



QAD Enterprise Applications  
Standard Edition

# Training Guide Quick Start

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# **About This Course**

## Course Description

This course has been designed for those who do not need an introduction to the entire QAD Enterprise Application Standard Edition.

Quick Start is for those who want to “hit the ground running” with QAD 2010 Standard Edition. This accelerated course provides a focused introduction to the fundamentals, and demonstrates how to apply QAD Standard functionality to critical business processes.

The format for this course is a combination of self study materials and hands-on activities that simulate how to use QAD Standard to run a business.

### Course Objectives

The overall objective of the course is for you to learn how to set up and process basic functions in the Standard Edition of QAD Enterprise Applications. Each chapter includes a specific list of learning objectives for those particular topics.

### Audience

This course is intended for first-time users, and those who want an overview of core QAD Enterprise Applications Standard Edition functionality.

### Prerequisites

An understanding of basic manufacturing principals is beneficial.

### Course Credit and Scheduling

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

### QAD Web Resources

QAD’s Learning and Support sites can be found at

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

### Organization of Training Guide

There are four main sections in this training guide:

- Organization
- Setup
- Processing Transactions
- Planning

Organization provides an overview of the modules, programs, and types of data. Setup, Processing Transactions, and Planning focus on how to use the system in a practical manner. Each chapter in these sections contains three sub-sections; key concepts, an example, and an activity.

Key concepts are discussed at the beginning of each chapter to familiarize you with processes, work flows and terminology. For example, in the chapter on Accounts Payable, concepts discussed include Processing Flow and Vouchering.

## The Story

Quality Manufacturing International Incorporated (QMI) is a multinational company headquartered in New York, NY (USA).

QMI has 8 divisions:

- United States of America
- Canada
- Mexico
- France
- UK
- Netherlands
- China
- Australia

## Divisional Structure

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

These same products are produced at all of the 8 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.

## Virtual Environment Information

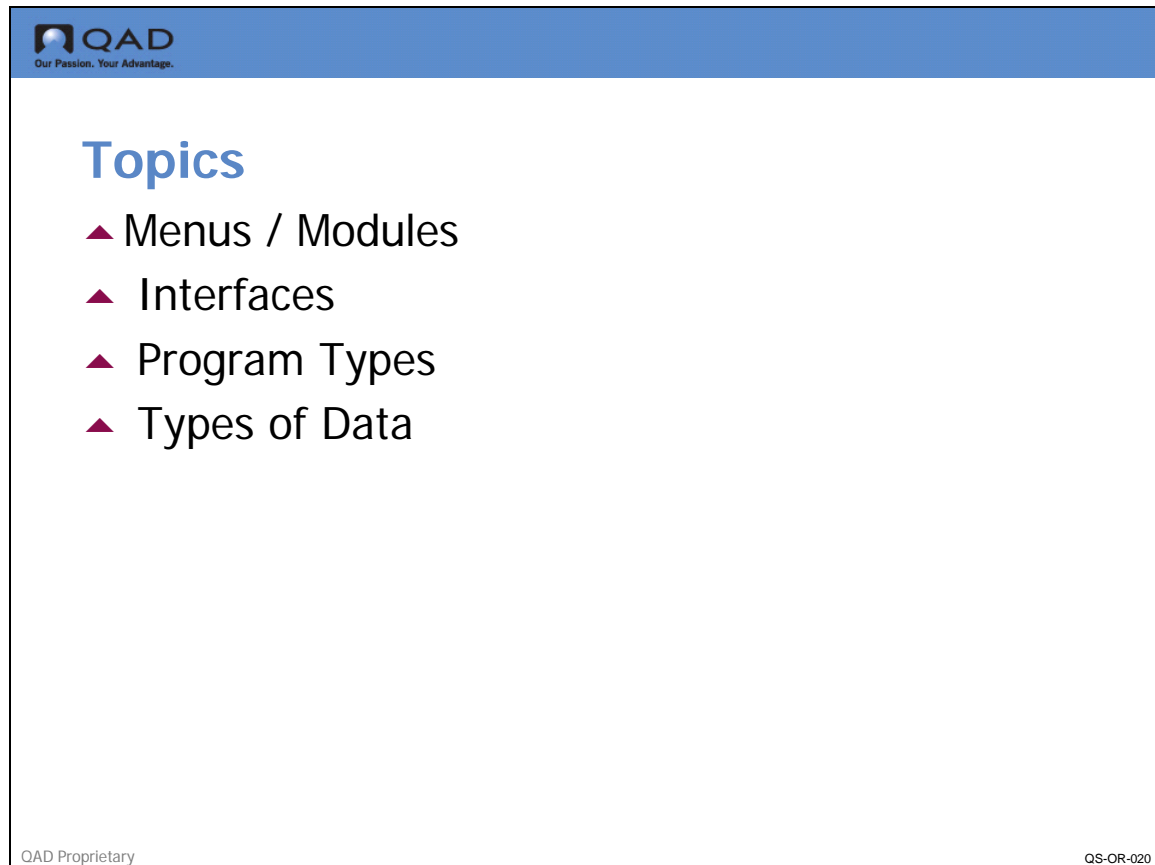
Standard Edition 2010 - Training, Train, mfg



Chapter 1

# **Organization of QAD Standard Edition**

## Introduction



The screenshot shows a blue header bar with the QAD logo and tagline "Our Passion. Your Advantage." Below the header, the word "Topics" is displayed in a large blue font. Underneath, there is a list of four items, each preceded by a red triangle icon: "Menus / Modules", "Interfaces", "Program Types", and "Types of Data". At the bottom left of the screenshot area, it says "QAD Proprietary" and at the bottom right, it says "QS-OR-020".

The main menu in QAD SE has seven application-related sections; Distribution, Manufacturing, Financials, Customer Services, Master Data, Additional Modules and Supply Chain. The figure above shows this top-level menu in the .NET UI user interface. (Note: There are additional menu items not related to the applications).

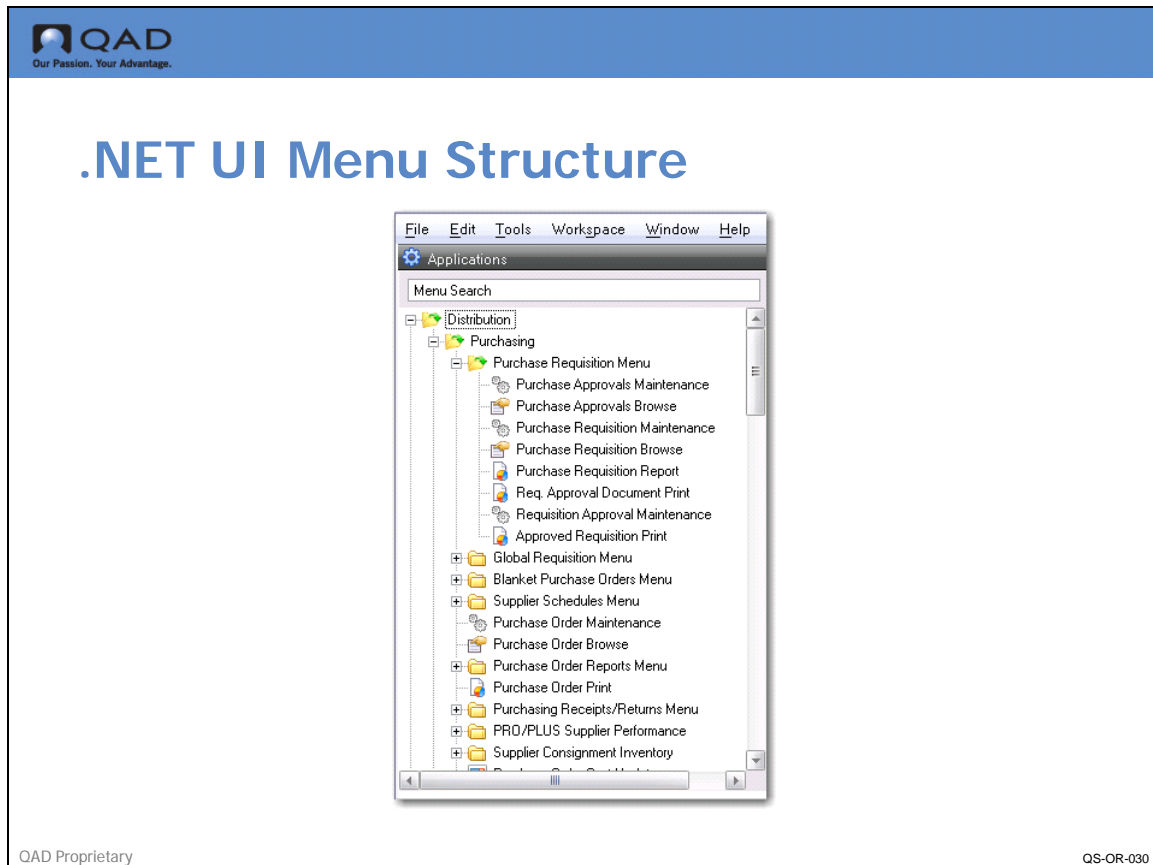
Each of these sections consists of groups of related business activities called modules. In some cases, two related business activities are combined in one module, such as Formula/Process.

On the next few pages, we'll take a quick look at these seven main menus and the modules each contains. As we go through the menus and list of modules, it is important to note that, in this course, we are covering only a very small portion of QAD SE functionality. In-depth, module-based training is provided by other QAD classes; information and schedules can be accessed on the QAD web site.

The Process Editor found under Processes lets you access custom menus and personal bookmarks to Internet or intranet resources, and view and use custom work flows created with the Process Editor.

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

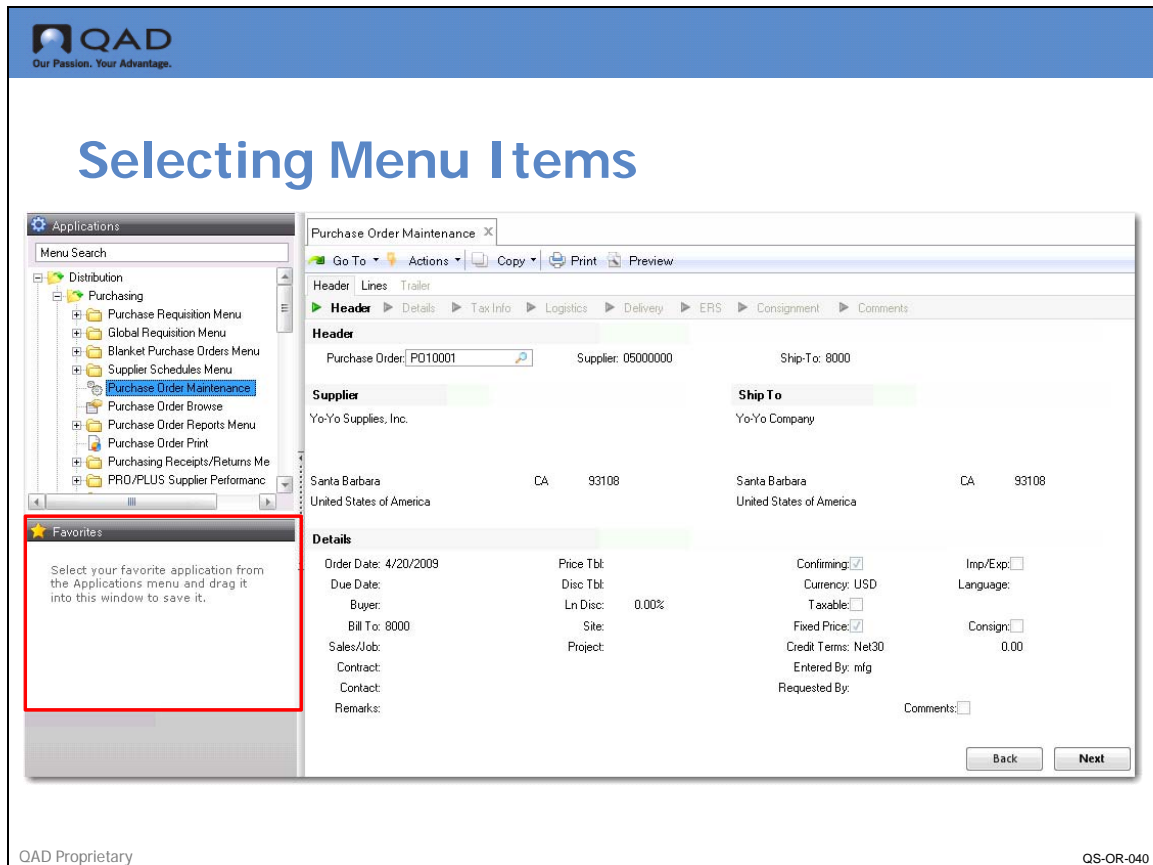
## .Net UI Menu Structure



An example of the menu structure shows the indented format of sub-folders and programs. Under the Distribution folder the Purchasing folder and other folders relating to the various functions required for purchasing.

There are also discreet functions such as Purchase Order Maintenance, Purchase Order Browse, Purchase Order Print, and Purchase Order Cost Update. Icons indicate maintenance functions, browse or inquiry functions, report print functions and update transactions.

## Selecting Menu Items

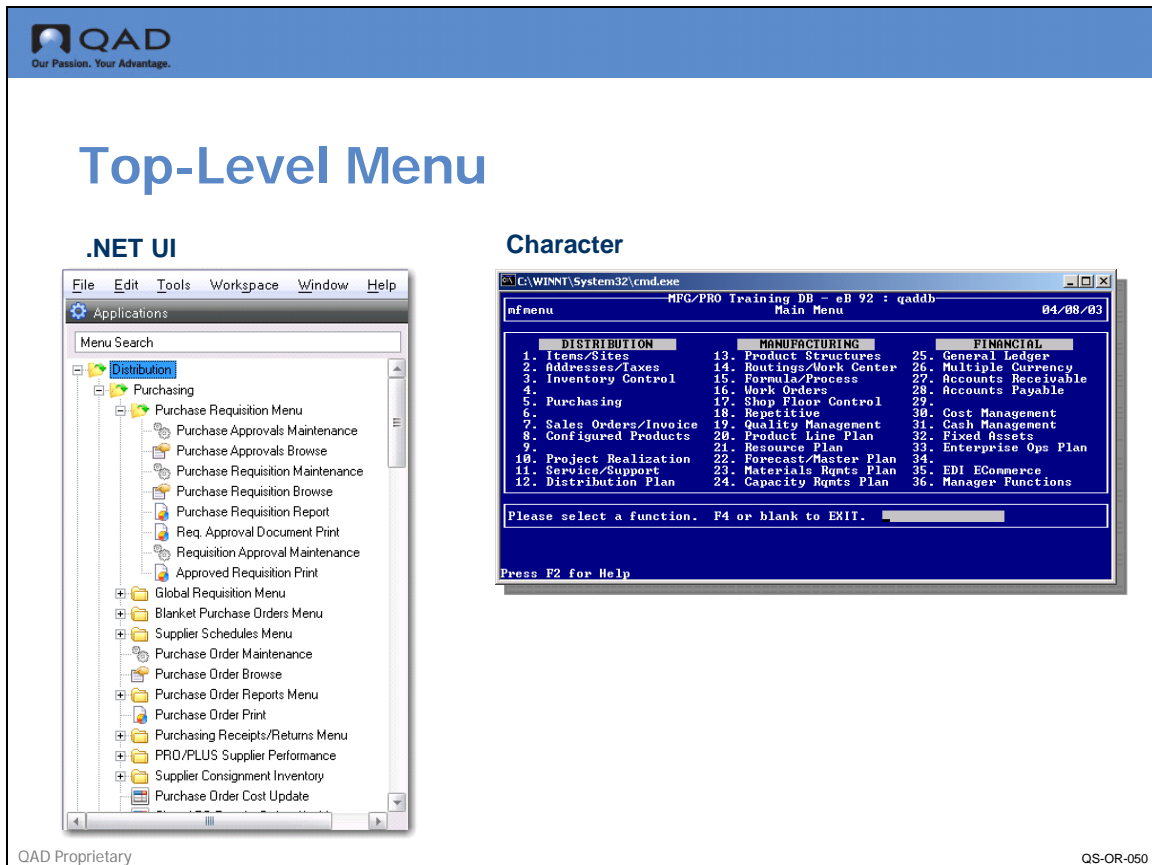


Menu Items are selected with the mouse. Single clicking a plus or minus sign will open or close the folder. Alternately you can double-click the folder icon to open or close it. Discreet functions, such as Purchase Order Maintenance, are selected by double clicking the related icon. This opens the functional screen in the main window.

The main window uses tabs and allows multiple functions to be open at one time. You can toggle between the functions by clicking on the tabs. Close a tab by clicking on the X in the tab.

Use the favorites section below the menu window. To create a unique menu of functions you use most often by dragging the icon image of the item from the main menu window into the favorites window.

# Top-Level Menu

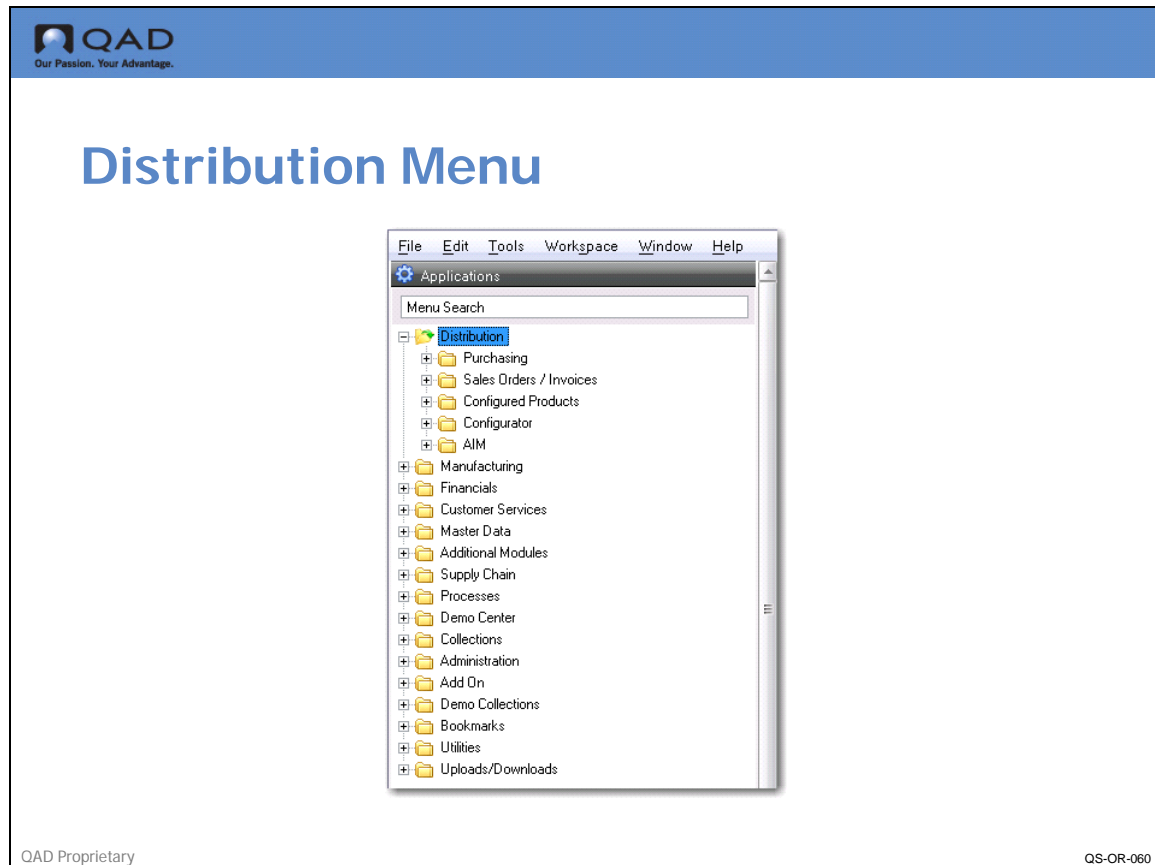


The main menu is divided into three major areas, Distribution, Manufacturing and Financials. The underlying structure is the same in all menu styles. In the character menu, the menu item is selected by entering the number of the menu item and pressing the Go key. Each menu selection will bring up a screen with its submenu. If you know the menu sequence you can enter it directly.

**Example** The menu sequence for Sales Order Maintenance is (7.1.1)

This course will use .NET UI menus. The main menu is shown here. In the .NET UI menu modules and transactions may be found by typing the function name into the Menu Search field.

## Distribution Menu



Distribution modules move material:

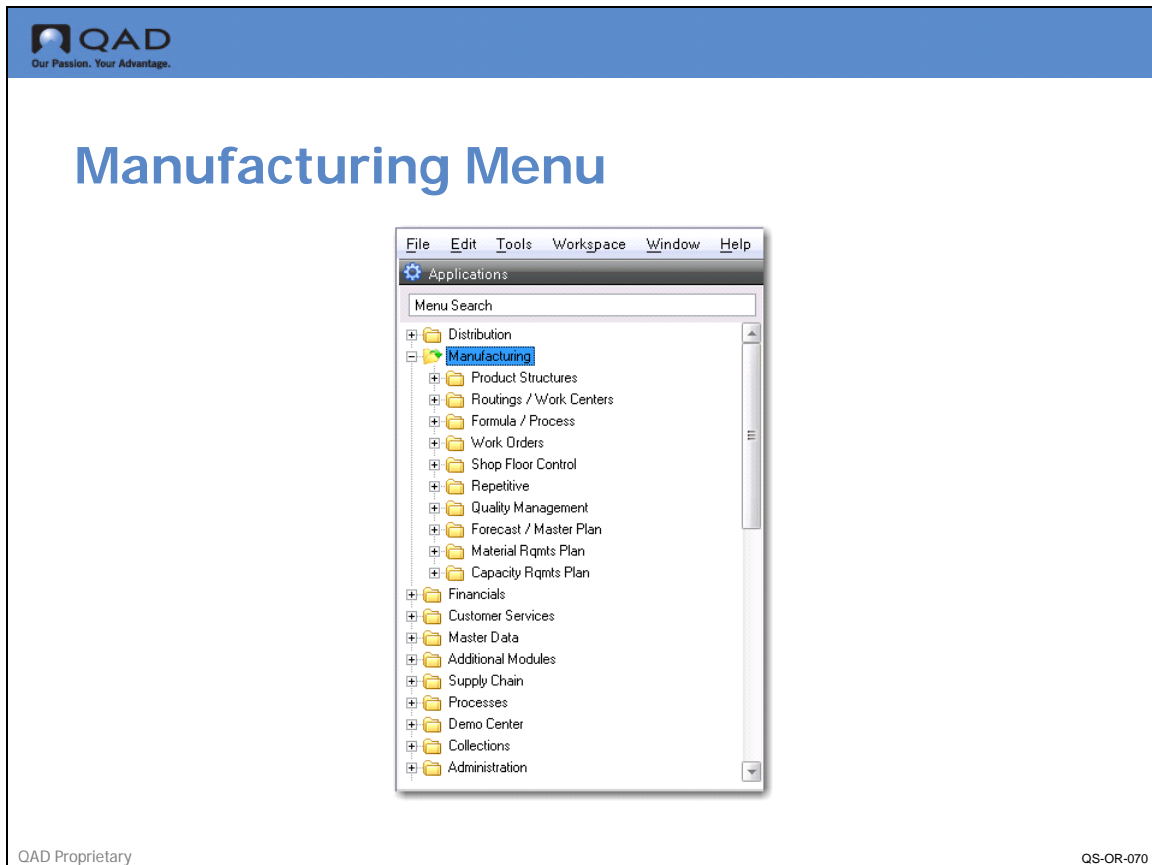
- Into inventory from external sources such as suppliers or other company sites
- Out of inventory to satisfy external demand such as sales or intersite transfers

These modules are used by warehousing, distribution, and customer field service operations. Purchasing is also used in manufacturing operations to obtain raw materials, components, and receive services such as subcontracting.

Modules under Distribution are: Purchasing, including Purchase Requisitions, Sales Orders/Invoices and Sales Quotations, Release Management, Configured Products, Sales Analysis, and Warehousing.

In this course, we cover the Purchasing, Purchase Requisitions, and Sales Orders/Invoices modules.

## Manufacturing Menu

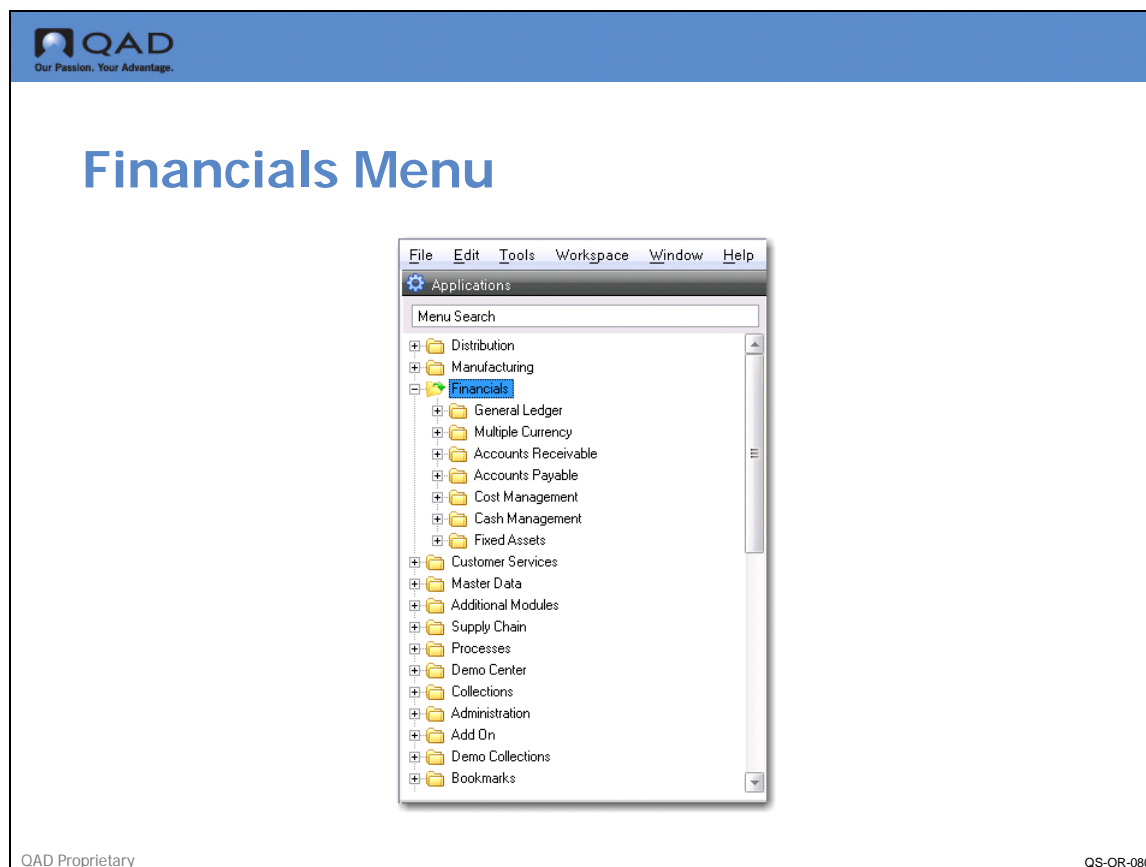


Manufacturing modules handle internal supply and demand. Material is moved out of inventory into production, or finished goods or components are moved from production into inventory.

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).

In this course, we use the Product Structures, Routings/Work Centers, Work Orders, Shop Floor Control, Forecasting/Master Schedule Planning, and MRP modules.

## Financials Menu



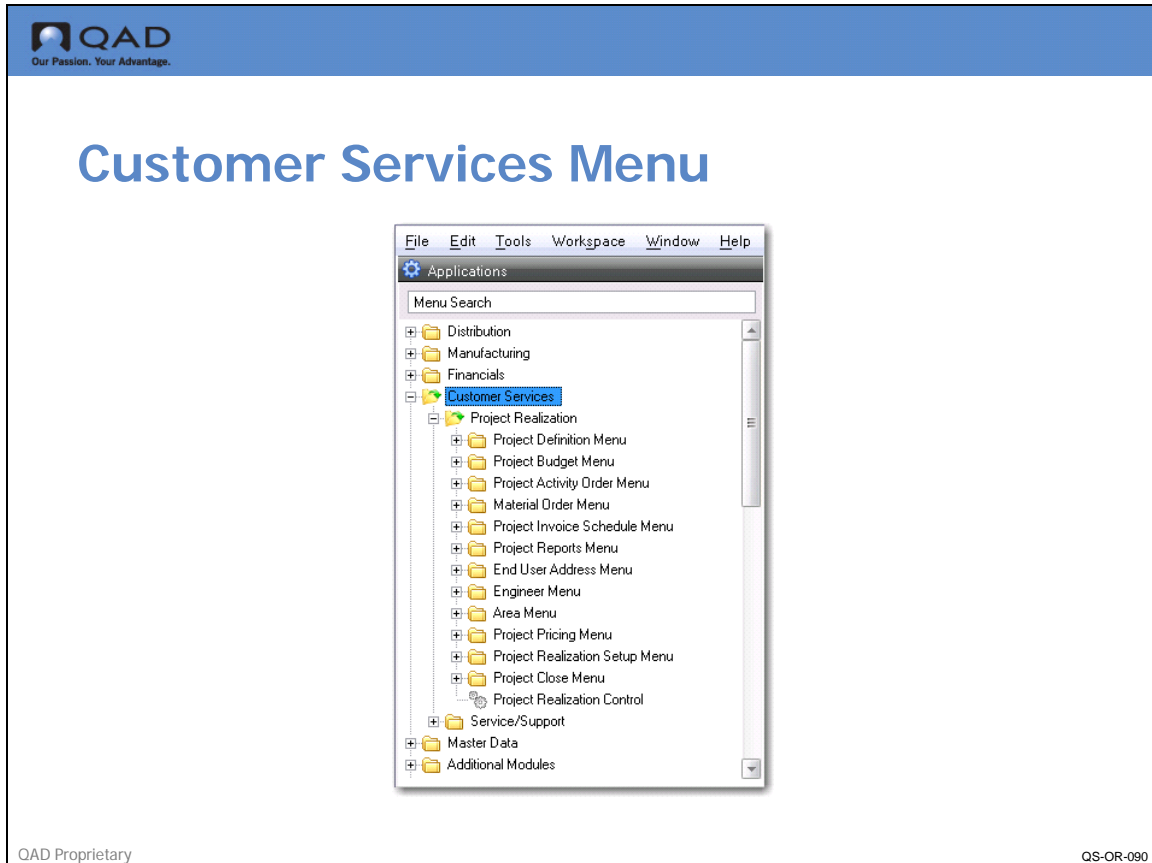
These modules support financial activities and system administration. General Ledger, Accounts Receivable, and Accounts Payable track the financial effects of activities in other modules. You can set up multiple currencies and exchange rates, develop simulated costs and copy them to multiple cost sets, and track cash disbursements.

You can also use Financials to track your fixed assets from acquisition to retirement.

Modules in the Financials section are: General Ledger (GL), Multiple Currency, Accounts Receivable (AR), Accounts Payable (AP), Cost Management, Cash Management, and Fixed Assets.

In this course, we use the GL, AR, and AP modules.

## Customer Services Menu



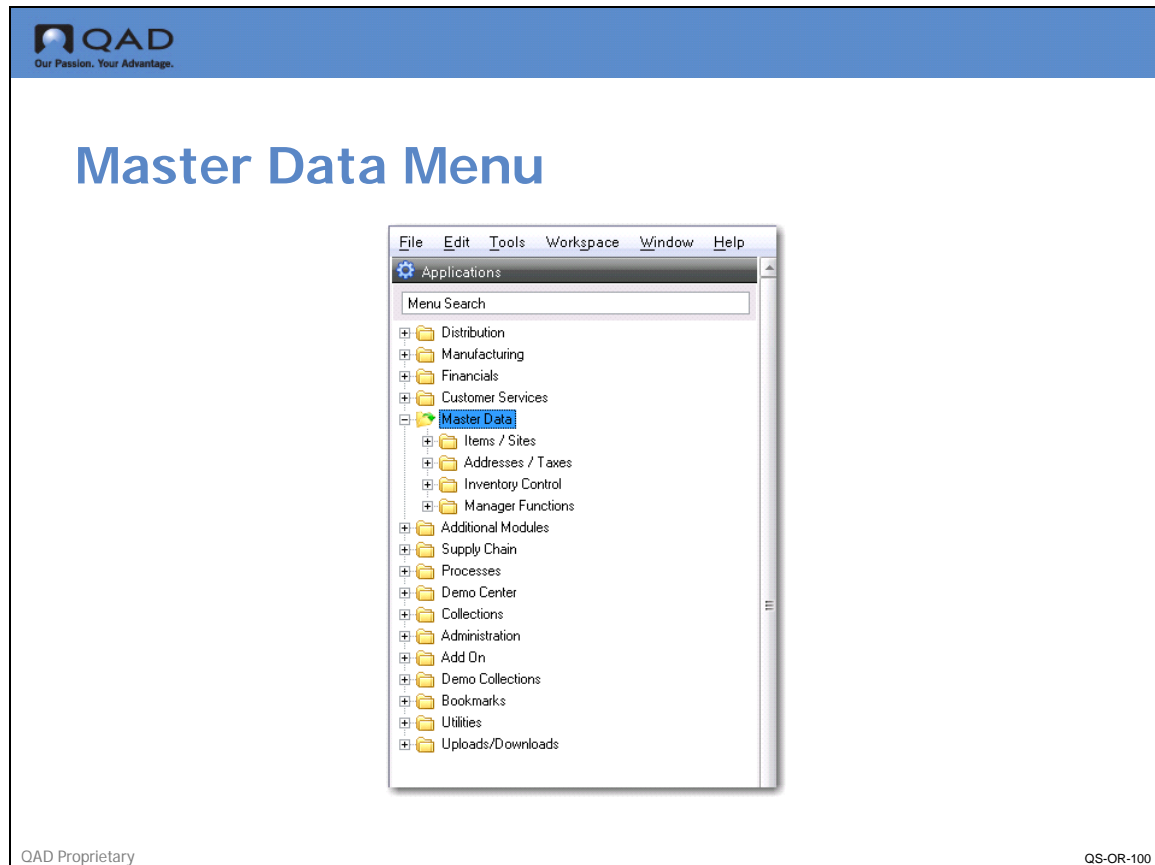
Customer Services currently consists of two modules:

- Project Realization Management (PRM)
- Service/Support Management (SSM)

Both modules support activity that occurs after a product is sold. SSM supports traditional service activities such as warranties, contracts, returns, and call tracking. PRM provides tools for managing long-term installation activities at a customer site that combine both items and services.

We do not cover these topics in this course.

## Master Data Menu

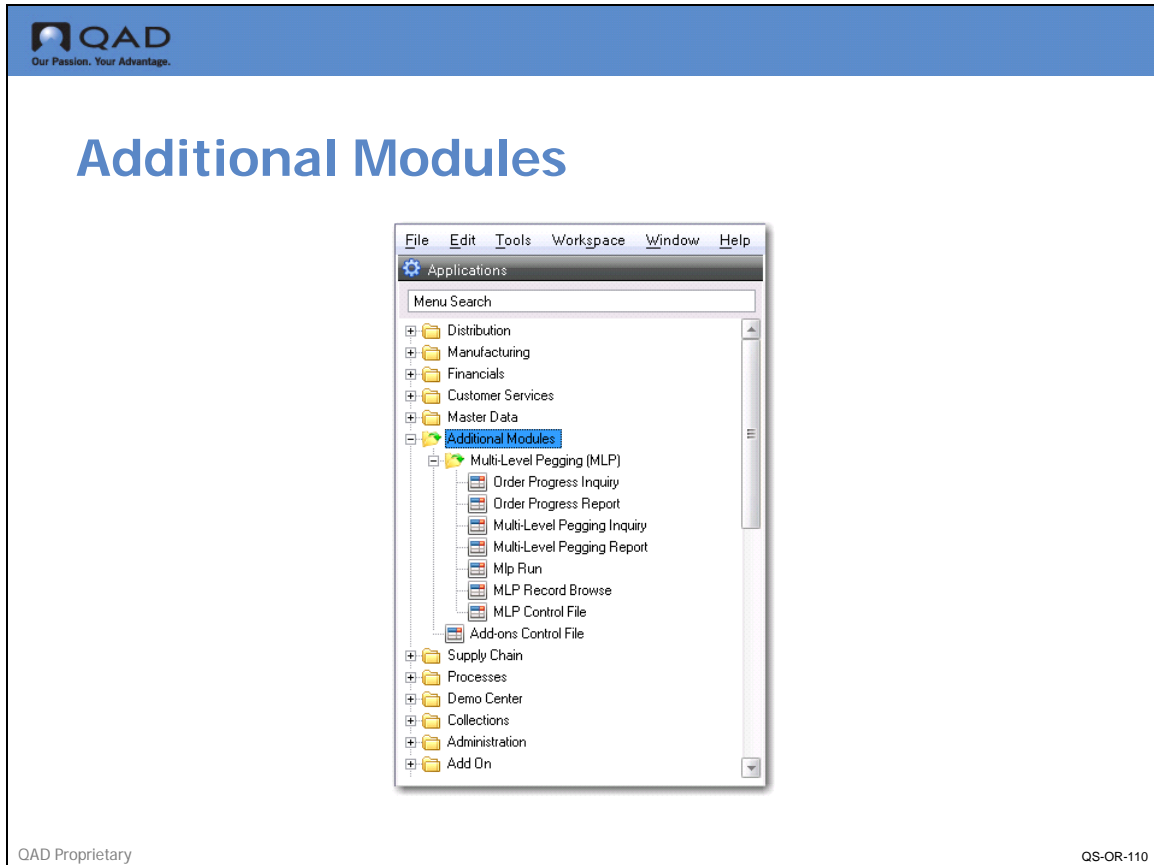


The modules in Master Data are used to set up basic business information; item codes, address codes, site codes, and inventory control information. Master Data is also used to perform administrative functions for users, security, printers, and other administrative functions that apply throughout QAD SE.

Modules in Master Data are: Items/Sites which includes Product Change Control and the Compliance Modules, Addresses/Taxes which includes the Intrastat and Logistics Accounting Modules, Inventory Control which includes Physical Inventory, and Manager Functions.

In this course, we use the Items/Sites, Addresses/Taxes, and Inventory Control modules.

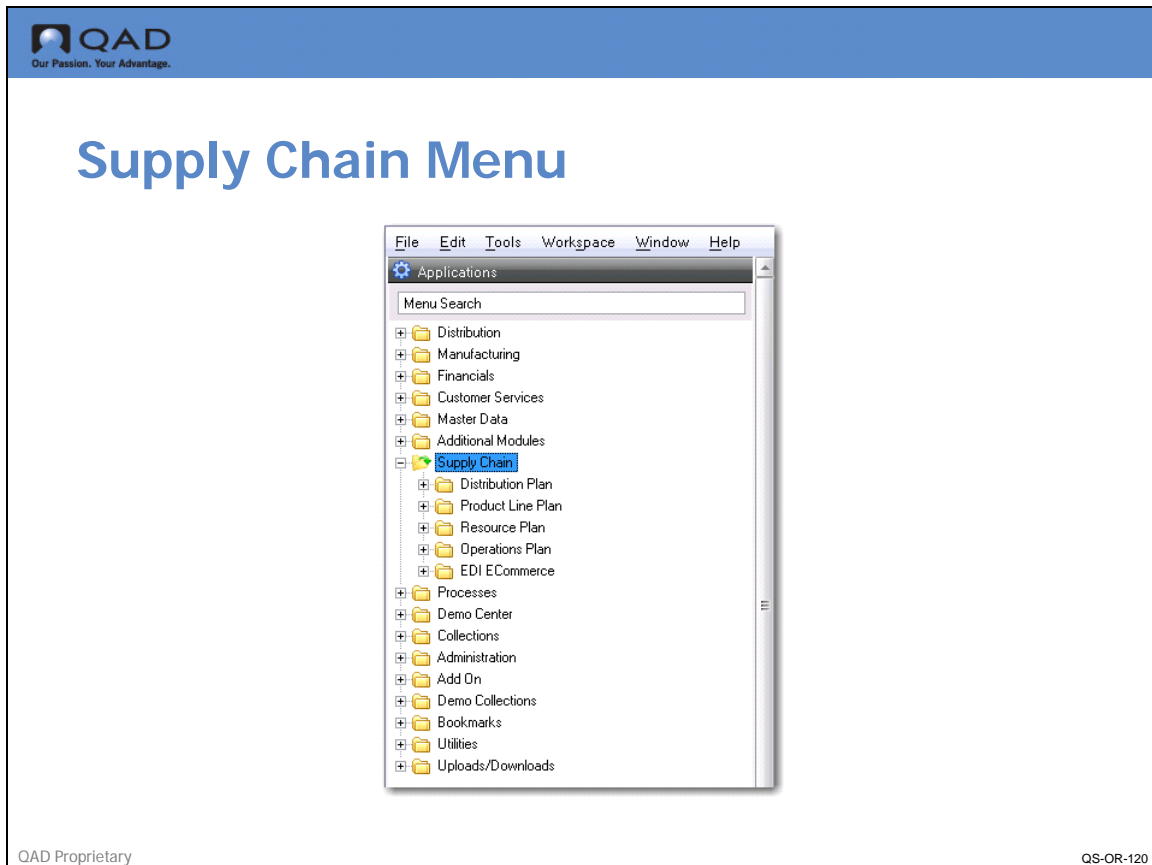
## Additional Modules



This section can be used for organizing miscellaneous applications and customized programs that your company creates and uses.

These modules are not covered in this course.

## Supply Chain Menu

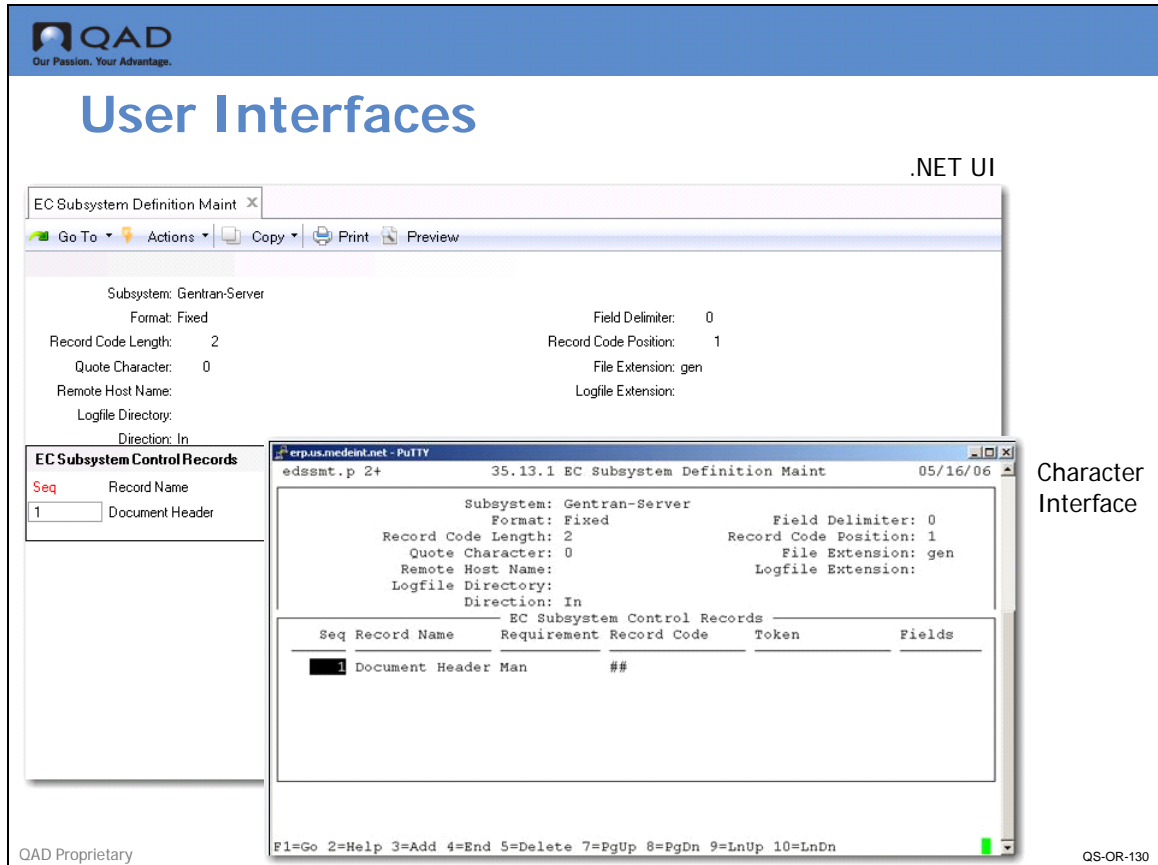


Supply chain management is the movement of goods and information from suppliers and multiple company sites through the manufacturing process.

Modules in this section support supply chain planning practices--distribution, product line, resource, and operations--as well as electronic data interchange (EDI) transactions using EDI eCommerce.

Modules in Supply Chain Management (SCM) are: Distribution Plan, Product Line Plan, Resource Plan, Enterprise Operations Planning, and EDI eCommerce. In this course, we discuss some of the planning functionality provided by the SCM modules in the Planning section.

## User Interfaces



QAD SE features two user interfaces (UIs):

- QAD .NET UI. This browser-based UI is designed for use over a company intranet or wide-area network. It features screens that display as HTML pages, full text search, multiple detached windows, and a Process Editor for creating work flows with active Uniform Resource Locator (URL) links.

The .NET UI screens have navigation buttons on the lower corner of the screen.

- Character Interface. This is the original user interface. It is primarily intended for UNIX-based environments with character clients.

The character screens are designed for function key navigation as shown in the horizontal menu at the bottom of the screen.

**Note** The field labels, relative position, and function are the same regardless of the interface.

## Program Types



### Program Types

- ▲ Maintenance Programs
- ▲ Inquiry and Report Programs
- ▲ Browse Programs
- ▲ Transaction Programs
- ▲ Utility Programs

QAD Proprietary

QS-OR-140

This section summarizes the characteristics and functions of each type of program.

### Maintenance Programs

Maintenance programs are used to create basic codes such as customers, inventory items, GL accounts, currencies, and other data. They are also used to record transactions that initialize business activity in a module.

When you enter data in a maintenance program, an entry (called a record) is made in one or more tables controlled by the maintenance program. For example, customer records are stored in the customer master table controlled by Customer Maintenance.

### Inquiry and Report Programs

Inquiries and reports retrieve and display database records. Inquiries are primarily used to answer specific questions. 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.

Inquiries are viewed online and reports are sent to a printer or file. However, you can also print inquiries and view reports. In addition, other output options, such as e-mail, are available.

## Browse Programs

Browsets are inquiry programs with advanced features such as filtering, sorting, and printing. They can be used as drill-down browsets within programs. Based on whether you choose to display substitute programs on the menus, browsets can also replace many of the simple inquiries throughout the menus. How you access them depends on your user interface.

Look-up browsets are one form of online help. When attached to individual fields, these simplified browsets display the records in the associated master tables. You can then select a value and have the system insert it into the field.

The system provides tools that let you display browse data in graphical form such as pie charts and bar charts.

## Transaction Programs


Transactions maintain the core business activities of a company. They control and record activities related to business documents such as sales orders and invoices. An example of a transaction is receipt of a shipment for a purchase order using Purchase Order Receipts.

## Utility Programs

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. Both are utilities.

Often utilities are designed to be used only once. For example, many utilities perform one-time data conversions following system upgrades.

## Types of Data



### Types of Data

- ▲ Control Data
- ▲ Transaction Data
- ▲ Static Data

QAD Proprietary QS-OR-150

The QAD SE database contains three types of data:

### Control Data

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

Control tables enable you to adapt QAD SE 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 enables you to establish a preference.

### Transaction Data

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.


## Static Data

Static data contains information about the basic building blocks and relationships of a company--the ways it does business, and the entities it does business with. Static data is used to create transaction records. However, static data is changed infrequently. Examples of static data are records for customer, supplier, and employee addresses, items, inventory sites and locations, and GL accounts.




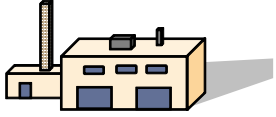
Chapter 2

# **Set Up Domains, Entities, Sites, and Locations**



# Domains, Entities, Sites and Locations

1 Domain, Entity, Site, Locations



QAD Proprietary QS-SU-020

In this chapter, the basic components representing a company in the system, domains, entities, sites, and locations are discussed and set up.

- Key Concepts
  - Databases
  - Domains
  - Entities and Sites
  - Locations
  - Inventory Status Codes
- Example
  - Add Company Address
  - Set Up Entity
  - Add Bank
  - Set Up Site
  - Define Status Code
  - Set Up Locations
- Activities

## Learning Objectives

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

- Describe what a database is and list the key data it contains
- Distinguish between the kind of information entities and sites contain
- Distinguish between the kind of information sites and locations contain
- Describe the difference between default and primary entities
- Give examples of status codes and explain how they are used
- Enter an entity, site, and location

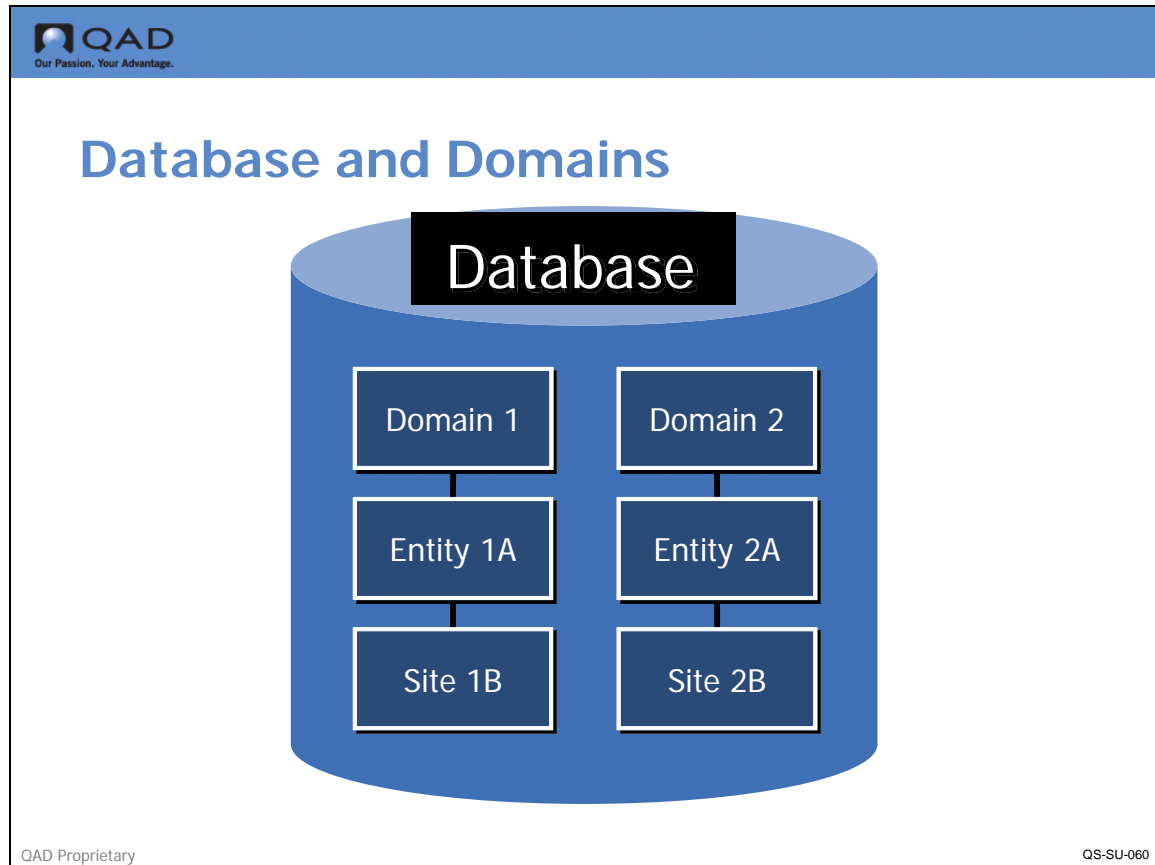
## Key Concepts

In QAD SE, a company can be looked at 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 may be defined by its combined operations, such as sales order entry, purchasing, manufacturing, and general accounting.

On the following pages, the most basic pieces that satisfy both kinds of requirements are discussed. First, there is the environment itself; the database. To this are added:

- Domains, which may be thought of as templates for businesses that use the same base currency, chart of accounts and GL calendar.
- Entity codes, which are used to identify financial entities and their general ledger transactions.
- Sites and locations, which are used as a primary unit for inventory control and planning. Sites (and locations through sites) are assigned to an entity so that transactions are properly included in corporate financial reporting.

## Database and Domains



A database is a logical collection of computer records. In QAD SE these are usually associated with a unique business. Separate databases are often used to deal with geographical limitations and security concerns.

Master files. Each database contains master files, customers, suppliers, and items that are not separated by company or responsible division.

Within a database, there can be menu security to prevent users from modifying or viewing information.

When a multiple database environment is established, QAD SE has distributed functionality that allows planning and execution across the databases. Each user has a profile that determines which database, or databases, they can access.

Every database must have one system domain, indicated by a domain type of SYSTEM. The initial system domain is created when the database is created, for both a new installation of QAD SE or a conversion.

The system domain includes default data that is required to begin implementing QAD SE, such as control program settings, rounding methods, default accounts, and generalized codes.

The system domain is used as a template for new domains. When you create a new domain associated with the current database, default data is copied from the system domain. Since the system domain is used as a template, you may want to add data to it or tailor defaults before creating new domains based on it.

- The system domain is typically not used for maintaining active transactions

Domains comprise business operations using a single base currency and chart of accounts. There may be multiple domains within a single database.

Entities are assigned to domains and are unique businesses with financial reporting responsibility. Financial reports, earnings statements and balance sheets, are organized by entity.


- There may be multiple entities in a domain

You must identify one entity as the primary entity for each domain in your database. This is done in entity maintenance in general ledger setup.

Sites are assigned to entities and are logical subsets of the business usually associated with a physical location such as a manufacturing plant, a distribution facility, or a warehouse. There may be multiple sites at a single physical location for internal control purposes.

