice a sales order.

### Add and Receive Purchase Orders (Using Requisitions)

- 1** Use Purchase Order Maintenance (5.7) to add a purchase order with each of the component items (60017 and 60018) on a purchase order line.

Header information:

| Field          | Data                           |
|----------------|--------------------------------|
| Purchase Order | Use default (system generated) |
| Supplier       | 10S1002                        |
| Due Date       | <blank>                        |

On the line, in the Req (requisition) field, use your look-up browse to select a requisition for each item.

Update and exit.

- 2** Use Purchase Order Receipts (5.13.1) receive your purchase order.

### Approve Planned Work Orders

- 3** Use Planned Order Browse (23.9) to view MRP-planned orders that need your approval. You will want to approve the first one at this time. Write down the number of this order for reference here: \_\_\_\_\_.
- 4** Use Planned Work Order Approval (23.10) to approve the work order you noted in the previous step.

| Field        | Data                                                                                                  |
|--------------|-------------------------------------------------------------------------------------------------------|
| Item Number  | 01010                                                                                                 |
| Site         | 10-100                                                                                                |
| Release Date | <blank>                                                                                               |
| To           | Release date of work order to approve based on information from Planned Order Browse in previous step |

- 5 Use Work Order Browse (16.2) to see if the status of the planned order changed from P (Planned) to F (Firm Planned) when you did the approval.

### Issue Components, Report Labor, Receive, and Close

- 6 Use Inventory Detail by Site Browse (3.3) to verify the availability of components in inventory for site 10-100.
- 7 Use Work Order Release/Print (16.6) to release your firm-planned order. Locate the work order by using the lookup. Accept all default values.
- 8 Use Work Order Component Issue (16.10) to issue components to your work order.
- 9 Use Labor Feedback by Work Order (16.20.1) to report labor against your work order. Use an employee from the pull down menu and report standard setup and run time for all operations (10, 20, and 30) for your work order quantity.

**Important** Time Ind = Decimal Hours

These standard times can be viewed on the work order routing that was printed when the order was released.

- 10 Use Work Order Receipt (16.11) to receive your work order quantity of item 01010 into inventory and close the work order.

| Field                         | Data      |
|-------------------------------|-----------|
| Multi Entry                   | Yes       |
| Lot/Serial Number             | MD9500021 |
| Quantity                      | 10        |
| Create list of serial numbers | Yes       |

Click Next, then Back until the Remarks field is displayed. Click Next.

Display Items and Lot/Serial detail = Yes.

Is all the information correct = Yes.

Click Back to exit.

- 11 Use MRP Summary Inquiry (23.13) to check item 01010.

### Add, Ship, and Invoice a Sales Order

- 12 Use Sales Order Shipments (7.9.15) to ship line 1 of the sales order that you created in the previous exercise (step 3). Do not ship line 2.  
Enter Line 1 manually.

| Field                         | Data      |
|-------------------------------|-----------|
| Multi Entry                   | Yes       |
| Lot/Serial Number             | MD9500021 |
| Quantity                      | 10        |
| Create list of serial numbers | Yes       |

Enter Line 2 manually, Quantity 0.

**13** Use Invoice Post and Print (7.13.4) to post and print the invoice.

**14** Use Customer Account Activity (27.17.3) to review the customer's account.

**Note** The update of the customer account requires some system setup. See the similar step at the end of “Exercise 8” on page 279.

#### Answers to Order Policy and Modifier Activity

| Period                       | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |
|------------------------------|----|----|----|----|----|----|----|----|----|----|
| Demand                       | 25 | 30 | 20 | 35 | 25 | 30 | 25 | 35 | 30 | 25 |
| LFL                          | 25 | 30 | 20 | 35 | 25 | 30 | 25 | 35 | 30 | 25 |
| FOQ = 35                     | 35 | 35 | 35 | 35 |    | 35 | 35 | 35 | 35 |    |
| POQ 2 Periods                | 55 |    | 55 |    | 55 |    | 60 |    | 55 |    |
| POQ 2 Periods Min Qty = 60   | 60 |    | 60 |    | 60 |    | 60 |    | 60 |    |
| POQ 2 Periods Multi Qty = 25 | 75 |    |    | 75 |    | 50 |    | 75 |    | 25 |