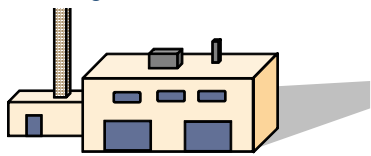
- There may be many sites assigned to an entity

## Entities



### Entities

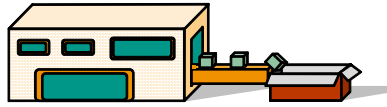
Entity 100



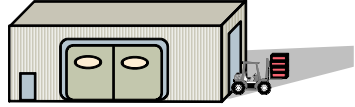
Plant A  
(Site A)

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

Entity 200



Plant B  
(Site B)



Warehouse  
(Site C)

The number of sets of financial statements produced by one database is determined by the number of entities you set up. An entity is an independent unit for financial reporting purposes that:

- Generates a separate balance sheet and income statement
- Plans budgets
- Is assessed for taxes


Entities assume the general ledger chart of accounts, the base currency and the general ledger calendar of the domain they belong to.

All GL transactions are posted by entity. The primary entity is the default entity for GL transactions. Primary entity is setup in entity maintenance in general ledger setup. The default entity is setup in the Domain/Account Control.

Although there is no limit to the number of entities that can exist in a database, all information for one entity should be contained within a single database.

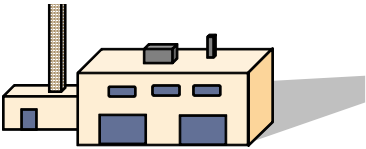
An entity can be comprised of a single facility (Plant A) or multiple facilities (Plant B and Warehouse), as shown in the figure.

## Sites


QAD

### Sites

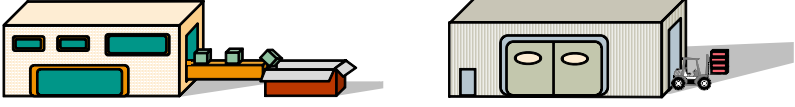
**Entity 100**



**Plant A  
(Site A)**

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

**Entity 200**



**Plant B  
(Site B)**

**Warehouse  
(Site C)**

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A site is an inventory and 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 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 facility or a combination of these.

Site maintenance defines several attributes that default into inventory locations. These are 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. Manufacturing orders expect to find all their components at the same site (there are exceptions); MRP or DRP calculates requirements one site at a time. A few functions deal with multiple sites. Multi-site purchase or sales orders, distribution orders, and distributed inventory inquiries.

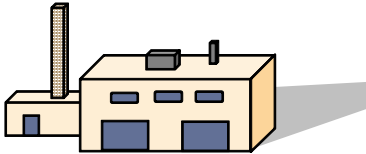
Each site can have one or more associated inventory locations. Locations identify areas of a site where inventory is stored. Each time you perform an inventory transaction, such as an issue, receipt or transfer, you must specify both a site and a location.

## Locations

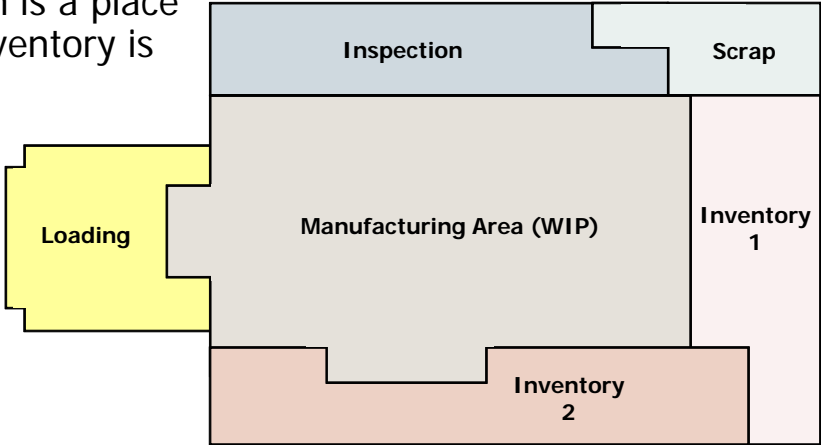


### Locations

- ▲ A site can have multiple locations
- ▲ A location is a place where inventory is stored



**Plant A**



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QS-SU-090

In QAD SE each site can have a variety of locations. These are simply the places where inventory is stored. Locations may 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 has parameters that identify what can be stored there and how that inventory can be used.

Every inventory transaction must have a site and location. Both can default from the item master.

### Predefined locations

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

Locations do not have to be predefined. The system can automatically create location codes whenever you enter an undefined value. (Do this by setting Automatic Locations to Yes in Site Maintenance.) While useful in some situations this offers a very low level of control as anyone with access to inventory transactions may create new locations, including those that are typos.

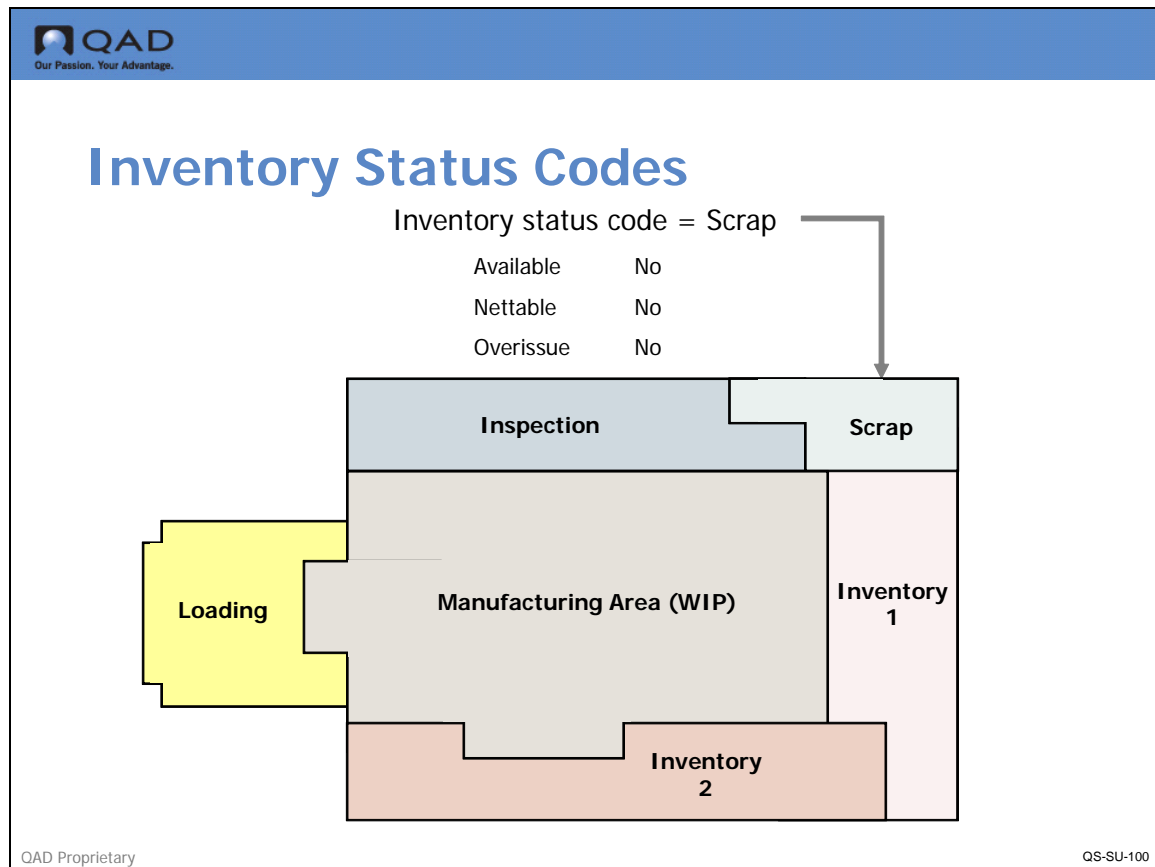
Inventory location attributes include:

- Description
- A default inventory status code (available, nettable, over-issue)

- Whether it is permanent or not
- A location type code (tank, silo, freezer, etc.)
- 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 freezer on item is matched to location type code freezer on location)

Every location must have a default inventory status code associated with it.

## Inventory Status Codes



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

### Generic Inventory 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 may be allowed to go negative

General guidelines on how these codes may be used:

- Scrap inventory would not be available or nettable (see figure below)
- Material in receiving quarantine is usually not available but is nettable as it is expected to be good
- Material in material review board is usually not available but may be either nettable or not based on the likelihood of its being approved for use
- Consignment inventory being held for a specific customer would not normally be available
- As negative inventory balances are always errors they 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.

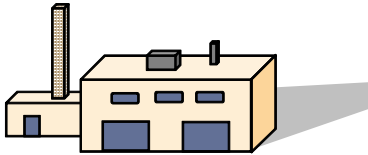
Whenever items are received into inventory, a status code is associated with that inventory. This defaults to the status code entered for the location but can be changed using Inventory Detail Maintenance. Whenever you attempt to do something with this inventory, allocate it, issue it, or move it, the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

## Examples



### Single-Level Facility

Entity 1000

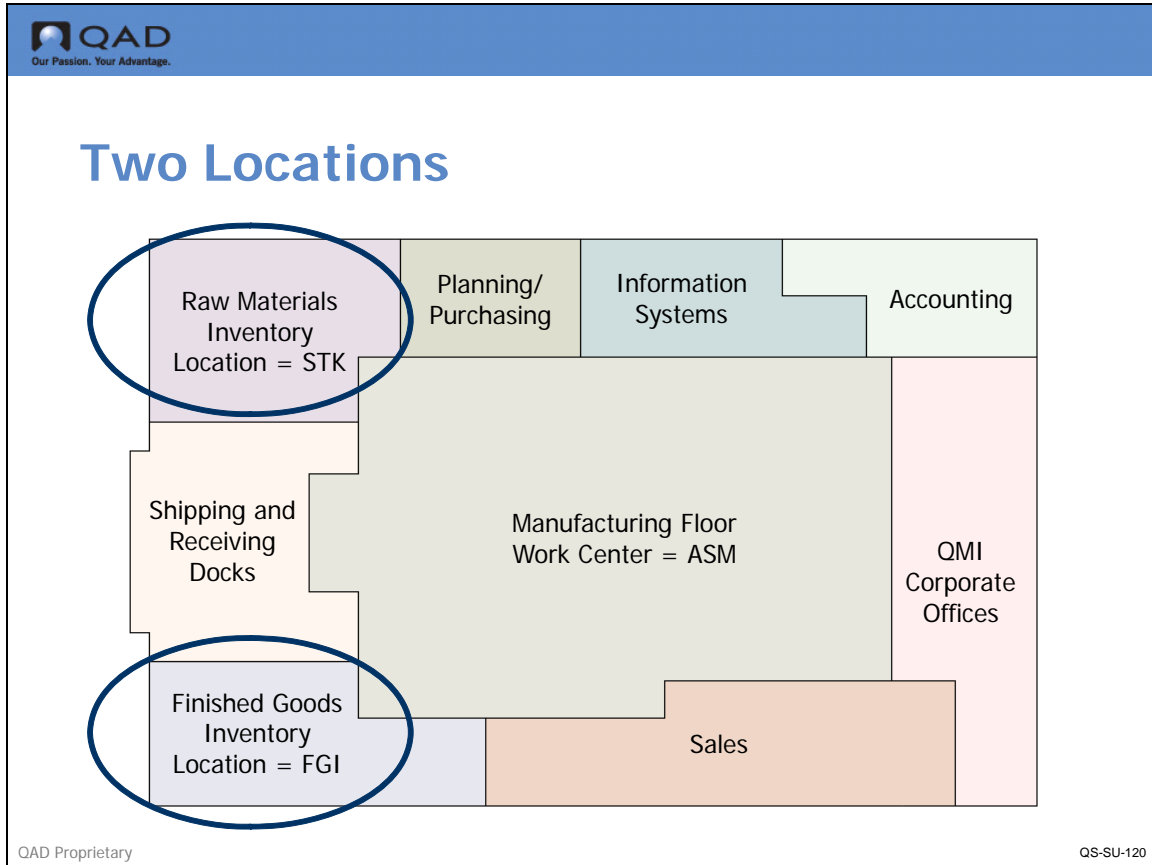


QMI Incorporated  
(Site 8000)

Corporate Offices  
Manufacturing Facility  
Distribution Facility

QAD ProprietaryQS-SU-110

The examples we will use throughout this course is based on a company called QMI Incorporated. While it is a multinational corporation, we will be dealing with a single site facility in New York, that includes the corporate office, manufacturing and distribution areas.



QMI Inc. has several departments and two key inventory locations for its raw materials and finished goods, as shown in the figure above.

In the example on the following pages, we will see how QMI sets up the foundations of its business structure:

- Domain
- Entity
- Site
- Locations

### Prerequisites

Before QMI can set up an entity and designate it as its primary entity, it needs to do two things: enter its address and reset the “primary entity” flag. First, QMI will use Company Address Maintenance to enter its address.

For the purposes of this course we will be using a domain already setup with a base currency, general ledger chart of accounts and calendar.

## Set Up Company Address

Company Address Maintenance x

Go To Actions Copy Print Preview

Company Address

Address: 8000

Name: QMI Incorporated

Address: 17 Avenue of the Americas

Address:

Address:

City: New York State: NY Post: 10065 Format: 0

Country: United States of America USA County:

Attention: Accounts Payable Office Attention:

Telephone: 212.555.1212 Ext: Tel: Ext:

Fax/Telex: 212.555.1234 Fax/Telex:

Tax Report: Name Control: Last Filing:

QAD Proprietary QS-SU-130

Using Company Address Maintenance (2.12), QMI’s administrator enters an address code (8000) and basic address information.

The country code field is the only required field in address maintenance. Country codes need to be setup in Country Code Maintenance in Addresses and Taxes.

## Entity Code Maintenance

The screenshot shows the QAD Entity Code Maintenance interface. The main form displays the following information:

- Entity: 1000
- Description: QMI Incorporated
- Primary Entity:
- Currency: USD
- Post Translation Adj to (B/I): Bal Sheet

A search window is open, showing a list of entities. The search window table includes the following columns: Entity, Description, Primary Entity, Currency, Post Translation Adj to (B/I), Company Address, and Tax ID. The table data is as follows:

Entity	Description	Primary Entity	Currency	Post Translation Adj to (B/I)	Company Address	Tax ID
1000	QMI Incorporated	Yes	USD	Bal Sheet	8000	
T100	QUALITY PRODUCTS COMPANY	No	USD	Bal Sheet	10000000	
T200	EAST COAST DIVISION	No	USD	Bal Sheet	10000000	
T300	WEST COAST DIVISION	No	USD	Bal Sheet	10000000	
T400	CANADIAN DIVISION	No	CAD	Bal Sheet	10000000	
T500	EUROPEAN DIVISION	No	CHF	Bal Sheet	10000000	

QAD Proprietary QS-SU-140

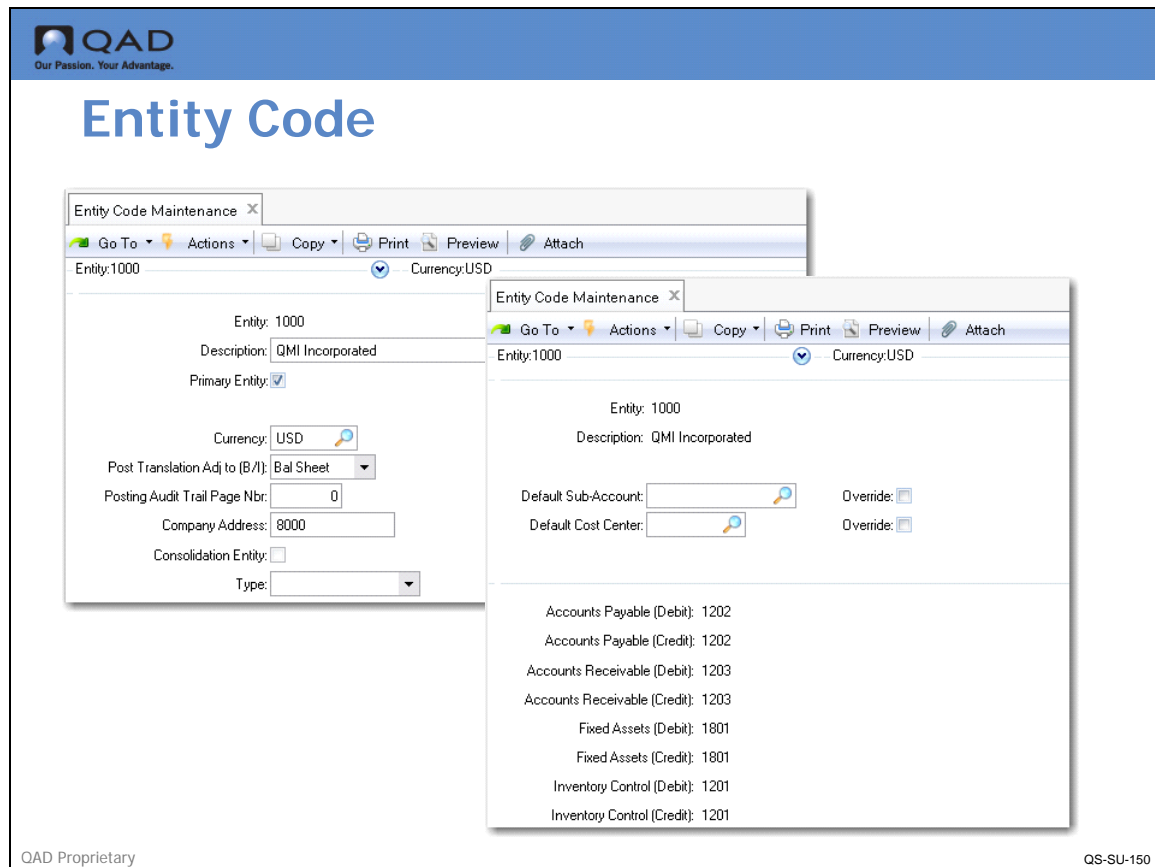
### Find and change current primary entity

QMI's administrator uses Entity Code Maintenance to identify the existing primary entity and deselect its Primary Entity flag.

To find the current Primary Entity and deselect its Primary Entity flag, the administrator does the following using Entity Code Browse (25.3.1.2):

- Selects the lookup icon next to the Entity field, with the entity field blank. In this example, the lookup screen shows that Quality Products Company is currently the primary entity
- Selects Quality Products Company and then, in the Entity Code Maintenance screen, deselects (mouse click the check mark) the Primary Entity flag

## Set Up Entity

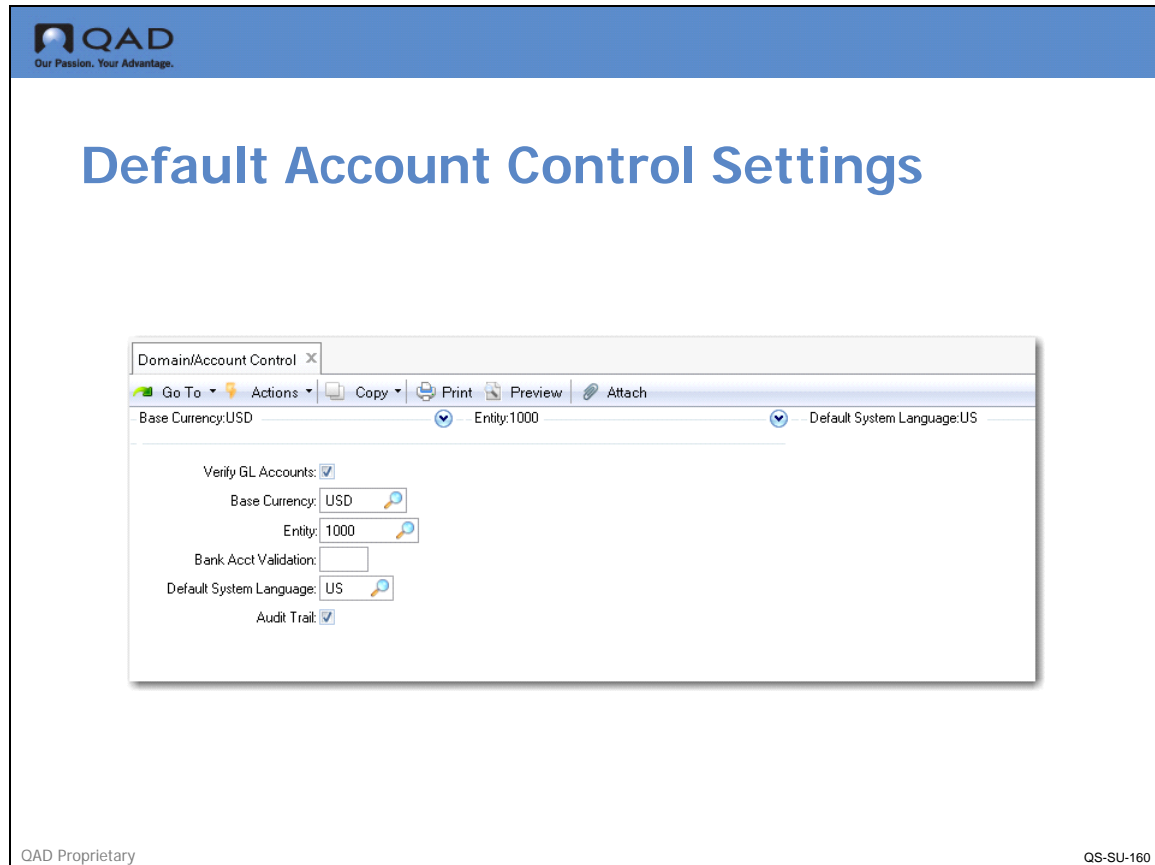


Using Entity Code Maintenance, QMI's administrator sets up an entity: entity 1000 and checks the primary entity flag.

Advancing to the next frame we see the general ledger account codes defaulting in from the Domain/Account control file.

**Note** Be careful how you set up your entity codes because data can be printed for a range of entity codes. For example, you may have subsidiaries in North America (U.S. and Canada) and Europe (France, Spain, and Italy). In order to print a separate European financial report, the European entity codes should be in a different number range (for example, 2100, 2200, 2300) than those for North America (1100, 1200).

## Enter Settings for Verify GL Accounts



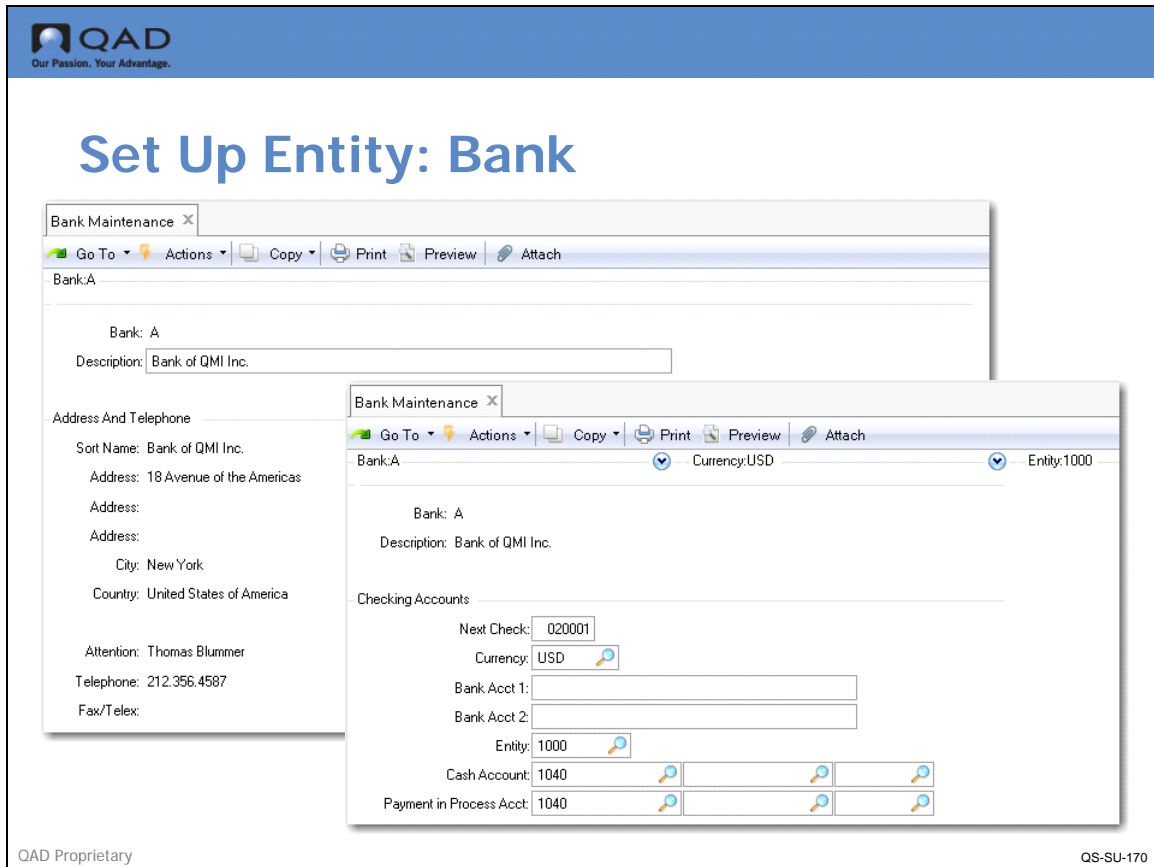
In Domain/Account Control, QMI's administrator sets entity 1000 as the default entity for the system.

Notice the Verify GL Accounts field. Initially, upon implementation, the Verify GL Accounts flag may be set to No (or unchecked). But when the implementation is finished, this field would normally be reset to Yes. When set to Yes, the system verifies that codes entered for individual accounts, sub-accounts, and cost centers exist in the GL module. It also ensures that transaction dates are not entered for closed fiscal periods.

### Domain Entity vs. Primary Entity

QAD SE distinguishes between the entity used for most database activities (the domain entity) and the default entity used in the general ledger (the primary entity). This allows you to manage transactions for different entities within a single database. The code for the default domain entity is set up in Domain/Account Control. Here you designate the code for the company that generates most of the non-GL transactions in the database. In the General Ledger module, the default entity is defined as the primary entity in Entity Maintenance. The code for the domain entity is often the same as the primary entity.

## Set Up Bank



A bank code is needed by the system.

Using Bank Maintenance, QMI's finance administrator enters Bank A in the system.

## Specify default bank and ship-to address

**Set Up Entity: Bank**

Accounts Payable Control

Default Bank:A

Next Batch: 1003

Next Voucher: 1001

Next Journal: 000005

Voucher Open Qty/Amt:

AP Summarization Level: 1

Ship-To: 10000000

Default Bank: A

Check Form: 1

Exchange Tolerance: 5.00%

Enter Vouchers Confirmed:

Release Recur VDs Confirmed:

Use Payment In Process Acct:

Use Expensed Item Var Accts:

External Voucher References Allowed:

Use Assigned-To Field:

Use Draft Management:

Allow Modification to Supplier:

ERS Packing Slip Error:

ERS Update GL Avg Cost:

ERS Voucher Date Option: 0

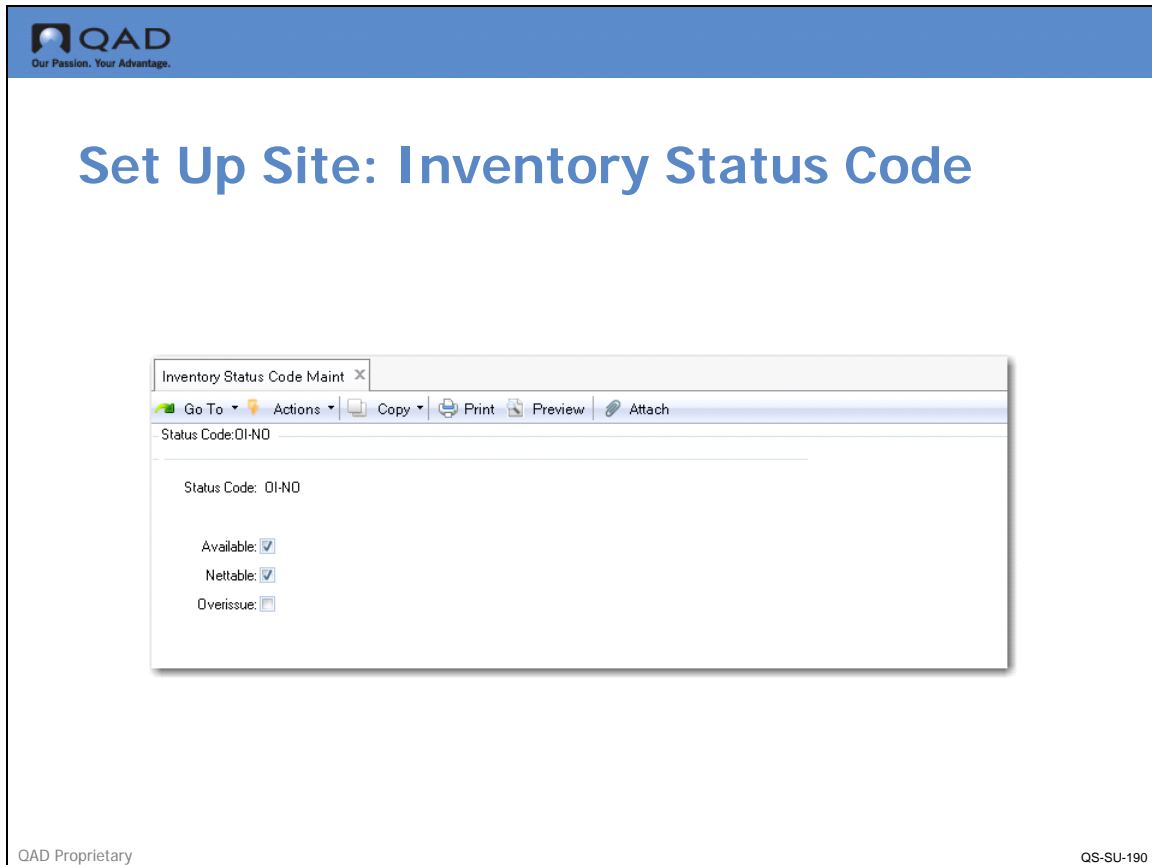
Multi-entity Payments:

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In Accounts Payable Control, QMI's finance administrator enters Bank "A" as the default bank. This is the bank that displays whenever QMI sets up suppliers in Supplier Maintenance, which will be done later in this course.

The finance administrator also enters site 8000 in the ship-to address field. This becomes QMI's default shipping address and is used when a voucher is entered that does not reference a purchase order number.

## Set Up Sites



Before QMI's administrator can enter a site or items, it needs to define at least one inventory status code.

In Inventory Status Code Maintenance (1.1.1), QMI can indicate if the inventory is available for sales orders and/or work orders, nettable for MRP planning purposes, and whether overissues are permitted from the locations identified with this code.

QMI defines a status code of OI-NO to indicate that overissues are not permitted from locations having this status code.

If overissues are allowed, inventory is issued even if the current balance lacks enough quantity. Even if the location has a zero or negative inventory balance. This is always an error. Not allowing a transaction that results in a negative balance forces the user to correct the source of the error before completing the transaction.

**Note** It is highly recommended to not use blank code fields. Codes should be meaningful. In this example, abbreviations that define the attributes of the code are used.

The screenshot shows the 'Site Maintenance' window in QAD. The window title is 'Site Maintenance x'. The menu bar includes 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. The breadcrumb trail shows 'Site:8000' and 'Entity:1000'. The main content area displays the following fields:

- Site: 8000
- Description: Manufacture/Distribution
- Entity: 1000
- Default Inventory Status: OI-NO
- Automatic Locations:
- Domain: train
- EMT Supplier:
- External Supplier:
- Transfer Variance Acct: 5030
- Transfer Ownership:

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For this class, QMI will have only one site, site 8000. In Site Maintenance (1.1.13), QMI's production manager associates this site with entity 1000 and assigns to it an inventory status code of OI-NO, which was defined earlier.

**Note** It will be most helpful if the site code is equal to the address code for the physical location. There are several places where the system can retrieve the street address for a site if the site code and the address code are the same. For example purchase orders where the system retrieves the ship to address code from the line item site code. Site code equal to address code is required for global tax management.

## Set Up Locations

The screenshot displays the QAD 'Set Up: Location' interface. It features two overlapping 'Location Maintenance' windows. The background window is for Site: 8000, Location: RAWMAT, with a description of 'Raw Materials', inventory status 'OI-NO', and a creation date of 9/22/2010. The foreground window is for Site: 8000, Location: FINGDS, with a description of 'Finished Goods', inventory status 'OI-NO', project 'Blank', and a creation date of 9/22/2010. Both windows have the 'Permanent' checkbox checked. The foreground window also shows a capacity of 0.0 and a unit of measure (UM) field. The interface includes a top navigation bar with the QAD logo and a 'Set Up: Location' title. The bottom of the screenshot contains the text 'QAD Proprietary' on the left and 'QS-SU-210' on the right.

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 their bottom desk drawer, the drawer needs to be an inventory location.

At QMI, there are two inventory locations, which are a subset of site 8000. Using Location Maintenance, QMI's production manager adds these two inventory locations: raw materials and finished goods. Notice the inventory status of these locations. Check the permanent flag.

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

## Review

### Database

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 Menu, Field, and Compliance Site Security).

### Domain

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

### Entity

An entity is a financial reporting concept. Balance sheets and income statements are produced by entity. There can be multiple entities in one domain. 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. If there is any inventory at least one site is required.

### Location

Within a site there can be multiple inventory locations. These are used to physically identify and control individual items in stock. Inventory reports normally are selected and sorted by location. If there is any inventory at least one location is required.

### Review of Steps in Example

In the Example section, we saw how QMI first entered its address and, in Entity Code Maintenance, identified and deselected the current primary entity in preparation for entering a new entity, and making it the primary entity in the database.

QMI then created the new entity (1000) in Entity Code Maintenance and made this entity the primary entity in the system.

QMI also entered its bank (Bank Maintenance) and made it the company's default bank (Accounts Payable Control) in preparation for later transactions.

Next, in Inventory Status Code Maintenance, QMI defined an inventory status code of OI-NO (over-issue = No) before setting up its site (site 8000).

After defining the inventory status code, QMI set up site 8000 in Site Maintenance and set OI-NO as the default inventory status.

In the last step, using Location Maintenance, QMI set up two locations at site 8000, RawMat and FinGood. The inventory status codes (OI-NO) associated with these locations defaulted from site 8000.

## Exercise: 1 Set Up QMI Incorporated

### Initial Set Up Steps

- 1 Change Workspace to Train.
- 2 Use Domain Maintenance Browse (36.10.2) to verify the Domain Train with the name Training QADDB.
- 3 Use Reason Code Maintenance (36.2.17) to enter the following:

Field	Value
Reason Type	Esig
Reason Code	Approve

## Set Up: Printer

**QAD**  
Our Passion. Your Advantage.

# Set Up: Printer

Printer Setup Maintenance x

Go To Actions Copy Print Preview

**Printer Definition**

Output To: ebig.so      Destination Type:

Description: QAD SFA/MA Printer      Printer Type:

Max Pages: 0      Lines / page: 66

Device Pathname:      Scroll Output:

Spooler:

**Printer Control**

Initialize Command:

Initialize Ctrl:

80 Column Start:

132 Column Start:

Reset Ctrl:

Reset Command:

Delete Back Next

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**Note** The next two setup steps are optional for on-line self study. All of the activities can be completed without a printer and if there are not multiple users of the same printer there is no need to add your name to the report format.

**Note** The printer setup activity shown here is intended for classroom use where the printer environment is known and the instructor can provide assistance if needed. In the case of self study, the printer setup will vary depending on your system configuration. If you wish to setup a printer for hard copy reports you may require the assistance of local technical staff.

## Add Your Name to Reports

Company Address Maintenance

Go To Actions Copy Print Preview

**Company Address**

Address: ~Reports  
 Name: Your Name Here  
 Address:  
 Address:  
 Address:  
 City: State: Post: Format: 0  
 Country: United States of America USA County:  
 Attention:  
 Telephone: Ext: Tel: Ext:  
 Fax/Telex: Fax/Telex:  
 Tax Report: Name Control: Last Filing:

Delete Back Next

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This Exercise where you add your name to the ~Reports frame in the Company Address Maintenance screen is also intended for classroom use where several students would be using a single printer.

To ensure that you can easily identify all reports that we print out in class for the activities, your name should appear on the top of the report. To set that up, use Company Address Maintenance, enter a special address code (~reports) and add your name in the Name field.

### Enter Your Company Address

**Note** Refer to the example screens in the previous section if you are unsure of which transaction screens to use or which fields to enter data into. Your activity exactly follows the examples for setting up QMI Incorporated.

- 4 Use Company Address Maintenance (2.12) to create records for your company. Fields to populate are:

Field	Value
Address (code)	8000
Description	QMI Incorporated
Street	17 Avenue of the Americas
City	New York
State	NY

Field	Value
Post	10065
Country	USA

- Click Next or press the Enter key
- Ignore the Address Tax Data window that pops up, click Next

With the cursor in the first field of Bank Accounts, click Back to Exit Company Address Maintenance.

**Note** The bank field in Company Address Maintenance is used for electronic transfer payments and its use is beyond the scope of this course.

### Enter an Entity

- 5 Use Entity Code Maintenance (25.3.1.1) to add a record for your entity.

In the Entity field, use the lookup to scroll through the pre-existing records in Entity Code Maintenance. Modify the entity that is flagged as the primary entity by setting the flag to No (un-check the box).

Use Entity Code Maintenance to add a record for your entity. Flag this entity as the primary entity.

Key fields to populate are:

Field	Value
Entity	1000
Name	QMI Incorporated
Primary Entity	Yes
Currency	USD
Company Address	8000

**Note** Account numbers for Fixed Assets need to be added, use 1801 for both Debit and Credit.

The second frame displays inter-company accounts for transactions across entities. These default from Domain/Account Control. Accept these defaults. Click next until the cursor returns to the Entity field, this completes the task.

### Set Entity as Default Entity for the Database

- 6 Modify Domain/Account Control (36.1). Key fields to populate are:

Field	Value
Entity	1000
Verify GL Accounts	No

This is the default entity used throughout the system. Whenever you add a new site or enter a financial transaction, this entity displays for you to accept or choose another.

In a normal environment you would always have verify GL accounts checked Yes. This insures that all transactions are posted to valid combinations of account, sub-account, cost center (and or project) costs in valid GL calendar periods. During training we leave this option unchecked to prevent students having their transactions stopped due to some error they have made.in the case of an improper account code setup.

There are several account frames after this. Advance through these frames to have an idea of all the account codes needed by the system. Accept the defaults. These account codes will default into the needed fields throughout the system to ensure all transactions are accounted for.

### Set Up a Bank for Your Entity

- 7 A new bank will do business with your business entity. Enter a record for it using Bank Maintenance (28.9.1). Make the bank currency the same as your base currency, and make the entity the same as your company entity. Key fields to populate are:

Field	Value
Bank	A
Description	Bank of QMI Inc.
Address	18 Avenue of the Americas
State	NY
Zip	10065
Country	USA

Click Next and accept the defaults in the remaining frames. (In the Checking Accounts frame, ensure that the entity for the bank is the same as the entity for QMI. If not, enter entity 1000.)

### Accounts Payable Control

- 8 Use Accounts Payable Control (28.24) to set bank A as the default bank for this database.

Field	Value
Ship-To	8000
Bank	A

Accept all other values at default and click Next to save.

### Set Up Sites

In this Exercise, you will set up a site. But first you need to set up an inventory status code, which will be used as the default inventory status for material at this site.

- 9 Add a new status code. Use Inventory Status Code Maintenance (1.1.1).

Field	Value
Status Code	OI-NO
Available	Yes
Nettable	Yes
Overissue	No

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

### Set Up Sites

- 10 Use Site Maintenance (1.1.13), to set up your manufacturing/distribution site.

Field	Value
Site Code	8000
Description	Manufacture/Distribution
Entity	1000
Default Inventory Status	OI-NO

At the multi-domain processing pop-up, click Back.

### Set Up Inventory Locations

Add two inventory locations-raw materials and finished goods-to site 8000. The inventory status code of OI-NO should default from site 8000.


- 11 Use Location Maintenance (1.1.18) to enter the information in the table below in the appropriate fields. Click Next to save.

Field	Value
Site	8000
Location Code	RAWMAT
Description	Raw Materials
Inventory Status	OI-NO



Field	Value
Site	8000
Location Code	FINGDS
Description	Finished Goods
Inventory Status	OI-NO


Chapter 3

# **Set Up Basic Financial Structure**



# Finance

- 1 Entity, Site, Locations  

- 2 Company Finance  




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QS-SU-280

We have seen how to set up entities, sites, and locations. Next, in this chapter, we will look at setting up the basic financial structure for a company. First, though, we will discuss some key concepts—the General Ledger (GL) calendar, transactions and the GL, posting transactions, and the balance sheet and income statement.

## Learning Objectives



### Learning Objectives

When you finish this section, you should be able to:

- ▲ Provide examples of how transactions enter the GL
- ▲ Explain the importance of the step “Transaction Post”
- ▲ Explain format positions
- ▲ Set up the GL calendar
- ▲ Post a transaction
- ▲ Print a balance sheet

## Key Concepts



### Topics

#### ▲ Key Concepts

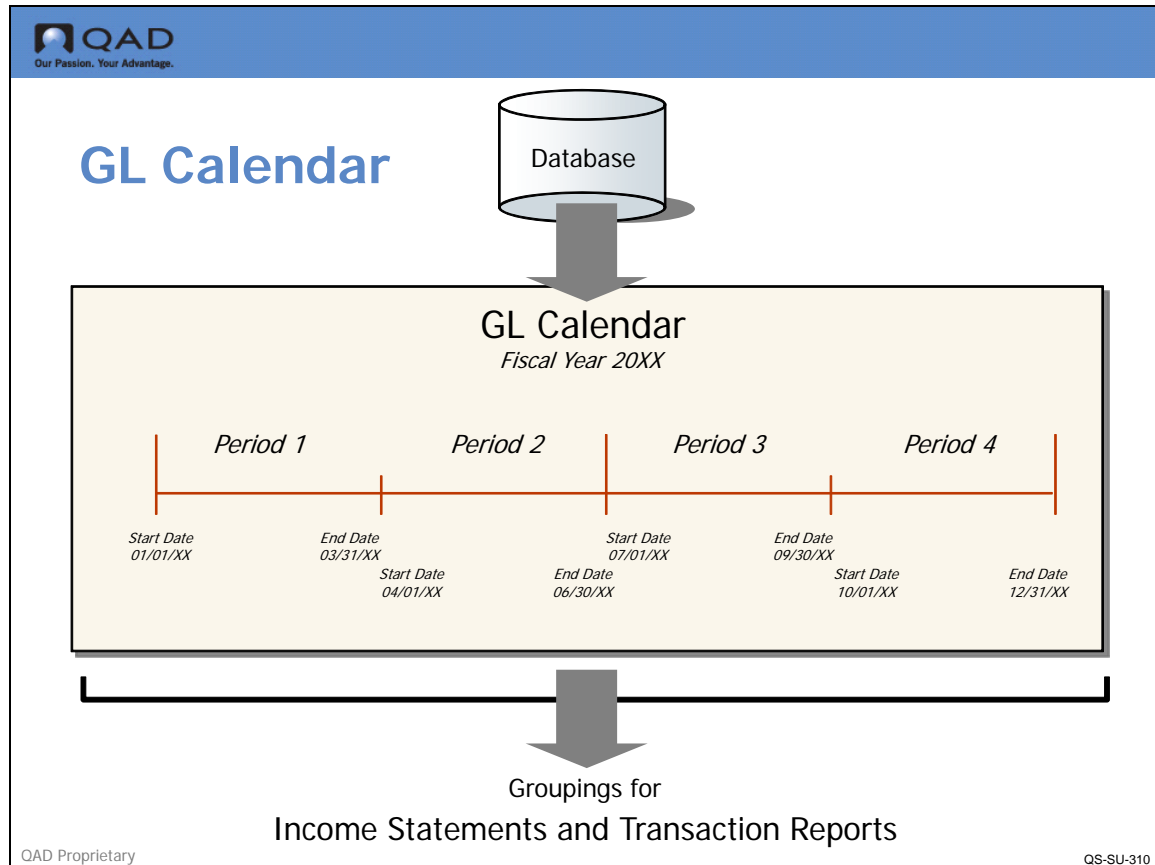
- GL Calendar
- Transactions and the GL
- Posting Transactions
- Balance Sheet

#### ▲ Example

- Set Up GL Calendar
- Enter Start Up GL Account Balance
- Post Transactions
- Print Balance Sheet

#### ▲ Activity

## GL Calendar



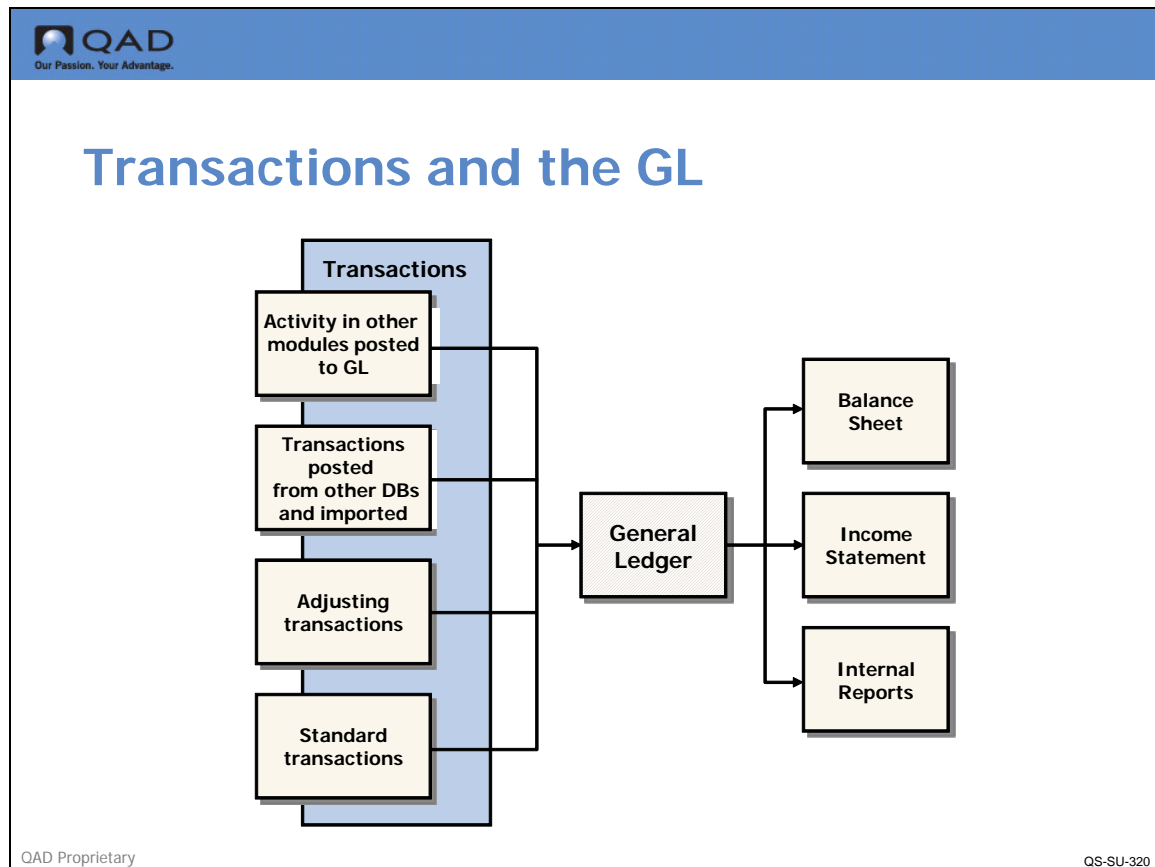
The General Ledger (GL) Calendar defines the starting and ending dates of each calendar period within a fiscal year. This makes it possible to store transactions and print comparative reports for different periods.

A domain can have only one GL calendar and at least one period must be defined. In the example, there are four periods defined for fiscal year 2009.

In QAD SE calendar periods are user defined. You could have 12 periods per year, each equal to a calendar month, or you could have four quarters as shown in the figure.

Transactions, such as a sales order or work order transaction or other inventory transactions, must find an open GL period that includes the date of the transaction in order to post to the general ledger (GL). The verify GL accounts flag in the Domain/Account Control verifies both a valid Account code and an open GL period for the date of the transactions. If the verification fails the system returns an error message and the transaction cannot be completed.

## Transactions and the GL



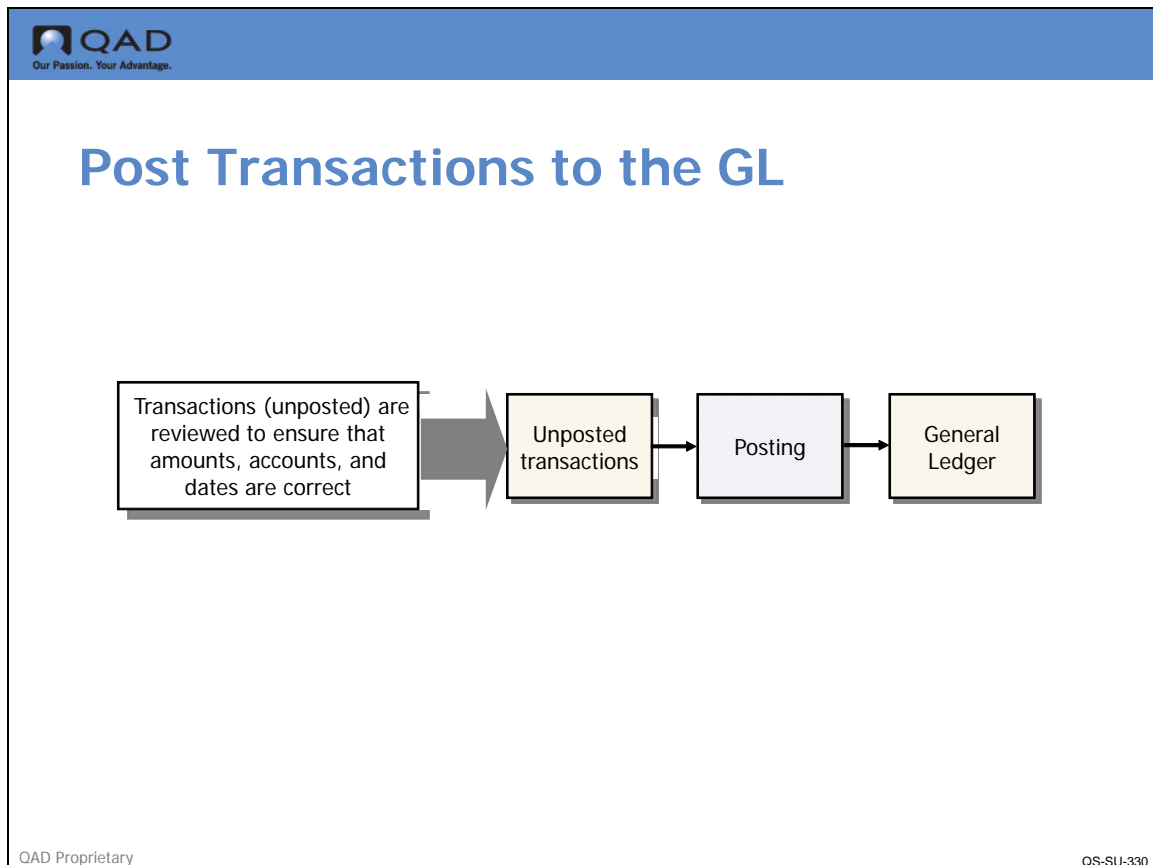
Each transaction is an individual event; for example, the sale or purchase of an item reported to a computer system, where an application such as QAD SE creates records to track the financial effects of business activities. These transaction records enter the GL in one of four ways:

- Activities in other QAD SE modules, which create journal entries that are subsequently posted to the GL module
- Posted transactions from other databases imported by a consolidation database
- Adjusting transactions entered in the GL journal file
- Standard transactions entered in the GL to record miscellaneous activity such as bank charges, loans, or acquisitions

As shown above, these transactions update account values in the GL where this information can be organized into balance sheets, income statements, or audit reports.

**Note** These transactions are first posted before actually updating the accounts in the GL. Posting transactions is a separate event that should be under accounting procedure control.

## Transaction Post



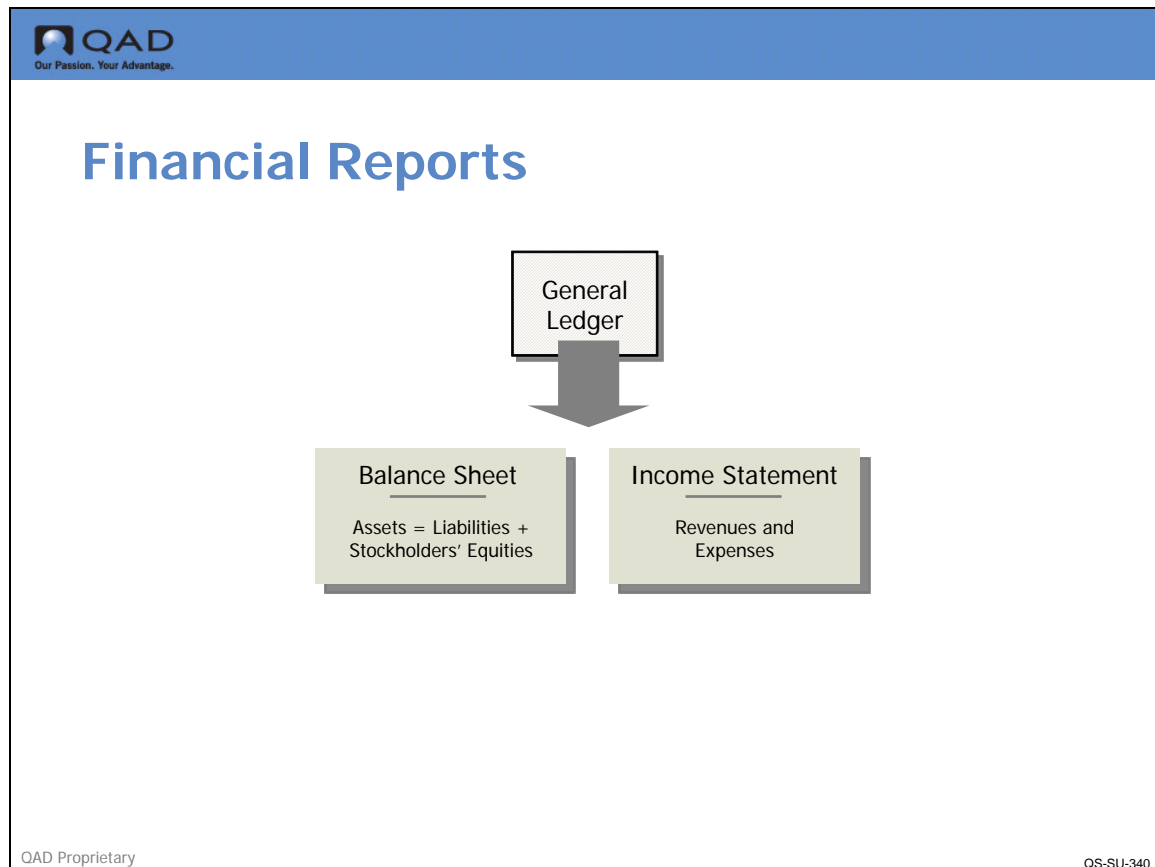
The values in accounts are updated by transactions. However, this does not normally occur at the time of the transaction. For example, different people are often responsible for parts of the same transaction, or all parts of a transaction may not occur simultaneously. The most compelling reason for not automatically updating accounts, however, is the necessity for maintaining the integrity of the company's financial records.

For these reasons, transactions are normally verified by management, then allowed to update the accounts in a process known as posting (see figure above). During posting, transactions increase or decrease (debit or credit) the balances in two or more accounts. Employees maintaining the GL act as internal auditors for transactions, making sure that they update the correct accounts. This safeguard is vital because a transaction becomes a permanent part of the company's records once it is posted. Posted transactions cannot be modified directly, although account balances can be changed using adjusting entries.

**Note** There are specific functions in the General Ledger for reviewing un-posted transactions.

Once transactions are posted and account values updated in the GL, a company can generate key financial reports, such as an income statement and balance sheet.

## Financial Reports



At its simplest, the general ledger is a system of accounts that shows the value of assets, liabilities, equities, revenues, and expenses.

Periodically, this information is compiled on two primary financial statements: the balance sheet and income statement.

### Balance Sheet

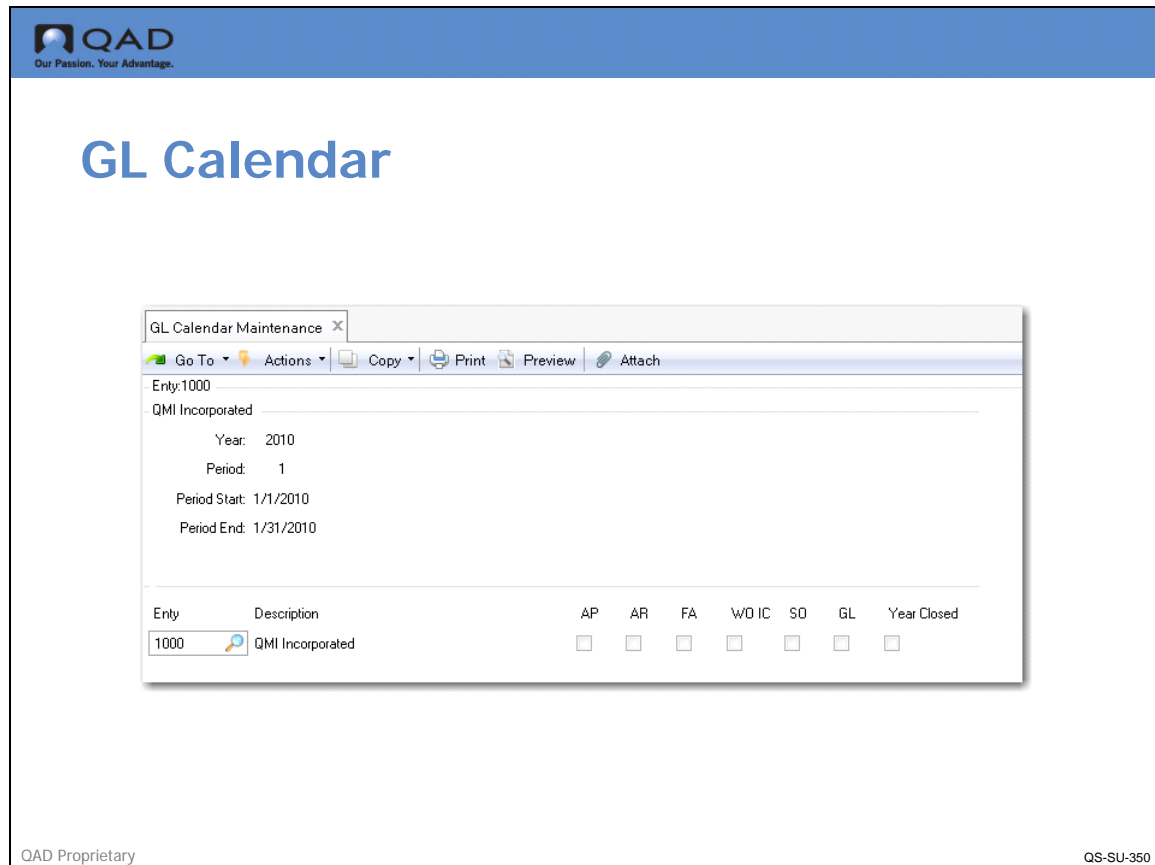
The balance sheet shows what resources the company has accumulated over time. Assets such as cash, inventory, fixed assets like buildings and machinery and accounts receivable. The balance sheet also shows liabilities like loans and accounts payable, and shows the difference between the assets and liabilities as equity. The balance sheet is a position statement as it shows the financial condition of a company as of a fixed point in time such as year end.

### Income Statement

The income statement shows the profit (or loss) that business activities have generated in a particular time period, for example, a calendar quarter. This is found by starting with total revenue and subtracting the various costs of doing business; such as materials purchased, labor, the overhead of the buildings and general and administrative expense.

The format and calculation of the balance sheet and income statement are controlled by Generally Accepted Accounting Practices (GAAP), government regulations and industry standards, all of which vary widely around the globe. The accounting system offers the flexibility to accommodate many different environments, currencies, and local issues.

## Examples



### GL Calendar (25.3.4)

In this example, we'll see how QMI's Finance Department:

- Sets up the company's GL calendar
- Uses Standard Transaction Maintenance to enter the start-up account balance of \$10,000 based on a loan
- Posts that loan amount to the GL using Transaction Post
- The company's balance sheet will be examined

### Set Up the GL Calendar

As shown in GL Calendar Maintenance, QMI's fiscal year is divided into 12 periods beginning January 1, and an end date of January 31, of the current year.

The screen shot shows a single GL period for the first month.

The screen shot shows a line of check boxes; AP for Accounts Payable, AR for Accounts Receivable, FA for Fixed Assets, WO IC for Work Order Inventory Control, SO for Sales Order, GL for General Ledger, and year closed. When checked these show that the corresponding module

has been closed. Once all modules are closed the year may be closed. When a module has been closed, transactions cannot post to that module. The process of closing modules and periods should be controlled by accounting procedure.

Throughout QAD SE, transactions are entered with a GL effective date; this date (and not the transaction date; although they are often the same) determines which GL calendar period the transaction affects.

Transaction dates default from the system date (should be today's date) as set by the system administrator. The user may set the GL effective date to a different date in special situations. Note that the system maintains both dates.

The GL calendar supports up to 999 fiscal periods within one fiscal year. Periods are defined manually by entering the start and end date. If you accidentally skip a date, you cannot post transactions with that effective date.

Fiscal years may correspond to a calendar year or they may span calendar years. For example, a fiscal year may begin July 1 and end June 30 of the following year.

## Enter Start-Up GL Account Balance

The screenshot displays the QAD Standard Transaction Maintenance window. The window title is "Standard Transaction Maint". The interface includes a menu bar with "Go To", "Actions", "Copy", "Print", "Preview", and "Attach". The main area shows the following details:

- Currency: USD
- Daybook: SYSTEM
- Project: [Dropdown]
- Entry: 1000
- QMI Incorporated
- GL Reference: JL100923000001
- Type: JL
- Effective: 9/23/2010
- Period: 9/2010
- Currency: USD
- Control: 10,000.00
- Base
- Total: 0.00
- Daybook: SYSTEM
- Entry Number:
- Correction:

Below the main form, a table displays the transaction lines:

Line	Account	Project	Enty	Description	Cur	Amount
1	1040		1000	Bank Loan	USD	10,000.00
2	2600		1000	Bank Loan	USD	-10,000.00

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QMI has secured a loan of \$10,000. Using Standard Transaction Maintenance, the Finance Department enters the \$10,000 loan in a Cash account (asset account 1040) and makes a balancing entry of -\$10,000 in a Long-Term Debt account (liability account 2600).

**Note** As the transaction is entered a popup window appears on the account field which shows the complete GL account structure of account code, sub-account, cost center and project. For this activity we use the account code only.

An additional pop up appears to enter a description of the transaction.

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## Standard Transaction

Standard Transaction Maint x

Go To Actions Copy Print Preview Attach

Currency: USD Daybook: SYSTEM Project: Enty: 1000

QMI Incorporated

GL Reference: JL100923000001 Type: JL Effective: 9/23/2010 Period: 9/2010

Currency: USD Control: 10,000.00 Base Total: 0.00

Daybook: SYSTEM Entry Number: Correction:

Line	Account	Project	Enty	Description	Cur	Amount
1	1040		1000	Bank Loan	USD	10,000.00
2	2600		1000	Bank Loan	USD	-10,000.00

QAD Proprietary QS-SU-370

When the screen appears as shown, click Next to advance to line three, then click Back to complete the transaction.

## Post Transaction

The screenshot displays the QAD Transaction Post interface. The top window shows the configuration for the transaction post, including the entity (1000), effective date (1/1/2010), and transaction type. The bottom window shows the resulting report for Training on 09/23/10, which includes a table of transactions with columns for GL Reference, User ID, Eff Date, Line Account, Project, Enty Description, Amount, Cur, and Daybook.

GL Reference	User ID	Eff Date	Line Account	Project	Enty Description	Amount	Cur	Daybook
JL100923000001	09/23/10	09/23/10	1 1040		1000 Bank Loan	10,000.00	USD	SYSTEM
	mfg	09/23/10	2 2600		1000 Bank Loan	-10,000.00	USD	SYSTEM
						0.00	USD	

Using Transaction Post (25.13.7), the Finance Department posts the \$10,000 loan amount to the General Ledger so that account values are updated.

To be posted, transactions must be for active accounts, sub-accounts, cost centers, and projects; balanced (debits must equal credits); and for an open accounting period.

The output of the transaction post process is a report that you may print or view on your monitor screen. It should look like the image shown. Your GL Reference number will be different. The reference number is system generated and is a date code; 090402 in the example below, prefixed with JL (Journal Ledger), and followed by a sequential number 000001, in this case, indicating this was the first JL reference of the day, on this system.

## Print Balance Sheet

Balance Sheet

Entity: 1000 To: 1000 Sub-Account:

Entity: 1000 To: 1000  
Description: QMI Incorporated

Report Ending Date: 9/23/2010  
Use Budgets:  Budget Code:  
Suppress Zero Amounts:

Sub-Account: To:  
Cost Center: To:  
Level: 99

Summarize Sub-Accounts:   
Summarize Cost Centers:   
Suppress Account Numbers:   
Round to Nearest Thousand:   
Round to Nearest Whole Unit:   
Reporting Currency:


Output: page  
Batch ID:

QAD Proprietary QS-SU-390

Using Balance Sheet (25.15.8), let's look at QMI's balance sheet as of today's date. You may set the output field to page to view the report on your monitor.

The balance sheet print-out is shown below. Your balance sheet should look like this at the end of the activity.

## Balance Sheet Printout

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<h1>Balance Sheet</h1>	
	
<b>Balance Sheet</b> <b>Training</b>	
QMI Incorporated	Reporting Currency: USD Exchange Rate:
	Balance as of 09/23/10
-----	
ASSETS	
CURRENT ASSETS	
CASH	
CASH	10,000.00
TOTAL CASH - USD	10,000.00
CASH - FOREIGN	0.00
TOTAL CASH	10,000.00
RECEIVABLES	
ACCOUNTS RECEIVABLE	0.00
TOTAL ACCOUNTS RECEIVABLE	0.00
DRAFTS RECEIVABLE	0.00
INTERCOMPANY RECEIVABLES	0.00
NOTES RECEIVABLE	0.00
TOTAL RECEIVABLES	0.00
INVENTORY	0.00
INVENTORY	0.00
INVENTORY	0.00
INVENTORY	0.00
COST REVALUE	0.00
COST REVALUE	0.00
COST REVALUE	0.00
WORK IN PROCESS	0.00
TOTAL CURRENT ASSETS	10,000.00
-----	

QAD Proprietary

QS-SU-400

Review the balance sheet above and notice how the \$10,000 recorded in the cash account (asset) and the \$10,000 recorded in the long-term debt account (liability) display. Total assets should equal total liabilities and equity, and they do on this balance sheet.

This report prints format headings based on the descriptions entered for format positions in the Format Position Maintenance function. Amounts are shown for all accounts at the appropriate level. Totals are given for each format position heading.

### Format Positions on Income Statements and Balance Sheets

Format positions control the organization of the balance sheets and income statements. The field Level controls the amount of detail displayed on the resulting report. They are given descriptions which serve as labels for the account totals on these financial reports. Format positions also determine the order in which the GL accounts will appear on these reports, how the GL accounts are totaled, and where page breaks occur.

**Note** Setting up format position codes is beyond the scope of this course, it is important to know that the format or layout of the financial reports is completely user defined and is not controlled by the account code but by a separate format position code that has its own label and is linked to account code. The user also controls which format positions sum into which other position codes.

## Review

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### Review

**1** Entity, Site, Locations



- Company address  
*Company Address Maint.*
- Entity  
*Entity Code Maintenance*
- Default entity  
*System/Account Control*
- Bank  
*Bank Maintenance and Accounts Payable Control*
- Inventory status  
*Inventory Status Code Maintenance*
- Site  
*Site Maintenance*
- Location  
*Location Maintenance*

**2** Company Finance



- GL calendar  
*GL Calendar Maintenance*
- Standard transaction (loan)  
*Standard Transaction Maintenance*
- Post transaction to GL  
*Transaction Post*
- Balance sheet  
*Balance Sheet*

QAD Proprietary QS-SU-410

In this chapter, we have covered some basic financial concepts and saw how those work in QAD SE. We looked at:

- The GL calendar, where you define at least one period for the fiscal year. Once defined, you can print comparative reports for different periods.
- How transactions enter the GL to update accounts after being posted. In the example given, QMI's Finance Department used Standard Transaction Maintenance to enter a \$10,000 loan and then posted that transaction to update cash and long-term debt account values.
- The balance sheet, which is organized by format positions defined in Format Position Maintenance.

## Exercise: 2 Set Up Company Finance Data in General Ledger

In processing your activities refer to the proceeding example pages for the screen setup if you are unsure of the fields the various values go into.

- 1 Use GL Calendar Maintenance (25.3.4) to enter a calendar for the current year starting with period one (add 12 months). Verify that the General Ledger has the current year set up in GL Calendar Browse/Inquiry (25.3.5).

**Note** There is no need to change the Entity to 1000. The GL crosses all Entities.

- 2 Key fields to populate are:

Field	Value
Year	Current Year
Period	1 through 12
Period Start	1st day of Month
Period End	Last day of Month

- 3 Add a record in Standard Transaction Maintenance (25.13.1) to document the \$10,000 loan received from the bank.

Key fields to populate are:

Field	Value
GL Reference	System Generated
Currency	USD
Control	10,000

Your GL Reference number will be different than the one shown in the previous example. The reference number is system generated and is a date code; 090402 in the example above, prefixed with JL (Journal Ledger), and followed by a sequential number 000001, in this case, indicating this was the first JL reference of the day, on this system.

Enter the information in the appropriate fields as show in the table below, clicking Next to progress through and save each line until you reach line 3, then click Back to save and exit.

Field	Value
Line	1
Account	1040
Entity	1000
Description	Bank Loan
Currency	USD
Amount	10,000

Field	Value
Line	2
Account	2600
Entity	1000
Description	Bank Loan
Currency	USD
Amount	-10,000

## Post Transaction to General Ledger

- 4 Use Transaction Post (25.19.16).

Key fields to populate are:

Field	Value
Entity	1000 to 1000
Effective Date	Today's to Today's
Transaction Type	JL
Post	Yes
Output	PAGE

- 5 Use Balance Sheet (25.15.8) to print a balance sheet for your entity with today as the ending date.

Field	Value
Entity	1000 to 1000
Output	PAGE

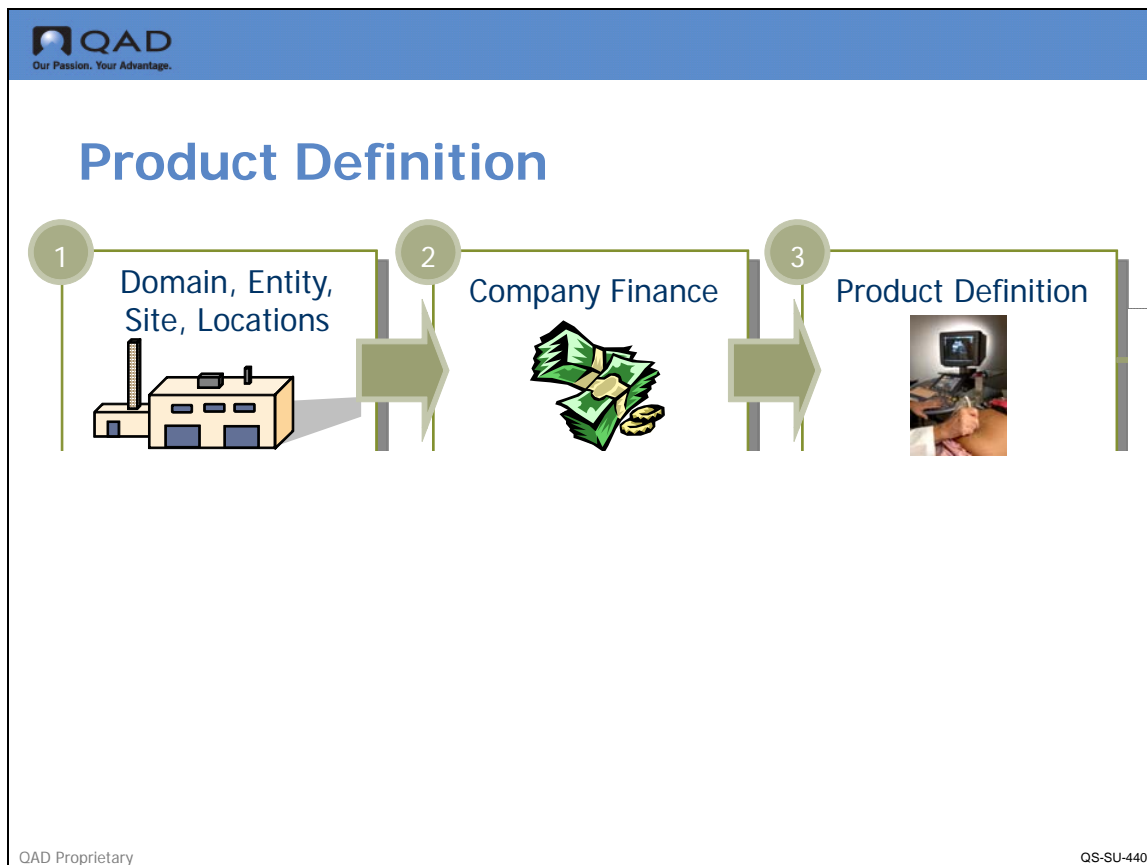
**Note** You do not need to print a hard copy of the balance sheet but you should verify that the data is correct before proceeding with the following activities. Your balance sheet should look like the one in the example.



Chapter 4

# Set Up Product Definition

## Product Definition



Once the basic company structure has been set up entity, site, locations, and company finance we can enter information about the company's products.

## Product Definition: Topics



### Product Definition: 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
- ▲ Activity

## Learning Objectives

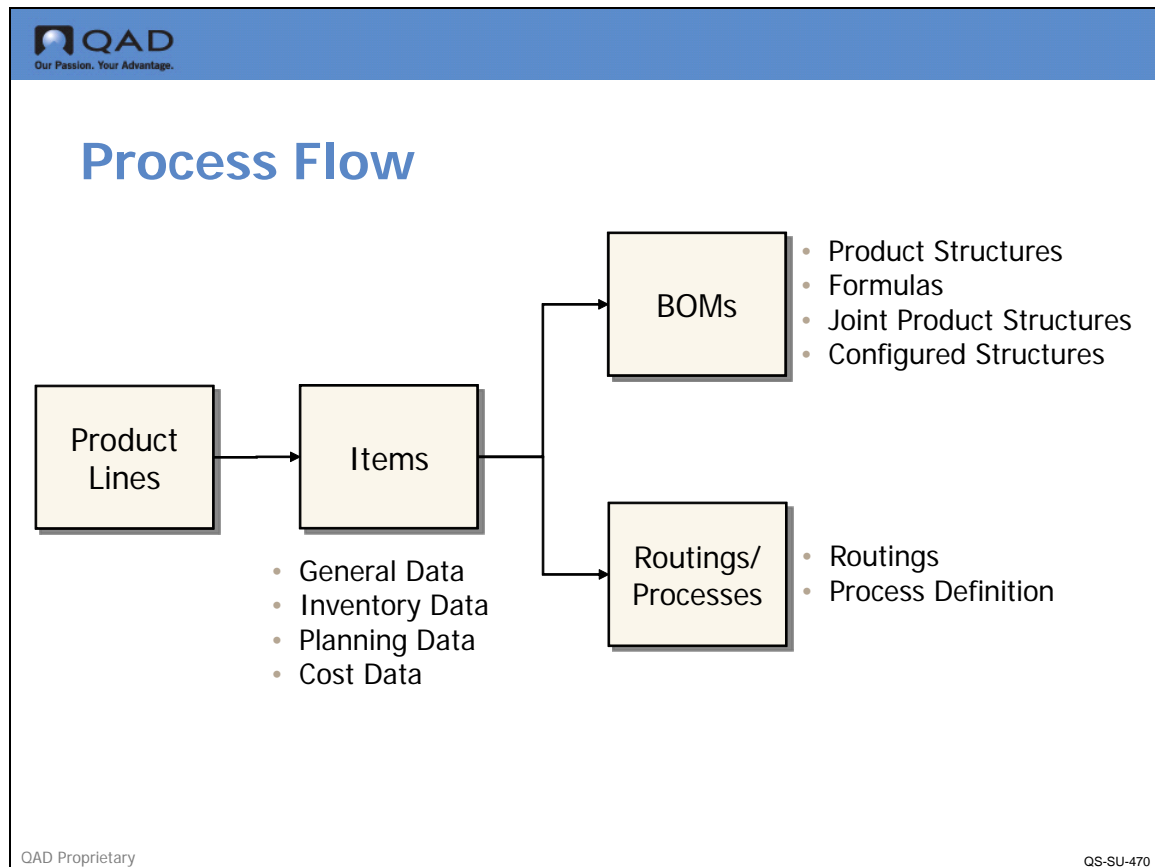


### Learning Objectives

When you finish this section, 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

## Process Flow

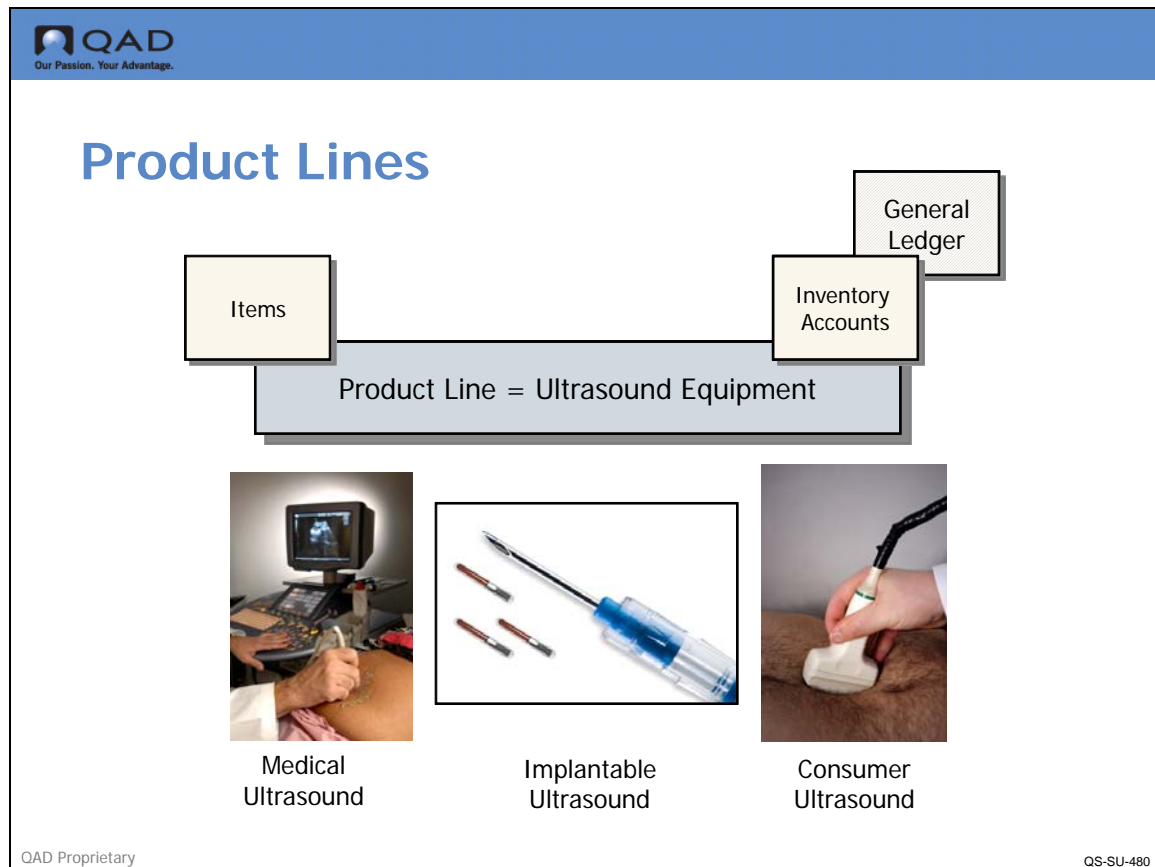


To establish product definition, you must first establish product lines, then assign them to each item (see figure). Although each item needs to have an associated product line to capture inventory costs and movement, each item may or may not have a bill of material (BOM) or routing associated with it. We'll be discussing bills of material in this chapter and routings later in the course, but briefly:

- Bills of material quantify how much of an item is required to produce the parent item
- Routings quantify where and how the product is made

In 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).

## Product Lines



A product line is a group of similar items or products. Usually, the grouping is by similarities of manufacture or application.

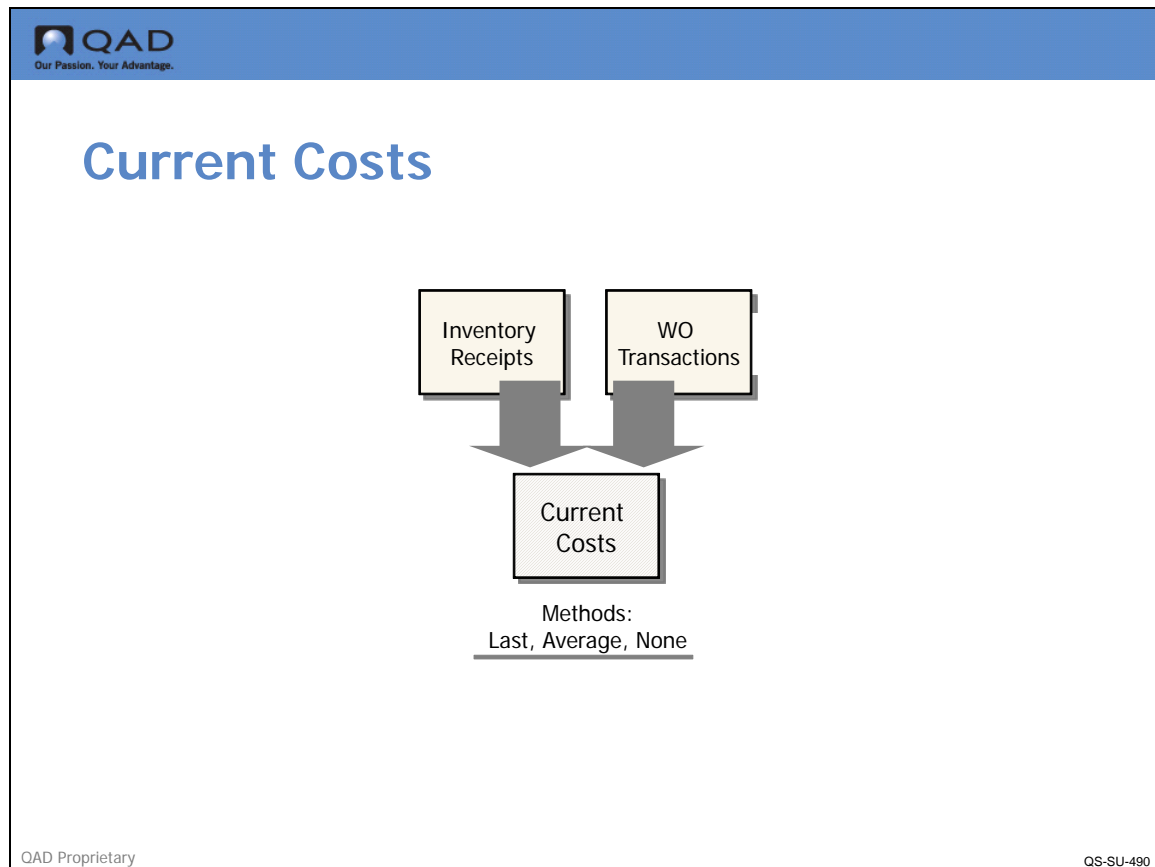
A product line also links items to general ledger accounts. This link is the way the system ensures that all transactions governing an item have GL consequences. All items must belong to a product line; otherwise, no GL transactions associated with them could be recorded.

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

It is also worth noting that almost every browse, inquiry and report in QAD SE can be sorted on product line.

In this illustration we are showing three different types of ultrasound devices in one product line. This means that all costs and revenues for these items are collected in the same set of GL accounts. Your company could decide that the nature of the materials and the manufacturing processes used are different enough that you would like three product lines based on the material the ultrasound is made from. This would allow you to use different GL accounts, or sub-accounts, to track the costs and revenues.

## Current Costs



Current costs are the actual costs from inventory receipts and work order labor transactions.

Current costs are 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 workcenter labor rates.

When you have a standard costing system vs. an average 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, the new average cost is calculated and stored in the cost set
- None: Current costs are maintained manually in the system or not used

The method to be used is selected in Inventory Control.

## Terminology

### Cost Set

Identifies cost files in the system. The system has two default cost sets, GL and Current, that are available for each site. But, a site can have additional cost sets, 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.

**Note** 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 times the workcenter labor rate. The workcenter labor rate usually reflects an average rate for all workers in the workcenter, rather than the actual rate of the person who worked on a specific work order.

### Standard Costing

Costs are pre-established 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

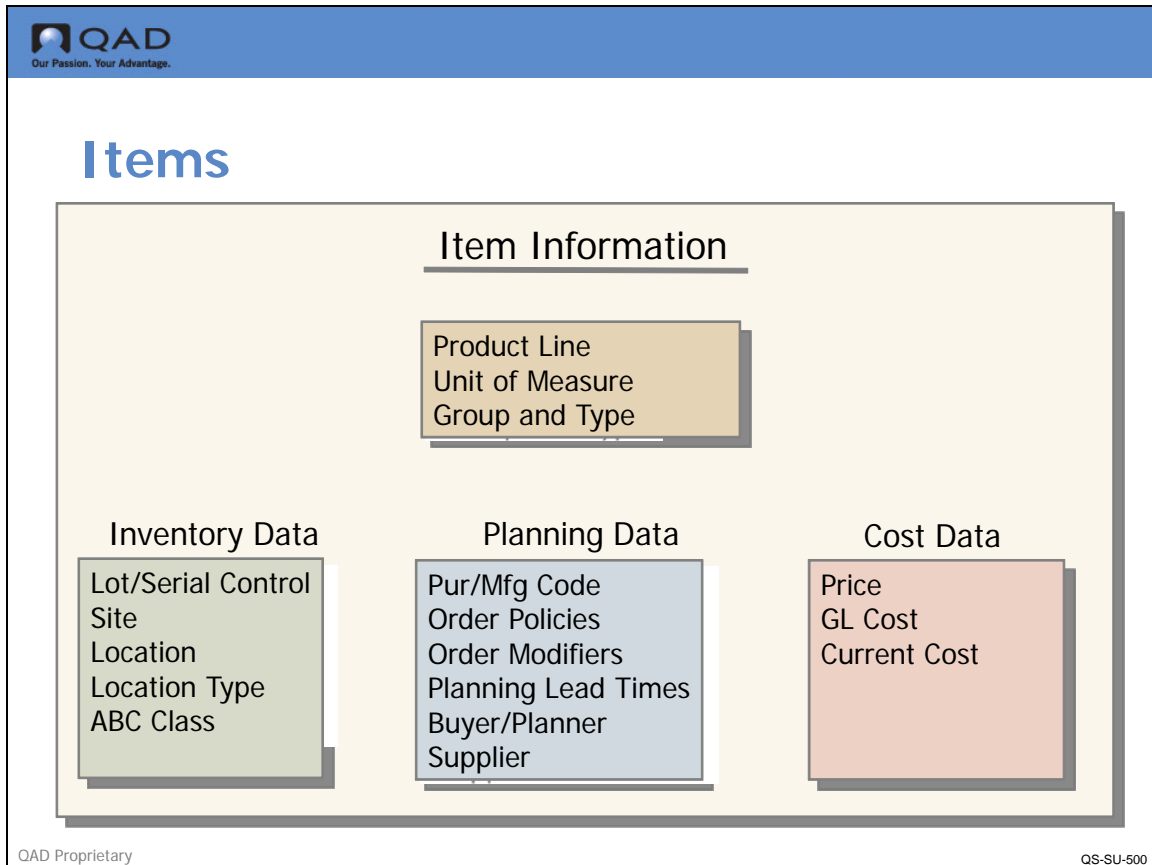
### GL Cost Set

The QAD SE system keeps the standard cost in a cost set named the GL Cost Set. The name reflects the fact that these are costs used to value all inventory transactions in the general ledger.

### Variance

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

## Item Information



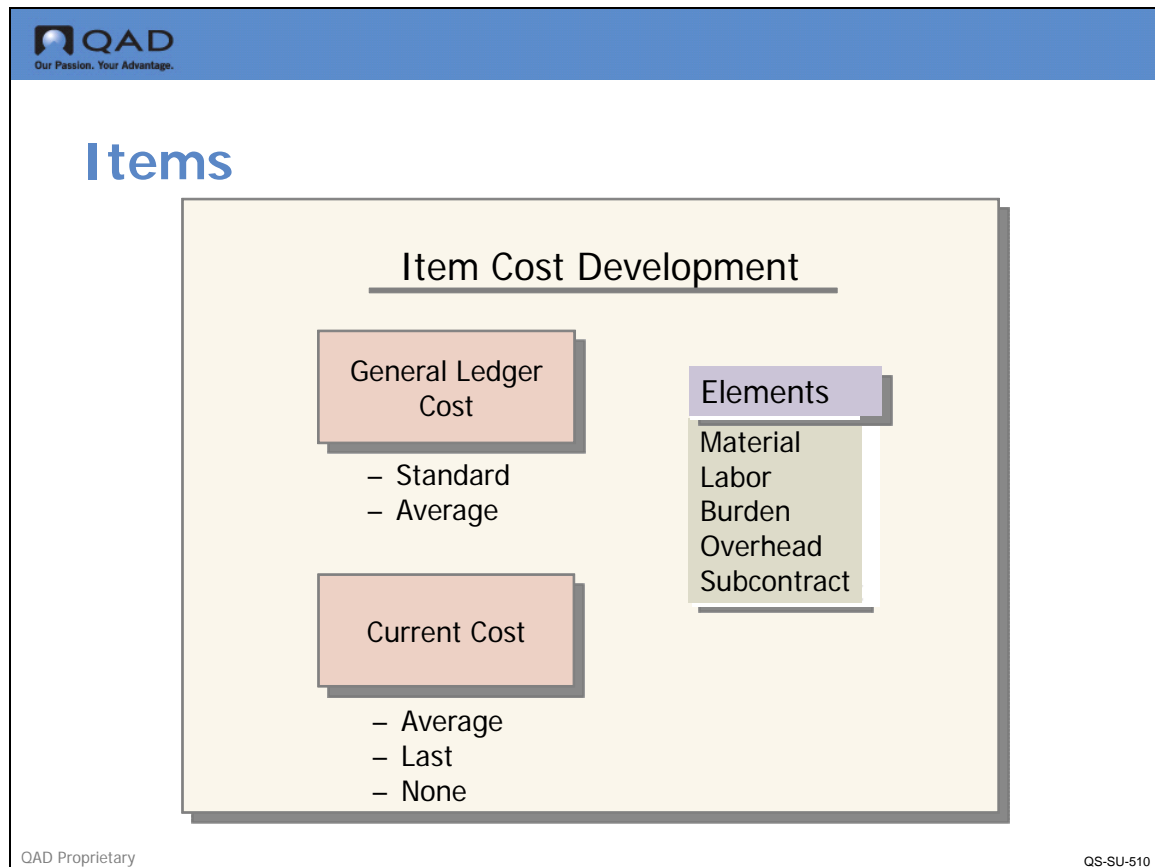
After setting up the product lines and current cost method, we're ready to enter more specific information about each item.

Item information must be entered for every item you use or produce at every site using that item. Later we will see that much of the data for 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 you can enter inventory data, planning data, and cost data. The basic information recorded in each of these areas is shown in the figure. (There are also separate functions to add or maintain item data, inventory data, planning data, and cost data). This allows different functional areas such as production planning and cost accounting to 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. And, depending upon the BOM and routing, there may be both this-level and lower-level costs.

As shown in the figure above, there are two cost sets for an item GL and Current. The GL cost set will have either a standard or average costing method; whereas the current cost set will be determined by either the average or last cost of the item; or maintained manually (current cost set = 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 section, you will see how item costs are organized by these cost sets and elements.

Now that we have looked at product lines and items, we'll next discuss bills of material (BOMs), which are called product structures and formulas in QAD SE.

### 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 may be used for valuation as a GL cost or for information only as a current cost.

### Bill of Material (BOM)

A listing of all sub-assemblies, components, and raw materials of a parent assembly. Shows the quantity of each required to make one parent assembly. Also called a product structure or formula. Used with a master production schedule to determine items for which purchase requisitions and production orders must be released.

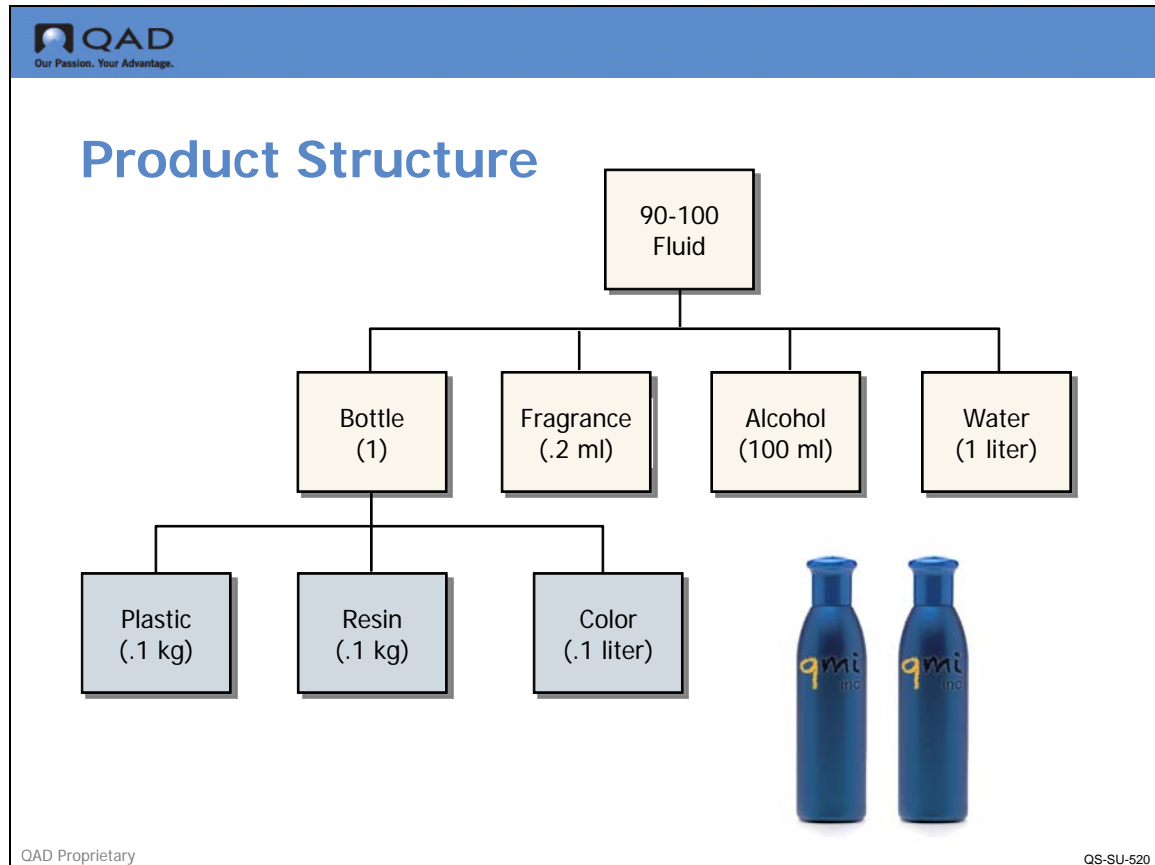
### GL Cost Set

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.

### 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 Structure



Once items are identified in the system, you can set up product structures and formulas to identify the physical components and raw materials of manufactured products in the system.

- 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 they are required. Product structures are often referred to as bills of material.
- Formulas identify ingredient usage as a quantity per batch or percent of batch.

These are vital to the planning process. These relationships are defined in either Product Structure Maintenance or Formula Maintenance. Formulas are often referred to as recipes.

In general, product structures and formulas work in the same way, so we will refer to both 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.

For example, look at the bottle of conditioner fluid in the figure above. The plastic bottle is made from plastic pellets, resin, and colorant. In the bottle part of the BOM, the plastic bottle is the parent and the three raw materials are the components.

The bottle is filled with fragrance, alcohol, and water to make the final product: a bottle of conditioner fluid. In this part of the BOM, the finished bottle of conditioner fluid (item 90-100) is the parent and the bottle is a component. The other ingredients fragrance, alcohol, and water are also components in this BOM.

Note that the bottle is a parent item in one BOM and a component in another. This is called a multilevel BOM.

### **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.

### **Terminology**

#### **BOM Code**

A code uniquely identifying a product structure or formula.

## Example: Set Up Product Lines

The screenshot displays the 'Product Line Maintenance' window in QAD. The window title is 'Product Line Maintenance'. The main content area shows the following information:

- Product Line: 7000
- Description: Ultrasound Products
- Taxable:
- Tax Class:
- Default Sub-Account:  Override:
- Default Cost Center:  Override:

Below the main form, there is a section titled 'Inventory Accounts' with the following list:

- Inventory Acct: 1500
- Inv Discrep Acct: 5900
- Scrap Account: 5800
- Cost Revalue Acct: 1550

The window includes a menu bar with 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. The QAD logo and tagline 'Our Passion. Your Advantage.' are visible in the top left corner of the window frame.

QMI's manufacturing department has set up a product line called 7000 for its medical, Implantable, and consumer ultrasound devices. The sales and operations of ultrasounds are planned, reported, and analyzed by this product line. Additionally, costs are tracked by the inventory accounts set up in Product Line Maintenance.

**Note** Once your cursor is in the bottom frame (Inventory Accounts) if you continue to click Next the system takes you through four more frames of account code structure. These accounts are defaulting from the Domain/Account control and should be accepted as is.

## Select Current Cost Method

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### Example: Cost Set Method

Inventory Control
Go To | Actions | Copy | Print | Preview | Attach

Default Site: 8000      Transfer Clearing Acct: 5030

Inventory Count Parameters

Tolerance From Qty On Hand or Annual Usage: Qoh

Issue Days: 0

Item Tolerances:

Class A:	3.00%	300.00	Class C:	5.00%	500.00
Class B:	4.00%	400.00	All Others:	5.00%	500.00

Accounting

Current Cost (AVG/LAST/NONE):       Summarized Journal:

Sum LL Costs Into Mail Cost:       Journal Reference Method:

Current Cost from AP:       Mirror Accounting:

Create GL Transactions:       Default Site:

Transfer Clearing Acct:

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QMI uses a Standard Cost method for the GL Cost Set, but it tracks its actual costs in the Current Cost Set. The method of updating the Current Cost Set is selected in Inventory Control. QMI uses the method Last, so that the last or most recent cost of an item becomes the current cost.

Set the default site to your site 8000. This pre-fills the site field on many transactions saving you some effort.

### Current Cost from AP

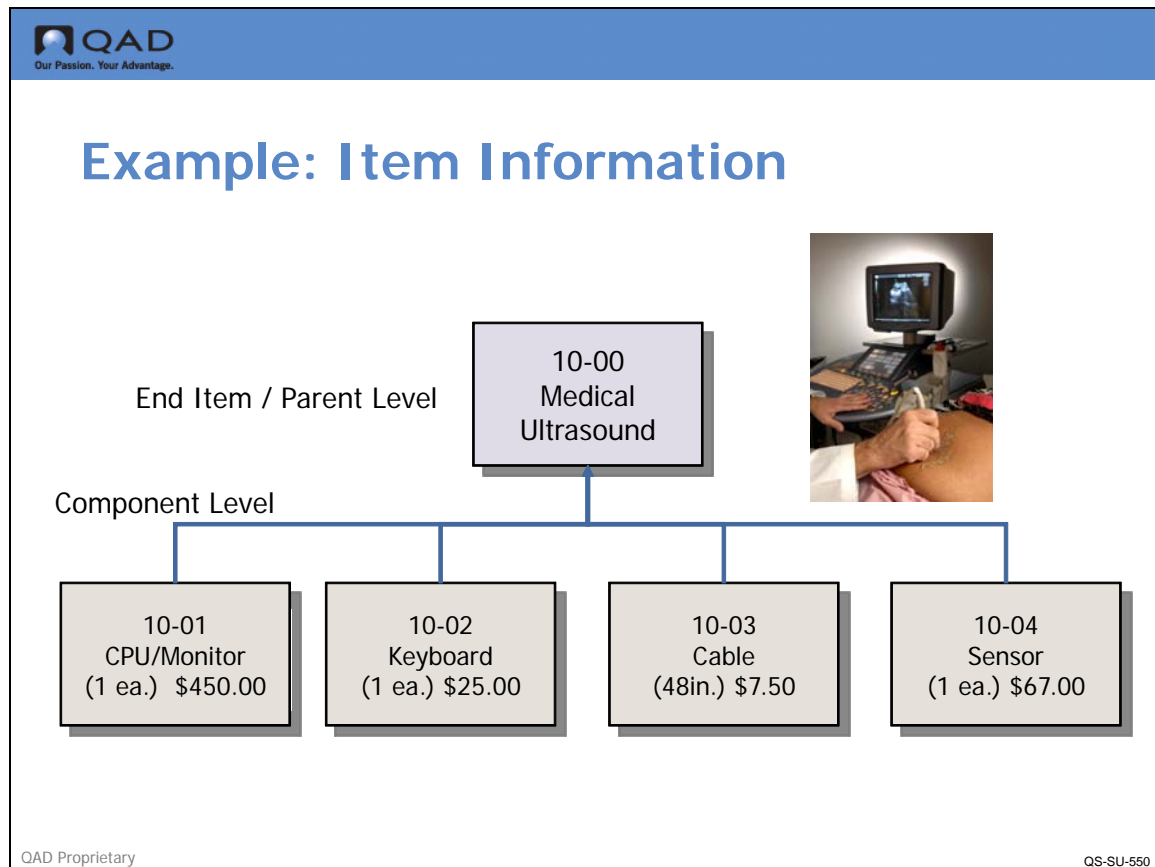
Optionally, you can also update the current cost upon each AP voucher transaction for the item, which will use the supplier invoice amount to update the current cost.

### Create GL Transactions

Create GL Transactions is set to Yes 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. If you wanted to know how much of what items you had on hand you would need to do a physical inventory count.

## Example: Item Information



The product structure of the medical ultrasound is shown above. Although the product structure is actually set up in QAD SE later, it is useful to see the relationship between the parent item and its components now as item information is entered in the system by QMI.

For our example, over the next few pages, we focus on setting up one of the component items—item 10-01, the CPU/Monitor.

**Note** In your activity you will setup all four item numbers. All the items belong to product line 7000. All the items have the unit of measure of ea. = each, except the Cable. The unit of measure for the cable is in. = inch.

## Item Data and Inventory Frames

The screenshot displays the QAD Item Master Maintenance window for Item 10-01. The window is titled "Item Master Maintenance" and includes a menu bar with options like "Go To", "Actions", "Copy", "Print", "Preview", and "Attach". The main content area is divided into several sections:

- Item Information:** Item Number: 10-01, Description: CPU/Monitor, Unit of Measure: EA.
- Item Data:** Prod Line: 7000, Item Type: , Drawing: , Added: 9/23/2010, Status: , Revision: , Design Group: , Group: , Drawing Loc: , Size: , Promo Group: , Price Break Category: .
- Item Inventory Data:** ABC Class: (dropdown), Average Interval: 90, Lot/Serial Control: (checkbox), Cycle Count Interval: 120, Site: 8000, Shell Life: (text field), Location: RAWMAT, Allocate Single Lot: (checkbox), Location Type: (dropdown), Key Item: (checkbox), Auto Lot Numbers: (checkbox), PO Receipt Status: (checkbox), Active: (checkbox), Lot Group: (text field), W/O Receipt Status: (checkbox), Active: (checkbox), Article Number: (text field).

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In Item Master Maintenance (1.4.1), the item number is entered (10-01), a description, and its unit of measure.

In the Item Data frame, the Product Line 7000 is entered. Remember, each item must be assigned to one and only one product line.

Unit of measure and product line are the only fields (besides the item number itself) that are required by the system. Units of measure are critical to both inventory control and costing. Careful consideration should be given to the units of measure you choose to use.

**Note** Item type, item status and item group are optional and user defined. If you choose to use them plan carefully as these codes offer additional capability in sorting browses, reports and inquires. Item status is designed to be used in conjunction with inventory status code to help control inventory aspects of product life cycle management. If you choose to use these codes their use can be made mandatory and a pop of window can be provided to allow users to select valid codes from a list.

In the Item Inventory Data frame, site 8000 is entered; this appears as the default site. In the Location field, RawMat is entered, which appears as the default inventory location for this item, for all inventory transactions at any site.

**Note** 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.

### **Item Data Frame**

Every item has some relatively static information that describes its general characteristics, regardless of how it is used. This includes the item description, product line, and unit of measure.

### **Item Inventory Data Frame**

In the inventory section, only the (default) site field is required. This site is usually the primary stocking location.

## Item Planning Data Frame (1.4.1)

The screenshot displays the 'Item Planning Data' section of the QAD Item Master Maintenance interface. The item being configured is '10-01 CPU/Monitor'. Key settings include: 'Plan Orders' checked, 'Order Policy' set to 'POQ', 'Order Period' set to 7, 'Purchase/Manufacture' set to 'P', 'Pur LT' set to 5, and 'Yield Percent' at 100.00%. The interface also shows fields for lead times (Ins LT, Mig LT, Cum LT, Pur LT), safety stock, and various planning options like MRP Required and ATP Enforcement.

QMI's Material Planning Department uses the Item Planning Data in this screen to determine how and when to replenish inventory. Let's look at a few of the fields and settings shown above.

The Planning Department wants to allow material requirements planning (MRP) to automatically create planned orders for this item, so the Plan Orders field has a checkmark. When Plan Orders is Yes 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.

The Order Policy determines the rules for planning orders. The ordering rule QMI applies to this item (10-03) 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 (which is 7 in this example) and creates one order to satisfy all demands in a seven day period.

**Note** Order policies and how they calculate order quantities are covered later in the course.

Another key field is the Purchase/Manufacture field. The Sensor (10-04) is a purchased part and that is indicated in this field by entering a P. The purchasing lead time is 5 days, which is the number of days it takes to complete the purchasing cycle for this item, from the date the need for a purchase is recognized to the date the item is received.

**Note** 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.

## Item Cost Data Frame (1.4.1)

The screenshot shows the QAD Item Master Maintenance interface. The title bar reads "Item Master Maintenance". Below the title bar is a menu bar with "Go To", "Actions", "Copy", "Print", "Preview", and "Attach". The main area displays "Item: 10-04" and "Description: Sensor". The "Price" tab is selected, and the "Cost" sub-tab is active. The "Item" section shows "Item Number: 10-04", "Description: Sensor", and "Unit of Measure: EA". The "Totals" section shows "Totals: 0.00 0.00 0.00" with checkboxes for "09/23/10". The "Current Cost Data (Site: 8000 / Set: Current)" section contains a table with the following data:

Element	This Level	Lower Level	Total	Pri	Category	A/O
Material	67.00	0.00	0.00	<input checked="" type="checkbox"/>	Material	<input type="checkbox"/>
Labor	0.00	0.00	0.00	<input checked="" type="checkbox"/>	Labor	<input type="checkbox"/>
Burden	0.00	0.00	0.00	<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"/>

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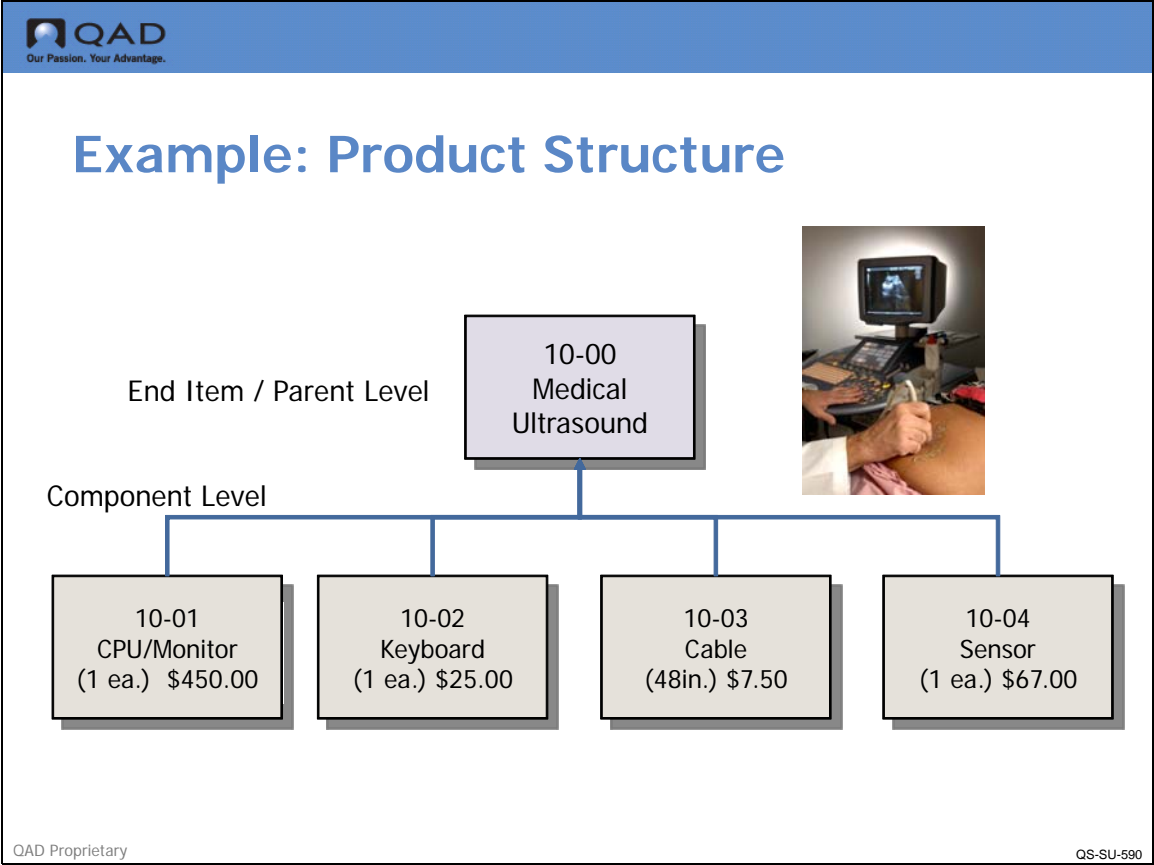
The item cost section is divided into three sections: price, general ledger cost, and current cost. The three frames appear sequentially with repeated clicks of the Next button or use of the Enter key.

For this example, we're concerned with the Current Cost Data frame, which is the third frame.

Referring back to the product structure, we know that one Sensor (10-04) costs \$67.00. That matches the information we see above in the Current Cost Data frame. It is a purchased part so it has no lower level manufacturing related costs, only this level costs.

**Note** The same process is used to add the parent item medical ultrasound, 10-00, and the other components of the device.

### Set Up Product Structure



Examine the product structure for the medical ultrasound again.

Notice that there is a parent item (10-00) and there are four component items (10-01, 10-02, 10-03, and 10-04). In this example, we see how QMI added the three component items to the parent, 10-00.

## Example: Product Structure Maintenance (13.5)

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# Example: Set Up Product Structure

The screenshot shows the 'Product Structure Maintenance' window. At the top, it displays 'Top Level Parent: 10-00' and 'Levels: 1 (All)'. Below this is a search bar with 'Item Number' and 'starts at' set to '10'. The main area contains a table of items:

Item Number	Description	Unit of Measure	BOM/Formula Code	Status
10-00	Medical Ultrasound	EA		M
10-0040	GLUE	GM		P
10-01	CPU/Monitor	EA	AC	P
10-02	Keyboard	EA		P
10-03	Cable	IN		P
10-04	Sensor	EA		P

Below the table is a BOM (Bill of Materials) table:

Component	Description	Unit of Measure	Reference	Quantity	Start Date	End Date	BOM Code
10-00	Medical Ultrasound	EA		1			10-00
10-01	CPU/Monitor	EA		1			10-01
10-02	Keyboard	EA		1			10-02
10-03	Cable	IN		1			10-03
10-04	Sensor	EA		1			10-04

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In Product Structure Maintenance, the parent item 10-00 (the medical ultrasound) is entered first. Each component item (10-01, 10-02, 10-03, and 10-04) is then entered in the subsequent frames. For each component, such as the Keyboard, the number required (Qty Per) to make one complete medical ultrasound is entered, which is two, in the case of the copper. In the Operation field, the routing operation number where the item will be consumed is entered. We look at routings in more detail later on.

The second and third and fourth components of the medical ultrasound are added in the same way. Note the quantity per on the copper.

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 Effective In date defaults to the system date. By leaving Effective Out date blank the item is effective until that date is changed.

### Example: Review Product Structure Inquiry

The screenshot shows the QAD Product Structure Inquiry window. The main window title is 'Product Structure Inquiry' and it contains a menu bar with 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. Below the menu bar, there are fields for 'Parent Item/BOM Code: 10-00', 'Medical Ultrasound', 'EA', 'As Of: 9/23/2010', 'Levels:', 'Rev:', 'PCO Number:', 'ID:', 'Domain:', and 'Output: page'. A smaller, overlapping window titled 'Product Structure Inquiry' shows the same header information and a table of components.

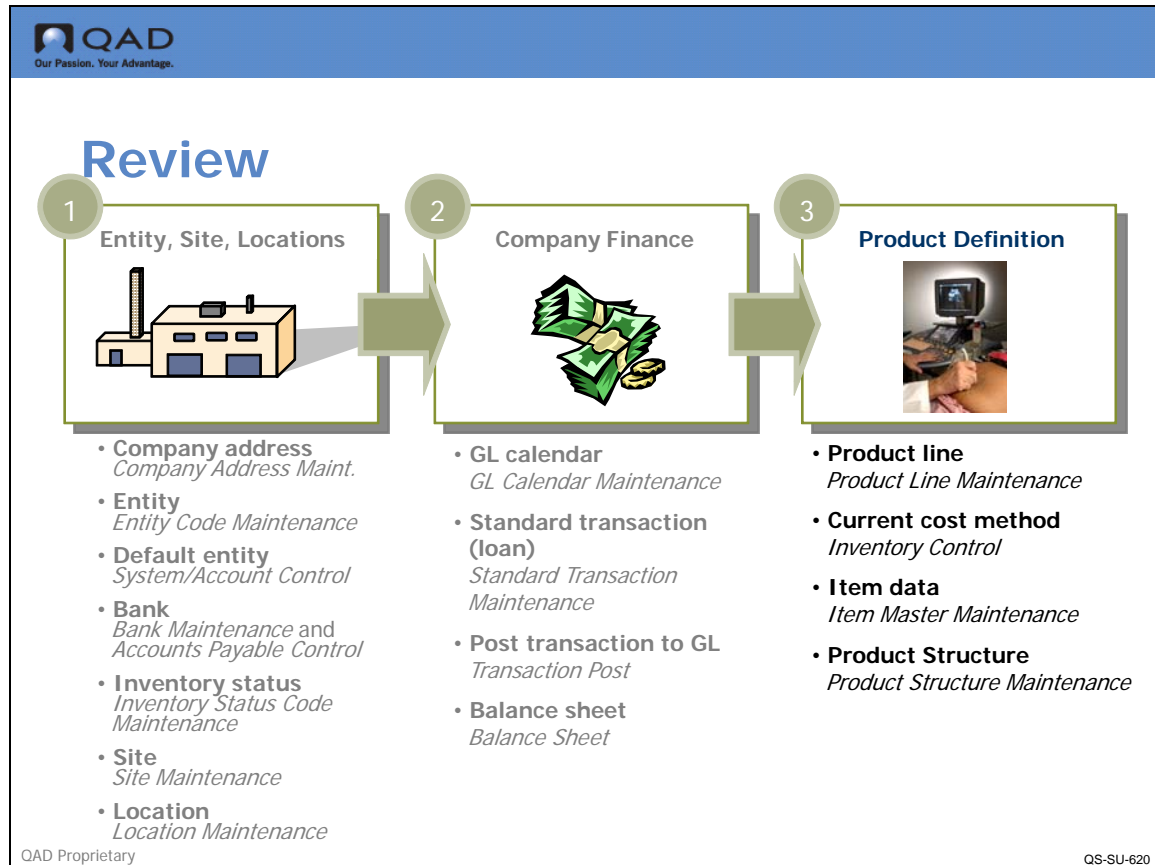
Level	Component Item	Description	Quantity	Per	UM	Ph	T	Iss
Parent	10-00	Medical Ultrasound			EA			
1	10-01	CPU/Monitor	1.0		EA			
1	10-02	Keyboard	1.0		EA			
1	10-03	Cable	48.0		IN			
1	10-04	Sensor	1.0		EA			

At the bottom of the smaller window, there is a footer with '13.6 Product Structure Inquiry bmpsiqu.p'.

Once the product structure is defined, it can be reviewed in Product Structure Inquiry (13.6). The screen above shows the request setup. The output to page is intended for display on your terminal screen. Depending on your system setup you can direct the output to printers, files, fax machines or e-mail.

We see that the parent item (the finished medical ultrasound) is listed first, and the four component items are listed below it. You can quickly see key information, such as unit of measure for each item and the quantity required to make one complete ultrasound unit.

## Review



In this chapter, we saw how products are defined in QAD SE, specifically how:

- 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 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.

## Exercise: 3 Product Definition

### Set Up a Product Line

**Note** 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, 7000.

This will be the product line for the medical ultrasound and all components associated with it.

Key fields to populate are:

Field	Value
Product Line	7000
Description	Medical Ultrasound

Accept all remaining defaults.

Review the account numbers. Where did this default data come from? Accept the default accounts and update the record.

### Modify Inventory Control

- 2 Use the defaults in Inventory Control (3.24).

Field	Value
Top Frame	Accept Defaults
Current Cost	LAST
Default Site	8000

Picking Order = (default); click Next

### Define End Item

- 3 Use Item Master Maintenance (1.4.1).

Key fields to populate in Item Frame are:

Field	Value
Item Number	10-00
Unit of Measure	EA
Description	Medical Ultrasound

Key fields to populate in Item Data frame are:

Field	Value
Product Line	7000

Accept default values for all other fields.

Key fields to populate in Item Inventory Data frame are:

Field	Value
Site	8000
Location	FINGDS

Click Next at the Item Shipping Data frame

Key fields to populate in the Item Planning Data frame are:

Field	Value
Mstr Sched	Yes
Plan Orders	Yes
Order Policy	POQ
Purchase/Manufacture	M

Use default values for all other fields; click Next

Key fields to populate in the Item Price Data frame are:

Field	Value
Price	\$5,000.00

Use default values for all other fields; click Next

Click next three (3) times through the Cost Data frames

Item cost is calculated later.

### Define Component Items

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

First component item: Key fields to populate are:

Field	Value
Item Number	10-01
Unit of Measure	EA
Description	CPU/Monitor
Product Line	7000
Site	8000
Location	RAWMAT
Mstr Sched	No
Plan Order	Yes
Order Policy	POQ
Purchase/Manufacture	P
Pur LT	5

All cost data is entered in CURRENT Cost Data screens. Advance past the GL Cost Data frame to the Current Cost Data Frame.

Field	Value
Material	Click on the Word
This Level	450.00

Second component item: Key fields to populate are:

Field	Value
Item Number	10-02
Unit of Measure	EA
Description	Keyboard
Product Line	7000
Site	8000
Location	RAWMAT
Mstr Sched	No
Plan Order	Yes
Order Policy	POQ
Purchase/Manufacture	P
Pur LT	5

All cost data is entered in CURRENT Cost Data screens. Advance past the GL Cost Data frame to the Current Cost Data Frame.

Field	Value
Material	Click on the word
This Level	25.00

Third component item: Key fields to populate are:

Field	Value
Item Number	10-03
Unit of Measure	IN
Description	Cable
Product Line	7000
Site	8000
Location	RAWMAT
Mstr Sched	No
Plan Order	Yes
Order Policy	POQ
Purchase/Manufacture	P
Pur LT	5

All cost data is entered in CURRENT Cost Data screens. Advance past the GL Cost Data frame to the Current Cost Data Frame.

Field	Value
Material	Click on the word
This Level	7.50

Forth component item: Key fields to populate are:

Field	Value
Item Number	10-04
Unit of Measure	EA
Description	Sensor

Field	Value
Product Line	7000
Site	8000
Location	RAWMAT
Mstr Sched	No
Plan Order	Yes
Order Policy	POQ
Purchase/Manufacture	P
Pur LT	5

All cost data is entered in CURRENT Cost Data screens. Advance past the GL Cost Data frame to the Current Cost Data Frame.

Field	Value
Material	Click on the word
This Level	67.00

### Define Parent/Component Relationships for Items

In this activity you define parent/component relationships for your items.

- 5 Use Product Structure Maintenance (13.5), to define the parent/component relationships for your product.

**Note** Product Structure Maintenance has two interfaces. The instructions in this course covers the Desktop interface as opposed to the drag-and drop interface.

Select the Product Structure Maintenance (13.5) item in the Applications menu.

- Right-click the menu item and select the Properties
- Select the Program tab.
- In the Open With dropdown menu, select “Desktop (Web Browser)”
- Click Apply, click OK, and re-launch Product Structure Maintenance

Key fields to populate are:

Field	Value
Parent Item	10-00
Component Item	10-01
Quantity Per	1
Operation	10
Component Item	10-02
Quantity Per	1
Operation	10
Component Item	10-03
Quantity Per	48
Operation	10
Component Item	10-04

Field	Value
Operation	10
Quantity Per	1

**Note** Click the Save Icon.

- 6 Use Product Structure Inquiry (13.6) to review the product structure.

Field	Value
Parent Item/BOM Code	10-00
Output	PAGE

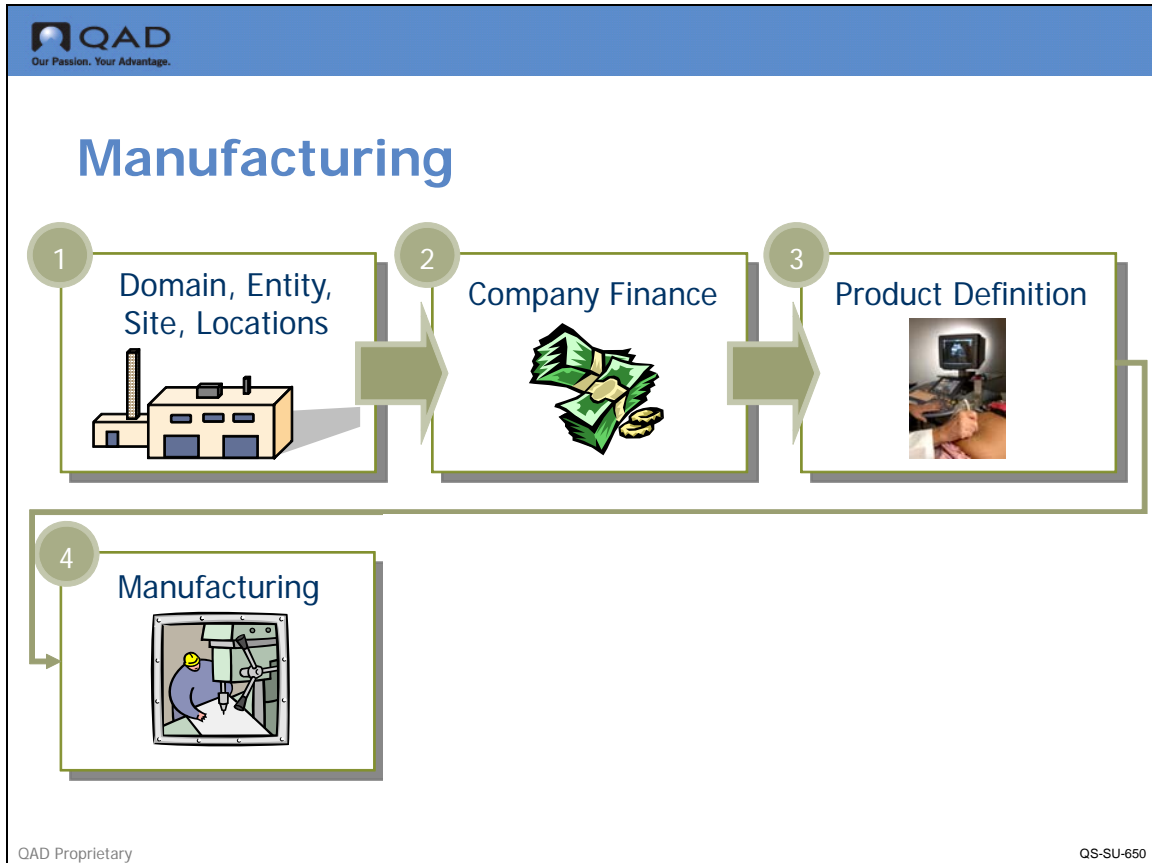
**Note** The operations will be setup in the next section. When new items are created in manufacturing the product structure and the route are usually developed together, so all the information is available to the person entering item data.



Chapter 5

# **Set Up the Manufacturing Environment**

## Manufacturing



The manufacturing environment in which a product is built includes the shop calendar, departments, work centers, machines, and routings.

## Manufacturing: Topics



### Manufacturing: Topics

- ▲ Key Concepts
  - Shop Calendar
  - Departments
  - Work Centers / Machines
  - Routings
- ▲ Example
  - Set Up Shop Calendar
  - Define Departments
  - Define Work Centers / Machines
  - Set Up Routings
- ▲ Activity

## Manufacturing: Learning Objectives

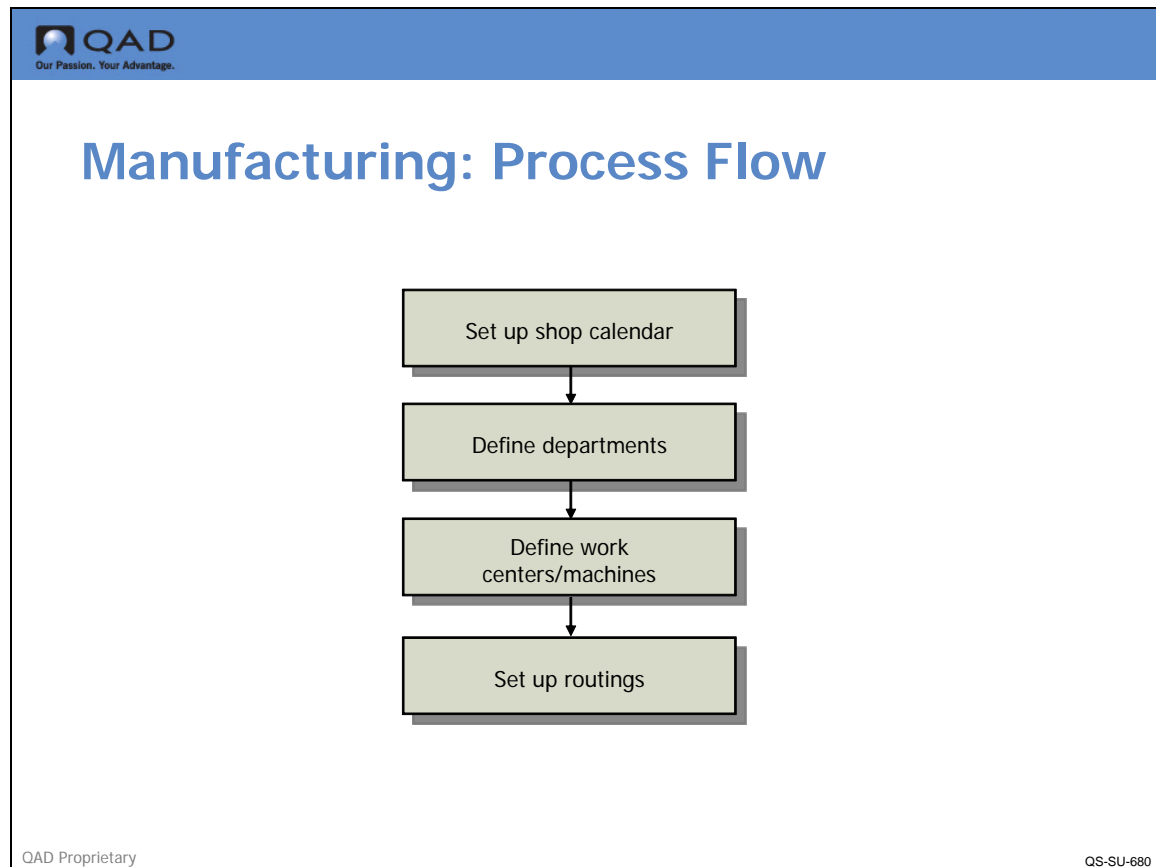


### Manufacturing: Learning Objectives

When you finish this section, 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

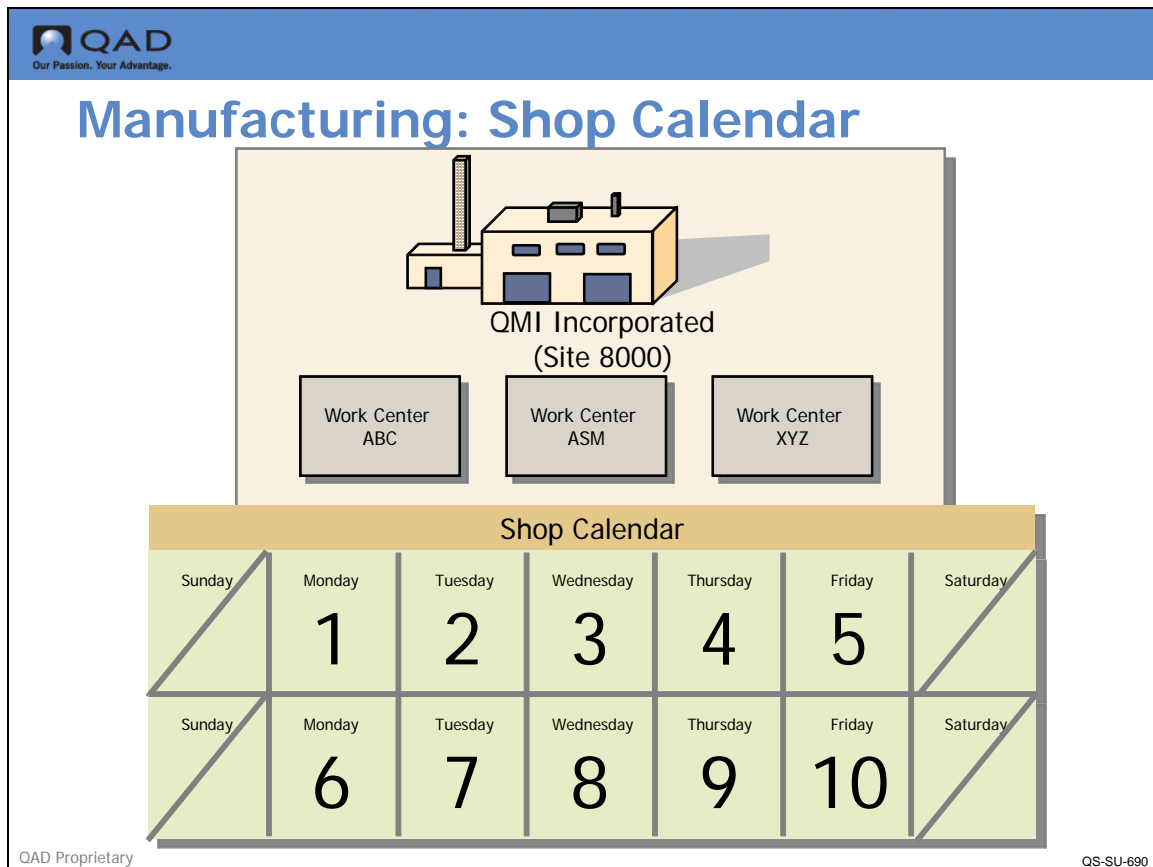
## Manufacturing: Process Flow



Once you have set up your 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, work centers/machines
- Defining the manufacturing operations required to produce each of the items

## Manufacturing: Shop Calendar



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

This information is used to schedule:

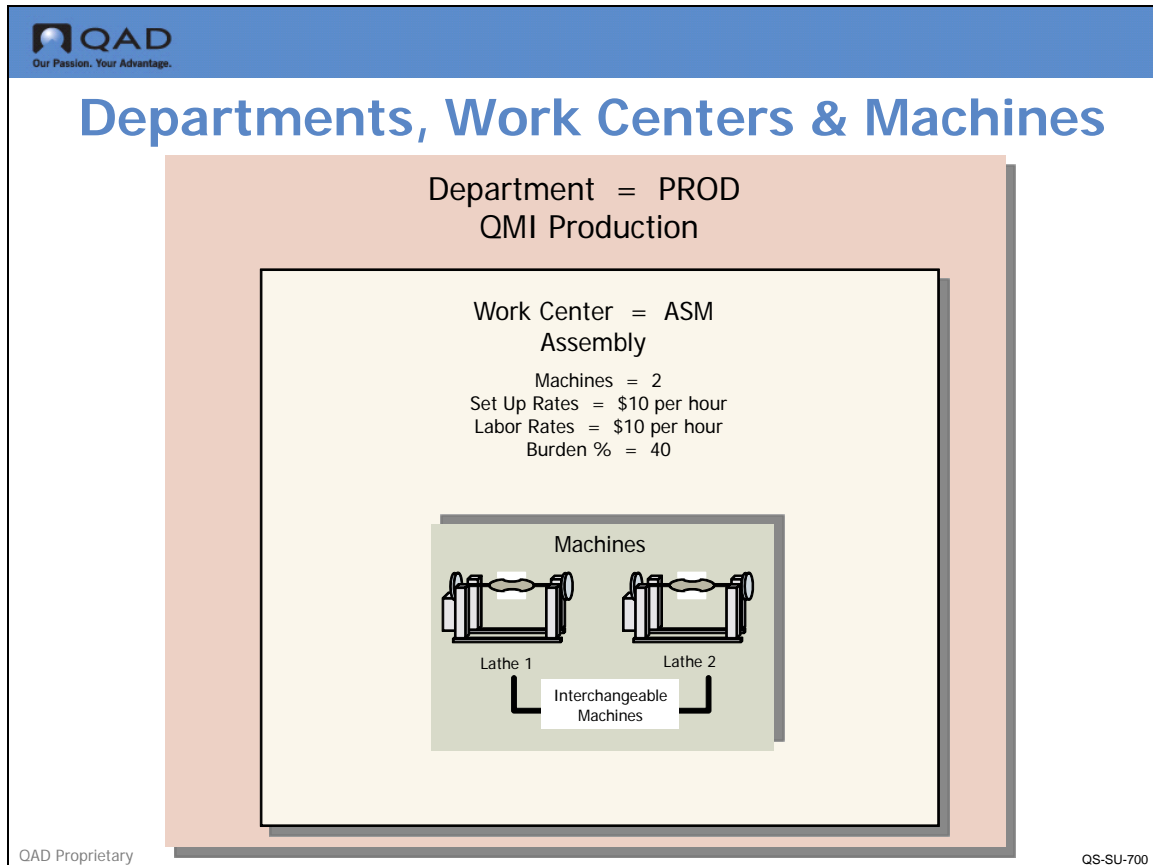
- Start and due dates for MRP planned orders, master schedule orders, and work orders
- Operations for work orders and repetitive schedules
- The procurement or shipment of materials through association with suppliers and customers

Use Calendar Maintenance and Holiday Maintenance to maintain the calendars.

Calendar Maintenance is used to setup a default calendar for all sites. Then calendars are defined for work centers that are different than the default calendar. Then any machines within a work center that have different calendars. A calendar defines whether a day is a work day or not and how many hours per day are available for work.

In addition to the shop calendar and basic scheduling, the manufacturing environment is defined by its departments, work centers, and machines.

## Departments, Work Centers & Machines



### Departments

A manufacturing facility 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 purposes. 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 the system, work centers are the most basic units used 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.

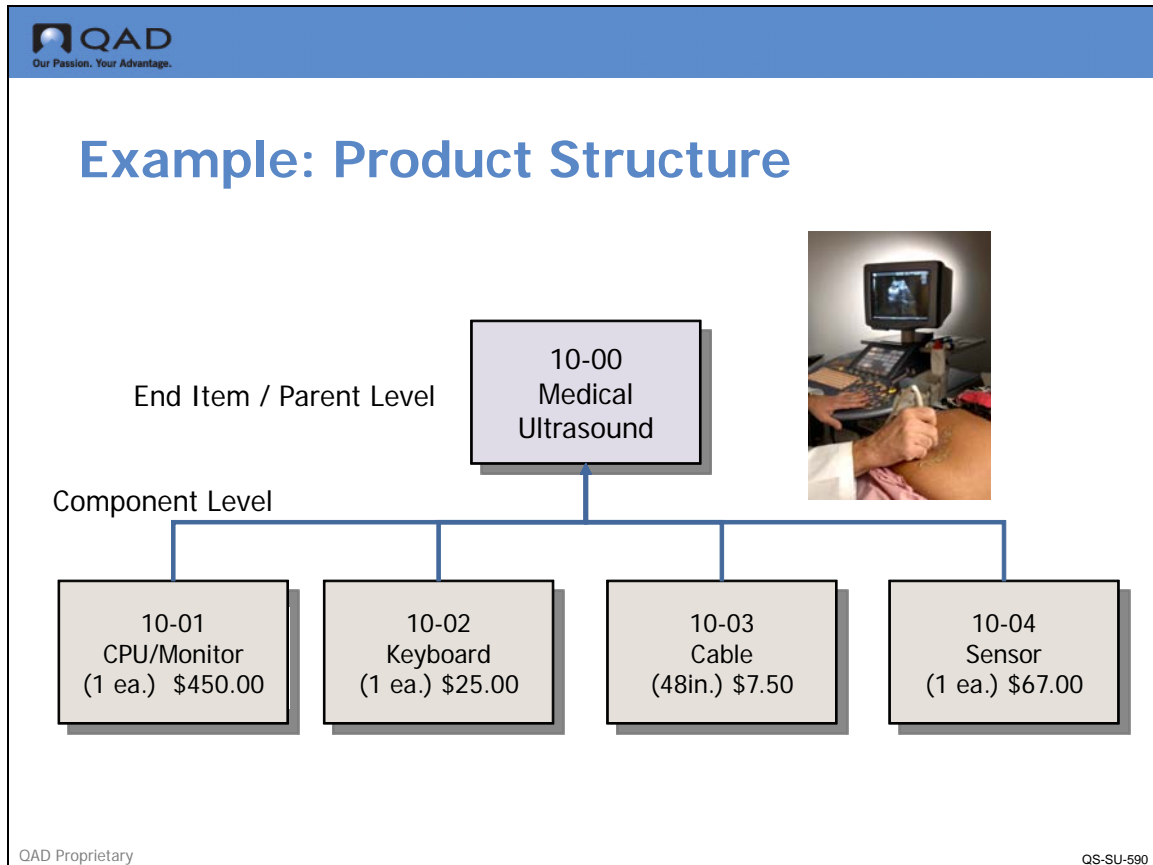
### Machines

In a work center with multiple identical machines you may choose to define one work center with multiple machines. In this case the machine (code or number) field is left blank, and the number of machines is entered in the Machines field. When there are more than one identical machines in a work center, 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 separately. 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 will have a unique machine code. The combination of the work center and the machine will identify a specific machine.

**Note** While defining unique work center machine combinations allows 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.

## Manufacturing: 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 routes.

For example, in manufacturing an ultrasound, there might be a routing with two operations with instructions to attach the sensor, cable, and key board and to CPU/monitor (operation 10), test the finished unit (operation 20), and pack the ultrasound for shipping.

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

## Example: Set Up a Shop Calendar

Calendar Maintenance

Go To Actions Copy Print Preview

Site: 8000 Manufacturing/Distributi  
Work Center: Machine:

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

Reference:  
Start:  
End: Daily Hours:

Delete Back Next

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In this example, we'll see how QMI's Manufacturing Department sets up a:

- Shop calendar
- Department called PROD with a labor capacity of 8 hours/day
- Work center called ASM with setup and labor rates of \$10/hour and labor burden of 40%
- Routing with two operations: op 10 requires 1 hour setup time; additionally, per ultrasound, it requires 0.05 hr. run time to assemble the components
- Op 20 requires no setup time, but it does require, per ultrasound, 0.0333 hr. run time to test the unit
- Op 30 requires no setup time, but it does require, per ultrasound, .15 hr. run time to pack

The shop calendar for QMI is set up in Calendar Maintenance. This calendar shows a five day week, Monday - Friday, with eight hours available for fork each day. Because QMI has only one site and work center, it is not necessary to specify site and work center in Calendar Maintenance, so these have been left blank. If additional sites and or work centers are created they will pick up this calendar as a default, but could then be changed to site or work center/machine specific calendars.

The system allows 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

The screenshot shows the 'Department Maintenance' window in QAD. The window title is 'Department Maintenance x'. The menu bar includes 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. The main content area is titled 'Department: PROD'. Below this, there are fields for 'Default Sub-Account' and 'Default Cost Center', each with an 'Override' checkbox. The 'Description' field contains 'Ultrasound Production'. The 'Labor Capacity' field contains the value '8'. Below these fields is a table of account codes with search icons:

Cost of Production:	6300			
Labor:	6500			
Burden:	6400			
Labor Usage Variance Acct:	6850			
Labor Rate Variance Acct:	6800			
Burden Usage Variance:	6470			
Burden Rate Variance:	6460			

At the bottom left of the window, it says 'QAD Proprietary'. At the bottom right, it says 'QS-SU-730'.

For medical ultrasound production, QMI has set up (in Department Maintenance) a department called PROD. As mentioned earlier, a department is used primarily for capacity planning and accounting purposes. In that regard, notice that Labor Capacity is entered here. It is 8 in this example, which means that this department has an 8-hour labor capacity per day Monday through Friday based on the Shop Calendar (more on Labor Capacity below). This implies that there is only one person in this department. If there were five people in the department we would enter 40 in this field.

Also notice the account codes defaulting from the Domain/Account control; all are manufacturing related.

**Note** If it is decided a given work center requires cost of production to be booked to a different account or sub-account then you need to setup a new department.

### Labor Capacity

Labor Capacity is the total number of hours of work that can be performed within a department per day. QMI defined day length in Calendar Maintenance (shop calendar) for its work center/machine. 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.

**Note** Care should be used in setting the department labor capacity value as the system assumes all labor in the department can be used in any work center in the department. This is seldom the case.

## Department Accounts

Department 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

## Define Work Centers/Machines

The screenshot shows the 'Work Center Maintenance' form in the QAD system. The form is titled 'Work Center Maintenance' and has a menu bar with 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. Below the menu bar, there are dropdown menus for 'Work Center: ASM', 'Machine:', and 'Department: PROD'. The form contains several input fields for defining the work center parameters:

Work Center: ASM	Machine:
Description: Assembly	
Department: PROD	
Queue Time: 0.0	
Wait Time: 0.0	
Mach/Op: 1	
Setup Crew: 0.00	Setup Rate: 10.00
Run Crew: 1.000	Labor Rate: 10.00
Machines: 1.000	Labor Burden Rate: 0.00
Mach Bdn Rate: 0.00	Labor Bdn %: 40.00%

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QMI has set up a work center called ASM. Because there is only one machine in this work center, QMI does not need to specify a machine in the Machine field so it is left blank. (If there were two or more machines and they could not be used interchangeably, then QMI would need to enter a machine code to specify machines.)

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

### Machines

Other fields to note are Machines/Operation. This tells us the number of machines, at this work center, that can work simultaneously to process an operation. In this example, there is only one machine per operation.

### Cost Calculations

Important information for cost calculations is the rate information. 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.

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.

## Terminology

### 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.

## Example: Set Up Routings

The screenshot displays the QAD Routing Maintenance application. The main window is titled "Routing Maintenance" and shows the configuration for a routing operation. The routing code is 10-00, and the operation is 20, labeled "Medical Ultrasound". The work center is "ASM" and the machine is "Assembly". The description is "Test Medical Ultrasound". The machines per operation is set to 1. The overlap units are 0, and the queue and wait times are 0.0. The setup time is 0.0, and the run time is 0.0333. The start and end dates are currently blank. The yield percent is 100.00%. Other fields include Subcontract LT (0), Setup Crew (0.00), Run Crew (1.00), Tool Code, Supplier, Inventory Value (0.00), and Subcontract Cost (0.00). The QAD logo and tagline "Our Passion. Your Advantage." are visible in the top left corner of the application window.

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 medical ultrasound (10-00). This is usually the case.

In this example, there are three operations involved in assembling a medical ultrasound. Assembly, Testing, and Packing.

Setup and run times are given for each operation. Operation 10 takes one hour to set up prior to run time, and then 0.05 hour to actually perform the operation (called run time).

Operation 20 has no setup time involved and the run time is 0.0333 hour.

### Terminology

#### Move Time

The time a work order is in transit from one operation to the next.

#### Queue Time

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

#### 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.

#### Set-Up Time

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

#### Subcontract Lead Time

A routing operation can be a task preformed by an outside vendor or sub-contractor. In that case this is the number of calendar days it takes to process the standard order quantity at the subcontractor's site. This includes any transit time.

#### 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.

#### 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).

## Review Results in Routing Inquiry (14.13.3)

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## Review Results in Routing Inquiry

The screenshot displays the QAD Routing Inquiry interface. The main window shows the routing code '10-00' for 'Medical Ultrasound', effective from '9/23/2010'. The output is set to 'page'. A detailed view window is overlaid, showing the following routing data:

Op	Work Center	Machine	Setup	Run Time	Move	Yield%
10	ASM Assembly Medical Ultrasound		1.0	0.05	0.0	100.00%
20	ASM Assembly Test Medical Ultrasound		0.0	0.0333	0.0	100.00%
30	ASM Assembly Pack Medical Ultrasound		0.0	0.15	0.0	100.00%

14.13.3 Routing Inquiry rwroiq.p

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The Production Planner reviews the routing in Routing Inquiry 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*

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In this chapter, it was explained 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 Manufacturing Environment

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

### Add a Department Record

- 1 In Department Maintenance (14.1) add a new department record.

Key fields to populate are:

Field	Value
Department	PROD
Description	Medical Ultrasound Production
Labor Capacity	8

Accept the default account numbers and update the record.

Where did these account numbers come from?

### Add a Work Center Record

- 2 Use Work Center Maintenance (14.5) to add a work center record.

Key fields to populate are:

Field	Value
Work Center	ASM
Machine	<blank>
Description	Assembly
Department	PROD
Mach/Op	1
Machines	1
Setup Rate	10
Labor Rate	10
Labor Burden Rate	0
Labor Bdn%	40%

### 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	Value
Routing Code	10-00
Operation	10
Work Center	ASM
Machine	<blank>
Description	Assemble ultrasound components

Field	Value
Setup Time	1 (hour)
Run Time	0.25

Accept remaining defaults; click Next at the WIP Item pop-up.  
Enter the second operation run time. Update the record, and exit.

Field	Value
Operation	20
Work Center	ASM
Machine	<blank>
Description	Test medical ultrasound
Setup Time	0
Run Time	0.0333 (2 minutes)

Enter the third operation run time. Update the record, and exit.

Field	Value
Operation	30
Work Center	ASM
Machine	<blank>
Description	Pack medical ultrasound
Setup Time	0
Run Time	0.25

Accept remaining defaults; click Next at the WIP Item pop-up.

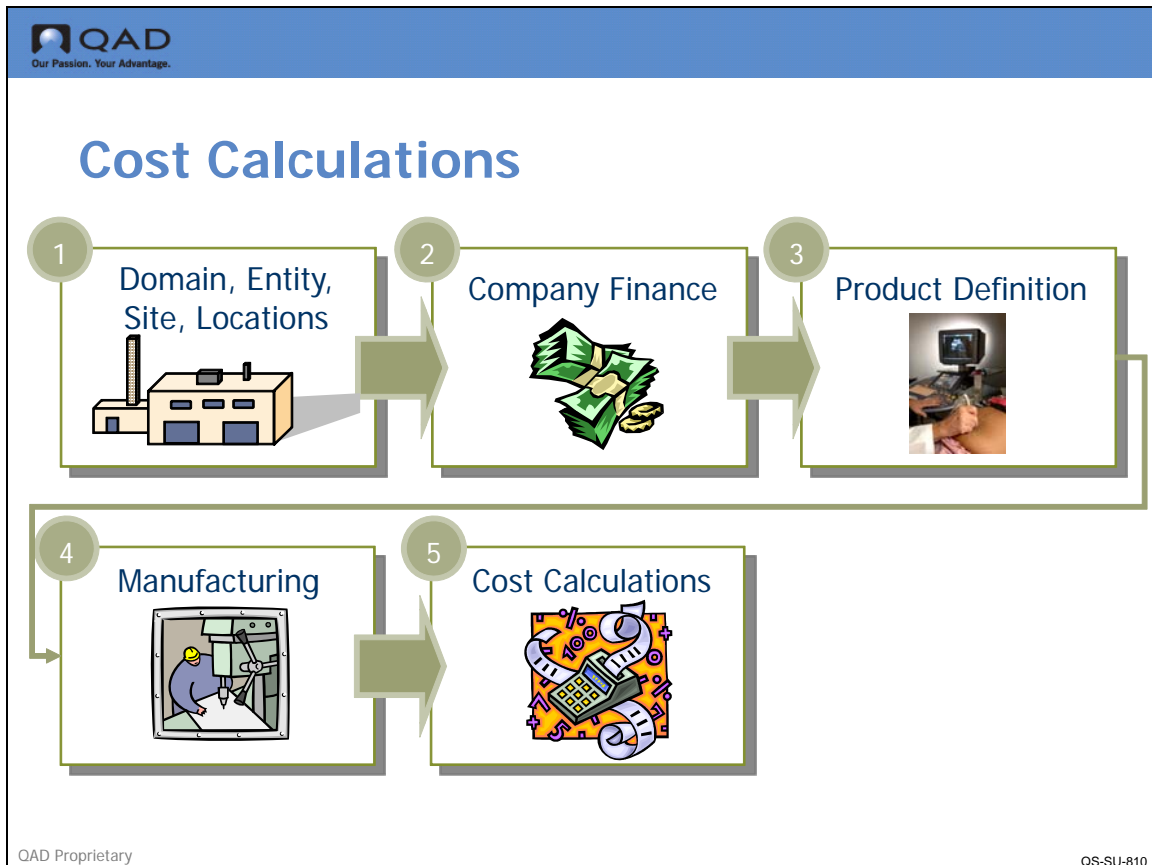
- 4 Use Routing Inquiry (14.13.3) to make sure that both operations and the correct set-up and run times are displayed.

Field	Value
Routing Code	10-00
Output	PAGE

Chapter 6

# **Set Up Cost Calculations**

## Cost Calculations



Based on information set up in product definition and manufacturing, item costs can be calculated. In this chapter, we will see how cost information contained in the routing and product structure is rolled up to calculate total cost. We will start by discussing routing and product structure cost roll-ups, followed by a discussion of updating the GL Cost Set by moving costs collected in the Current Cost Set to the GL Cost Set.

## Cost Calculations: Topics



### Cost Calculations: Topics

#### ▲ Key Concepts

- Routing Cost Roll-Up
- Product Structure Cost Roll-Up
- 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

#### ▲ Activity

## Learning Objectives

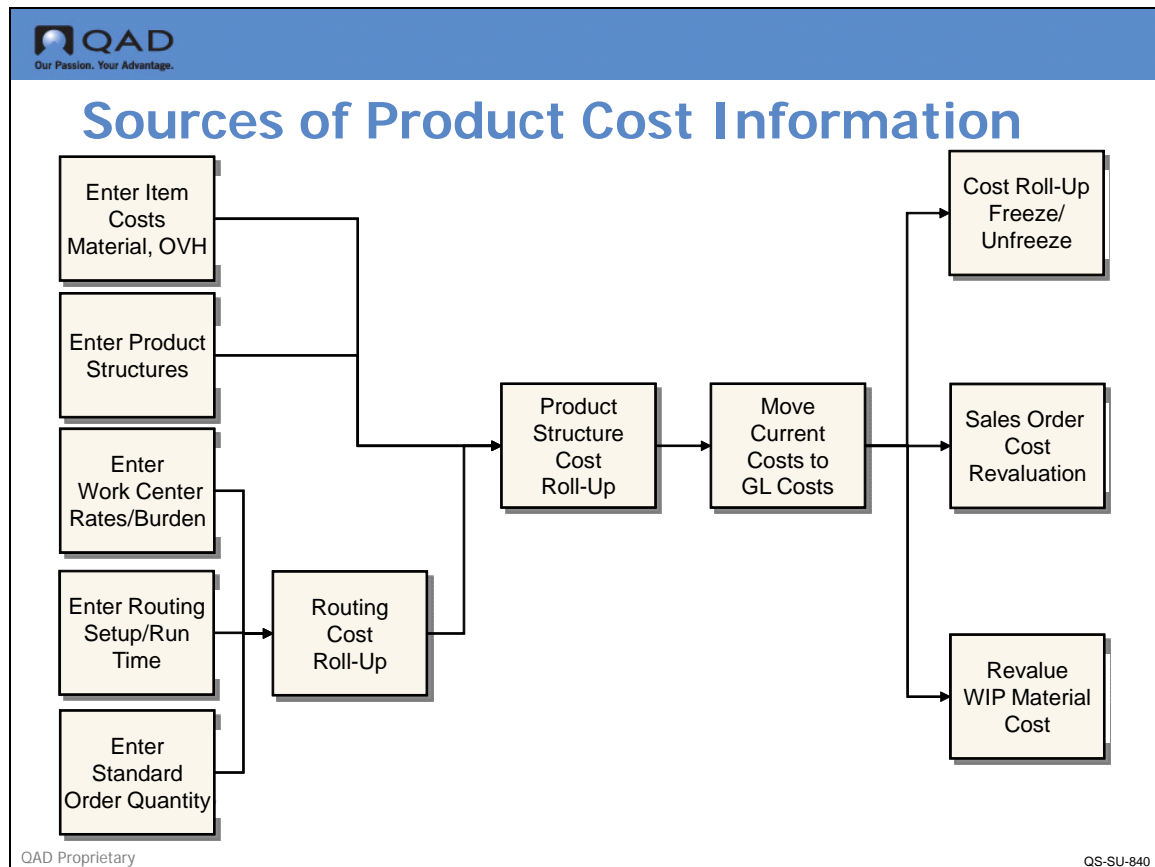


### Learning Objectives

When you finish this section, you should be able to:

- ▲ Explain the information captured by a routing cost roll-up
- ▲ Explain the information captured by a product structure cost roll-up
- ▲ Explain the importance of the Order Quantity field to the routing cost roll-up
- ▲ Roll up routing and product structure costs
- ▲ Copy and move current costs to the GL cost set

## Sources of Cost

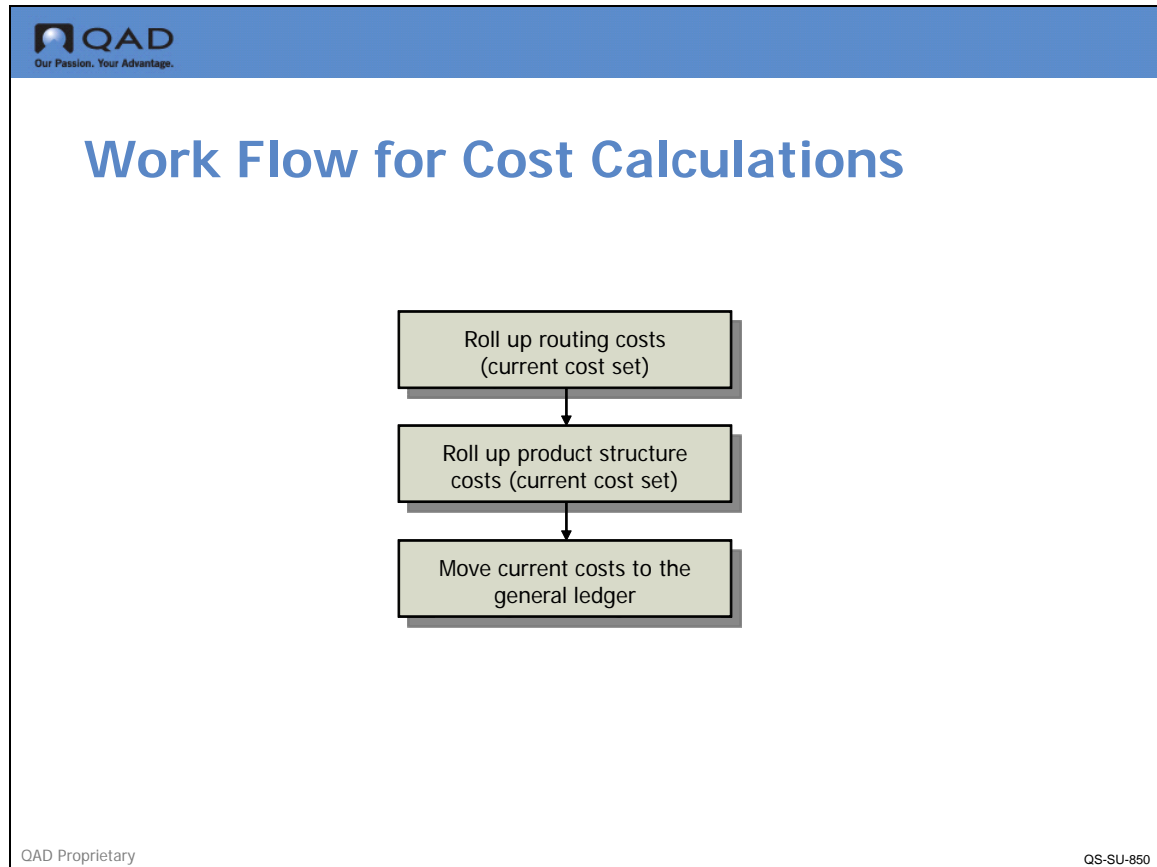


Product cost calculations are based on information from a variety of sources. Some of the key pieces are:

Purchased material, overhead, and other costs entered manually in Item-Site Cost Maintenance for purchased items

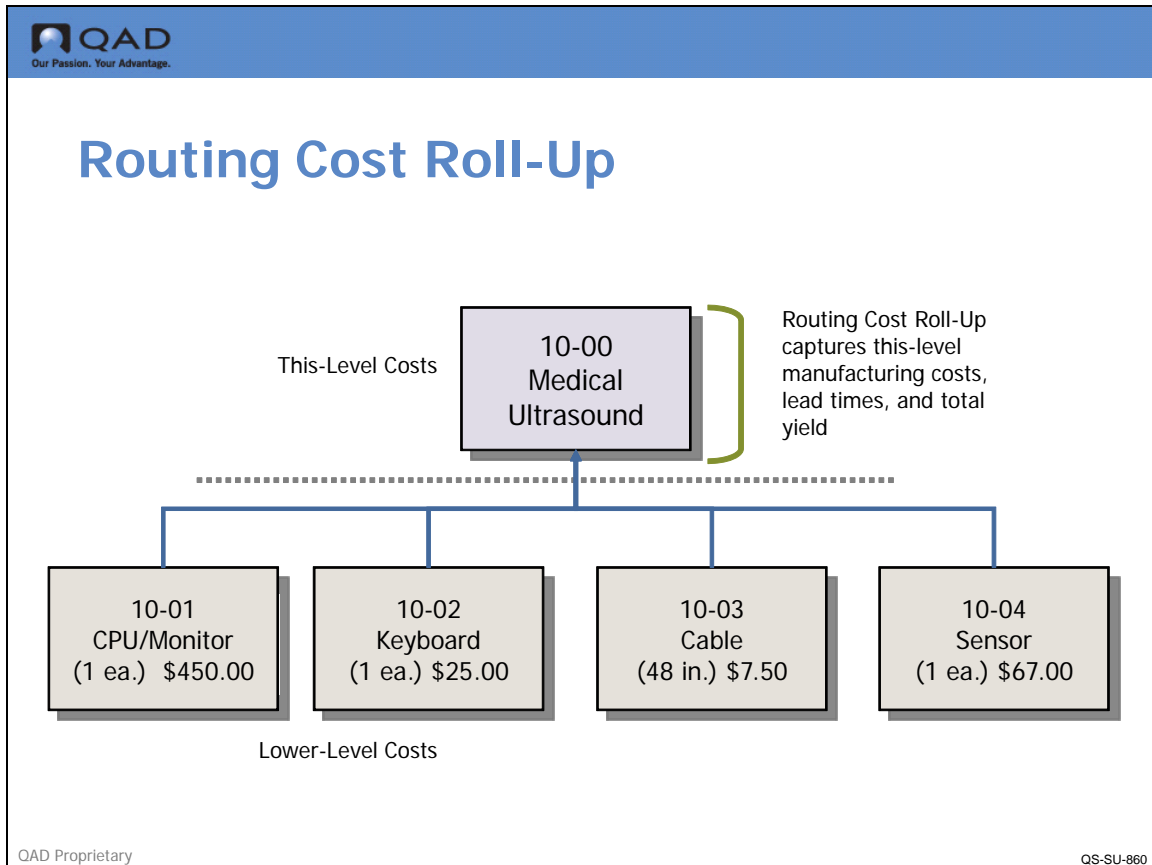
- Component quantity per and scrap rates entered in the Product structure (BOM)
- Labor and set-up rates entered for each work center
- Variable burden at each work center
- Manufacturing setup and run times entered on each routing operation
- Yield at each operation
- Subcontract cost per unit entered on each subcontracted operation
- Item order quantity entered in Item Planning Maintenance
- BOM and routing code entered in Item Planning Maintenance

## Work Flow for Cost Calculations



Most of this information we have already entered in the previous examples and activities, so our next steps are to roll up the routing and product structure costs, and move the current cost set to the general ledger cost set.


## Routing Cost Roll-Up



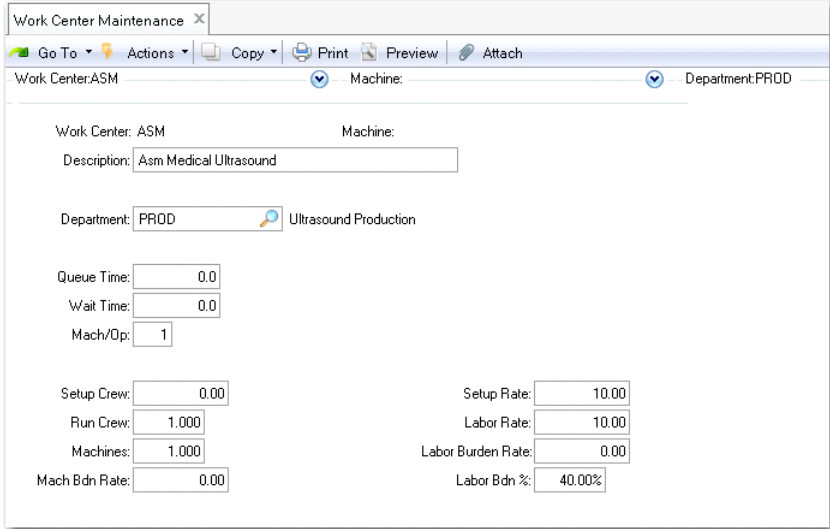
Routing Cost Roll-Up calculates the manufacturing costs, lead times, and total yield for one or more items at a particular site. Costs are calculated for each operation after accessing the item master, work center, routing, and standard operation data.

When manufacturing costs are calculated using Routing Cost Roll-Up, setup costs are divided by a standard order quantity. Setup and run times are based on this quantity, which is entered in Item Planning Maintenance.

## Routing Cost Roll-Up Calculations


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# Routing Cost Roll-Up Calculations



The screenshot shows a 'Work Center Maintenance' form with the following fields and values:

- Work Center: ASM
- Machine: (empty)
- Department: PRDD
- Description: Asm Medical Ultrasound
- Queue Time: 0.0
- Wait Time: 0.0
- Mach/Dp: 1
- Setup Crew: 0.00
- Run Crew: 1.000
- Machines: 1.000
- Mach Bdn Rate: 0.00
- Setup Rate: 10.00
- Labor Rate: 10.00
- Labor Burden Rate: 0.00
- Labor Bdn %: 40.00%

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Routing cost calculations are based upon work center data for hourly rates for set-up 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

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# Cost Calculations

Routing Maintenance x

Go To Actions Copy Print Preview Attach

Routing Code: 10-00 Work Center: ASM Machine:

---

Routing Code: 10-00 Medical Ultrasound

Operation: 10 Start Date: End Date:

Standard Operation:

Work Center: ASM Assembly

Machine:

Description: Medical Ultrasound

Machines per Operation: 1 Milestone Operation:

Overlap Units: 0 Subcontract LT: 0

Queue Time: 0.0 Setup Crew: 0.00

Wait Time: 0.0 Run Crew: 1.00

Setup Time: 1.0 Tool Code:

Run Time: 0.05 Supplier:

Move Time: 0.0 Inventory Value: 0.00

Start Date:  Subcontract Cost: 0.00

End Date:  Comments:

Yield Percent: 100.00%

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The routing records provide the set-up and run times, as well as the machines per operations and operation yield percent. In the case of a sub-contract operation the route provides the per item cost of the outside processing.

## Cost Calculations

Item Planning Maintenance

Go To Actions Copy Print Preview Attach

Item: 10-00 Item Number: 10-00 Supplier:

Item Number: 10-00 Description: Medical Ultrasound  
Unit of Measure: EA

Item Planning Data

Mstr Sched:  Buyer/Planner:   
 Plan Orders:  Supplier:   
 Time Fence:  PD Site:   
 MRP Required:  Purchase/Manufacture:   
 Order Policy:  Configuration Type:   
 Order Qty:  Inspect:   
 Batch Qty:  1.0 Ins LT:  Cum LT:   
 Order Period:  Mfg LT:  Pur LT:   
 Safety Stock:   
 Safety Time:  ATP Enforcement:   
 Reorder Point:  Family ATP:   
 Rev:  Run Seq 1:   
 Issue Policy:  Run Seq 2:   
 Phantom:  Minimum Order:   
 Maximum Order:   
 Order Multiple:   
 Op Based Yield:   
 Yield Percent:   
 Run Time:   
 Setup Time:   
 EMT Type:   
 Auto EMT Processing:   
 Network Code:   
 Routing Code:   
 BOM/Formula:

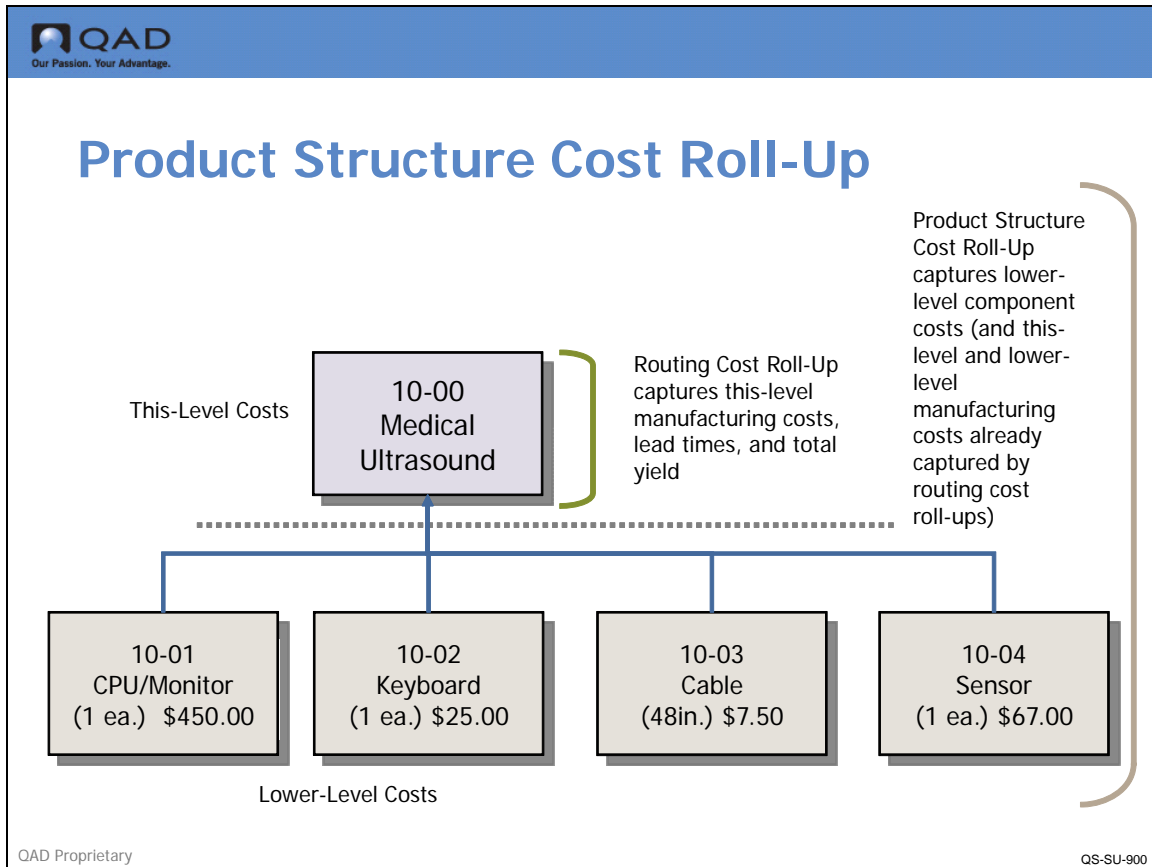
QAD Proprietary QS-SU-890

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

**Note** Order quantity is set at 10.

The routing and product structure roll ups are initiated by the user. Some business have only one or the other hence don't need both. However, in the case where you do have both (the normal situation for manufacturers) it is very important to do the route roll up first, then the product structure roll up. If there are operation yields in the route, these need to be accounted for before determining the materials required from the product structure.


## Product Structure Cost Roll-Up




Product Structure Cost Roll-Up 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 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.

## Move Current Cost Set to GL Set



# Move Current Cost Set to GL Set



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The system maintains at least two cost sets for each item-site pair: Current, which reflects today's cost for an item, and 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 to reflect the change in the GL cost set. Current Cost Set Move to GL Set is most commonly used only at regular, widely spaced intervals; usually annually.

## Example: Set Up Cost Calculations

Item Planning Maintenance

Go To Actions Copy Print Preview Attach

Item: 10-00 Item Number: 10-00 Supplier:

Item Number: 10-00 Description: Medical Ultrasound  
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 Rev: Issue Policy:

Buyer/Planner: Supplier: PD Site: 8000 Purchase/Manufacture: M Configuration Type: Inspect: 1.0 Ins LT: 0 Mfg LT: 0 Cum LT: 0 Pur LT: 0 ATP Enforcement: NONE Family ATP: Run Seq 1: Run Seq 2: 2

Phantom:  Minimum Order: 0 Maximum Order: 0 Order Multiple: 0 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:

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In the following example, we'll see how QMI:

- Sets up a standard order quantity of 10 for item 10-00
- Rolls up costs for item 10-00 based on its routing
- Rolls up costs from item 10-00 based on its product structure
- Copies costs from its Current Cost Set to its GL Cost Set for items 10-00 through 10-04

## Review Standard Order Quantity

QMI has set up a standard order quantity of 10 for its medical ultrasound (10-00), which is used to amortize set-up costs. This information needs to be entered before rolling up the routing costs. The standard order quantity is entered in Item Planning Maintenance (or the Item Planning Data frame of Item Master Maintenance).

It is important that the standard order quantity 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 10 units. If we only make 5 at a time the setup cost per unit will double.

**Example: Routing Cost Roll-Up (14.13.13)**

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## Example: Routing Cost Roll-Up

Routing Cost Roll-Up

Go To Actions Copy Print Preview Attach

Site: 8000 Cost Set: Current Item Number: 10-00

Site: 8000 Manufacture/Distribution  
Cost Set: Current Default Current Cost Set [ Last / CURR ]

Item Number: 10-00 To: 10-00

Item Type: [v]  
As of Date: 9/23/2010 [v]

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: page  
Batch ID:

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Using Routing Cost Roll-Up, QMI is ready to roll up its routing costs for item 10-00 (medical ultrasound) at site 8000. Notice that QMI is rolling up the Current Cost Set, not the GL Cost Set.

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 roll up was successful. This can be verified in Item-Site Cost Inquiry (1.4.10).

## Example: Verify Current labor and burden costs

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## Example: Verify Routing Cost Roll-Up

**Item-Site Cost Inquiry** 09/23/10

**QAD**

Item Number: 10-00                      Description: Medical Ultrasound  
 Unit of Measure: EA                      GL Cost Source Site: 8000                      Output: page  
 Inventory Site: 8000                      Tax: No                      Tax Class:

Price: 5,000.00

Totals:		Totals			
	0.00	0.00	0.00	09/23/10	

GL Cost Data (Site: 8000 / Set: Standard)

Element	This Level	Lower Level	Total	Pri	Category	A/O
Material	0.00	0.00	0.00	Yes	Material	No
Labor	0.00	0.00	0.00	Yes	Labor	No
Burden	0.00	0.00	0.00	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>		17.2662	0.00	17.2662	09/23/10	

Current Cost Data (Site: 8000 / Set: Current)

Element	This Level	Lower Level	Total	Pri	Category	A/O
Material	0.00	0.00	0.00	Yes	Material	No
Labor	12.333	0.00	12.333	Yes	Labor	No
Burden	4.9332	0.00	4.9332	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 Proprietary QS-SU-940

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 10-00 at site 8000.

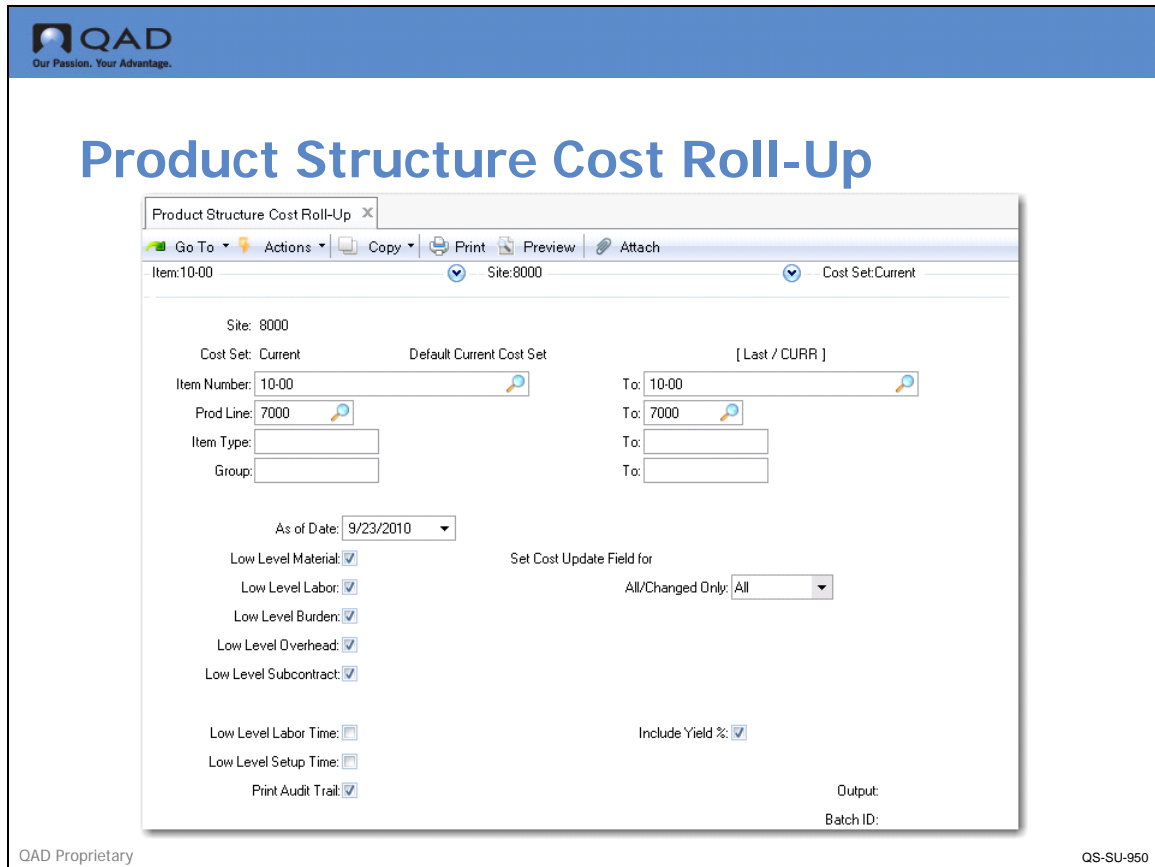
**Note** The columns on the cost screens total up, that is the total cost for labor and burden in this example 17.2662 is displayed above the column.

To see details on how the labor and burden costs were calculated, see Appendix A.

**Note** There are no material costs as we have not yet rolled up the product structure; and GL costs are still 0.

After completing and verifying the routing cost roll-up, the product structure cost roll-up can be initiated.


**Example: Product Structure Cost Roll-Up (13.12.13)**



Using Product Structure Cost Roll-Up, QMI rolls up its product structure costs for item 10-00 (medical ultrasound) at site 8000. This includes the material costs for the lower-level components, such as the Keyboard, etc.


**Note** QMI is rolling up the Current Cost Set, not the GL Cost Set.

## Example: Verify costs



# Verify Costs



**Product Structure Cost Roll-Up**  
**Training**

09/23/10 21:01:06  
**Page: 1**

Item Number		Material	Labor	Burden	Overhead	Subcontract	Cost Total
10-00	Old Cost	0.00	12.333	4.9332	0.00	0.00	17.2662
Medical Ultrasound	New Cost	549.50	12.333	4.9332	0.00	0.00	566.7662
	% Change	100,000+ %	0.0%	0.0%	0.0%	0.0%	3,182.5%
	Amnt Chg	549.50	0.00	0.00	0.00	0.00	549.50

End of Report

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QS-SU-960

Using Item-Site Cost Inquiry (1.4.10), QMI verifies that the Current Cost Set product structure costs (lower-level components) were rolled up correctly for item 10-00 at site 8000.

### Material Cost

Referring to the product structure diagram on Product Structure Cost Roll-Up, we can see that the material cost of \$0.85 is based on the following:

\$549.50 = cost of CPU/Monitor + Keyboard + 48 in. of cable + Sensor.

### Labor Cost

The labor cost from the route and workcenter records (both setup and run labor are 10.00 per hour.

## Current Cost Set Move to GL Set

QMI now wants the general ledger to reflect the cost information it has entered in the Current Cost Set for items 10-00 through 10-04 at site 8000, so QMI is ready to copy and move Current costs into the GL using Current Cost Set Move to GL Set.

### 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 a ? (question mark) in this field and its corresponding To field. 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 made 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 as it would require division by zero.

## Verify item costs in Current and GL cost sets

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## Verify Cost in Current and GL Cost Sets

**Item-Site Cost Inquiry** 09/23/10

**QAD**

Item Number: 10-00      Description: Medical Ultrasound  
 Unit of Measure: EA      GL Cost Source Site: 8000      Output: page  
 Inventory Site: 8000

Price: 5,000.00      Item Price Data  
 Tax: No      Tax Class:

Totals:	17.2662	Totals	549.50	566.7662	09/23/10
---------	---------	--------	--------	----------	----------

GL Cost Data (Site: 8000 / Set: Standard)

Element	This Level	Lower Level	Total	Pri	Category	A/O
Material	0.00	549.50	549.50	Yes	Material	No
Labor	12.333	0.00	12.333	Yes	Labor	No
Burden	4.9332	0.00	4.9332	Yes	Burden	No
Overhead	0.00	0.00	0.00	Yes	Overhead	No
Subcontr	0.00	0.00	0.00	Yes	Subcontr	No
Totals:	17.2662	549.50	566.7662			09/23/10

Current Cost Data (Site: 8000 / Set: Current)


Element	This Level	Lower Level	Total	Pri	Category	A/O
Material	0.00	549.50	549.50	Yes	Material	No
Labor	12.333	0.00	12.333	Yes	Labor	No
Burden	4.9332	0.00	4.9332	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

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Use Item-Site Cost Inquiry (1.4.10) again; this time to verify that the costs for item 10-00 now shown in the GL are as expected. That is, the GL costs should be the same as the Current costs, and they are.

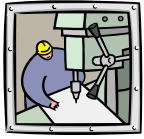
## Review



# Review

4

### Manufacturing




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

➔

5

### Cost Calculations



- **Routing cost roll-up**  
*Routing Cost Roll-Up*
- **Product structure cost roll-up**  
*Product Structure Cost Roll-Up*
- **Copy Current cost set to GL**  
*Current Cost Set Move to GL Set*

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QS-SU-1000

In this chapter, it was explained how product costs are developed using:

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

It was also explained 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 Cost Calculations

### Check Standard Order Quantity for Item

- 1 In the Item Planning Maintenance (1.4.7) Order Qty field, add a standard order quantity of 10 to item 10-00. This is the number of units that the cost of set-up time is spread over.

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

- 2 Select Routing Cost Roll-Up (14.13.13) to roll up the routing cost. Key fields to populate are:

Field	Value
Site	8000
Cost Set	CURRENT
Item Number	10-00 to 10-00
Output	Page

Use the default settings for all other fields and update.

**Note** There is no output for this function.

- 3 In Item Routing Cost Report (14.13.15) or Item-Site Cost Inquiry (1.4.10), check to see if your CURRENT costs were correctly calculated for labor and burden.

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

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

Field	Value
Site	8000
Cost Set	CURRENT
Item Number	10-00 to 10-00

- 5 In Item-Site Cost Inquiry (1.4.10), check to see if your CURRENT costs were correctly calculated for lower-level costs.

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 file, the product structure, the routing record, and the item planning data. Check yourself against the values shown in the example screen shots.

### Copy the Current Cost Set to the General Ledger Cost Set

- 6 Check the current cost set costs in the Product Structure Cost Report (13.12.4) or Item-Site Cost Inquiry (1.4.10).  
You should have lower-level material costs, and this-level labor and burden costs for your end item.
- 7 If you are satisfied, use Current Cost Set Move to GL Set (1.4.22) to copy the data from your Current cost set to your GL (standard) cost set. Key fields to populate are:

Field	Value
From and To Site	8000
Item Number	10-00 to 10-04
Pct Change Allowed	? (from and to)

**Note** If a “?” is not allowed by your environment, enter all 9’s in both the From and To fields. The Pct Change Allowed fields set upper and lower limits for the percent of change between cost sets. To accept the movement of all costs regardless of the difference from the previous GL costs, enter a “?” (question mark) in the from and to fields.

Accept the default values for the remaining fields.

- 8 Checkpoint: Component items only have material costs. Check to be sure that their costs have been moved to the GL Cost Set. Use Item-Site Cost Inquiry (1.4.10) to verify.

Chapter 7

# Purchasing

## Purchasing: Topics



### Purchasing: Topics

#### ▲ Key Concepts

- Supplier
- Requisitions
- Types of Purchase Orders
- Order Receipt

#### ▲ Example

- Add Supplier
- Create Purchase Order
- Receive Items and Create Receiver

#### ▲ Activity

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QS-PR-020

In this chapter the procurement process, from initial requisition to material receipt will be examined. Key concepts will be discussed, followed by an example that illustrates the purchasing flow.

## Learning Objectives

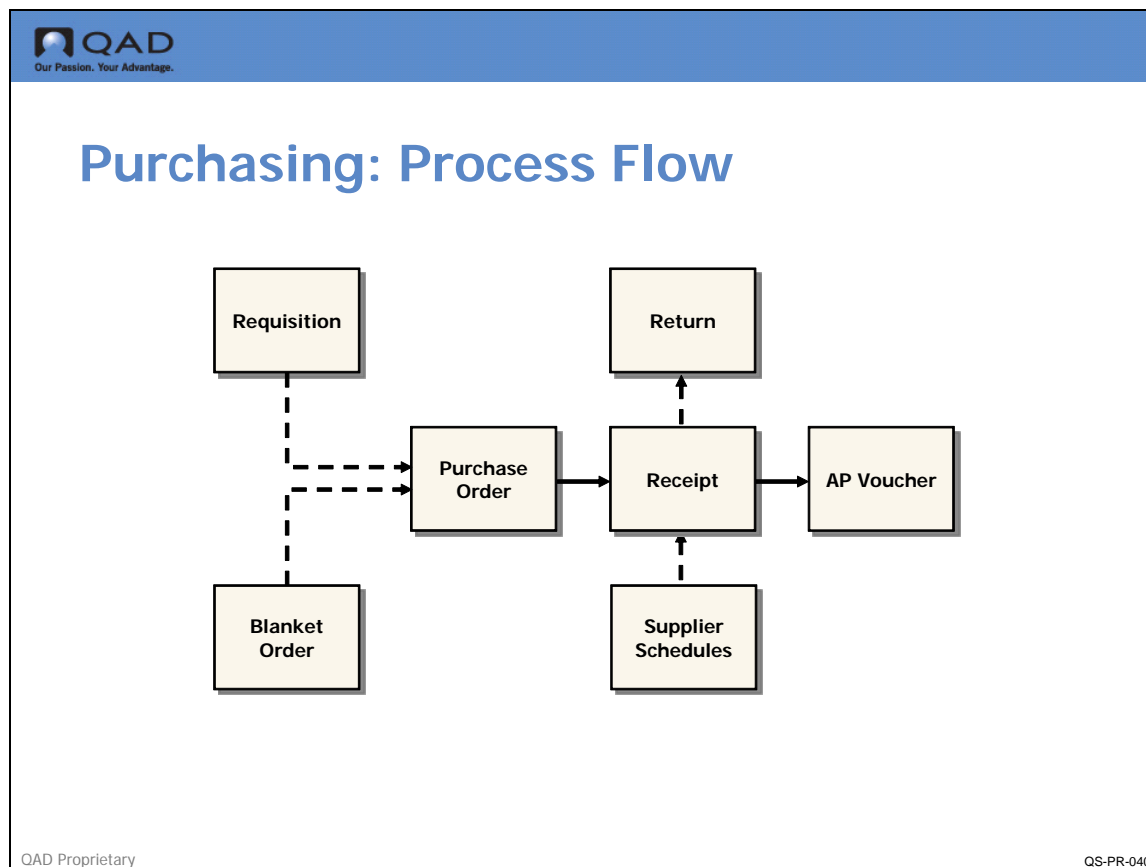


### Purchasing: Learning Objectives

When you finish this section, 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 Enterprise Applications supports
- ▲ Enter credit terms, a supplier, UOM, and supplier item information

## Introduction: Process Flow



Purchasing lets you manage all aspects of ordering and receiving materials and services; 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.

**Note** While purchasing supports the acquisition of everything, from office supplies to capital equipment, this course will limit 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.


We'll look at several of these stages of the purchasing process in more detail on the following pages, but first we must have a supplier entered in the system before we can perform these purchasing functions. So we'll begin this chapter with a discussion about entering supplier information into the system.

## Supplier



# Purchasing: Supplier

	QMI Incorporated	Dixon Corp.
Item	10-03	Computer Cable
UOM	Inches	Roll



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QS-PR-050

Supplier Maintenance is used to record the address to which all purchase orders are sent. Every supplier must be entered into Supplier Maintenance prior to using the purchasing functions.

In addition to setting up basic address information, data regarding item number, unit of measure conversions for your suppliers (see figure below), and credit terms extended to you by your suppliers may be entered.

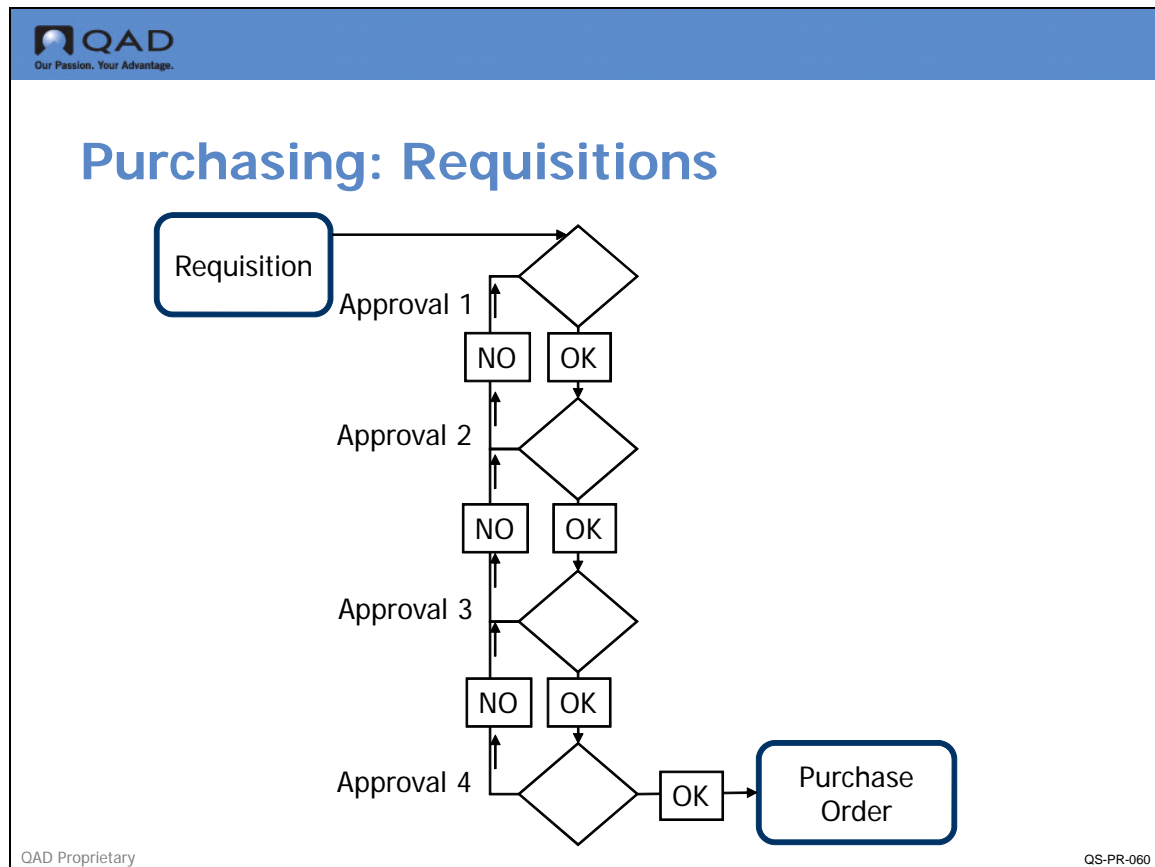
### Supplier Items

Supplier items are used to cross-reference your item number with your supplier's item number. Later, in the Purchasing module, 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

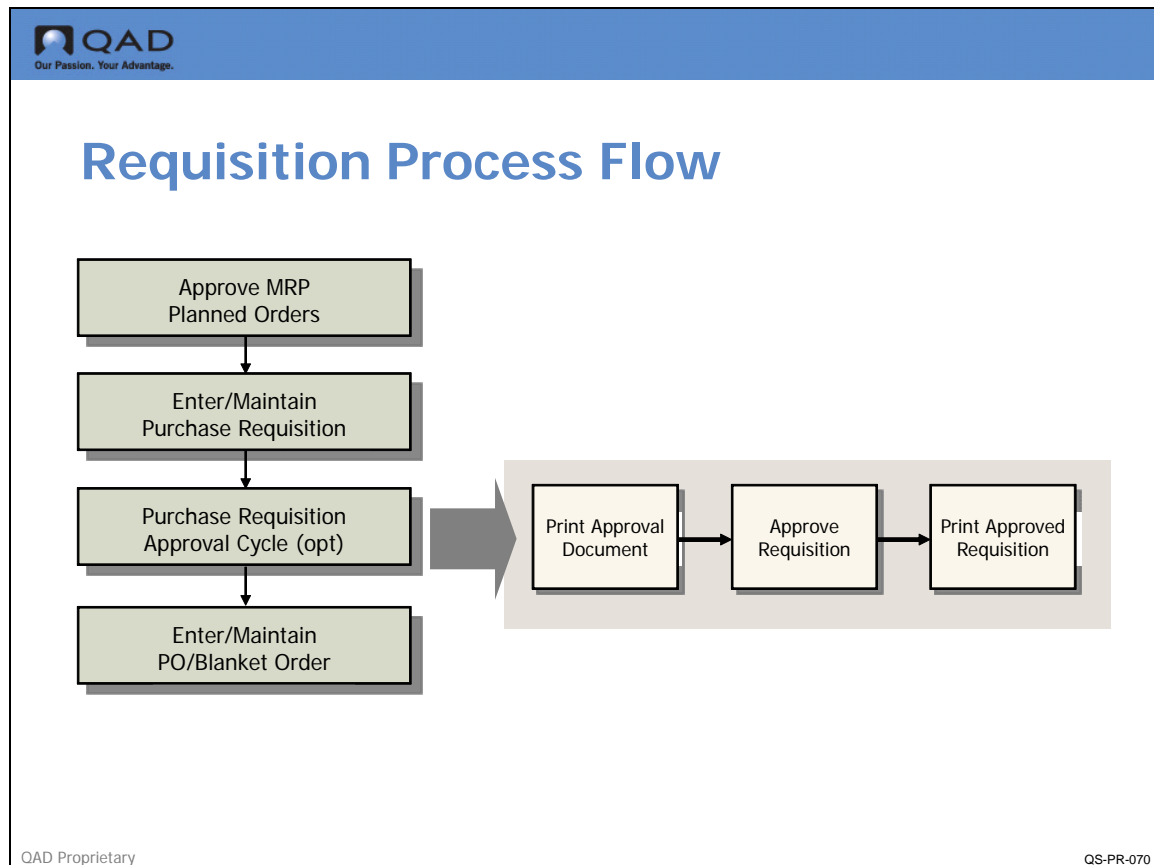
Unit of measure conversions can be set up so that a unit of measure for a purchase order line can be different than the item master unit of measure. Then, when the item is received, it is converted to the item master unit of measure.

## 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, it is deleted.

## Requisition Process Flow



Standard requisitions can be created 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 on each requisition.

**Example** 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.

**Note** QAD SE offers two requisition modules. The modules are labeled Purchase Requisitions and Global Purchase Requisitions. Both are located in the Distribution module. 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. Only one or the other requisition modules may be used at a time, and there are consequences associated with changing. This course discusses only Purchase Requisitions.

### 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

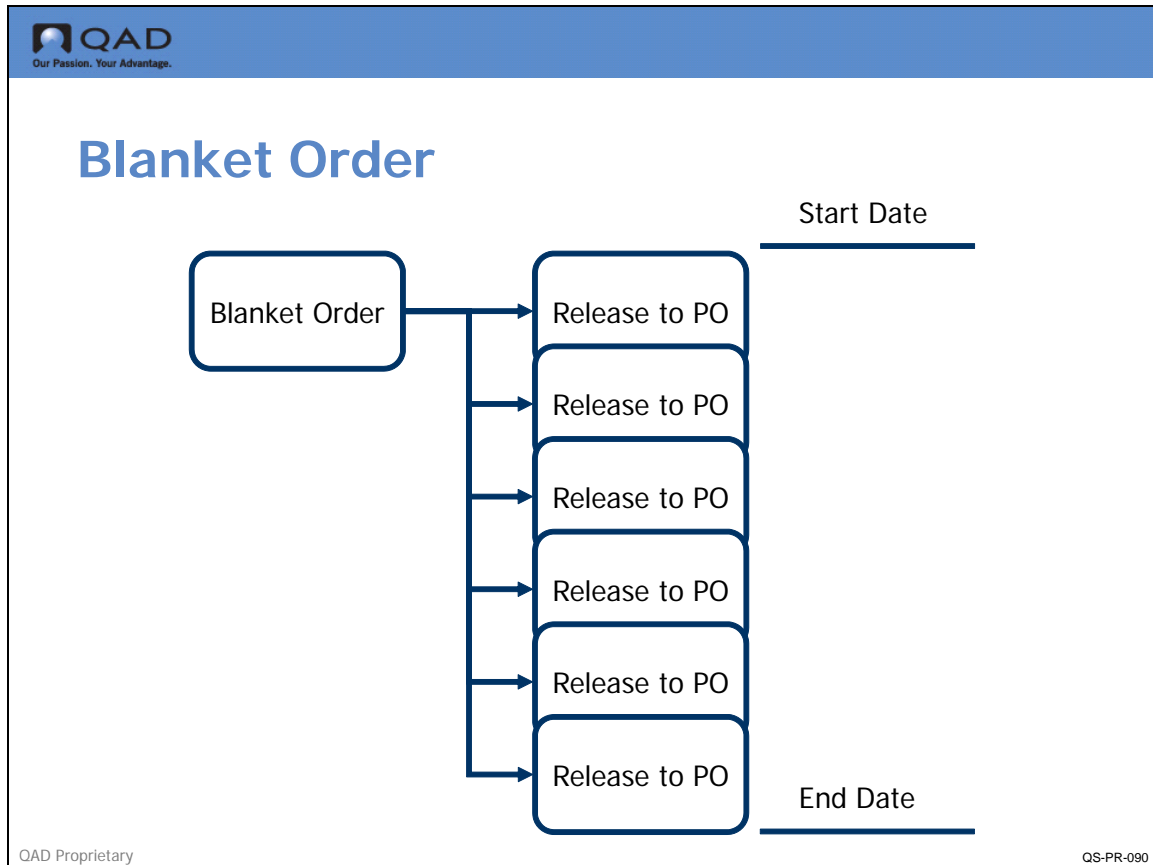
- ▲ Blanket
- ▲ Supplier Schedules
- ▲ Discrete PO

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QS-PR-080

Although we discuss all three kinds of orders in this section, our emphasis will be on discrete purchase orders. The Example section is based upon a discrete PO.

## Blanket Order

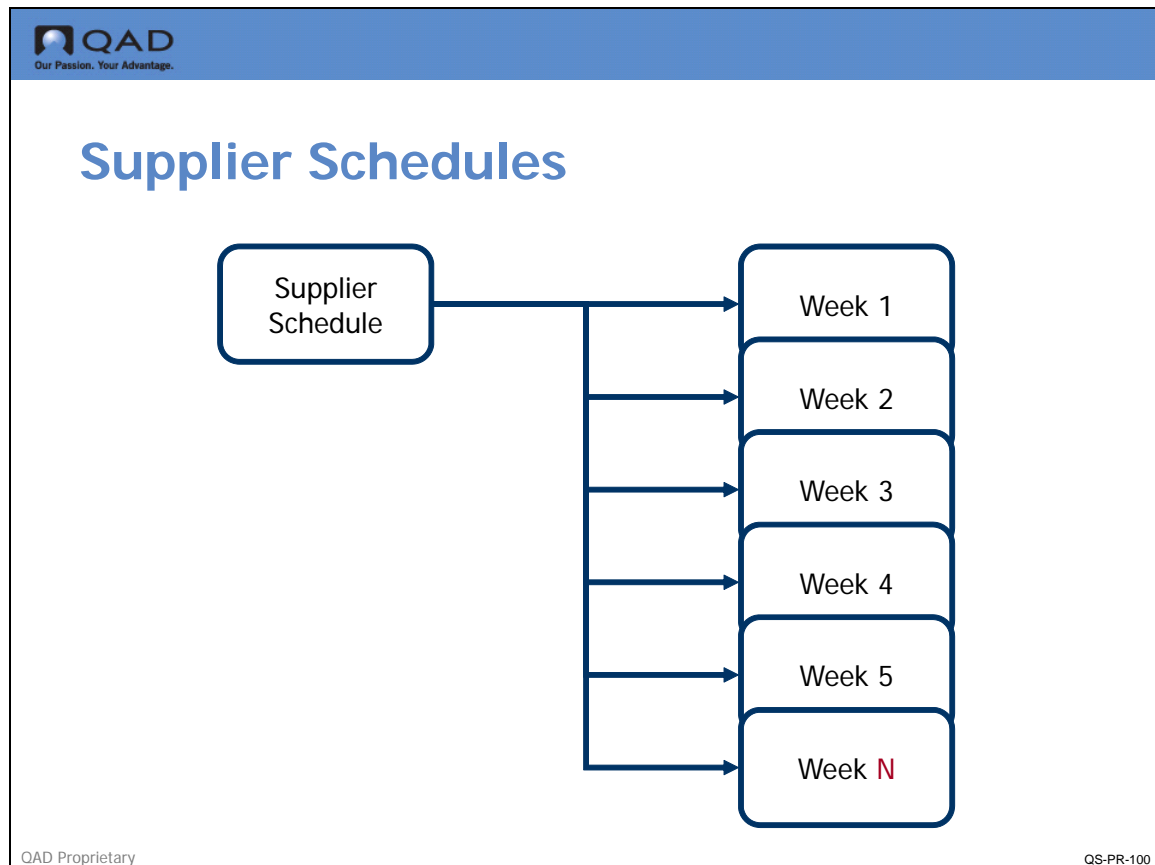


Use these for multiple deliveries of stock items, where an ongoing relationship with the supplier is assumed, but exact delivery dates are yet to be determined. Quantities and due dates can be entered up to the time when a blanket order becomes a purchase order. See figure above.

**Example** A manufacturer of circuit boards buys solder at irregular intervals, but always from the same supplier. A blanket order for 12 months is created. Each month an order for solder is released to the supplier, each order specifying a particular quantity.

Each monthly release becomes a discreet purchase order that is managed like any other. The blanket order keeps track of totals order to date.

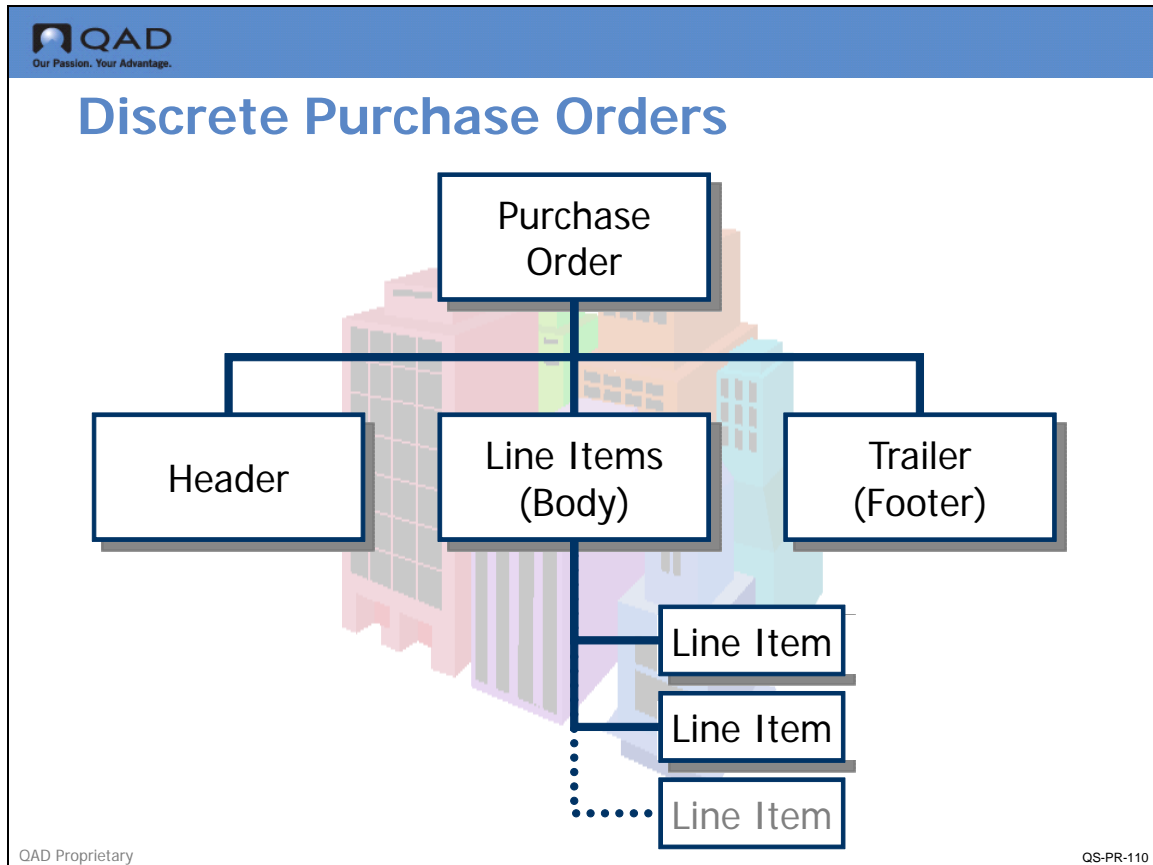
## Supplier Schedules



A supplier schedule is an agreement with a supplier that guarantees a specified order level. 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.

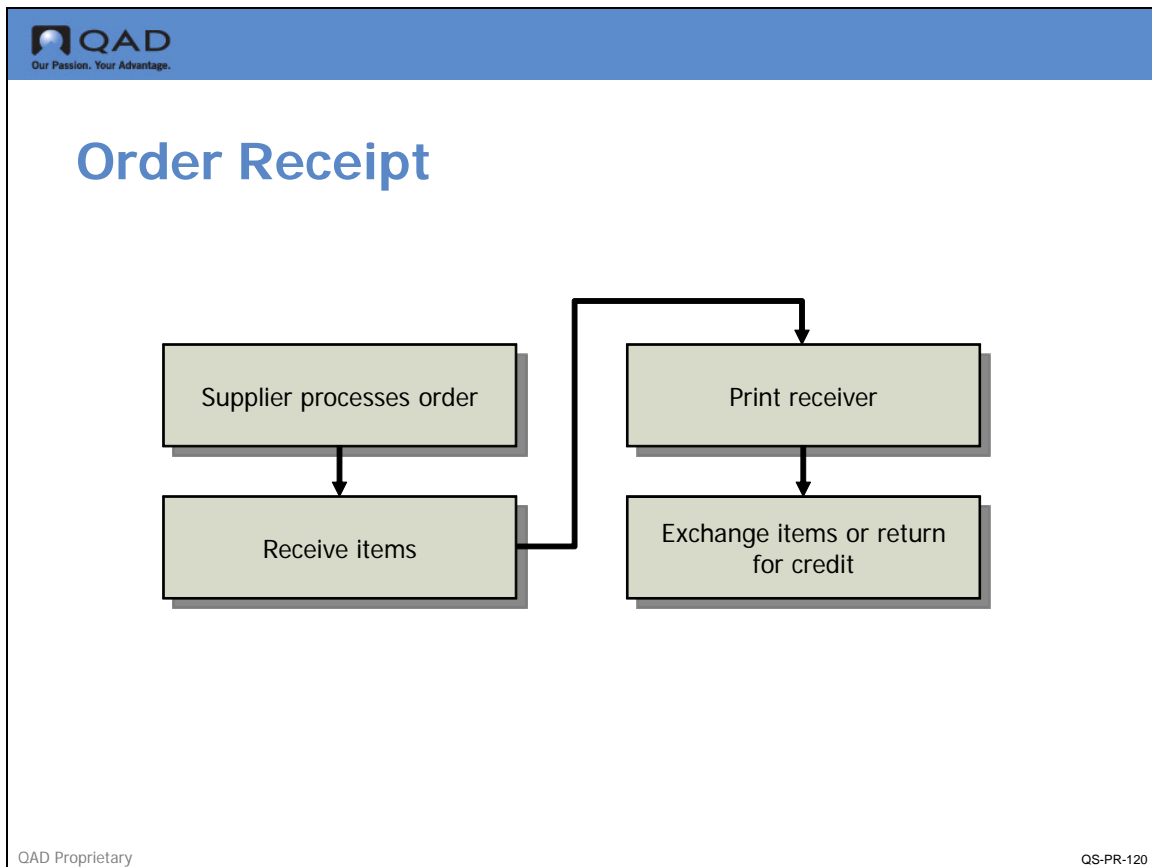
**Example** A manufacturer of circuit boards needs circuit board blanks supplied each week. The manufacturer knows its exact needs for the next four weeks and its approximate needs for the next 12 months. The supplier of the blanks uses the information in the supplier schedule to plan orders for raw 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 there is no assumption that further transactions will occur. 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. We look at how to process a discrete PO in the Example section.

## Order Receipt



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

All PO receipts and returns generate receivers to match 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.

## Example:

A simple example in which QMI sets up the following:

- Credit terms of Net30 in Credit Maintenance
- A supplier in Supplier Maintenance with credit terms of Net30
- A unit of measure conversion for the computer cable (item 10-03) so the system will know that one roll (RL) is equal to 3,000 inches (IN)
- A supplier item is created that identifies that customer item “10-03” is the same as supplier item “standard computer cable.” This is set up in Supplier Item Maintenance, which also has information about supplier lead time, quote price, and quote quantity. Based on the quote price, if QMI purchases cable by the roll and buys at least one roll, then it will cost less.

Once everything is set up, QMI’s Buyer creates a purchase order for the component items (10-01, 10-02, 10-03, and 10-04) in sufficient quantities to build 10 medical ultrasounds (item 10-00).

The items are received and the order is closed.

## Add Supplier Data - Credit Terms

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### Add Supplier Data - Credit Terms

Credit Terms Maintenance

Go To Actions Copy Print Preview

Terms Code: 30  
Description: DUE 30 DAYS FROM INVOICE  
Multiple Due Dates:

Disc Pct: 0.00%  
Disc Days: 0  
Disc Date From: 1  
Discount Date:

Due Days: 30  
Minimum Due Days: 0  
Due Date From: 1  
Due Date:

Base Date:   
Base Days: 0  
Grace Days: 0  
Terms Interest Pct: 0.00  
Daily Overdue Int Pct: 0.00

Delete Back Next

QAD Proprietary QS-PR-130

In the process of adding a supplier, QMI has set up credit terms, supplier items, and unit of measure conversion.

## Enter Supplier

The screenshot displays the 'Enter Supplier' form in the QAD system. The form is titled 'Supplier Maintenance' and contains several sections:

- Supplier Information:** Supplier: 5011000, Name: DIXON CORPORATION, Address: 1000 INDUSTRIAL DRIVE, SUITE 102, City: SALT LAKE CITY, State: UT, Post: 88293, Country: United States of America.
- Supplier Data:** Attention: MR, Telephone: 801, Fax/Telex: 801, Bank: A, Currency: USD, Purchase Contact: WESLEY THOMAS, AP Contact: MADELINE HOLMES, Check Form: 1, Language: US, Misc Creditor, Carrier.
- Supplier Terms Data:** Cr Terms: 30, Disc Pct: 0.00%, CoC Number, Prepayment Balance: 0.00, Debtor Number, Partial OK, Payment Hold, DB Number, Taxable, Tax ID, TID Notice, Tax Report, Pay Specification.

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QMI's supplier, Dixon Corporation, has arranged payment terms with QMI of net 30. That is, payment is due to Dixon, within 30 days. The credit terms entered in Credit Terms Maintenance display as the default on all purchase orders for Dixon Corporation.

In Supplier Maintenance, QMI's Buyer uses a system-generated supplier code for the medical ultrasound components' supplier (Dixon Corporation).

QMI's bank (this is the bank that QMI will use to pay this supplier) is entered in Supplier Data.

The credit terms of 30 are entered in Supplier Terms Data.

## Set Up UOM Conversion

Unit of Measure Maintenance

Go To Actions Copy Print Preview

Unit of Measure: IN

Alternate UM: RL

Item Number: 10-03 String

UM Conversion: 3000.0000

Back Next

QAD Proprietary QS-PR-150

In Unit of Measure Maintenance, QMI's Buyer enters a UOM conversion for the computer cable.

QMI's base unit of measure for the cable (item 10-03) is the inch, but the supplier sells cable by the roll. So far, the system only knows the cost of the cable by the inch (set up in Item Cost Maintenance, \$0.13281/inch), not by the roll because the system does not yet know how many inches are in a roll of cable.

In this step, the Buyer defines how many inches are in a roll of cable for a specific item (item 10-03). Now the system knows that 3,000 inches equal one roll of cable for this item.

**Note** This is an item specific unit of measure of conversion. It applies only to the 10-03 cable. If we wanted a generic conversion say from Inch to Centimeter we could enter IN in Unit of Measure, CM in Alternate UM and leave Item Number blank, and enter 2.54 in the UM conversion field. The system can then convert anything measured in centimeters into inches.

## Add Supplier Item

Supplier Item Maintenance

Item Number: 10-03      Supplier: 5011000      Supplier Item: Standard Computer Cable

Item Number: 10-03      Cable  
 Supplier: 5011000      DIXON CORPORATION  
 Supplier Item: Standard Computer Cable

Unit of Measure: RL  
 Supplier Lead Time: 5  
 Use SO Reduction Price: 0.00%  
 Currency: USD  
 Quote Price: 398.43  
 Quote Date: 9/24/2010  
 Quote Qty: 0.0  
 Price List:  
 Manufacturer:  
 Manufacturer Item:  
 Comment:

QAD Proprietary QS-PR-160

QMI's Buyer enters information obtained from the supplier about the cable in Supplier Item Maintenance (1.19). Note that the supplier ID for the cable is Standard Computer Cable, whereas QMI's internal ID for the cable is 10-03. Normally this is the case; that is, suppliers do not use the same numbering scheme that their customers do. By entering the supplier item information in the system, the Buyer will be able to use either the supplier's item ID or QMI's item ID on purchase orders and the system will know it is for the same item.

Other things to note on this screen are:

- The supplier uses a unit of measure of RL (roll) for the cable.
- Dixon not only sells cable by the roll, it sells it for less when purchased by the roll.
- Note the Quote Price field of \$398.43. Recalling that a roll of cable equals 3,000 inches, this quote means that at \$398.43 per roll, the cable costs \$0.13281 per inch instead of the standard \$0.15625 per inch. This discount is based on purchase of one roll or more (Quote Quantity field = 1).
- To obtain this discount, QMI must enter on its purchase order: item 10-03 (or supplier item standard computer cable); supplier code for Dixon Corp; a unit of measure of RL (roll); and a quantity of one or more.
- Supplier lead time of 5 days. This drives the purchase lead time entered in Item Master Maintenance for this item.

## Create Purchase Order

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# Create Purchase Order

Purchasing Control x

Go To Actions Copy Print Preview

Bill To: 8000  
Ship-To: 8000  
PO Prefix: PO  
Next Purchase Order: 00100004  
Receiver Prefix: PR  
Next Receiver: 00010002  
Sort PO By: Site  
Receive All:   
Price Table Required:   
Disc Table Required:   
Apprvd Reqs for POs:   
Inspection Location: inspect  
Receiver Type: 2  
Sequential Receiver:   
Tolerance Percent: 10.00  
Tolerance Cost: 100.00

Ln Format S/M: Single  
PO Header Comments:   
PO Line Comments:   
Cancel Backorders:   
Keep Booking History:   
ERS Processing:   
ERS Option: 1

Type: 0 - Do not print receivers  
1 - Print for each shipment  
2 - Print for each item/shipment  
(Acceptance Limit For Overshipments)

Back Next

QAD Proprietary QS-PR-170

In Purchasing Control (5.24), QMI's Buyer enters site 8000 as the bill-to and ship-to location. Other default information for the purchase order is entered here, such as PO and receiver prefixes, and line format (which is single in this example). Tolerance Percent and Tolerance Cost pertain to overshipments.

### Line Formats

Single entry 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. The default format is specified in Purchasing Control.

## Enter Header Information

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# Enter Header Information

Purchase Order Maintenance X

Go To Actions Copy Print Preview Attach

Purchase Order: P0010001 Supplier: 5011000 Price Tbl:

Header Lines Trailer

Header Details Tax Info Logistics Delivery ERS Consignment Comments

**Header**

Purchase Order: P0010001 Supplier: 5011000 Ship-To: 8000

Supplier: DIXON CORPORATION  
1000 INDUSTRIAL DRIVE  
SUITE 102  
SALT LAKE CITY UT 88293  
United States of America

Ship To: QMI Incorporated  
17 Avenue of the Americas  
New York NY 10065  
United States of America

**Details**

Order Date: 9/27/2010  
Due Date: 9/27/2010  
Buyer: JJ  
Bill To: 10000000  
Sales/Job:  
Contract:  
Contact: WESLEY THOMAS  
Remarks:

**Tax Info**

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

Imp/Exp:  
Language: US  
Consign: 0.00  
Comments:

QAD Proprietary 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 supplier name (Dixon Corporation), ship-to address (QMI's site 8000), credit terms of Net30, currency of USD, tax information, and order and due dates (default is today's date).

**Note** 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 is not normally modified in purchase order maintenance. Accept the defaults and click Next to advance.

In this example, the system automatically generates the purchase order number.

### Questions

Some of the information that QMI's Buyer set up in Supplier Maintenance and Purchasing Control is now seen in the Purchase Order Maintenance screen above.

- What default information came from the supplier record (Supplier Maintenance)?
- What effect do the purchasing control settings have?

## Enter Line 1 Data

**Enter Line 1 Data**

Purchase Order: P0010001    Supplier: 5011000    Site: 8000

Header    Lines    Trailer

▶ Lines    ▶ **Line Details**    ▶ Tax Info    ▶ Comments

Header

Purchase Order: P0010001    Supplier: 5011000    Ln Format S/M: Single

Lines

Ln	Site	Req	Item Number	Qty Ordered	UM	Unit Cost	Disc%
1	8000		10-01	10.0	EA	450.00	0.00

Line Details

Qty Received: 0.0    Due Date: 9/27/2010    CRT Int: 0.00

Qty to Rel: 0.0    Pur Acct: 5100

Single Lot:     Performance Date:    Project:    Type:    Taxable:

Location:    Need Date:    Status:    Fixed Price:     Inspection Requi:     Cmnts:

Revision:    Sales/Job:    Supplier Item:    UM Conversion: 1.0000    Stock UM Quantity: 10.0    EA

Manufacturer:    Manufacturer:

QAD Proprietary    QS-PR-190

For line 1, QMI's Buyer enters an order for 10 CPU/Monitors (item 10-01). The unit of measure and unit cost information default from the information entered earlier in Item Master Maintenance.

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 the line item only and not the whole order.

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

- Location
- Pur Acc

## Enter Line 2 Data

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### Enter Line 2 Data

Purchase Order Maintenance

Go To Actions Copy Print Preview Attach

Purchase Order: P0010001 Supplier: 5011000 Site: 8000

Header Lines Trailer

Lines Line Details Tax Info Comments

Header

Purchase Order: P0010001 Supplier: 5011000 Ln Format S/M: Single

Ln	Site	Req	Item Number	Qty Ordered	UM	Unit Cost	Disc%
2	8000		10-02	10.0	EA	25.00	0.00

Line Details

Qty Received: 0.0 Due Date: 9/27/2010 CRT Int: 0.00

Qty to Rel: 0.0 Pur Acct: 5100

Single Lot:  Performance Date:  Project:

Location: RAWMAT Need Date:  Type:

Revision:  Sales/Job:  Taxable:

Status:  Fixed Price:  Inspection Requi:  Cmnts:

Supplier Item:  UM Conversion: 1.0000

Manufacturer:  Stock UOM Quantity: 10.0 EA

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For line 2, the Buyer enters an order for 10 Keyboards (item 10-02). Again, the unit of measure and unit cost information default from the information entered earlier in Item Master Maintenance (5.7).

## Enter Line 3 Data

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### Enter Line 3 Data

Purchase Order Maintenance x

Go To Actions Copy Print Preview Attach

Purchase Order: P0010001 Supplier: 5011000 Site: 8000

Header Lines Trailer

Lines Line Details Tax Info Comments

Header

Purchase Order: P0010001 Supplier: 5011000 Ln Format S/M: Single

Lines

Ln	Site	Req	Item Number	Qty Ordered	UM	Unit Cost	Disc%
3	8000		10-03	1.0	RL	398.43	0.00

Line Details

Qty Received: 0.0 Due Date: 9/27/2010 CRT Int: 0.00

Qty to Ret: 0.0 Pur Acct: 5100

Single Lot:  Performance Date:  Project:

Location: RAWMAT Need Date:  Type:

Revision:  Sales/Job:  Taxable:

Status:  Fixed Price:  Inspection Requi:  Cmnts:

Supplier Item: Standard Computer Cable UM Conversion: 3000.0000

Manufacturer:  Stock UM Quantity: 3000.0 IN

QAD Proprietary QS-PR-210

For line 3, the Buyer enters an order for roll of computer cable (item 10-03) at a per roll cost of \$398.43.

### Questions

What is the following information based upon?

- Unit Cost
- UM Conversion
- Stock UM Quantity

What is the effect of Update Avg/Last Cost?

When these items are received, the current cost of the item is updated to reflect a difference between our latest current cost value of 0.13281 per inch and the 0.15625 per inch. If we decide that we do not want this updated, we can uncheck this box and the current cost does not change.

An order on line 4 is placed for 10 Sensors, and then the Trailer information.

## Enter Trailer Information

The screenshot shows the 'Enter Trailer Information' window in the QAD software. The window title is 'Purchase Order Maintenance'. The interface includes a menu bar with 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. Below the menu bar, the purchase order details are displayed: Purchase Order: P0010001, Supplier: 5011000, and Currency: USD. The 'Trailer' section is active, showing a tax date of 9/27/2010 and a line total of 5,818.43. The 'Trailer Information' section includes revision 0, amount prepaid 0.00, and ship via RODEWAY.

Section	Field	Value
Header	Purchase Order:	P0010001
	Supplier:	5011000
	Ship-To:	8000
Trailer	Currency:	USD
	Line Total:	5,818.43
	Total Tax:	0.00
Tax Date:		9/27/2010
Total:		5,818.43
Trailer Information	Revision:	0
	Amount Prepaid:	0.00
	Print PO:	<input checked="" type="checkbox"/>
	Status:	
	EDI PO:	<input type="checkbox"/>
	Close Date:	
AP Account:	2100	
FOB:		
Deliver To:		
Ship Via:	RODEWAY	

The last frame shows the trailer information, which contains tax, shipping, and order status information for all line items.

**Note** The trailer frame is where freight charges, special handling or other miscellaneous charges as well as taxes are added if required.

## Review Packing Slip from Supplier

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# Review Packing Slip from Supplier

Ship-From  
Address

Dixon Corporation  
1000 Industrial Drive  
Suite 1002  
Salt Lake City, UT 88293

Sold To: 001000000

Salesperson:

Credit Terms: 30  
DUE 30 DAYS FROM INVOICE

Remarks:

Ln	Item#	Site Location	Qty. Open Qty. Ship	U/M	Ship Date
1	10-01	8000	10	EA	09/22/20XX
2	10-02	8000	10	EA	09/22/20XX
3	10-03	8000	1	RL	09/22/20XX
4	10-04	8000	10	EA	09/22/20XX

Supplier's Packing  
Slip # and Sales  
Order #

Items and  
Quantities  
Shipped

PACKING LIST  
#251468  
Order Number: 226597 Page 1  
Order Date: 09/22/XX  
Print Date: 09/28/XX

Ship To: 8000  
QMI Incorporated  
17 Avenue of the Americas  
New York, NY 10065

PO # 001025468  
Ship Via:  
FOB Point: Shipping Point

Customer's  
Ship-To Address  
and PO #

QAD Proprietary
QS-PR-230

Dixon, the supplier, includes a packing list with the shipment. This document includes your purchase order number, their sales order number, your ship to address, their ship from address, items and quantities ordered, items and quantities shipped, and other information, such as any back orders.

The items and quantities shipped have been highlighted as have the PO number and Dixon's, sales order number.

## Receive Items

**Example: Receive Items**

Purchase Order Receipts

Go To Actions Copy Print Preview Attach

Unit of Measure: EA Site: 8000 ID:

Order: P0010001 Supplier: 5011000 Status: Packing Slip: 251468

Ln	Item Number	UM	Qty Open UM	Receipt Qty UM	Project	Due Date	T
1	10-01	EA	10.0 EA	10.0 EA		9/27/2010	
2	10-02	EA	10.0 EA	10.0 EA		9/27/2010	
3	10-03	IN	1.0 RL	1.0 RL		9/27/2010	
4	10-04	EA	10.0 EA	10.0 EA		9/27/2010	

Line: 1 Unit of Measure: EA Site: 8000 Loc:

Quantity: 10.0 ID: Lot/Ser:

Packing Qty: 10.0 OP: 0 Reference:

Cancel B/D:  Supplier Lot:

Item Number: 10-01 Multi Entry:  Chg Attribute:

Supplier Item: Cmmts:

QAD Proprietary QS-PR-240

Dixon has delivered all of the items ordered by QMI. Using Purchase Order Receipts (5.13.1), QMI's 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. As the packing list indicates order has been shipped complete we can save a few steps by checking Receive All. This pre-fills the transaction frame with all the information needed to process the receipt.

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## Example: Receive Items, con't.

Purchase Order Receipts x

Go To Actions Copy Print Preview Attach

Unit of Measure: EA Site: 8000 ID:

Order: P0010001 Supplier: 5011000 Status: Packing Slip: 251468

Ln	Item Number	UM	Qty Open	UM	Receipt Qty	UM	Project	Due Date	T
1	10-01	EA	10.0	EA	10.0	EA		9/27/2010	
2	10-02	EA	10.0	EA	10.0	EA		9/27/2010	
3	10-03	IN	1.0	RL	1.0	RL		9/27/2010	
4	10-04	EA	10.0	EA	10.0	EA		9/27/2010	

Line: 1 Unit of Measure: EA Site: 8000 Loc:

Quantity: 10.0 ID: Lot/Ser:

Packing Qty: 10.0 OP: 0 Reference:

Cancel B/D:  Supplier Lot:

Item Number: 10-01 Multi Entry:  Chg Attribute:

Supplier Item: Cmmts:

QAD Proprietary QS-PR-250

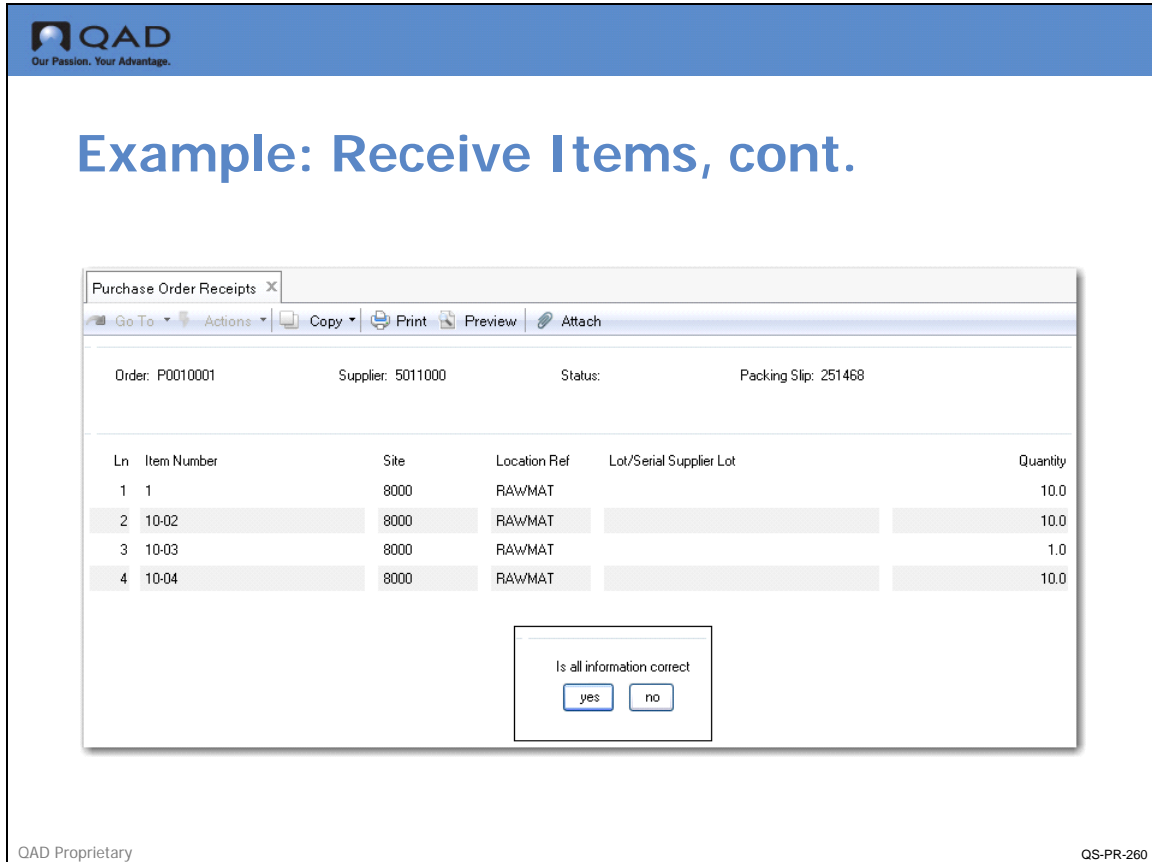
In subsequent frames, shown above, the Receiving Department enters both the actual quantity received for each line (Quantity field) and the quantity indicated on the packing slip (Packing Qty field). This step is especially important when there is a discrepancy between the quantity listed on the packing 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.

### 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 the system?




In the final frames, the Receiving Department confirms that all information listed is correct and the system processes the order receipt.

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 Inventory Levels


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# Review Inventory Levels

Inventory Detail by Item Browse X

 Actions ▾ | Print | Add to Favorites | Chart | Chart Designer | Refresh ▾ | New | Edit | Edit

Search (1)  
 Item Number ▾ starts at ▾ 10-01


Viewing 1 - 100 of 508      Records per page: 100

Item Number	Site	Qty On Hand - Inv Mstr	Qty On Hand - Inv Detail	Location	Lot/Serial	Reference	Status	Expire Date
▶ 10-01	8000	10.0	10.0	RAWMAT			OI-ND	
10-02	8000	10.0	10.0	RAWMAT			OI-ND	
10-03	8000	3,000.0	3,000.0	RAWMAT			OI-ND	
10-04	8000	10.0	10.0	RAWMAT			OI-ND	


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QS-PR-270

Following receipt of the ultrasound components, QMI's Planner checks the inventory levels of these items. Using Inventory Detail by Item Browse, the Planner can quickly see the inventory level, location, and status of each item. Note also that the 1 roll of cable has been converted into 3,000 inches of cable.

## Review Transactions


09/27/10

### Review Transactions


Transactions Detail Inquiry
09/27/10

Transaction: 17544      Display E-Signature Details: No      Output: page

Tran Nbr: 17544	Order: P0010000	R0010002
Trans Type: RCT-PO	Revision: 0	
Date: 09/24/10	Item Number: 10-03	
Time: 22:00	Description: Cable	
Effective Date: 09/24/10	Unit of Measure: IN	
Remarks:	Address: 5011000	
User ID: mfg	Name: DIXON CORPORATION	
Program: poporc.p	Sales/Job:	
Currency: USD	Ship Type:	
Qty Change: 3,000.0	Price: 0.13281	
Shipper Number:	Inventory M:	
Ship Date: 09/24/10		

Site: 8000	Inventory Data	
Location: RAWMAT	Begin Balance: 0.0	
Lot/Serial:	Quantity Change: 3,000.0	
Inv Status: OI-NO	Qty Short: 0.0	
Supplier Lot:	Begin Loc Bal: 0.0	
Grade/Assay:	Loc Qty Change: 3,000.0	
Reference:	Expire Date:	
	Batch:	

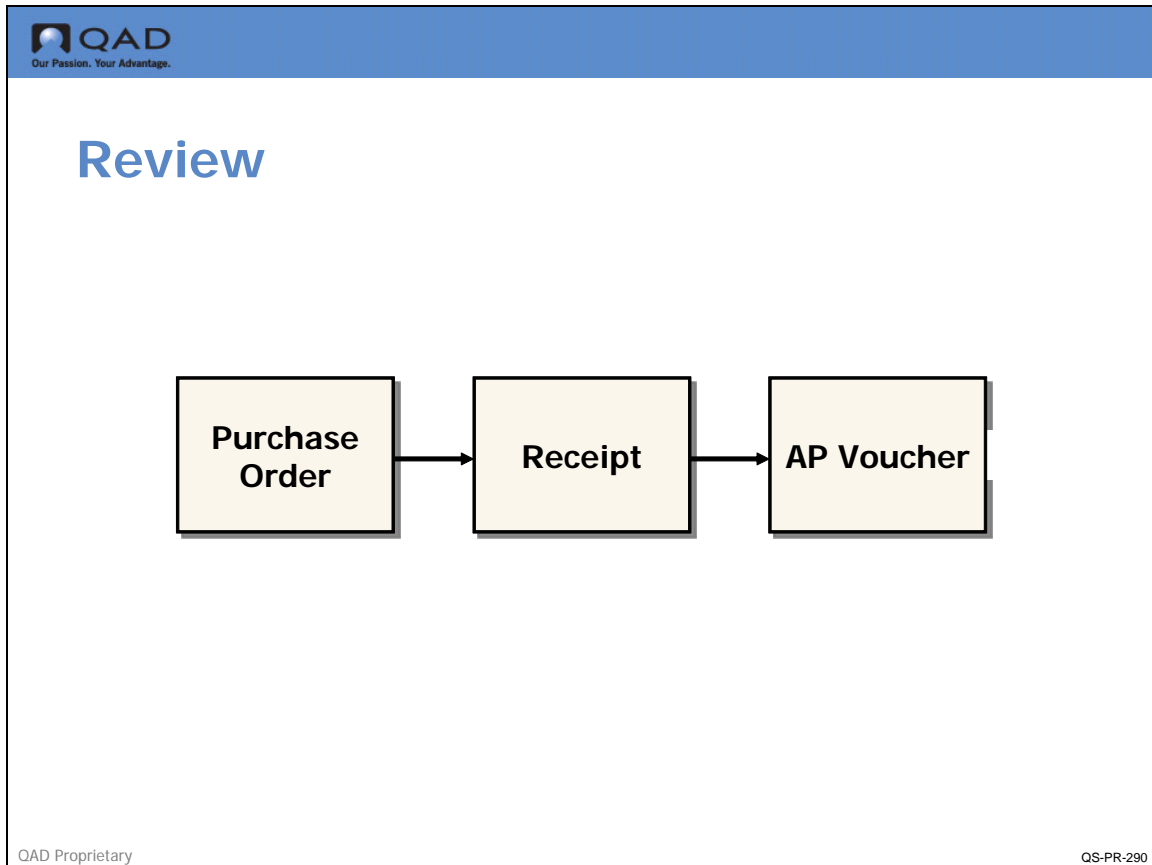
  

Material: 7.50	Cost Data	Overhead: 0.00
Labor: 0.00		Subcontract: 0.00
Burden: 0.00		Cost Total: 7.50

QAD Proprietary
QS-PR-280

Using Transactions Detail Inquiry (3.21.1), we can review one of the transactions created for the receipt of item 10-03 (Cable).

## Review



A review of some key points in the purchasing cycle that we have covered so far.

For inventory items that are bought for manufacturing, the starting point for payment processing is the purchase order. The purchase order is a contract that confirms the manufacturer's intent to buy. It lists items, quantities, and prices along with any related charges such as taxes and freight.

Upon receipt, the Receiving department issues a receipt to confirm the received items and quantities against the purchase order.

The supplier sends an invoice to confirm the manufacturer's liability to pay for the items under the conditions specified on the purchase order. Before the invoice can be paid, it must be verified that the items received are what had been originally ordered and that the supplier has charged the correct price. To do this, a voucher in Accounts Payable is recorded.

## Exercise: 6 Purchasing

### Credit Terms

- 1 Use Credit Terms Maintenance (2.19.1) to set up credit terms due in 30 days after the invoice.

Key fields to populate are:

Field	Value
Terms Code	30
Description	Payment due in 30 days
Due Days	30
Due Date From	1

Click Next to update and exit.

### Supplier Addresses

- 2 Use Supplier Maintenance (2.3.1) to record the address of a supplier. Let the supplier code default from the control file.

Field	Value
Supplier	System Generated
Name	Dixon Corporation
Address	Any Address
City	Santa Barbara
State	CA
Post	91003
Country	USA
Bank	A
Currency	USD
Cr Terms	30

Supplier number = \_\_\_\_\_

Update and exit. (click Back to exit the bank accounts frame.)

### Unit of Measure Conversions

Cable will be purchased by the Roll. The cable is stocked and consumed by the inch. Each roll contains 3,000 inches.

- 3 Use Unit of Measure Maintenance (1.13) to set up conversion information.

Key fields to populate are:

Field	Value
Unit of Measure	IN
Alternate UM	RL
Item Number	10-03
UM Conversion	3000

## Supplier Items

Supplier items are used to cross reference your item number with your supplier's item number. The supplier's quoted price for the item can also be documented. Later, in Purchasing, the supplier's item number can be referenced instead of your own, and the system will find your item number.

- 4 Use Supplier Item Maintenance (1.19) to create a record that cross-references the item number 10-03 to the supplier's item number "Standard Computer Cable."

Key fields to populate are:

Field	Value
Item Number	10-03
Supplier	Enter number from step 2
Supplier Item	Standard Computer Cable
Unit of Measure	RL
Supplier Lead Time	5
Currency	USD
Quote Price	398.43
Quote Qty	1

**Note** Quote Price = \$398.43(this will convert to \$0.13281 per inch; this gives you a price reduction over the standard price of \$0.156258 per inch in the item master)

Update and exit the record.

## Purchasing Control

- 5 Use Purchasing Control (5.24) to update the record to have the following settings:

Field	Value
Bill-To	8000
Ship-To	8000
PO Prefix	PO-
Receiver Prefix	PR-
Ln Format S/M	Single
PO Header Comments	No
PO Line Comments	No

Let all other fields default.

Update and exit.

## Create Purchase Orders for Component Items

Place an order for all the components required to build 10 medical ultrasound units. You will need:

- 20 EA of 10-01 (CPU/Monitor)
- 10 EA of 10-02 (Keyboard)
- 3000 IN of 10-03 (Computer Cable)

- 10 EA of 10-04 (Sensor)

Order the cable by the roll (one roll). Remember, we created a supplier item record for the cable. Make sure that you get the price reduction of 0.13281 per inch.

**6** Use Purchase Order Maintenance (5.7) to enter a purchase order for the component items.

Key fields to populate are:

Field	Value
Purchase Order	<blank>
Supplier	Dixon Corporation
Order and Due Dates	default
Site	8000
Credit Terms	30

Go to the line item data. Enter line items according to the table below:

Field	Value
PO Line	1
Site	8000
Item Number	10-01
Order Quantity	10
UM	EA
Unit Cost	\$450.00

Field	Value
PO Line	2
Site	8000
Item Number	10-02
Order Quantity	10
UM	EA
Unit Cost	\$25.00

Field	Value
PO Line	3
Site	8000
Item Number	10-03
Order Quantity	1
UM	RL
Unit Cost	398.43

Since a supplier item record was entered for this item/supplier, the unit of measure RL defaulted. Also, check the UM Conversion field. Ensure that it says 3000. Also, check the Stock UM Quantity. You should see 3000 IN.

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 a difference between our latest current cost value of \$0.156258 per IN and the \$0.13281 per IN. If we decide we do not want this updated, we can uncheck this box and the current cost will not change.

- When you are done with the PO lines (you will be on line four) click End Lines
- This takes you to the Line format S/M selection
- Click Trailer, accept all defaults.
- Update, and click Next to advance to the beginning of the PO process.

**Record Receipts against a Purchase Order**

The supplier has sent the materials ordered.

**7 Use Purchase Order Receipts (5.13.1).**

Key fields to populate are:

Field	Value
Order	PO developed earlier
Packing Slip	Any number
Receiver	<blank>
Receive All	Yes
Ship Date	<blank>

**Note** You can use the down arrow to default in your PO and Supplier numbers.

Record receipt amount in the Receipts frame.

Key fields to populate are (all values should default from PO):

Field	Value
Line	1
Quantity	10
Packing Quantity	10
Line	2
Quantity	10
Packing Quantity	10
Line	3
Quantity	1
Packing Quantity	1
Line	4
Quantity	10
Packing Quantity	10

If the data are correct click Next; and Next again.

Display lines being received? Click Yes, then click Next

Is all information correct? Click Yes, then click Next

The last screen shows the trailer section. Be sure to click Next, otherwise, your receipt is not saved.

**Note** Quantity and Packing Qty: It is very important to record both when there is a discrepancy between quantity on packing slip and the quantity actually received.

### Review the inventory levels for your component items

- 8 Use Inventory Detail by Site Browse (3.3) for Site 8000.

This selection criteria will display only the items we have entered into our site 8000. Are there enough items to build 10 ultrasound units?

- 9 Review the transactions you created when you did the receipt using *Transactions Detail Inquiry (3.21.1)*. Scroll through the records you created in these activities. 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?

Chapter 8

# Accounts Payable

## Accounts Payable



### Accounts Payable

- ▲ Key Concepts
  - AP Processing Flow
  - Vouchering
  - Processing Payments
- ▲ Example
  - Create Voucher
  - Select Vouchers for Payment
  - Print Check
- ▲ Activity

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QS-PR-320

This chapter focuses on managing supplier accounts, which involves verifying and approving cash disbursements through vouchering, and processing payments to suppliers.

## Learning Objectives

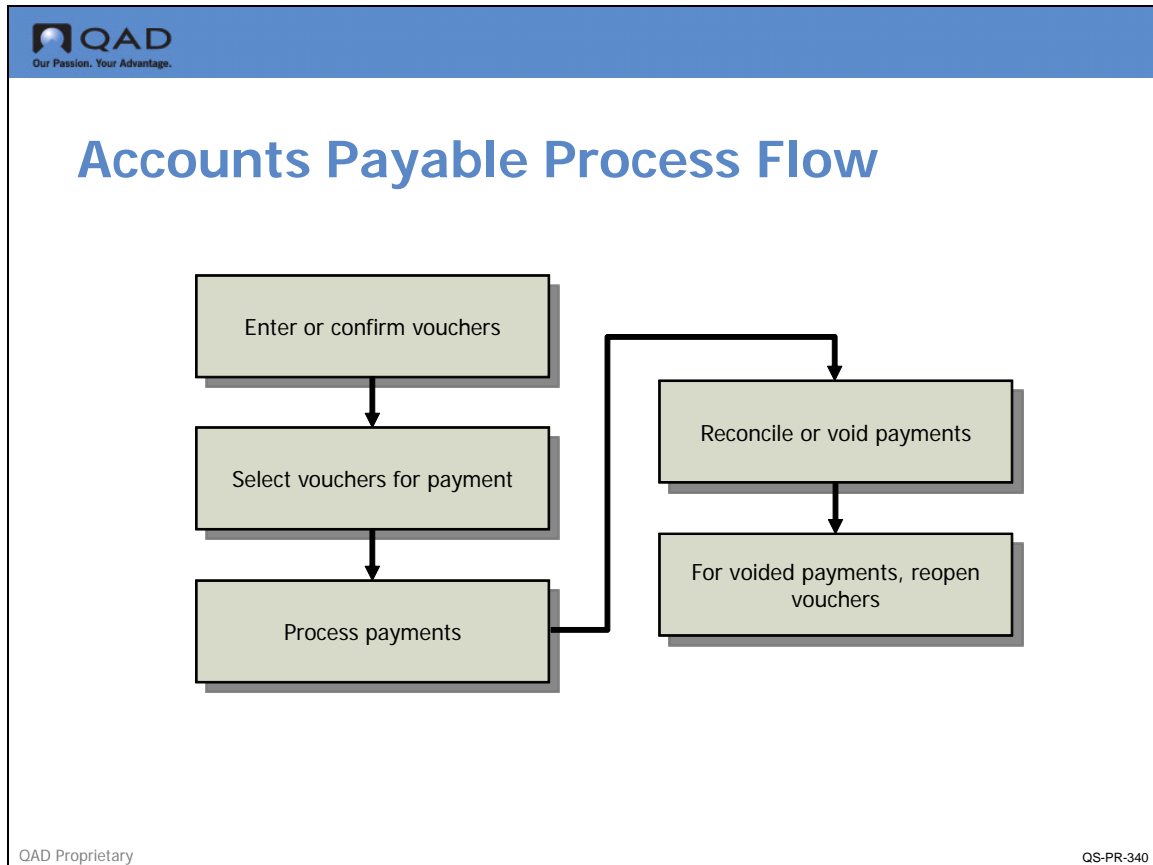


### Learning Objectives

When you finish this section, you should be able to:

- ▲ Describe the AP Process Flow
- ▲ Define a Voucher
- ▲ Describe the Payment Flow
- ▲ Enter a Voucher
- ▲ Select Vouchers for Payment
- ▲ Print Checks

## Introduction



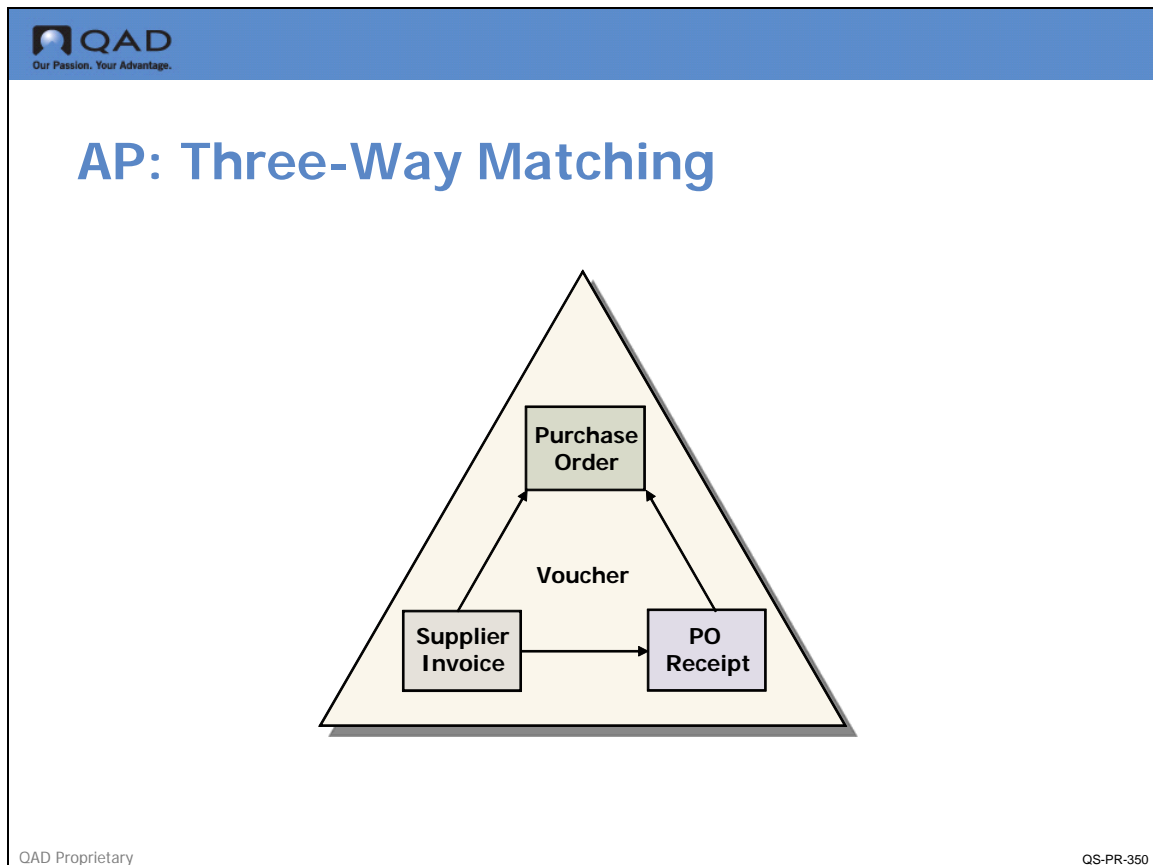
The Accounts Payable department records amounts owed to vendors and processes and prints payments for those amounts. Often, an Accounts Payable department uses vouchers to document internal approval and help ensure the accuracy of invoices it receives.

A voucher is a document authorizing payment of an invoice. Vouchers are selected for payment, either by due date, discount date, or manually. Usually, an aging report is run to determine which balances are oldest. Then the payment selection register is printed to show the vouchers selected for payment and make needed corrections.

Once vouchers are selected, payments are processed by printing checks, recording manual checks, or creating a printed report or ASCII file for electronic funds transfer. The payment register is printed as a record of payments made. To confirm electronic funds transfers, you can print a payment specification report and send it to the supplier.

After payment, the supplier balance is decreased, but the payment is not immediately marked as closed. Both the payment and original vouchers remain in the system until the payment is cleared by the bank. If the payment does not clear or must be voided for any reason, the system automatically reopens the voucher. The Accounts Payable process flow is shown in the figure above.

## Vouchering



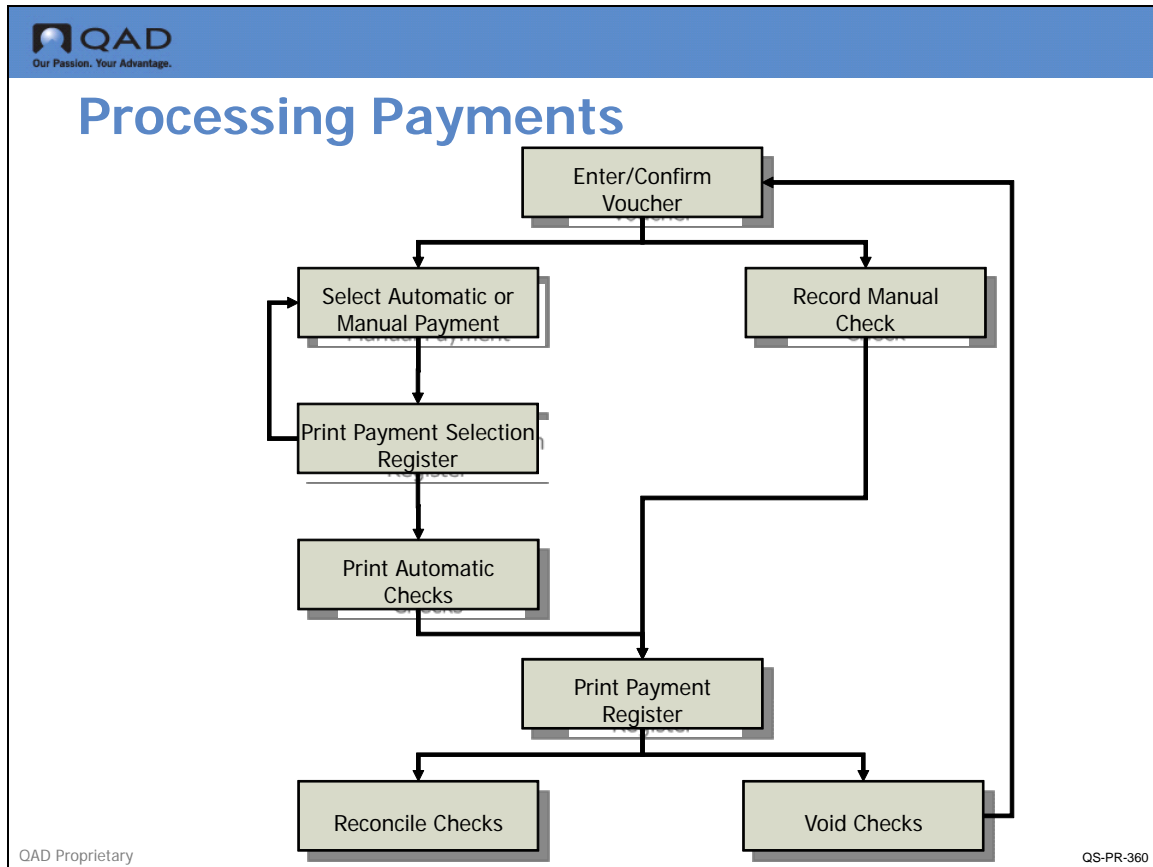
Vouchers convey authority to pay an invoice and record all relevant details on the nature of the liability and the payment.

As items are received into inventory, a supplier invoice for the items is typically received in Accounts Payable. Information from the invoice is recorded in a voucher. The voucher verifies invoiced items and quantities against the purchase order and receiving records before processing payment.

### Three-Way Matching

After verifying that no discrepancies exist among the supplier invoice, the purchase order, and the PO receipt-which is called three-way matching-Accounts Payable approves the voucher for payment.

## Processing Payments



The simplest case of payment processing is when the decision is made what to pay and then write a check or transfer funds in person. Manual payments can be applied to one or more vouchers, marking them closed when they are fully paid.

A more complex situation is when you have the system determine which vouchers should be paid and then print checks for selected suppliers and amounts. Have the system automatically select the vouchers intended for payment. After reviewing the report of selected vouchers, make any modifications needed. Before processing payments, print the Payment Selection Register, especially if the automatic selection has been executed more than once.


Payments can be printed on standard check forms or to a file in the case of automatic bank transfers. The basic Accounts Payable flow is shown in the figure above.

## Example

In the following example:

- A voucher is created in Voucher Maintenance that references the purchase order for the medical ultrasound components (items 10-01, 10-02, 10-03, and 10-04) and the invoice for \$5,818.43 from Dixon Corporation
- The system retrieves the receivers associated with the purchase order for matching with the invoice. For one of the items (10-03, the cable), the invoice amount is less than the GL cost for that item. The system handles this as a purchase price variance.
- The voucher is confirmed
- In Payment Selection–Automatic, the open voucher is selected for payment
- Payment Selection Register is run just before printing the check to review voucher payment selections in case any changes or additions were made
- Using Payment–Automatic Checks, a check to Dixon Corporation, for \$5,818.43 is printed

## Review Invoice


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# Review Invoice

Dixon Corporation 1000 Industrial Drive Suite 1002 Salt Lake City, UT 88299	INVOICE: 10004 #251488 Order Number: 228697 Page 1 Invoice Date: 09/22/XX Print Date: 09/28/XX																																										
Sold To: 001000000	Ship To: 8000 QMI Incorporated 17 Avenue of the Americas New York, NY 10065																																										
Salesperson:	PO# 001025488 Ship Via: FOB Point: Shipping Point																																										
Credit Terms: 30 DUE 30 DAYS FROM INVOICE																																											
Remarks:																																											
SHIPPED:																																											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Ln</th> <th style="text-align: left;">Item #</th> <th style="text-align: left;">Site Location</th> <th style="text-align: right;">Qty. Open</th> <th style="text-align: left;">UM</th> <th style="text-align: right;">Price</th> <th style="text-align: right;">Extended Price</th> </tr> <tr> <th></th> <th></th> <th></th> <th style="text-align: right;">Qty. Ship</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>10-01 CPU/MONITOR</td> <td>8000</td> <td style="text-align: right;">10</td> <td>EA</td> <td style="text-align: right;">\$450.00</td> <td style="text-align: right;">\$4,500.00</td> </tr> <tr> <td style="text-align: center;">2</td> <td>10-02 Keyboard</td> <td>8000</td> <td style="text-align: right;">10</td> <td>EA</td> <td style="text-align: right;">\$25.00</td> <td style="text-align: right;">\$250.00</td> </tr> <tr> <td style="text-align: center;">3</td> <td>10-03 Computer Cable</td> <td>8000</td> <td style="text-align: right;">1</td> <td>RL</td> <td style="text-align: right;">\$398.43</td> <td style="text-align: right;">\$398.43</td> </tr> <tr> <td style="text-align: center;">4</td> <td>10-04 Sensor</td> <td>8000</td> <td style="text-align: right;">10</td> <td>EA</td> <td style="text-align: right;">\$67.00</td> <td style="text-align: right;">\$670.00</td> </tr> </tbody> </table>	Ln	Item #	Site Location	Qty. Open	UM	Price	Extended Price				Qty. Ship				1	10-01 CPU/MONITOR	8000	10	EA	\$450.00	\$4,500.00	2	10-02 Keyboard	8000	10	EA	\$25.00	\$250.00	3	10-03 Computer Cable	8000	1	RL	\$398.43	\$398.43	4	10-04 Sensor	8000	10	EA	\$67.00	\$670.00	Taxable: 0 Currency: USD Line Total: \$5,818.43 Freight: 0
Ln	Item #	Site Location	Qty. Open	UM	Price	Extended Price																																					
			Qty. Ship																																								
1	10-01 CPU/MONITOR	8000	10	EA	\$450.00	\$4,500.00																																					
2	10-02 Keyboard	8000	10	EA	\$25.00	\$250.00																																					
3	10-03 Computer Cable	8000	1	RL	\$398.43	\$398.43																																					
4	10-04 Sensor	8000	10	EA	\$67.00	\$670.00																																					

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This is the invoice that QMI's Accountant received from Dixon Corporation for items 10-01, 10-02, 10-03, and 10-04 in quantities to build 10 medical ultrasound units. The Accountant refers to this invoice to enter a voucher. Key information is delineated by boxes.

## Review Receiving History of PO

The screenshot displays the QAD PO Receipt Cost Browse window. The interface includes a search bar with the criteria 'Order starts at 10-01'. Below the search bar, it indicates 'Viewing 1 - 4 of 4' records. The main data table lists the following information:

Order	Supplier	Item Number	Receipt Quantity	Receipt Type	PO Cost	Currency	Receipt Date	Receiver	Site
P0010000	5011000	10-01	10.00		450.00	USD	09/24/2010	R0010000	8000
P0010000	5011000	10-02	10.00		25.00	USD	09/24/2010	R0010001	8000
P0010000	5011000	10-03	3000.00		0.13281	USD	09/24/2010	R0010002	8000
P0010000	5011000	10-04	10.00		67.00	USD	09/24/2010	R0010003	8000

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In PO Receipt Cost Browse, QMI's Accountant reviews the receiving history of its POs.

The three component items are listed along with PO numbers, supplier, receipt quantities, costs, and so on. Notice the receiver numbers. All PO receipts and returns generate receivers for matching with supplier invoices in Accounts Payable.

## Add Voucher

The screenshot displays the 'Voucher Maintenance' window with the title 'Add Voucher 1 of 5'. The window contains several data entry sections:

- Batch Information:** Batch: 1003, Control: 5,818.430, Total: 5,818.430.
- Voucher Information:** Voucher: 1004, Control: 5,818.43, Total: 5,818.43, Effective: 9/28/2010, ERS: , Tax Date: 9/28/2010.
- Order Information:** Order: P0010000, Supplier: 5011000 (DIXON CORPORATION), 1000 INDUSTRIAL DRIV, SALT LAKE CITY, UT.
- Remit and Ship To:** Remit-To: 5011000 (DIXON CORPORATION), Ship-To: 8000 (QMI Incorporated).
- Accounting and Date Fields:** Currency: USD, Bank: A (Bank of QMI Inc.), Invoice: [lookup], Account: 2100, Date: 9/28/2010, Discount Account: 5200, Terms: 30, Entity: 1000, Disc Date: 9/28/2010, Remark: [lookup], Due Date: 10/28/2010, Supplier Bank: [lookup], Separate Ck: , Expected: [lookup], Type: [dropdown], Check Form: 1.

QAD Proprietary QS-PR-390

QMI's Accountant creates a voucher in Voucher Maintenance (28.1) for the invoice from Dixon Corporation. Based on this example, we'll look at a few key fields in Voucher Maintenance.

The Batch number is, in this example, a system-generated number for a batch of invoices. The number of invoice transactions you assign to this batch can vary from one to many. In the example above, only one invoice transaction comprises this batch (Batch 1003).

In the screen above, you will notice that there are two Control fields. The first Control field at the top of the screen next to Batch is a control sum to verify against the sum of all voucher transactions in this batch (Batch 1003). The Control field in the third frame is a control sum against the account distribution entered for this voucher transaction only. Since, in this example, there is a total of only one invoice transaction for Batch 1003, both Control fields show the same amount: \$5,818.43. This is based on the amount shown on the invoice.

The Voucher and Order fields are key fields to note. The Voucher number is system generated. The Order number refers to QMI's PO number, which is listed on the invoice (or can be found by using the lookup feature).

The Effective Date is the date this transaction is to be applied to the general ledger (GL). Use this field to apply a transaction to a different GL period. The default is the system date.

In the bottom frame, QMI's Accountant enters the Invoice number from the invoice. The Date field indicates the date to use for aging this transaction. And the Terms field provides the credit terms code for this voucher. The Discount and Due dates default based on the terms code.

## Use Selection Criteria to Select Receivers

The screenshot displays the QAD Voucher Maintenance interface. At the top left is the QAD logo with the tagline "Our Passion. Your Advantage." Below this is a large blue header with the text "Example: Add Voucher 2 of 5".

The main interface is divided into two sections. The top section contains fields for:
 

- Prepayment Amount: 0.00
- Hold Amount: 0.00
- Non-Disc Amt: 0.00
- Daybook: SYSTEM
- Voucher Logistics Charges:
- Include Blank Suppliers:
- Auto Select:

The bottom section is a dialog box titled "Voucher Maintenance" with a close button (X). It features a menu bar with "Go To", "Actions", "Copy", "Print", and "Preview". Below the menu bar is the "Automatic Selection" section, which includes:
 

- Date: To:
- External Ref: To:
- Internal Ref: To:
- Order: To:
- Ship-From: To:
- Ship-To: To:
- Item Number: To:
- Buyer: Voucher Open Qty/Amt:
- Approved By: Select All (\*):
- Logistics Charge Code:

At the bottom right of the dialog box are "Back" and "Next" buttons. The footer of the screenshot shows "QAD Proprietary" on the left and "QS-PR-400" on the right.

QMI's Accountant chooses Auto Select, which brings up an Automatic Selection frame.

Here, the Accountant could specify receivers by date, order, ship-from, ship-to, or item number ranges. In this example, the Accountant wants the system to select all receivers.

If Auto Select is not chosen, bypass the automatic selection frame and continue to the Receiver Matching Detail frame, where receivers to voucher are selected, and record the actual invoice quantities and prices.

## Receiver Matching Detail

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### Receiver Matching Detail

Voucher: 1003    USD    Control: 5,818.43    Total: 0.00

Receiver	Line	PO Nbr	Item Number	Supplier Item	Invoice Quantity
R0010000	1	P0010000	10-01		10.00

Receiver Matching Maintenance

Receiver: R0010000    PO Line: 1    Tax:     Date: 9/24/2010    Project:

Item: 10-01    EA    Type:    Close Line:

Open Qty:	10.00	PO Cost:	450.00	Ext Open:	4,500.00
Inv Qty:	10.00	Inv Cost:	0.00	Ext Inv:	0.00
Pack Qty:	10.0	GL Cost:	450.00	Ext Rate Var:	-4,500.00
Rct Qty:	10.00	Ext PPV:	0.00	Ext Usage Var:	0.00

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The Receiver Selection Maintenance frame displays the receivers matching the selection criteria. Because QMI's Accountant specified Yes to Select All, an asterisk (\*) appears next to each receiver in the Sel (selected) column.

Receiver Matching Detail consists of two frames. The top frame displays all the receivers QMI's Accountant selected in Receiver Selection Maintenance. In the bottom frame, the Accountant can edit data related to the selected receivers for this supplier. If receivers had not been selected in the previous frame, they would need to be added manually.

## Purchase Price Variance for item 10-02

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## Purchase Price Variance for item 10-02

Receiver Matching Maintenance

Receiver:  PO Line:  Tax:  Date: 9/24/2010 Project:

Item: 10-02 EA Type: Close Line:

Open Qty:	10.00	PO Cost:	25.00	Ext Open:	250.00
Inv Qty:	10.00	Inv Cost:	0.00	Ext Inv:	0.00
Pack Qty:	10.0	GL Cost:	25.00	Ext Rate Var:	-250.00
Ret Qty:	10.00	Ext PPV:	0.00	Ext Usage Var:	0.00

[Keyboard](#)

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The remaining lines are vouchered.

A couple of key fields to note are the Invoice Quantity and Invoice Cost fields.

Purchase Price Variance for item 10-03

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## Purchase Price Variance for item 10-03

Voucher Maintenance

Go To Actions Copy Print Preview Attach

Voucher: 1003    USD    Control:    5,818.43    Total:    0.00

Receiver Matching Detail

Receiver	Line	PO Nbr	Item Number	Supplier Item	Invoice Quantity
R0010002	3	P0010000	10-03	Standard Computer	1.00

Receiver Matching Maintenance

Receiver: R0010002    PO Line: 3    Tax:     Date: 9/24/2010    Project:

Item: 10-03    RL    Standard Computer Cab    Type:    Close Line:

Open Qty:	1.00	PO Cost:	398.43	Ext Open:	398.43
Inv Qty:	1.00	Inv Cost:	0.00	Ext Inv:	0.00
Pack Qty:	1.0	GL Cost:	22,500.00	Ext Rate Var:	-398.43
Rct Qty:	1.00	Ext PPV:	-22,101.57	Ext Usage Var:	0.00

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Information entered in these fields is based on the actual invoice. In some instances, this could vary from the quantity ordered or the price quoted, which would create variances. In this example, items 10-01 and 10-02 have no variances; item 10-03, though, does have a purchase price variance (PPV).

Notice that, for item 10-03, the Invoice Cost is \$398.43 per roll, but the GL Cost is \$468.75 per roll (based on 0.15625/inch) so there is a variance of \$70.32 per roll. A negative purchase price is favorable. It reflects a reduction from standard cost in the price.

## Voucher Maintenance

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# Voucher Maintenance

Voucher Maintenance x

Go To Actions Copy Print Preview Attach

Account: CC: Project: Entry: 1000

Batch / Voucher

Batch: 1003	Batch Crt:	5,818.430	Tot:	0.000	
Voucher: 1003	USD	Crt:	5,818.43	Total:	0.00

Distribution

Ln	Account	Sub-Acct	CC	Project	Entry	Tax	Description	Amount	T
1	2200				1000	<input type="checkbox"/>	PO RECEI	5,818.43	R
2	5020				1000	<input type="checkbox"/>	AP RATE	-5,818.43	R

Voucher Maintenance x

Go To Actions Copy Print Preview Attach

Assigned-To:

Batch / Voucher

Batch: 1003	Batch Crt:	5,818.430	Tot:	0.000	
Voucher: 1003	USD	Crt:	5,818.43	Total:	0.00

Hold Amount:

Confirmed:

Assigned-To:

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The system calculates and displays distribution amounts for the accrual accounts and purchase price variance. Distribution lines are recorded automatically based on the receiver quantities and the invoice cost. These system-calculated lines are marked as type R. Normally, they post to PO receipt and purchase price variance (PPV) accounts. These entries cannot be changed.

The voucher is confirmed and any amounts can be put on hold if necessary.

The Hold Amount is typically an amount under dispute, such as an incorrect billing. Hold amount must be less than or equal to the voucher total.

Upon confirmation, vouchers update the general ledger and can be selected for payment. You can also record vouchers as unconfirmed.

**Note** Unconfirmed vouchers may be confirmed in batch mode using Voucher Confirmation - Automatic, or one at a time using Voucher Confirmation - Manual.

## Review Supplier's Account Balance

To review the supplier's balance, QMI's Accountant uses Supplier Activity Inquiry. This shows that Dixon Corporation, has a balance of \$5818.43 associated with Voucher 1003 for Invoice Supplier's I(nvoice).

## Select Vouchers for Payment

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QMI's Accountant uses Payment Selection-Automatic to select open vouchers by supplier code. Based on these criteria, the system recommends which vouchers should be paid. The report, shown below, lists all vouchers selected for payment and totals the amounts.

Notice that the Assigned Bank is Bank A. This is the bank account from which the selected vouchers will be paid.

The standard printed check is Check Form (1). Check Form (2) has slightly different line spacing print parameters. Either may be selected when printing checks.

Overwrite Old Selection specifies whether the current payment selection is to be overwritten with the new selection. If this flag is set to Yes, first the payment selection is removed from all of the vouchers that are currently selected for payment and then the new payment selections are made based on the selection criteria specified.

If this flag is set to No, the new payment selections are simply added to the old. Any vouchers which had been previously selected for payment remain selected.

### Payment Selection - Automatic

The report shows that one voucher has been selected for payment.

## Run Payment Selection Register

**Payment Selection Register**

09/28/10 20:57:07 **Page: 1**

End of Report

Report Criteria: Report Submitted By: mfg

Currency: USD  
 Bank: A USD Bank of QMI Inc.  
 Check Form: 1  
 Account Type: Prt  
 Print Remarks: Yes  
 Sort Vouchers by Amount: Yes  
 Check Date: 09/28/10 (used for exchange rates)  
 Output: page  
 Batch ID:

28.9.6 Payment Selection Register apparp.p

QAD Proprietary QS-PR-480

Payment Selection Register lists all vouchers selected for payment and the total payments for each supplier, currency, and bank. It includes all vouchers that were automatically selected for payment and any changes/additions made in Payment Selection-Manual. Always run it before checks are printed. Vouchers remain selected until they are paid.

## Print Checks

The screenshot displays the QAD software interface for printing checks. The main window, titled "Payment - Automatic Checks", contains the following information:

- Bank: A
- Check Form: 1
- Use MMDDYYYY date:
- Account Type:
- Starting Check: 020001
- Check Date: 9/28/2010
- Effective Date: 9/28/2010
- Due Date:

A secondary window is open over the "Print Audit Trail" field, showing the following details:

- Batch: Audit Trail
- Output: page
- Batch ID:


At the bottom of the main window, the "Payment File:" field is visible, and the "Output:" field is set to "page".

QMI's Accountant uses Payment-Automatic Checks to pay Dixon Corporation. The check is printed by bank code. The starting check number displays for the bank. In this example, it is 000001. It should match the first check number on QMI's printed check forms.

The Accountant can enter two dates, the payment date and the date when the cash transaction becomes effective in the general ledger. Typically, these default from the system date.


The Accountant has sent the audit trail output to a different printer, so the system won't print the audit trail on the check forms.

## Supplier Activity Inquiry


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# Supplier Activity Inquiry

Supplier Activity Inquiry - 9/28/10



**Supplier Activity Inquiry**

Supplier: 5011000 DIXON CORPORATION      Open Only: No

Balance: 22,216.86      Currency:

Reporting Currency:      Output: page

09/28/10

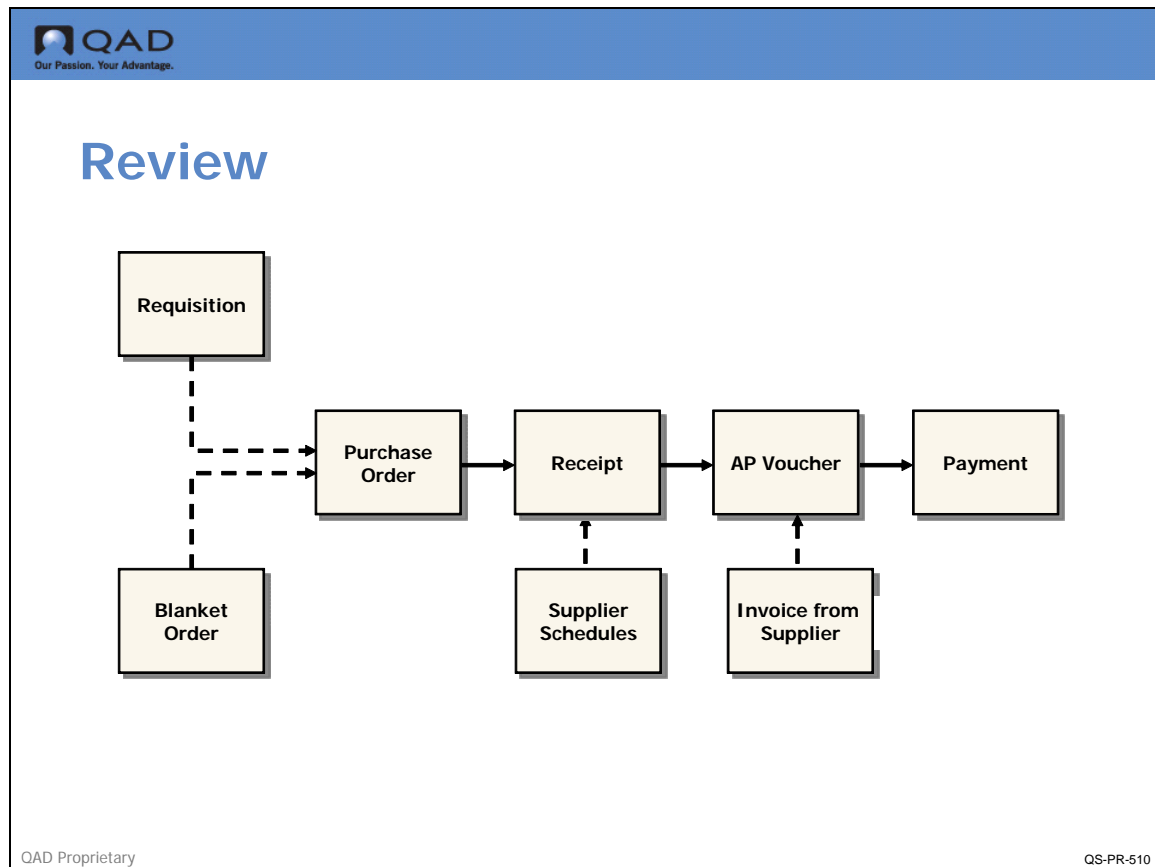
Date	Ref	T Invoice	Due Date	C	Amount	Amount Open	Check
09/28/10	1004	V	10/28/10		11636.86	11636.86	
09/28/10	1003	V	10/28/10		0.00	0.00	
09/06/91	9100007	V 36420	11/05/91		10580.00	10580.00	

28.13
Supplier Activity Inquiry      apvniq.p

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Before the payment was applied, Supplier Activity Inquiry Dixon Corporation, had a balance of \$75. Now when Supplier Activity Inquiry is reviewed, the check from Bank A is listed as -\$75, which offsets the invoice amount of \$75, the amount open is \$0.

## Review



A review of the highlights of the Purchasing and Accounts Payable flow that have been covered in the last two chapters.

### Purchase Order

In this case, the starting point for payment processing is the purchase order. The purchase order is 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 may originate from requisitions or blanket orders.

### 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 may be based on supplier scheduled orders.

### Invoice

The supplier sends an invoice to confirm your liability to pay for the items under the conditions specified on the purchase order.

### Voucher

Before the invoice can be paid, it must be verified that the items received are what had originally ordered and that the supplier has charged the correct price. To do this, a voucher in Accounts Payable is recorded.

When the voucher is entered, reference the purchase order and the invoice. The system then retrieves the receivers associated with the purchase order so that the invoice lines against them can be recorded. If the invoiced items and quantities match the receiver, the receiver is closed.

### Payment

Vouchers are then selected for payment, either by due date, discount date, or manually. Usually, an aging report is run to determine which balances are oldest. The payment selection register is printed to show the vouchers selected for payment, and corrections are made if necessary.

Once vouchers are selected, payments are processed by printing checks, recording manual checks, or creating a printed report or ASCII file for electronic funds transfer.

After payments are made, the supplier balance is decreased, but the payment is not immediately flagged as closed. Both the payment and original voucher remain on the system until the payment is reconciled (cleared by the bank).

## Exercise: 7 Accounts Payable (optional)

### Enter a Voucher

- Use Supplier Activity Inquiry (28.13) to review the supplier's account balance.
  - Supplier = (use your supplier number for Dixon Corporation)
  - Verify that the account balance is zero(0)
 

**Note** They have shipped the goods, and you have received the goods, but, you have not yet recorded the invoice.
- Use Purchase Receipt Report (5.13.5) to review the receiving history.
  - No data is required in the selection screen
  - Output = page
  - This report shows the detail of your receipts
  - Note total extended PO Cost should be \$8,518.43

### Your supplier has sent an invoice for the PO.

- Use Voucher Maintenance (28.1) to add a voucher for the invoice received.

**Important** Click Back after entering your PO number.

Key fields to populate are:

Field	Value
Batch	<blank>
Control	8518.43
Voucher	<blank>
Order	Enter your PO number
Control	Enter total for Invoice
Supplier & Ship-To	Use defaults from PO
Effective Date	defaults to system date
Invoice	Enter the Invoice number
Date	Use default
Terms	30
Discount & Due Date	<blank>

When you get to the frame with the Auto Select field, enter a checkmark (Yes) for Auto Select.

In the Receiver Matching Maintenance frame:

Field	Value
Receiver	Choose from list
PO Line	<blank>
Inv Quantity	Enter Quantity from Invoice
Inv Cost	Enter per Item from Invoice

Confirm the voucher.

- 4 Using Supplier Activity Inquiry (28.13), review the supplier's account balance.

### Select Vouchers for Payment and Print Checks

- 5 Use Payment Selection–Automatic (28.9.4) to select all the vouchers for your supplier for payment.

Field	Value
Supplier	Enter ID
To	Enter ID
Assign Bank	A
Assigned Check Form	1
Overwrite Od Selection	Yes

- 6 Run Payment Selection Register (28.9.6).
- 7 Use Payment–Automatic Checks (28.9.9) to print the check to pay your supplier.

Field	Value
Bank	A
Check Form	1

Accept defaults for remaining fields

Print check and audit trail to printer

- 8 Review Supplier Activity Inquiry (28.13) and Voucher Inquiry (28.2) to see how the payment is pegged to the original voucher.



Chapter 9

# **Work Orders**

## Overview



### Work Orders

#### ▲ Key Concepts

- Manufacturing Overview
- Work Orders
- WO Type and Status
- WO Bill of Material and Routing
- WO Life Cycle
- WO Release and Issue of Components
- Shop Floor Control
- WO Receipt and Close
- Variances

#### ▲ Example

#### ▲ Activity

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A work order is an authorization to produce a specific quantity of an item by a specific date. In this chapter, we further define what a work order is and look at typical stages of its life cycle. After discussing key concepts, we go over an example covering the work order life cycle from creation to close.

## Learning Objectives

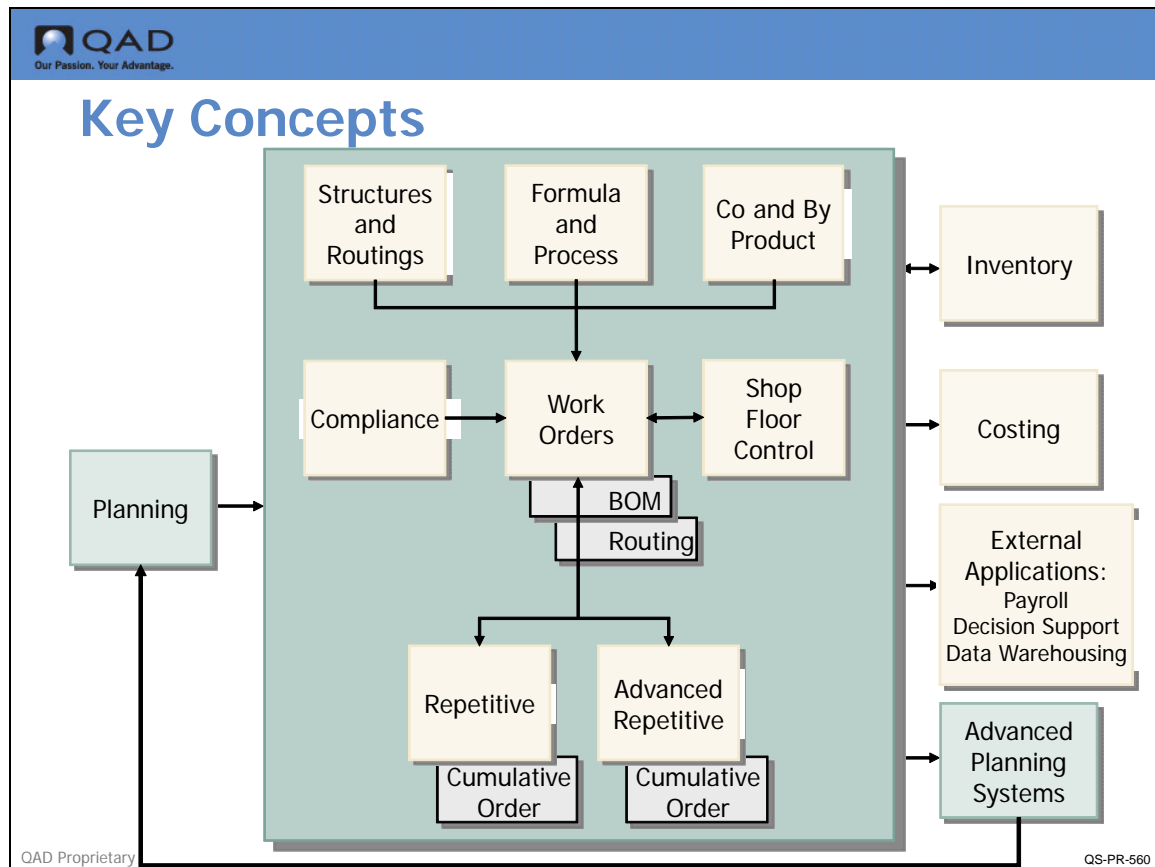


### Learning Objectives

When you finish this section, you should be able to:

- ▲ List Work Order Types and Status Codes
- ▲ Describe the Work Order Process Flow
- ▲ Provide examples of Rate, Usage, and Method Variances
- ▲ Enter and release a Work Order
- ▲ Issues Components
- ▲ Record Labor
- ▲ Receive and close a Work Order

## Manufacturing Overview



QAD SE manufacturing modules handle internal supply and demand--material is moved out of inventory into production, or finished goods or components are moved from production into inventory. At the center of much of this activity is the Work Orders module, as shown in the figure above.

The process of using work orders:

- 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 in the Shop Floor Control module

## Manufacturing Environments

The system provides features that support different manufacturing environments. The Work Orders and Shop Floor Control modules are typically used to manage job shop manufacturing. The Advanced Repetitive or Repetitive modules manage manufacturing in an assembly line environment.


In this class, we will focus on discrete work orders created in the Work Orders module.

## Work Order


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# Work Order

Work Order 123456			
Item	Description	Qty	Date
10-00	Medical Ultrasound	10	2/11/XX



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A work order is an authorization to produce a specific quantity of an item for a specific date. A work order may 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

- The type, which identifies the source of the order and indicates how it should be processed
- The status, which determines where a work order is in its life cycle
- The bill of material (BOM), which lists the quantities of components required to fulfill an order
- The routing, which lists the operations required to complete the order

## Work Order Type


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# Work Order Type

- **Blank** = Standard
- **Final Assembly**
- **Rework**
- **Expense**
- **Scheduled**
- **Cumulative**
- **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. As an 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. In the case where the work order number is the same, as in a scheduled order, where every schedule for the same item has the item number as the work order number, the work order ID becomes the unique identifier.

Some other special types are available:

**E (Expense).** Expense work orders are used for non-inventory jobs, such as engineering prototypes or design projects. They are tracked by a work order so costs can be accumulated. Usually a special GL account and project code is entered. Expense work orders do not have any routing operations or components. These are added manually.

**R (Rework).** Rework work orders are used for products needing repair or reworking. This type of order is created with no routing and only one component--the product being reworked. Rework expenses can be tracked separately by entering a different GL account and project code.

Expense and Rework orders are always created by users.

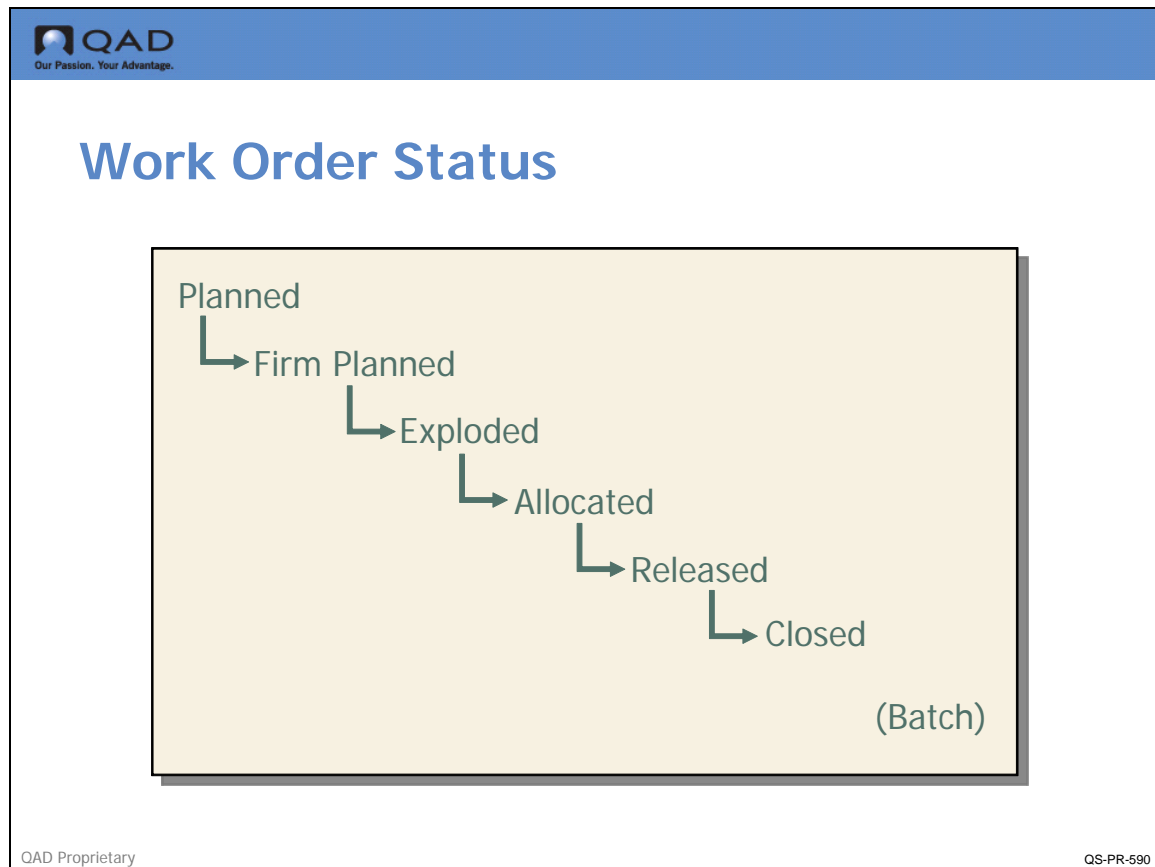
**S (Scheduled).** Scheduled Orders are generated by the system when a Repetitive schedule is entered. The work order number is the item number scheduled for production. Scheduled orders can be tracked using Repetitive feedback functions or released to create work orders. To release it, change the status 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)** Cumulative Orders are 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)** Final Assembly is generated when a sales order for a configured product is released to manufacturing. The work order number will be the sales order 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, however you must specify Type as F in Multiple WO Release/Print to release the work order.

**W (Flow)** A Flow is 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



A standard work order is usually created initially by MRP, which treats the work order as a source of supply. At this point, the order is **Planned**. When someone reviews MRP's work and confirms the order, it is **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**. As yet, 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**. And 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.

- Changes cannot be made 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 a function work order release and print.

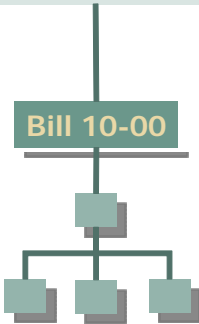
**Note** Manually exploding a work order is a special case usually done to capture the current bill of material before an impending engineering change. Manually allocating a work order is often done to consume the last of a component item that is being phased out. In this case the inventory of the component would be allocated for that specific order.

## Work Order Bill of Material


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# Work Order Bill of Material

Work Order 123456			
Item	Description	Qty	Date
10-00	Medical Ultrasound	10	2/11/XX

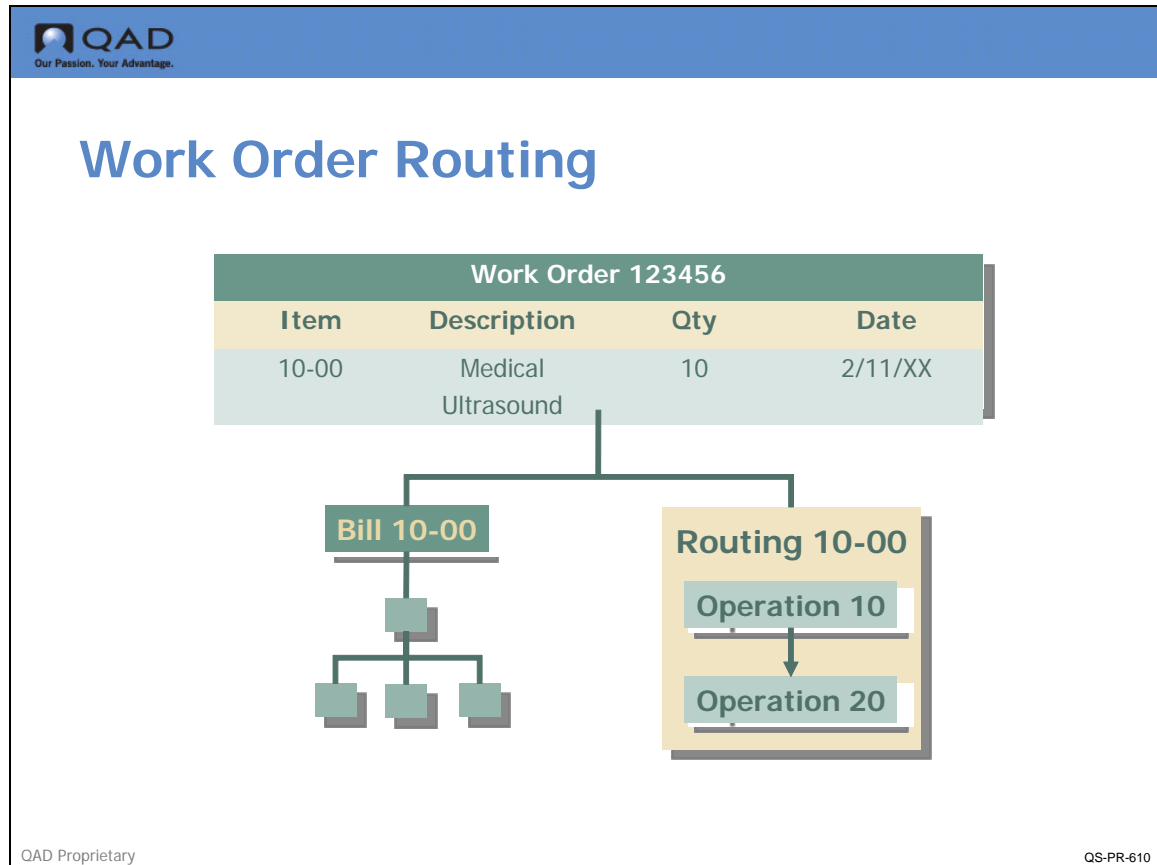


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The work order bill of material (BOM) is derived from the item's product structure, defined in Product Structure Maintenance (or Formula Maintenance) and the quantity ordered. Inventory allocations and issues are based on the bill. MRP uses the bill of materials to calculate component demand.

When a work order is created, the work order BOM is copied into it. As work progresses, required changes can be made to this copy using Work Order Bill Maintenance. This way, what actually happens can be compared to the standard. Particularly in the case where many substitute items are available for assembly this feature allows for what is often called as built documentation.

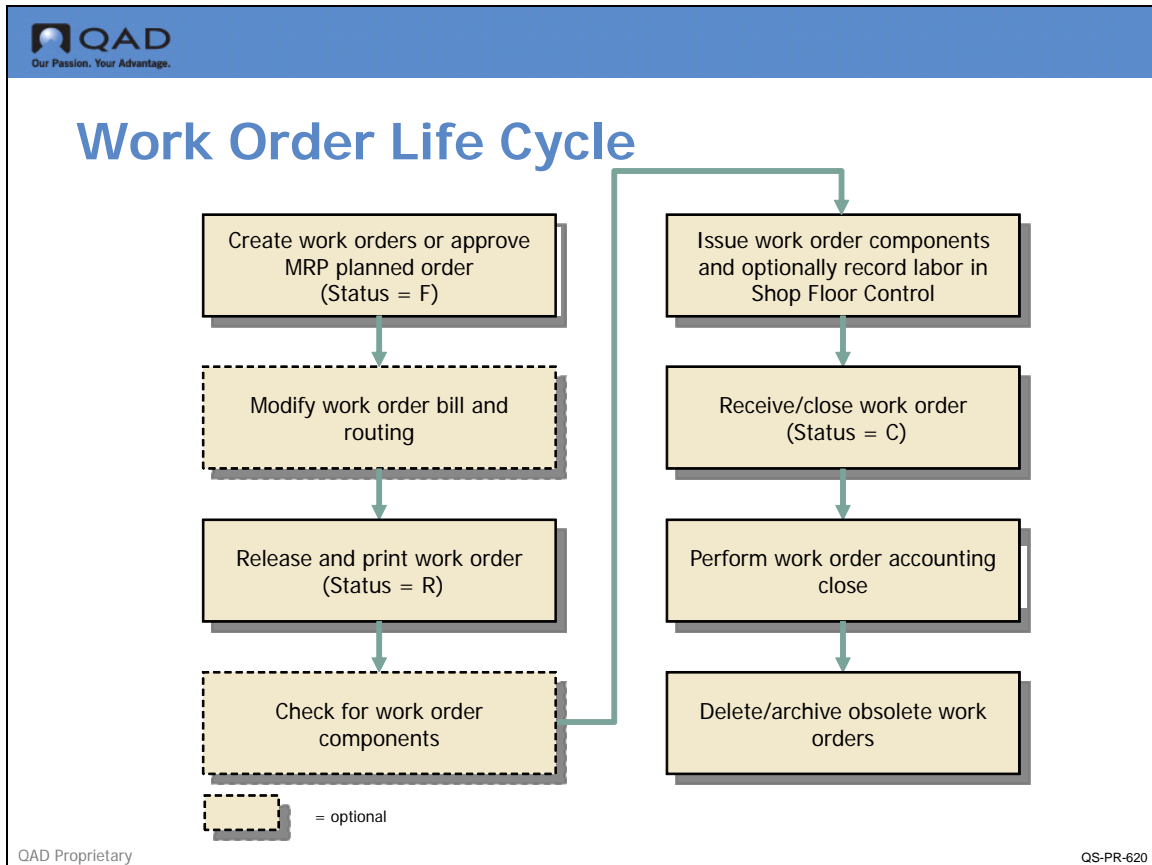
## Work Order Routing



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. This way, what actually happens can be compared to the standard. Work order operations can be monitored using the Shop Floor Control module.

## Work Order Life Cycle



Work orders are created manually (using Work Order Maintenance) or generated from MRP, repetitive, 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, once the work order has been created, it is released, materials are issued and received, the work order is closed, and the items are shipped. The work order flow is shown in the figure above.

## 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 their status to Released. This method does not allow a picklist or routing to be printed, but it still explodes phantom components and creates work orders for routable components.
- ▲ Releasing a work order has the following effects:
  - Items not previously allocated are detail allocated. The system uses the default picking logic defined in Inventory Control.
  - Picklist is printed, showing the location and quantity of the material in Picked status for this order
  - First operation moved to queue status (if Moved First Op was set to Yes) in Work Order Control

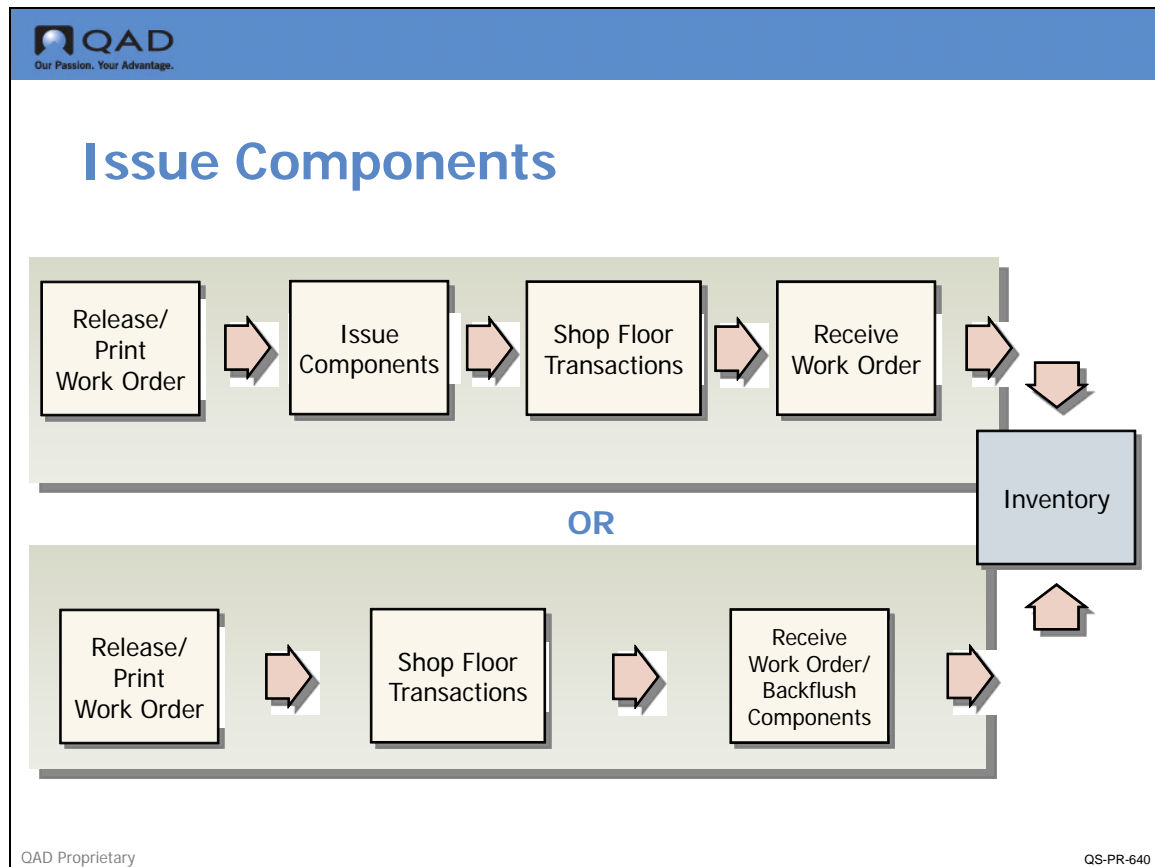
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QS-PR-630

After a work order is released, its picklist can be printed. 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. Detail allocations reserve specific quantities in inventory for a work order

An order can be released without printing a picklist and routing, but a picklist cannot be printed without releasing the order.

## Issue Components



Work order operations begin when a work order is released and its components issued.

There are three ways to issue inventory to a work order:

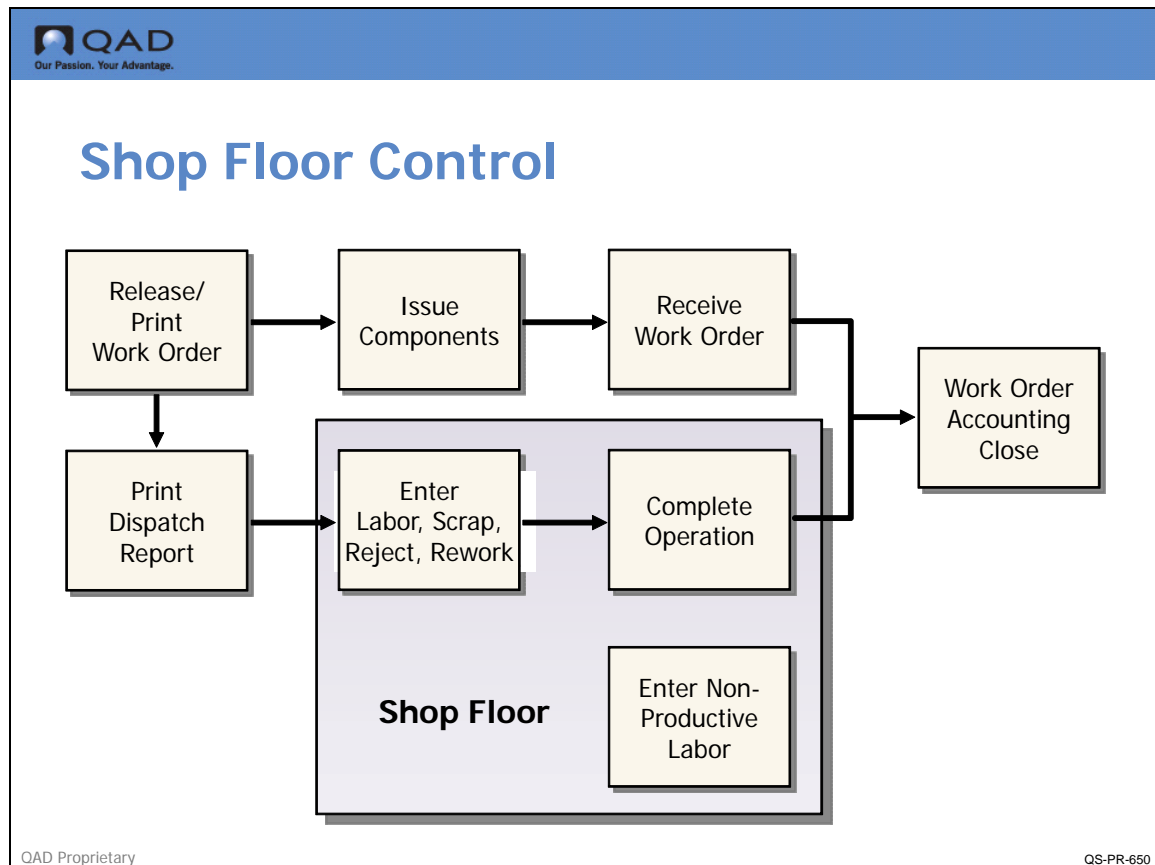
- Issue inventory directly with Work Order Component Issue (illustrated by the top row of the graphic above)
- Issue inventory as completed products are received with Work Order Receipt Backflush (illustrated by the bottom row of the graphic above)
- Issue inventory, report labor, and receive items with Work Order Operation Backflush (also illustrated by the bottom row of the graphic above)

Inventory transactions occur at different points depending on which 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.

Work order operations can be monitored using the Shop Floor Control module.

## Shop Floor Control



Once a work order is released, its progress is tracked using shop floor functions to record labor and work order functions and to record material usage and completions. At least one employee must be set up. The figure above 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 a released work order must be identified. As labor is recorded, operation status is updated to either Setup, Running, 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—clean-up time, downtime, meetings, breaks, or time spent waiting for work.

## 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

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When a work order is completed on the shop floor, the items are typically sent to the stockroom.

Use Work Order Receipt to receive items, close the order, and backflush components of final assembly work orders.

If items were not issued previously, issue them when completed products are received with Work Order Receipt Backflush.

Use Work Order Operation Backflush to issue items, report labor, and receive completed items at an operation.

If the Shop Floor Control module is used, labor feedback and test results at receipt can be entered, and report individual operations as completed.

## Close Work Order

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# Close Work Order

Work Order 123456		
Item	Description	Date
10-00	M Ultr	2/11/XX

Issues and Receipts

...but labor reporting okay until operation closed in SFC or until Work Order Accounting Closed is run

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Work orders are typically closed when the items are received. For most purposes, this ends the life cycle.

To close a work order:

- Change the order's status to Closed. You can do this by setting Close to Yes when completed units are received, 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.

In order to process inventory for a closed work order, its status must be changed back to Released.

### 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.

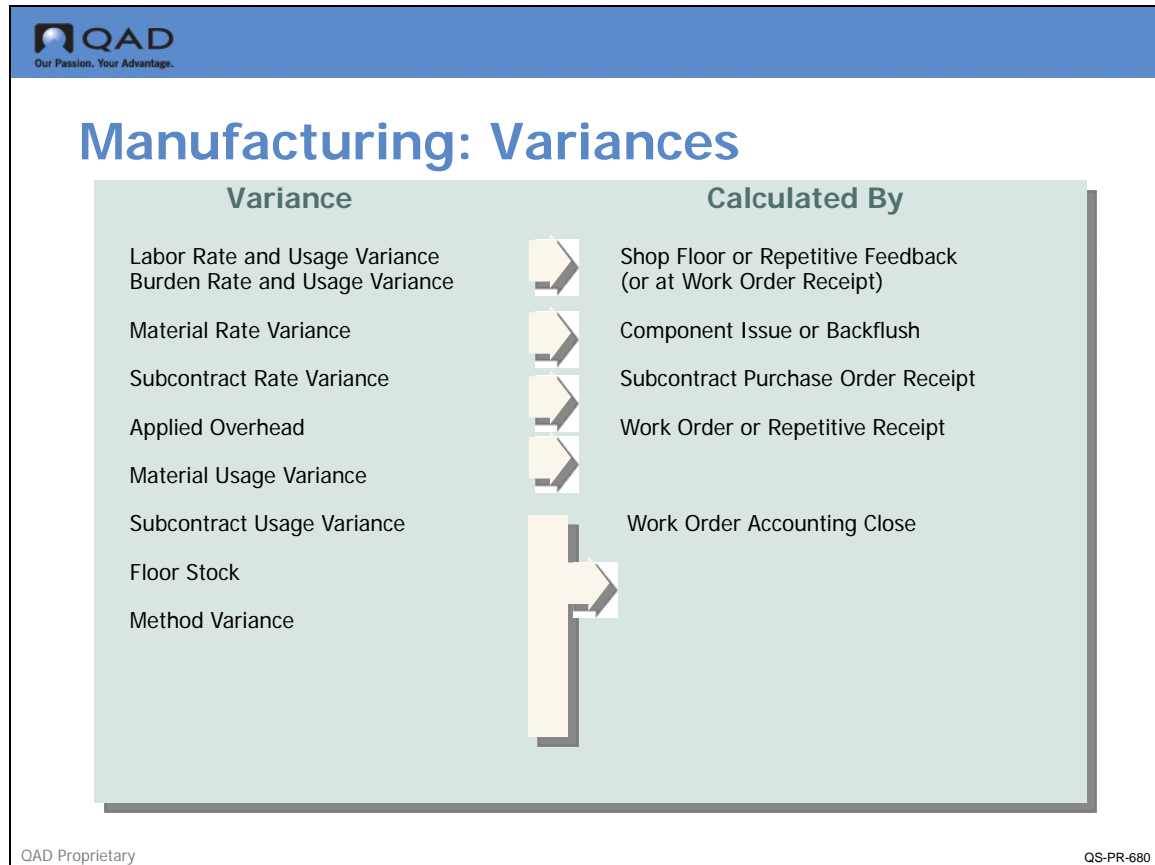
For example, if it took six hours to complete an operation scheduled for five hours, a labor usage variance of one hour is posted.

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

## Variations



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. This is tracked as variations.

In the system, variations are calculated and posted automatically throughout the manufacturing process. The illustration above lists the variations 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

This 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, the 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

Examine a simple example in which:

- An employee record is created for employee abc (Employee Maintenance)
- Work order control settings are defined (Work Order Control)
- A work order to build 10 medical ultrasound units (item 10-00) is created (Work Order Maintenance)
- The work order is released (Work Order Release/Print)
- Components 10-01, 10-02, 10-03, and 10-04 are issued in quantities sufficient to build 10 medical ultrasound units (Work Order Component Issue)
- Labor to assemble the medical ultrasound units is recorded: it involves two operations (Labor Feedback by Work Order)
- The work order is received and closed (Work Order Receipt)

## Add Employee Record


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# Add Employee Information

Employee Maintenance X
Go To Actions Copy Print Preview Attach

Employee: 00000001 Department: 10 Default Project:

Employee Address:

Employee: 00000001

Last Name: WHITEHEAD

First Name: BILL

Address 1: 701 SOUTH SHORE LANE

Address 2:

Address 3:

City: New York State: NY Postal: 10065

Country: United States of America USA

Home Phone: 212-992-0293 Business Phone: Ext:

SSN: 728-03-9929 Birth Date: 2/12/1954

---

Employee Data

Job Title: ASSEMBLY TECHNICIAN Department: 10

Date Employed: 5/15/1995 Default Project:

Date Terminated: Employment Status: AC

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QS-PR-690

Basic data about the employee who is manufacturing QMI's 10 medical ultrasound units is shown above in Employee Maintenance (2.7.1).

The employee's ID is entered in the Labor Feedback by Work Order (17.1) screen.

## Define Control Settings

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# Define Control Settings

Work Order Control

Go To Actions Copy Print Preview

Auto W/D Numbers:

Next W/D Nbr: 1002

Work Order Comments:

Routing Comments:

Move First Operation:

Post variances at SFC:

Qty Complete Mthd: SUM

Back Next

QAD Proprietary QS-PR-700

QMI's Production Manager has set up the control settings so that:

- Work order ID numbers are automatically generated by the system
- The work order release function sets the status of the first operation to Queue (Move First Operation selected)
- Labor and burden variances are calculated and posted whenever shop floor labor feedback transactions are entered (Post Variances at SFC)

### 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.

### Post Variances at SFC

Setting this field to No reduces the number of variance transactions posted to the general ledger, particularly if there are many shop floor labor transactions processed before material receipts are recorded.

If run times are very long, set this field to No, suppressing variance calculations until finished product is received. If run times are short, set this field to Yes.

## Create Work Order

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# Create Work Order

Work Order Maintenance x

Go To Actions Copy Print Preview Attach

Work Order: 1001 ID: 406002 Item Number: 10-00

Work Order: 1001 ID: 406002  
Item Number: 10-00 Medical Ultrasound  
Type:  
Site: 8000

Quantity Ordered: 10.0 Order Date: 9/28/2010  
Quantity Completed: 0.0 Release Date: 9/28/2010  
Qty Rejected: 0.0 Due Date: 9/28/2010

Work Order Status: F Site: 8000  
Sales/Job: Routing Code:  
Supplier: BOM/Formula Code:  
Yield Percent: 100.00%

Remarks:  
Comments:  Post variances at SFC:

QAD Proprietary QS-PR-710

In Work Order Maintenance (16.1) notice that the work order number is 1001, based on the Work Order Control setting QMI's Production Manager defined in the previous step. Also notice that the Post Variances at SFC box has a checkmark, the default setting, again based on the setting in Work Order Control.

### Type and Status

The work order type is “blank,” which means that this is a normal manufacturing order with a standard product structure and routing.

This work order has a status of Firm Planned (F), so this order has been reviewed and confirmed.

### Routing and BOM

The Routing and BOM fields have been left blank, so the system accesses the routing and BOM codes stored with a code equal to the item number on the work order. The routing code was defined in Routing Maintenance (14.13.1) and the BOM code was defined in Product Structure Maintenance (13.5).

## Release Work Order

Work Order: 1001  
ID: 406002

Deliver To:  
Print Bar Code:   
Operation:

Print Picklist:   
Print Routing:   
Print Co/By-Products:

Item Number: 10-00  
Medical Ultrasound  
Quantity Ordered: 10.0  
Quantity Completed: 0.0  
Sales/Job:  
Remarks:

Release Date: 9/28/2010

Include zero required:   
Include zero open:   
Reprint picked quantities:   
Print floor stock items:   
Print Co/By-Products as First or Last Doc: First

Batch ID:

QAD Proprietary QS-PR-720

Using Work Order Release/Print, QMI's Production Manager releases the work order for 10 medical ultrasound units. Based on the selections above, a picklist of required component items and a route sheet listing operations are printed (shown on the following pages).

Once all entries in the Work Order Release/Print screen have been completed, the work order status of the order will change from F (firm planned) to R (released). During this process the work order has been exploded and allocated, then released in one step.



## Review Routing

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# Review Routing

**Work Order Release/Print**  
**Training**

09/28/10 22:25:33  
**Page: 2**

Work Order Routing

Work Order: 1001  
 ID: 406002  
 Batch: \_\_\_\_\_  
 Item Number: 10-00      Rev: \_\_\_\_\_      Work Order Due Date: 09/28/10  
 Remarks: Medical Ultrasound      Sales/Job: \_\_\_\_\_  
 Qty Ordered: 10.0      EA      Deliver To: \_\_\_\_\_


Op	Work Center	Std Op	Tooling Supplier	Setup Time	Run Time	Actual	By
10	ASM			1.0	_____	( )	
	Assembly			0.5	_____	( )	
	Medical Ultrasound						
20	ASM			0.0	_____	( )	
	Assembly			0.333	_____	( )	
	Test Medical Ultrasound						
30	ASM			0.0	_____	( )	
	Assembly			1.5	_____	( )	
	Pack Medical Ultrasound						

16.6
Work Order Release/Print
woworl.p

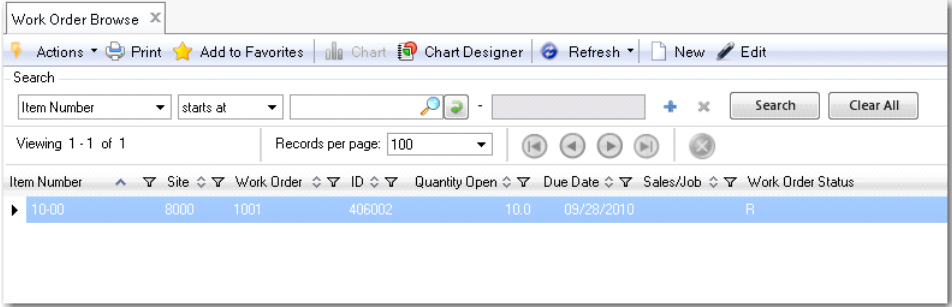
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QS-PR-740

The printed routing sheet lists the operations (op 10, op 20, and op 30) and standard setup and run times to manufacture 10 medical ultrasounds.

## Release Work Order


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# Review Work Order Status



Item Number	Site	Work Order	ID	Quantity Open	Due Date	Sales/Job	Work Order Status
10-00	8000	1001	405002	10.0	09/28/2010		R

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QS-PR-750

The Work Order Browse now shows that the work order status 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. Thus 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 flag for Move First Operation was checked Yes, so the in addition to the order status released, the operation status for the first operation has been changed to status Queue.

## Issue Components

The screenshot displays the 'Issue Components' interface in QAD. The main window shows the following details:

- Work Order: 1001
- Item Number: 10-00
- Medical Ultrasound
- ID: 406002
- WD Stat: R
- Op:
- Effective: 9/28/2010
- Issue Alloc:
- Issue Picked:

A pop-up window shows a list of items with the following data:

Item Number	Site	Location	Lot/Serial	Ref	Quantity
10-01	8000	RAWMAT			10.0
10-02	8000	RAWMAT			10.0
10-03	8000	RAWMAT			10.0
10-04	8000	RAWMAT			10.0

A confirmation dialog box is overlaid on the table, asking: "Is all information correct?" with "yes" and "no" buttons.

The Production Manager issues components for item 10-00 (medical ultrasound) based on the bill of material that was defined in Product Structure Maintenance.

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.

When advancing from the first screen a pop appears, select Yes to see a detail listing of items being issued.

This view shows the components, quantities and the location they are being issued from. Verify that all information is correct. A another pop up appears.

Select Yes in the pop-up to complete the transaction. Click No to return to the transaction window to make corrections.

Components issued to a work order are posted to WIP at GL cost.

## Record Labor

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# Record Labor

Labor Feedback by Work Order

Go To Actions Copy Print Preview Attach

Work Order: 1001 ID: 406002 Employee: 00000001

Work Order: 1001 ID: 406002  
 Operation: 10 Medical Ultrasound Op Status: QUEUE

Employee: 00000001 WHITEHEAD Pay Code: REG  
 Department: PROD Work Center: ASM Time Ind: DecHours  
 Shift: Machine: Project:

Quantity Completed: 10.0 Effective Date: 9/28/2010  
 Rejects:  Operation Complete:   
 Rework:  Next Operation:   
 Start Setup: 0.000 Ops Complete:   
 Elapsed/Stop Setup: 1.000 Elapsed Setup: 1.000  
 Start Run: 0.000  
 Elapsed/Stop Run: 0.500 Elapsed Run: 0.500  
 Comment:  
 Down Time: 0.000 Down Time Reason:

Is all information correct

QAD Proprietary QS-PR-770

Employee abc uses Labor Feedback by Work Order to record labor for operation 10, assembling the medical ultrasound.

In addition to the employee ID, other information included on this screen are the work order number, operation, and work center, which all labor feedback transactions must specify.

Based on the quantity of medical ultrasounds completed (10) and operation 10's routing (entered in Routing Maintenance), we would expect the setup time to be 1 hour and run time to be 5 hours (10 medical ultrasounds  $\times$  0.05 hr/medical ultrasound). That is what has been entered here. If actual setup or run time had varied from these expected or standard times, then there would be usage variances.

### Questions

What information is provided by the Department PROD?

GL accounts for manufacturing costs are attached to the department in Department Maintenance.

What information is provided by the Work Center ASM?

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

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# Review Labor Transactions

### Operation Transaction Detail Inq

09/28/10

Tran Nbr: 879    Display E-Signature Details: No    Output: page

Type: LABOR  
 Transaction Date: 09/28/10 23:16:52    Work Order: 1001  
 Effective Date: 09/28/10 Shift:    ID: 406002    Op: 20  
 Employee: 00000001 BILL WHITEHEAD

Item Number: 10-00    Medical Ultrasound    Quantity Completed: 10.0  
 Site: 8000    Line:    Qty Rejected: 0.0  
 Work Center: ASM    Machine:    Qty Rework: 0.0  
 Department: PROD    Rework Reason:  
 Qty Scrapped: 0.0

Std Setup Time: 0.0    Actual Setup Time: 0.0  
 Std Run Time: 0.033    Actual Run Time: 0.333  
 Labor Cost Std: 3.33    Labor Cost: 2.50  
 Burden Cost Std: 1.33    Burden Cost: 1.00  
 Subcontract Std: 0.00    Subcontract Cost: 0.00

G/L Transactions

GL Reference	Amount	DR Acct	Sub-Acct	CC	Project
WO100928000009	2.50	1600			Project
			6500		
WO100928000010	0.83	1600			
			6800		
WO100928000011	1.00	1600			
			6400		
WO100928000012	0.33	1600			
			6460		

17.13.9
Operation Transaction Detail Inq
sfopiq12.p

QAD Proprietary
QS-PR-780

The labor transactions created when labor was reported for operation 20 can be reviewed in Operation Transaction Detail Inquiry. This shows standard and actual setup and run times and the GL effects.

Accounts affected are Work in Process (1600), Labor Absorbed (6500), and Burden Absorbed.

To see how the per unit labor and burden costs were calculated, see Appendix A.

## Review Work Order Route Operation Status

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### Review W/O Route Operation Status

Work Order Routing Maintenance

Go To Actions Copy Print Preview Attach

Work Order: 1001 ID: 406002 Work Center: ASM

Work Order: 1001 ID: 406002  
 Item Number: 10-00 Medical Ultrasound  
 Operation: 10  
 Standard Operation:  
 Operation Description: Medical Ultrasound  
 Work Center: ASM Machine: Assembly

Qty Ordered:	10.0	Std Setup Time:	1.0	Act Setup Time:	1.0
Qty WIP:	0.0	Std Run Time:	0.05	Act Run:	0.5
Run Complete:	10.0	Std Move Time:	0.0	Machines per Op:	1
Sub Complete:	0.0	Queue:	0.0	Op Status:	C
Qty Reject:	0.0	Wait Time:	0.0	Subcontract Cost:	0.00
Qty Rework:	0.0	Setup Crew:	0.00	Run Crew:	1.00
Start Date:	9/28/2010	Overlap Units:	0	Subcontract LT:	0
Due Date:	9/28/2010	Tool Code:		Supplier:	
		Yield%:	100.00%	Comments:	

QAD Proprietary QS-PR-790

When QMI's 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 = Complete). There are no medical ultrasounds in process at this operation (Qty WIP = 0), and 10 have been completed (Run Complete = 10).

Operation 20 now shows that its status has been changed to Queue.

If the need were found to make changes to operation 10 reporting, Work Order Routing Maintenance can be used to change the operation status from C closed to R Running; this allows additional labor reporting to be done.

## Receive and Close Work Order

The screenshot displays the QAD Work Order Receipt interface. The main window shows the following details:

- Work Order: 1001
- ID: 406002
- Effective: 9/28/2010
- Remarks:
- Item Number: 10-00
- Lot/Serial Control: UM: EA
- Description: Medical Ultrasound
- W/O Stat: R
- Open Quantity: 10.0
- Automatic Lot Numbers:
- Quantity: 10.0
- Site: 8000
- UM: EA
- Location: FINGDS
- Conversion: 1.0000
- Scrapped Qty: 0.0
- UM: EA
- UM Conversion: 1.0000
- Reference: Multi Entry:  Attributes:
- Total Units: 10.0

A confirmation dialog box is overlaid on the main window, asking: "Is all information correct". The dialog has "yes" and "no" buttons. The "Close" checkbox in the dialog is checked.

QAD Proprietary QS-PR-810

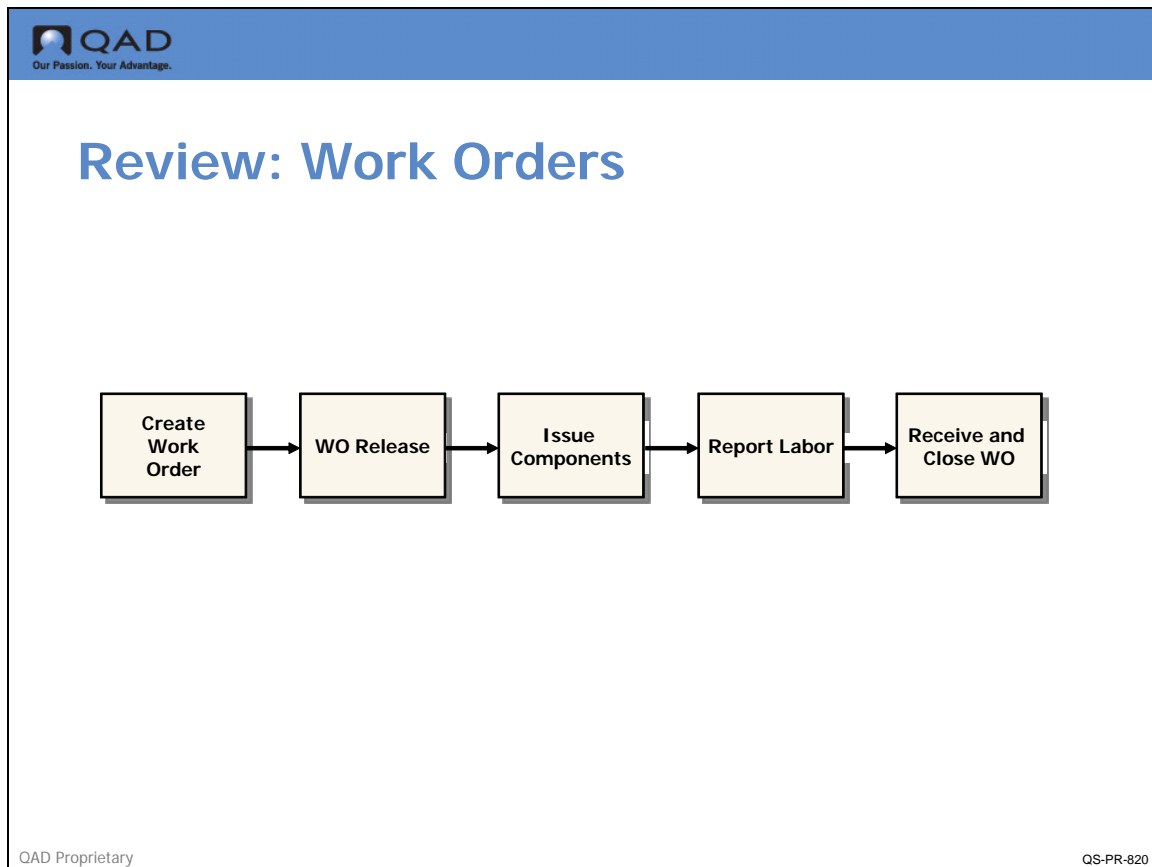
Using Work Order Receipt, QMI receives the 10 medical ultrasound units into its finished goods location (FINGDS) and closes the order.

A Pop up window displays the transaction about to be processed and asks for confirmation that all is correct.

This increases (debits) the Inventory account and decreases (credits) the WIP account for the total standard GL cost.

There 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, and that is Work Order Accounting Close.

## Review: Work Orders



In this chapter, work order types and status codes were discussed, and the variances that may occur in the work order cycle were explained. Work orders flow was then followed 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
- Received and Closed in Work Order Receipt
- Labor is recorded in Labor Feedback by Work Order

## Exercise: 8 Work Orders

In the following activity you:

- Add an employee
- Define control settings
- Manually add and release a work order
- Issue components to a work order
- Report labor to a work order and receive and close a work order

### Add Employee Record

- 1 Use Employee Maintenance (2.7.1) to add an employee.

Key fields to populate are:

Field	Value
Employee	<blank>
Last Name	Enter your last name
First Name	Enter your first name
Address	Enter an address
City	Santa Barbara
State	CA
Post	90000
Country	USA
SSN	123-12.1234
Birth Date	01/01/1970
Job Title	Assembler
Date Employed	Today
Department	PROD

### Define Control Settings

- 2 Use Work Order Control (16.24) to make sure that the settings are as follows:

Field	Value
Auto W/O numbers	Yes
Next W/O nbr	Default
Work Order Comments	No
Routing Comments	No
Move First Operation	Yes
Post Variances at SFC	Yes
Qty Complete Mthd	Default

Update and exit.

### Manually Add and Release a Work Order

- 3 Use Work Order Maintenance (16.1) to add a new work order record.

Field	Value
Next W/O number	Default
ID Number	Default
Item Number	10-00
Site	8000
Quantity Ordered	10

Let the other field values default.

Click Next until the system returns you to the Work Order field, then click Back to update and exit.

- 4 Use Work Order Release/Print (16.6) to release the work order.

This function also prints the work order picklist and routing (also known as the shop paper). Accept all other default values.

Field	Value
Work Order	Use Lookup to find yours
Output	PAGE

Accept all other values at default.

Review picklist and routing.

### Work Order Component Issue

- 5 Use Work Order Component Issue (16.10) to issue components from your inventory to your work order.

Field	Value
Work Order	Use Lookup to find yours
Issue Picked	Yes
Display items being issued	Yes
Is all the information correct	Yes

By overriding the data in the transaction frame, you can change the quantity issues or the location from which the items are issued.

**Note** Ignore any error message.

Update and exit.

### Report Labor to a Work Order

- 6 Use Labor Feedback by Work Order (17.1)

Field	Value
Work Order	Use Lookup to find yours
Operation	10
Employee Number	Enter yours

Field	Value
Quantity Completed	100
Elasped/Stop Setup Time	1 hr.
Elasped/Stop Run Time	5 hr.

- 7 Press Enter when the E-sig frame is displayed, and type the following:

Field	Value
User	mfg (or your original login)
Action Code	Approve

Field	Value
Operation	20
Run Time	3.33 hr.

- 8 Repeat Step 7.
- 9 Use Operation Transaction Detail Inquiry (17.13.9) to review the transactions created when you reported labor.
- 10 Use Work Order Routing Maintenance (16.13.13) to review your work order routing.

#### Receive and Close a Work Order


- 11 Use Work Order Receipt (16.11)  
 Receive all 10 medical ultrasounds into location FINGDS at site 8000.  
 Close = Yes (checked)  
 Update and exit.



Chapter 10

# **Sales Orders / Invoices and Accounts Receivable**

## Overview



### Sales Order: Topics

Key Concepts:

- Sales Order Work Flow
- Document Layout
- Allocation of Inventory
- Picklists
- Shipment
- Invoice Management

▲ Example

- Create Customer Record, Define Control Settings
- Enter Sales Order, Print Sales Order
- Ship Sales Order, Print and Post Invoice
- Enter Payment

▲ Activity

QAD Proprietary QS-PR-850

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 will be discussed, followed by an example to illustrate the process.

## Learning Objectives

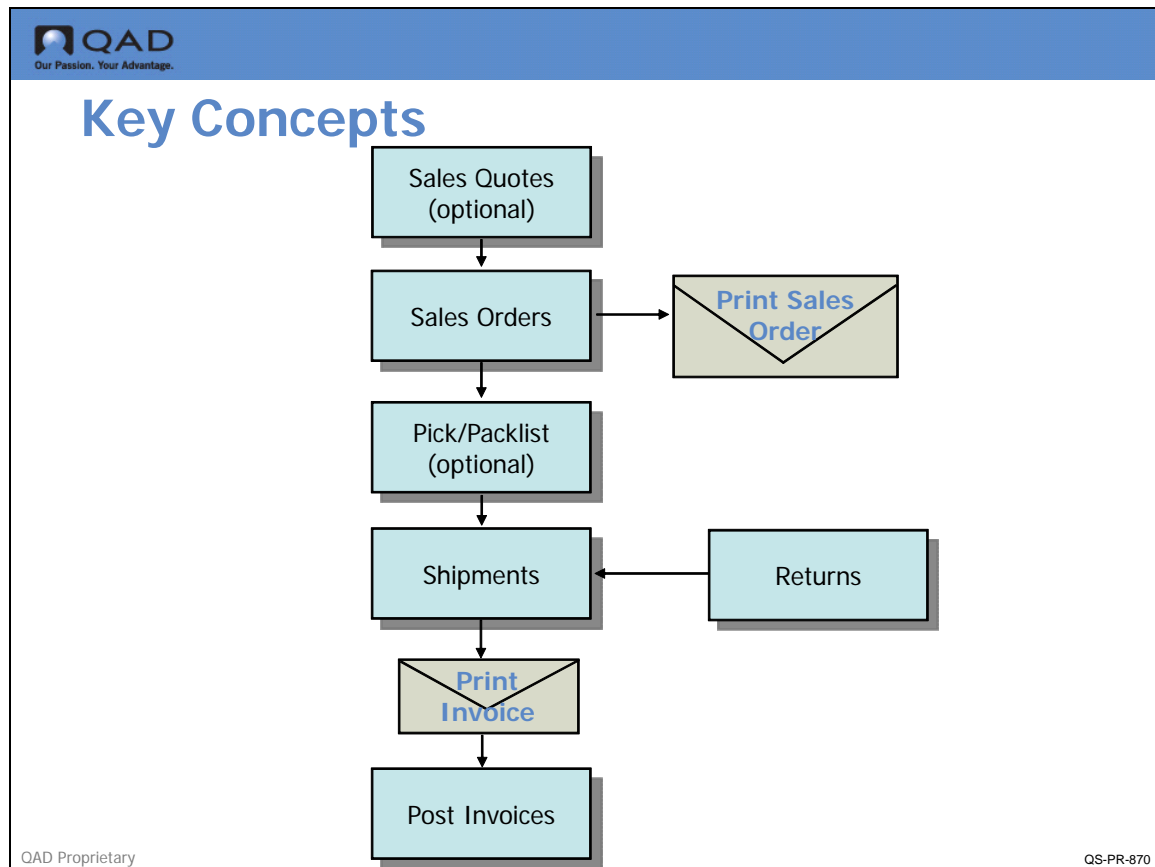


### Learning Objectives

When you finish this section, 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
- ▲ Print and post an invoice
- ▲ Record payment

## Key Concepts - Sales Order Process Flow



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.

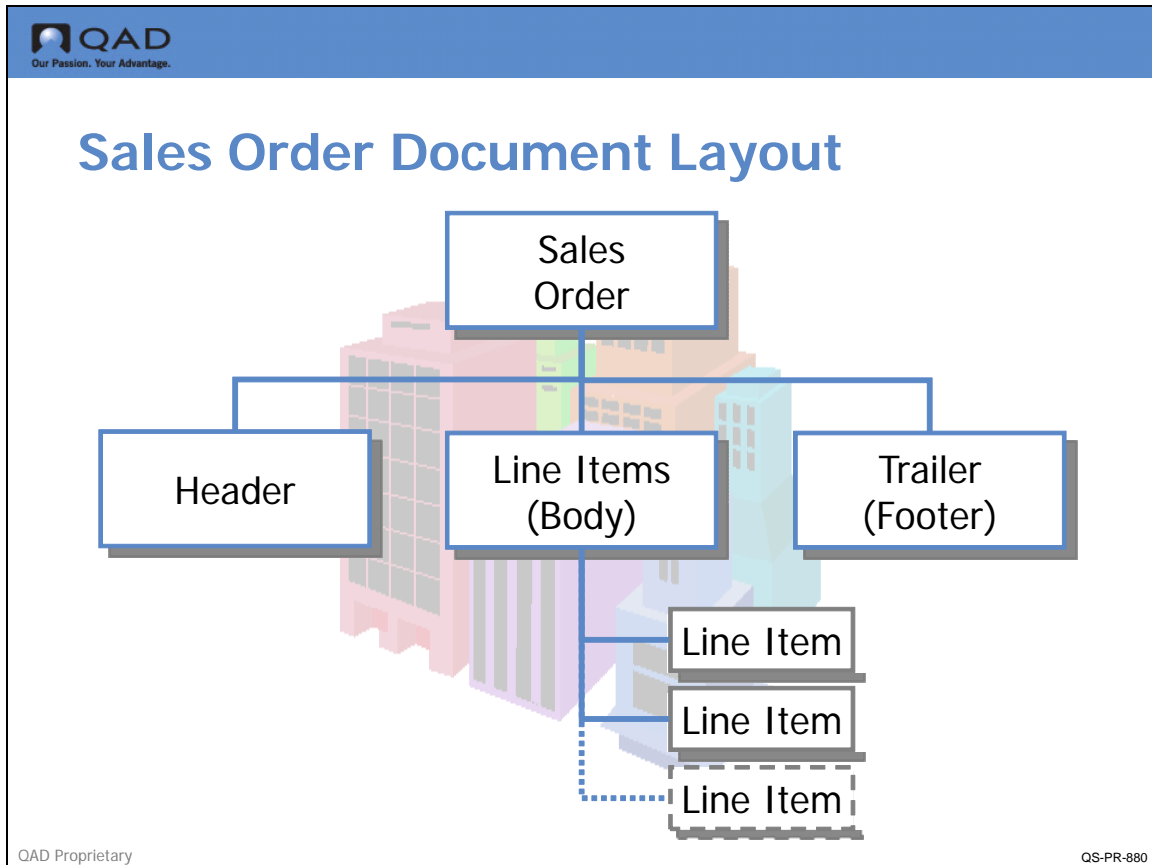
A hard copy document of the order can be printed and sent to the customer.

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 incremented until a shipping transaction is performed.

The shipment transaction creates a pending invoice that does not increment sales until the invoice is printed and is posted to Accounts Receivable.

Once invoices are posted, financial processing continues with accounts receivable functions.

## Sales Order Document Layout



In QAD SE, a sales order document has three main parts:

- A header
- One or more line items
- A trailer

Order data is entered and printed in this sequence.

### Header

The Header contains the general terms of the order, as well as default values for line items. Comments may follow, describing in more detail the terms or instructions associated with this order.

### Line Item

The Line Item specifies a particular item being ordered, its order quantity, price, and 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.

### Trailer

The Trailer contains tax, shipping, and order status information for all line items. Freight is calculated automatically on a bulk or unit basis. These charges are not subject to commission or discount, and may or may not be taxable.

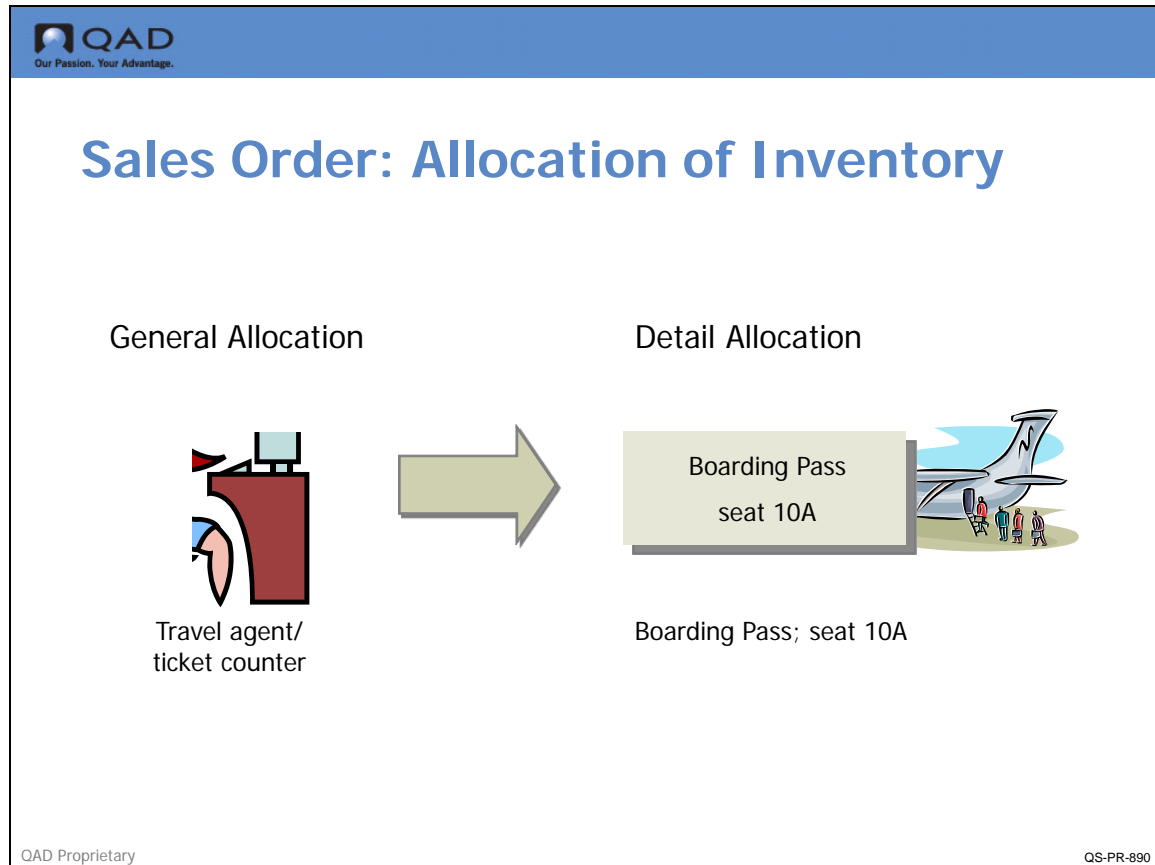
### Comments

Comments can be entered manually on each quote and order or copied from pre-existing master comments and modified as needed. Master comments are useful for storing standard information:

- Item specifications
- Quality requirements
- Item descriptions in other languages
- Export documentation
- 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



The system uses allocations to reserve inventory. Particular quantities may 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.

### General and Detail Allocations

When inventory is to be allocated, the system distinguishes between general allocation and detail allocation. A general allocation reserves inventory at a particular site, but it does not specify a specific location or lot/serial numbers.

**Example** When an airline ticket is purchased, the airline allocates a seat. This is a general allocation, a seat has been reserved, but the seat number is an unknown. See figure above.

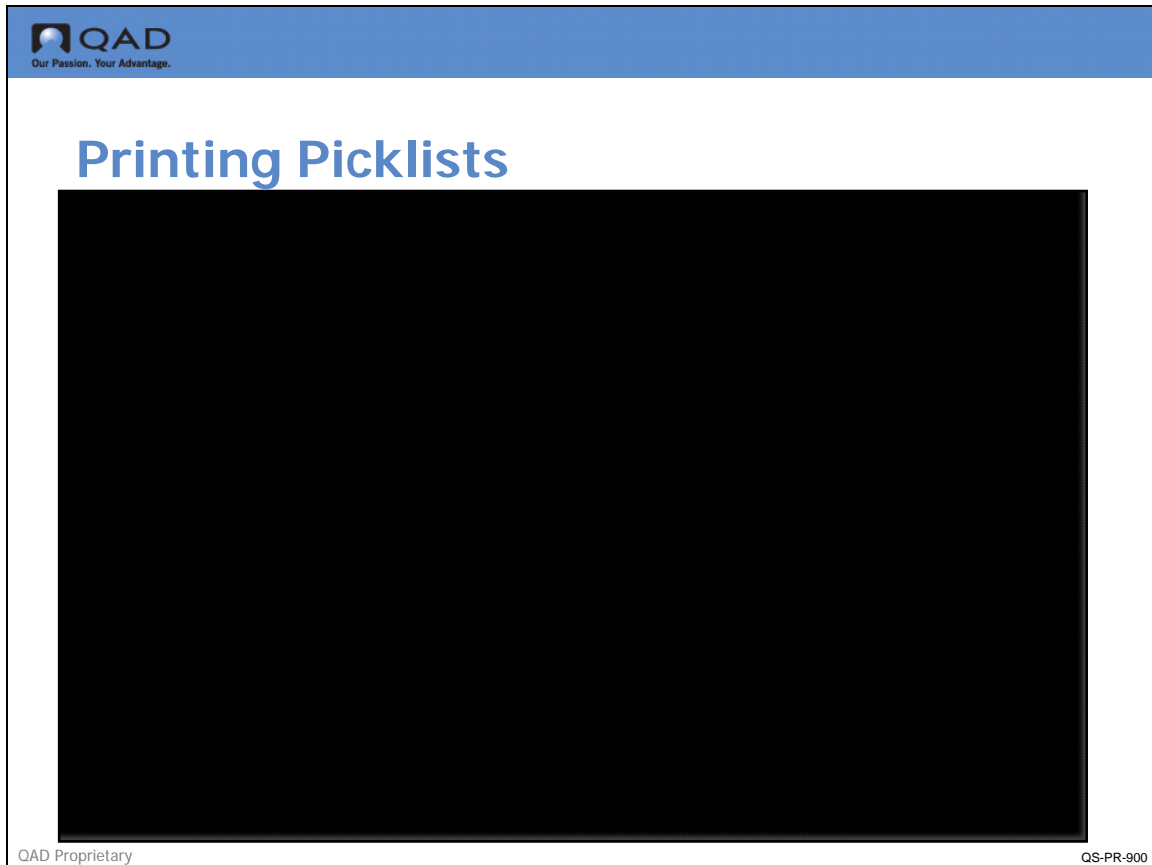
Detail allocations enable you to reserve exact items of inventory at a specific location by specifying lot and/or serial numbers, expiration dates, sites and/or locations. Detail allocation is normally done automatically when the picklist is prepared, but it can be done during the order entry process.

In our airline example, this 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.

## Printing Picklists



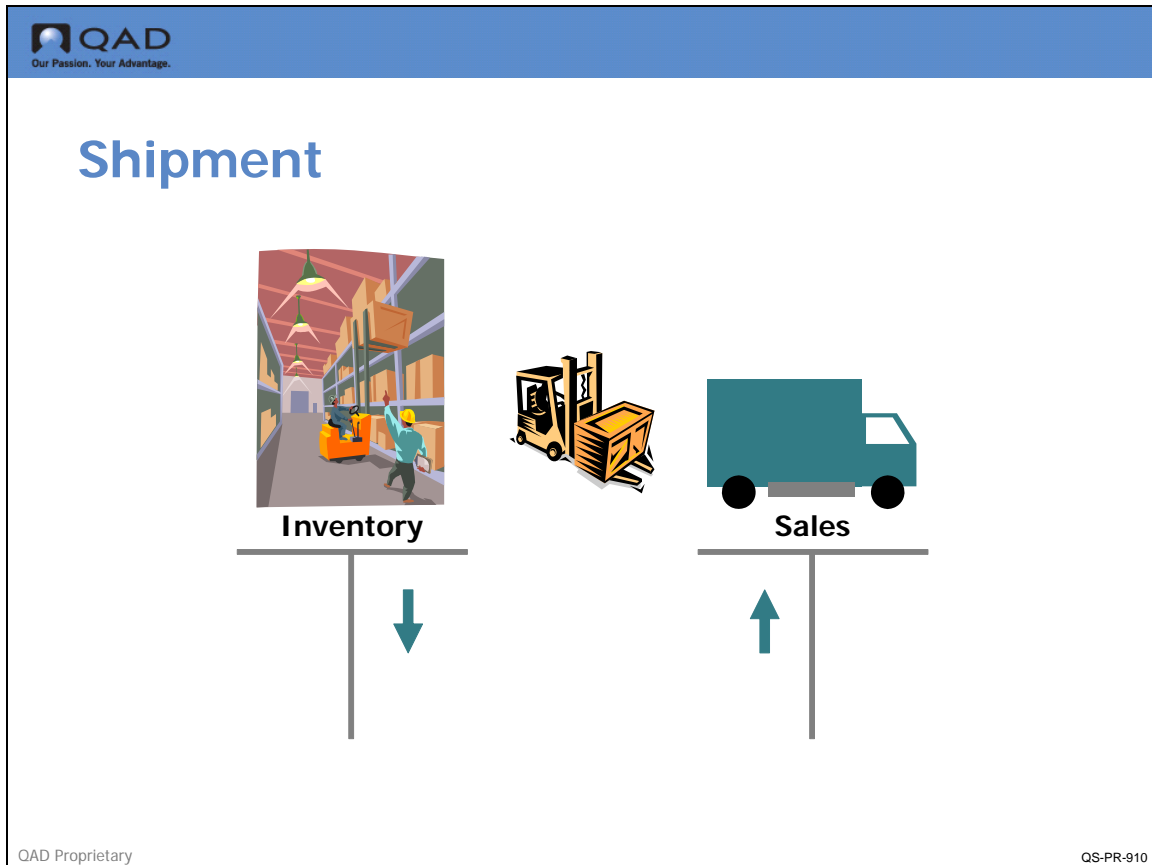
Once customer ordered items have been completed, or when stock items are available for shipment, sales personnel can initiate picklist printing for the sales order.

The picklist shows what items to pick to fill an order and what site or location to pick them from. If a detailed allocations in Sales Order Maintenance is created, including lot/serial numbers and lot reference numbers; the information appears on the picklist. If a general allocation for the sales order is performed, 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. Picklists for sales orders can only be printed for those orders not on credit hold. A sample picklist is shown above.

After printing the picklist, the system updates the values displayed in Sales Order Maintenance for the quantity allocated and quantity picked.

## Shipment

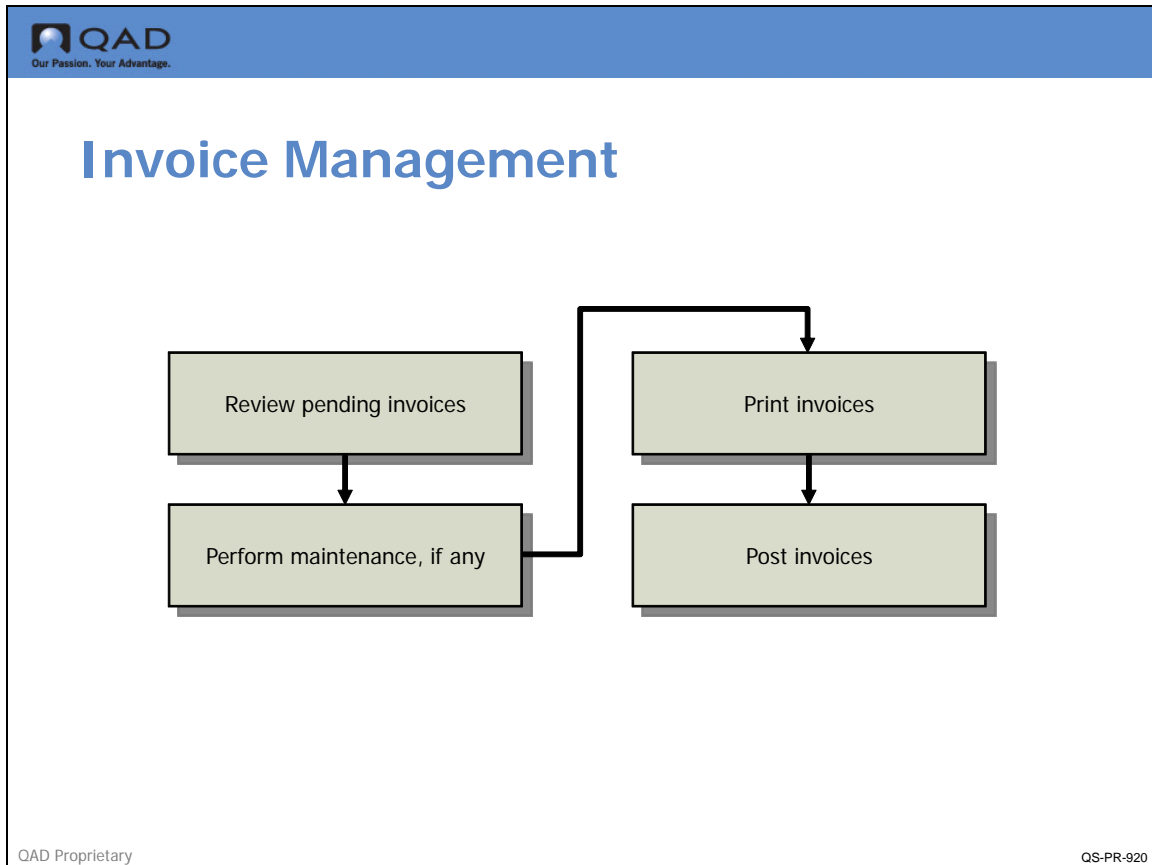


Once the items listed on the sales order picklist have been picked, the items are packed and shipping paperwork is prepared. Following actual shipment, the shipping transaction can be processed.

This physically decreases the quantity on hand for each of the items that were shipped, and generates a GL transaction to decrease (credit) inventory and increase (debit) cost of sales.

Shipping a sales order automatically flags it as ready for invoicing. Normally in the system, an invoice document is generated for each shipment. However, multiple shipments and sales orders can be combined on one invoice.

## Invoice Management



A sales order shipment automatically creates a pending invoice with a system assigned number. While in the pending status, maintenance can be performed on such things as credit terms, commission percentages, prices and discounts. Once pending invoices have been reviewed, they are ready to be invoiced.

### Printing Invoices

Selection of invoices for printing may be by individual sales order number or range of sales order numbers or by shipping date or range of shipping dates. The date on the invoice is the system date unless you change that date.

### Posting Invoices

The post function generates an invoice in the Accounts Receivable module and updates the customer's open account balance. Posting an invoice also updates GL account balances for:

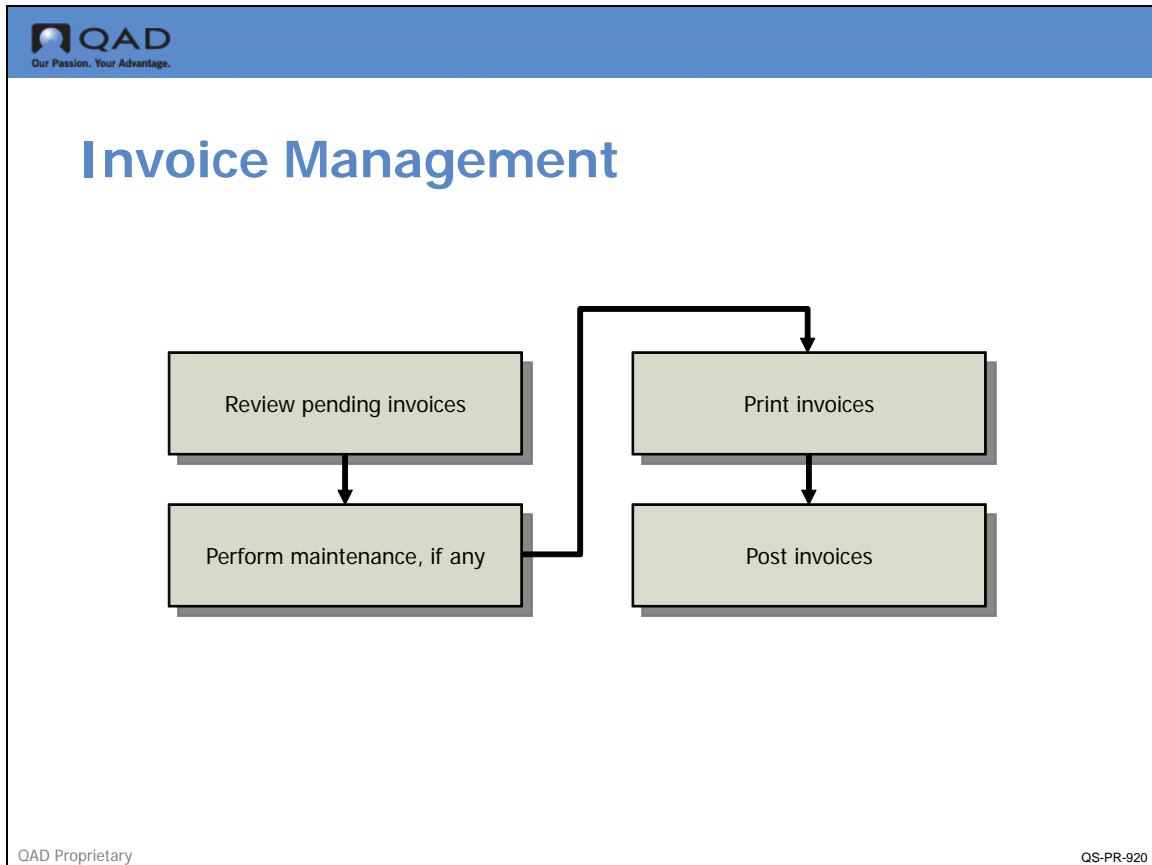
- Sales and AR
- Salesperson quota and commission history
- Sales tax journals
- Sales analysis history

The posting process also deletes sales orders that are complete.

### Invoice History

Once posted, the invoice can be maintained in invoice history. This is useful for reviewing problems and configured product information, or reprinting lost invoices.

## Processing Payment



All cash received from a customer should be recorded in Payment Maintenance (or Cash Book Maintenance). Payments may be recorded in the system as:

### Applied

Cash received from the customer in payment of specific invoices, memos, finance charges, or open draft amounts.

### Unapplied

Cash received from the customer that does not apply to specific invoices or memos, such as prepayments, deposits, or overpayments.

### Non-AR

Cash received that is not paying any invoice, memo, or finance charge. Examples include tax refunds and rebates.

### **Auto Apply**

In most cases, customer payments apply to an open invoice or memo item. To make it easier, there is an Auto Apply option in Payment Maintenance that automatically applies the amount received to open balances, oldest first, calculating any discounts the customer was eligible for. (You can enter a range of reference numbers.)

This option recommends a selection, which you can then modify.

### **Apply Unapplied**

Sometimes a payment is received that does not correspond to any open invoices or memos, a deposit or overpayment. These are recorded as unapplied. They decrease the customer's balance, but do not affect the open balance on any open invoice or memo. When it is discovered what items the payment applies to, the payment can be applied.

## Example

In the following example, QMI Company's Sales Department:

- Creates a customer record for Midwestern Medical Distributors, Inc. in Customer Maintenance. Information entered includes the customer ID (system generated), credit limit of 100,000, and credit terms of Net30
- Defines sales order control settings in Sales Order Control
- Enters a sales order for 10 medical ultrasounds sold to Midwestern Medical Distributors at \$5,000 per unit with a due date of (current date + X days)
- Prints the sales order and packing list
- Ships 10 medical ultrasounds to Midwestern Medical Distributors

The Accounts Receivable Department then:

- Prints and posts an invoice for this sale of 10 medical ultrasounds. Total invoice amount is \$50,000.00 (based on quantity of 10 medical ultrasounds × \$5,000/unit)
- Receives check for \$50,000 and enters payment in Payment Maintenance

## Create Customer Record

The screenshot shows the 'Customer Maintenance' form in the QAD system. The form is titled 'Create Customer Record 1 of 2'. It contains the following information:

**Customer Maintenance**

Customer: 00010000      Customer: 00010000      Salespsn1:

**Customer Address**

Customer: 00010000

Name: Midwest Medical Distributors

Address: Suite 1000 Colossal Building

Address: Colossal Industrial Park

Address: 10350 Production Drive

City: Evanston      State: IL      Post: 09087      Format: 0

Country: United States of America      USA      County:

Attention:      [2]:

Telephone:      Ext:      [2]:      Ext:

Fax/Telex:      [2]:      Added: 9/29/2010

**Customer Data**

Sort Name: Midwest Medical Distributors      Type: [ ]

Salespsn1: [ ]      Multiple:       Region: [ ]

Ship Via: [ ]      Currency: USD [ ]

AR Acct: 1200 [ ] [ ] [ ]      Dual Pricing Cur: [ ]

Resale: [ ]      Site: 8000 [ ]

Remarks: [ ]      Lang: [ ]

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Before QMI's Customer Service Representative (CSR) can enter a sales order, there must be a customer record in the system.

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## Example Add Customer 2 of 2

Customer Maintenance X

Go To Actions Copy Print Preview Attach

Customer: 00010000 Customer: 00010000 Bill To:

Customer Address

Customer: 00010000

Name: Midwest Medical Distributors

Address: Suite 1000 Colossal Building

Address: Colossal Industrial Park

Address: 10350 Production Drive

City: Evanston State: IL Post: 09087 Format: 0

Country: United States of America USA County:

Attention: [2]

Telephone: Ext: [2] Ext:

Fax/Telex: [2] Added: 9/29/2010

Customer Credit Data

Credit Limit: 100,000 Disc Pct: 0.00% Bill To:

Terms: 30 Finance Charge:  Last Credit Review:

Credit Hold:  Statement:  Last Credit Update:

Credit Rating: Statement Cycle: High Credit: 0

DB Number: Dun Letter:  High Date:

PO Required:  Last Payment: Last Sale:

QAD Proprietary QS-PR-950

Midwestern Medical Distributors, Inc. is a customer of QMI. In addition to basic address information, QMI has entered customer credit data, a credit limit of 1,000,000, and terms of Net30.

## Define Control Setting

The screenshot shows the 'Sales Order Control' window in QAD. The window title is 'Sales Order Control' and it includes a menu bar with 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. The 'Company Address' is set to '10000000'. The 'Use Which Calc for Qty Available to Allocate' is set to '1'. The 'Allocate Sales Order Lines Due in Days' is set to '10' (with a note '(0 for no allocations)'). The 'Limit Allocate to Avail Only' checkbox is checked. The 'Detail Allocations' checkbox is unchecked. The 'ATP Enforcement Enabled' checkbox is unchecked. The 'Family ATP Calculation' is set to '1'. The 'ATP Horizon' is set to '0'. The 'Calculate Promise Date' checkbox is unchecked. The 'Pick Only Allocated Lines' checkbox is checked. The 'Sales Order Prefix' is set to 'SO-'. The 'Are Sales Orders Printed' checkbox is unchecked. The 'Next Sales Order' is set to '10012'. The 'Keep Booking History' checkbox is checked. The 'Invoice Prefix' is set to 'IV-'. The 'Print Tax ID on Invoice' checkbox is unchecked. The 'Next Invoice' is set to '10000'. The 'Shipping Lead Time' is set to '1'. The 'Integrate with AR' checkbox is checked. The 'Company Address' is set to '10000000'. The 'Integrate with SA' checkbox is checked. The 'Sales Order Header Comments' checkbox is unchecked. The 'Integrate with TIM' checkbox is unchecked. The 'Sales Order Line Comments' checkbox is unchecked. The 'Confirmed Orders' checkbox is checked. The 'Print Only Lines to Invoice' checkbox is unchecked. The 'Fiscal Start Month' is set to '1'. The 'Ln Format S/M' dropdown is set to 'Single'. The 'FOB' is set to 'Shipping Point'.

In Sales Order Control, 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
- All sales orders will have a prefix of SO- and all invoices will have a prefix of IV-
- Sales order data will be integrated with the Accounts Receivable and Sales Analysis modules (Integrate with AR and SA are selected)
- On new sales orders, the default value will be Confirmed for shipment (Confirmed Orders is selected)
- The default value for sales order line item entry will be Single (instead of Multiple), which lets QMI customize due dates, sites, tax status, and other information for each line item

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## Define Control Settings 2 of 2

Sales Order Control

Go To Actions Copy Print Preview Attach

Company Address: 10000000

Calculate Freight by Site:  Auto Batch Confirmation:

Comm on Margin not Sales:

Hold Orders Over Credit Limit:

SO Interest Accrued Acct: 4500

SO Interest Applied Account: 1280

Price Table Required:  (Applies to Discrete Sales Orders)

Disc Table Required:  (Applies to Scheduled Orders)

Vary Pricing Date by SO Line:

Confirmation Batch ID:

Minimum Shipment Amount:

Confirmation Printer:

SO Edit ISB Defaults:

Pending Inv Update ISB:

SO Returns Update ISB:

Forecast Consumption

Auto Batch Shipment:

Consume Forward:

Shipment Batch ID:

Consume Back:

Shipment Batch Printer:

Check Customer Item Nbr First:

Use SO Freight List Trailer Code:

Taxable Trailer Code 1:

Nontaxable Trailer Code 1:

Taxable Trailer Code 2:

Nontaxable Trailer Code 2:

Taxable Trailer Code 3:

Nontaxable Trailer Code 3:

QAD Proprietary QS-PR-970

In the next frame, QMI has not selected Hold Orders Over Credit Limit, so it is still possible to process sales orders that have exceeded the credit limit set in Customer Maintenance.

## Enter Sales Order: Header Information

The screenshot shows the 'Enter Sales Order: Header Information' screen in the QAD Sales Order Maintenance application. The interface includes a menu bar with options like 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. Below the menu, the order ID 'Sales Order:SO-10012' is displayed. The main content area is divided into sections for 'Header' and 'Details'.

**Header Information:**

- Order: SO-10012
- Sold-To: 00010000
- Bill To: 00010000
- Ship-To: 00010000

**Sold-To Address:**

- Midwest Medical Distributors
- Suite 1000 Colossal Building
- Colossal Industrial Park
- Evanston IL 09087
- United States of America

**Ship-To Address:**

- Midwest Medical Distributors
- Suite 1000 Colossal Building
- Colossal Industrial Park
- Evanston IL 09087
- United States of America

**Details Section:**

- Order Date: 9/29/2010
- Required Date: (empty)
- Promise Date: (empty)
- Due Date: 9/30/2010
- Perform Date: (empty)
- Pricing Date: (empty)
- Purchase Order: (empty)
- Remarks: (empty)
- Line Pricing:
- Manual: (empty)
- Site: 8000
- Channel: (empty)
- Project: (empty)
- Confirmed:
- Currency: USD
- Language: (empty)
- Taxable:
- Fixed Price:
- Credit Terms: 30
- Credit Terms Interest %: 0.00
- Reprice/Edit:
- Entered By: mfg

QAD Proprietary | QS-PR-980

A sales order entered by QMI's CSR is shown above. This order is for Midwestern Medical Distributors.

The CSR lets the system generate the sales order ID, which has a prefix of SO based on the Sales Order Control setting. Other information defaults from the Sales Order Control setting too, such as site 8000 and Confirmed for shipment (Yes). The credit terms default from the customer record set up in Customer Maintenance.

Some header elements, such as some date fields, Site, and Confirmed, become default values for line items; these can be changed, though, during line item entry. Line item data will be examined next.

## Sales Order: Enter Line Information

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## Sales Order: Enter Line Information

Sales Order Maintenance

Go To Actions Copy Print Preview Attach

Sales Order:SD-10012 Order:SD-10012 Sold-To:00010000 Bill To:00010

Header Lines Trailer

Lines Line Details Freight Data Tax Info Comments

Header

Order: SD-10012 Sold-To: 00010000 Ln Format S/M: Single

Sales Order Line

Ln	Item Number	Qty Ordered	UM	List Price	Discount	Net Price
1	10-00	10.0	EA	5,000.00	0.0	5,000.00

Line Details

Desc: Medical Ultrasound Sales Acct: 3000

Loc: FINGDS Site: 8000 Disc Acct: 3900

USD Cost: 566.7662 Confirmed:  Credit Terms Int: 0.00

Lot/Serial: Qty Allocated: 10.0 Required: Ship Type: U.M. Conversion: 1.0000

Qty Picked: 0.0 Promised: Due Date: 9/30/2010 Consume Fcst:  Detail Alloc:

Qty Shipped: 0.0 Perform Date: Salesperson 1: Commission 1: 0.00% Catego

Sales Order Line

Ln	Item Number	Qty Ordered	UM	List Price
2	10-00	0.0	EA	5,000.00

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The CSR has entered an order for 10 medical ultrasounds (item 10-00); the list price of \$5,000.00 defaults from information entered in Item Master Maintenance. The remaining information defaults from values previously entered in the sales order header, Sales Order Control, or Item Master Maintenance.

After completing line 1, the system automatically goes to line 2. Since only one line needed to be entered for this order, the CSR exited the next line by clicking End Lines. The system then goes to the line format window (Ln Format S/M:) Clicking Trailer takes the system to the trailer frame.

## Sales Order: Enter Trailer Information

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QS-PR-1000

The trailer frame calculates taxes and freight based on data setup in the tax and freight modules. Any additional charges may also be added. Trailer codes are setup in the Addresses and Taxes module. The default codes are specified in Sales Control. For this example we will ignore shipping and taxes.

The CSR has selected all print options so that the sales order, pack list, and invoice history can be printed.

The Partial OK setting defaulted from Customer Maintenance indicating that the customer Midwest Medical Distributors will accept partial shipments.

## Print Sales Order


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# Print Sales Order

Sales Order Print x
Go To Actions Copy Print Preview Attach

Sales Order: SO-10012
To: SO-10012
Sold-To:

---

Sales Order: SO-10012

Sold-To:

Order Date:

Language ID:

To: SO-10012

To:

To:

To:

Print Features and Options:

Company Address: 10000000

Form Code: 1

Print Sales Order Trailer:

Discount Detail: None

Discount Summary: None

Increment Order Revision:

Print Additional Line Charges:

Update:


Output:

Batch ID:

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QS-PR-1010

Because the CSR selected Print Sales Order in Sales Order Maintenance, the sales order is available to print in Sales Order Print.

## Sales Order Printout


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# Sales Order Print

<p>QMI Incorporated 17 Avenue of the Americas New York, NY 10065 United States of America</p>	<p style="text-align: center;">S A L E S   O R D E R</p> <p>Order Number: 50-10012    Revision: 1 Order Date: 09/29/10    Page: 1 Print Date: 09/29/10</p>
<p>Sold-To: 00010000</p> <p>Midwest Medical Distributors Suite 1000 Colossal Building Colossal Industrial Park 10350 Production Drive Evanston, IL 09087 United States of America</p>	<p>Ship-To: 00010000</p> <p>Midwest Medical Distributors Suite 1000 Colossal Building Colossal Industrial Park 10350 Production Drive Evanston, IL 09087 United States of America</p>
<p>Attention: Telephone:</p> <p>Salesperson(s):</p> <p>Credit Terms: 30                   DUE 30 DAYS FROM INVOICE</p> <p>Resale: Remarks:</p>	<p>Attention: Telephone:</p> <p>Purchase Order: Ship Via: FOB Point: Shipping Point</p>

Ln	Item Number	Due Date	Qty	Open	UM	Price	Extended Price
1	10-00 Medical Ultrasound	09/30/10	10.0	EA		5,000.00	50,000.00
USD Total:							50,000.00

7.1.3

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QS-PR-1020

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.

## Sales Order Packing List (7.9.13)

QAD Proprietary

QS-PR-1030


To print the packing list, the CSR uses Sales Order Packing List.

**Note** The terms packing list and pick list are used interchangeably. The pick list can be used to pick the items from inventory for shipment and then included with the shipment as a packing list. Alternatively two copies of the packing list can be used if it is desired to keep a hard copy for internal purposes.

Because the CSR has selected Update, after printing the picklist, the system will update 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 database.

## Sales Order Packing List Print


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# Sales Order Packing List Print

<p>QMI Incorporated 17 Avenue of the Americas New York, NY 10065 United States of America</p>	<p>P A C K I N G L I S T</p> <p>Order Number: 50-10012 Page: 1 Order Date: 09/29/10 Print Date: 09/29/10</p>
<p>Sold To: 00010000</p> <p>Midwest Medical Distributors Suite 1000 Colossal Building Colossal Industrial Park 10350 Production Drive Evanston, IL 09087 United States of America</p>	<p>Ship To: 00010000</p> <p>Midwest Medical Distributors Suite 1000 Colossal Building Colossal Industrial Park 10350 Production Drive Evanston, IL 09087 United States of America</p>
<p>Salespersons: Credit Terms: 30 DUE 30 DAYS FROM INVOICE Remarks:</p>	<p>Purchase Order: Ship Via: FOB Point: Shipping Point</p>

Ln	Item Number	Site T Location Lot/Serial	Qty Open Qty to Ship	Open UM	Due Shipped
1	10-00 Medical Ultrasound	8000 FINGDS	10.0	EA	09/30/10
			10.0	( )	

7.9.13
sosopk.p

QAD Proprietary
QS-PR-1040

The picklist shows what items to pick to fill an order and what site or location to pick them from. If detailed allocations in Sales Order Maintenance are created, including lot/serial numbers and lot reference numbers; the information would appear on the picklist. If a general allocation is performed for the sales order, the system would automatically convert the general allocation to a detail allocation when it prints the picklist.

## Sales Order Shipping

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## Sales Order Shipments 1 of 3

Sales Order Shipments X

Go To Actions Copy Print Preview Attach

Sales Order: SO-10012 Site: 8000

---

Order: SO-10012 Ship Allocated:  Sold-To: 00010000 Site: 8000  
 Effective: 9/29/2010 Ship Picked:  Midwest Medical Distributors

Sales Order Line Items

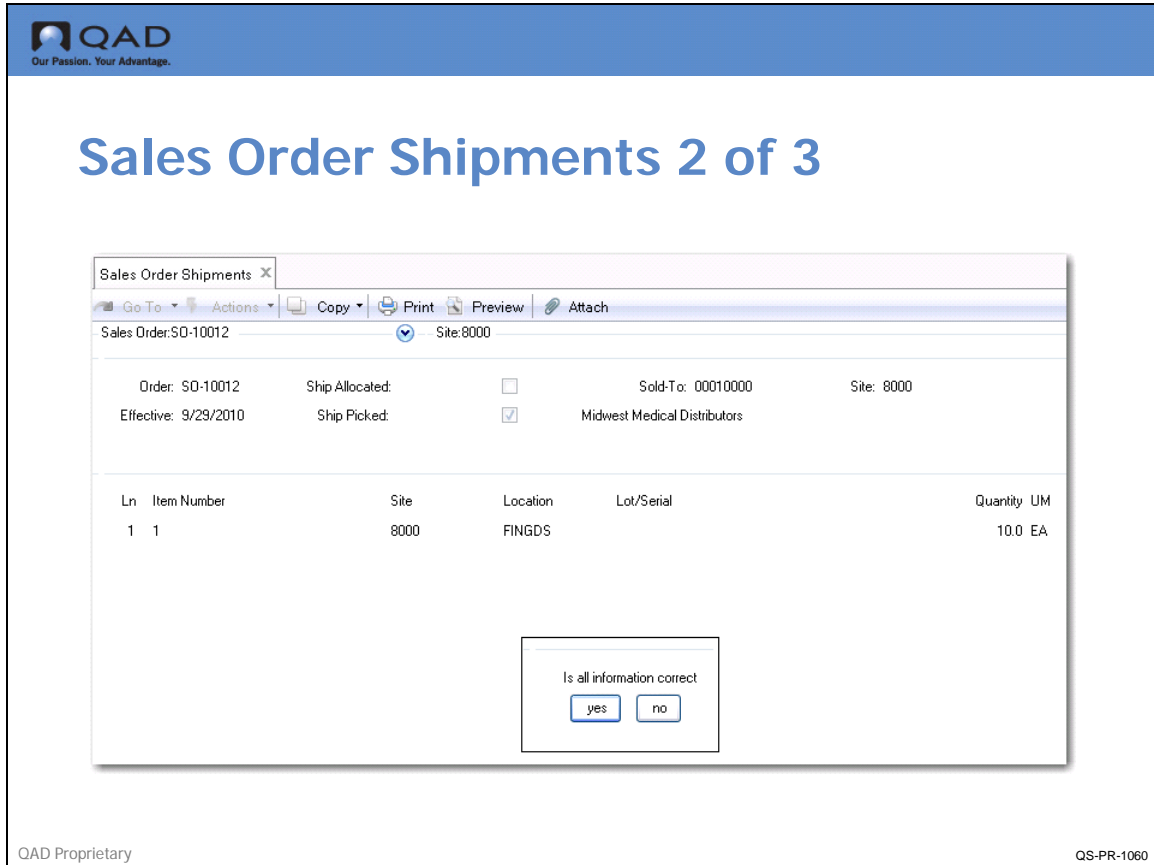
Ln	Item Number	T	Qty Alloc	Qty Picked	To Ship	Backorder Site
1	10-00		0.0	10.0	10.0	0.0 8000

---

Line: 1 Cancel B/O:  Site: Loc:  
 Quantity: Lot/Serial  
 Item Number: UM: Ref: Multi Entry:   
 Description:

QAD Proprietary QS-PR-1050

To record the shipment of the order, approve the order for invoicing, and reduce the quantity on hand for the 10 medical ultrasounds shipped, the CSR uses Sales Order Shipments. 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 all open orders on this sales order ready for shipment, which, in this example, is one line. If necessary, modifications can be made to this line in the bottom frame. For example, if the location had changed, the new location could be entered here.

The system displays the sales order lines to be shipped for final review.

If the information is not correct, click No and the system returns to the previous frame where you can make corrections.

## Trailer Frame

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## Sales Order Shipments 3 of 3

Sales Order: SO-10012 Site: 8000

Order: SO-10012 Ship Allocated:  Sold-To: 00010000 Site: 8000  
 Effective: 9/29/2010 Ship Picked:  Midwest Medical Distributors

		Currency: USD	Line Total:	50,000.00
		0.00%	Discount:	0.00
Tax Date: 9/30/2010		FREIGHT	10	0.00
Containers: 0.00		TAX:FREIGHT	11	0.00
Line Charges: 0.00		SERVICE	20	0.00
			Total Tax:	0.00
			Total:	50,000.00

View/Edit Tax Detail:

Ship Via:  Invoice Number:   
 Ship Date: 9/29/2010 Ready to Invoice:   
 Bill Of Ladin:  Invoiced:   
 Remarks:

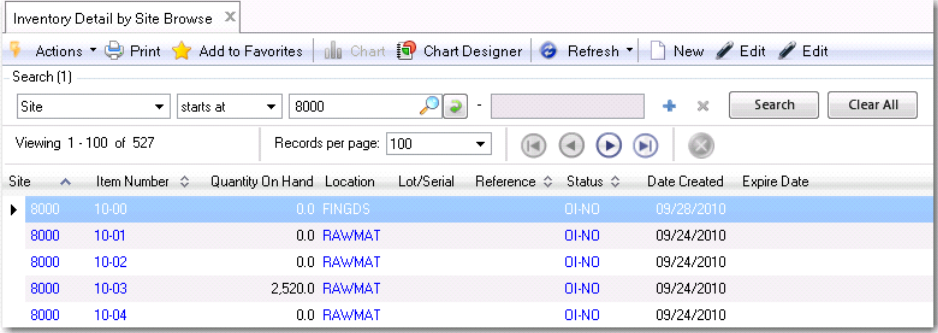
QAD Proprietary QS-PR-1070

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.

Taxes, freight and other logistics charges can be calculated by the system if the appropriate setup has been done the Global Tax Management module, the Freight Charges module and the Logistics Accounting module.

The CSR selects Ready to Invoice, which completes the sales order shipment process.

## Review Inventory Detail



The screenshot shows the 'Inventory Detail by Site Browse' window. The search criteria are Site: 8000, starting at 8000. The results table is as follows:

Site	Item Number	Quantity On Hand	Location	Lot/Serial	Reference	Status	Date Created	Expire Date
8000	10-00	0.0	FINGDS			DI-NO	09/28/2010	
8000	10-01	0.0	RAWMAT			DI-NO	09/24/2010	
8000	10-02	0.0	RAWMAT			DI-NO	09/24/2010	
8000	10-03	2,520.0	RAWMAT			DI-NO	09/24/2010	
8000	10-04	0.0	RAWMAT			DI-NO	09/24/2010	

QAD Proprietary QS-PR-1080

Using Inventory Detail by Site Browse, how many medical ultrasounds are remaining in inventory can be determined. In this case, there are no medical ultrasounds left in the FinGood location at site 8000, and that all of the components we purchased to build the medical ultrasounds are consumed; except for the computer cable.

**Note** 3000 inches per RL, less (48 in X 10 medical ultrasounds) =  $(3000 - 480 = 2,520$  inches of cable remaining.

## Transactions Detail Inquiry (3.21.1)

The screenshot shows a web browser window titled "Transactions Detail Inquiry" with a menu bar containing "Go To", "Actions", "Copy", "Print", "Preview", and "Attach". Below the menu bar is a search bar with "Output: page". The main content area displays the following transaction details:

Tran Nbr:	17552	Order:	SO-10012	406003
Trans Type:	ISS-SO	Revision:	0	
Date:	9/29/2010	Item Number:	10-00	
Time:	18:04	Description:	Medical Ultrasound	
Effective Date:	9/29/2010	Unit of Measure:	EA	
Remarks:		Address:	00010000	
User ID:	mfg	Name:	Midwest Medical Dist	
Program:	sosis.p	Sales/Job:	SO-10012	
Currency:	USD	Ship Type:		
Qty Change:	-10.0	Price:	5,000.00	
Shipper Number:		Inventory M:		
Ship Date:	9/29/2010			


QAD Proprietary QS-PR-1090

The transaction detail provides information on the transaction number and type (ISS-SO), the program that created the transaction (sosis.p), the user who created this transaction, and the source of the transaction (SO10020). Other key information is shown, such as site and location, inventory data, cost data, and so on.


Selecting Next from this frame brings up a screen with additional detail including the GL transactions.

All of the GL effects of the sales order shipment are also shown in the transaction detail inquiry. Notice that each of the GL transaction numbers start with the letters IC. This indicates that these are inventory transactions.

## GL Effects


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# GL Effects



### Transactions Detail Inquiry

09/29/10

Transaction: 17552    Display E-Signature Details: No    Output: page

Tran Nbr: 17552	Order: 50-10012	406003
Trans Type: ISS-50	Revision: 2	
Date: 09/29/10	Item Number: 10-00	
Time: 18:04	Description: Medical Ultrasound	
Effective Date: 09/29/10	Unit of Measure: EA	
Remarks:	Address: 00010000	
User ID: mfg	Name: Midwest Medical Dist	
Program: sosois.p	Sales/Job: 50-10012	
Currency: USD	Ship Type:	
Qty Change: -10.0	Price: 5,000.00	
Shipper Number:	Inventory M:	
Ship Date: 09/29/10		

Site: 8000 Location: FINGDS Lot/Serial: Inv Status: OI-NO Supplier Lot: Grade/Assay: Reference:	<b>Inventory Data</b> Begin Balance: 10.0 Quantity Change: -10.0 Qty Short: 0.0 Begin Loc Bal: 10.0 Loc Qty Change: -10.0 Expire Date: Batch:
---	--

<b>Cost Data</b> Material: 549.50 Labor: 12.333 Burden: 4.9332	Overhead: 0.00 Subcontract: 0.00 Cost Total: 566.7662
---	---

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QS-PR-1100

## Review Pending Invoice

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## Review Pending Invoice

Pending Invoice Register

Go To Actions Copy Print Preview Attach

Sales Order: SO-10012 To: SO-10012 Sold-To: 00010000

Sales Order: SO-10012 To: SO-10012

Ship Date: To:

Sold-To: 00010000 To: 00010000

**QAD** Pending Invoice Register 09/29/10 18: Pa

Training

Invoice Bill To Name Sold-To Name Salespsn Accounts Sub-Acct CC

00010000 Midwest Medical Distributors 00010000 Midwest Medical Distributors 1200  
Tax Environment: USA/USA Tax Usage:

Sales Order: SO-10012 Ship-To: 00010000 Midwest Medical Distributors Order Date: 09/29/10 P0:

Ln	Item Number	UM	Sales	Sub-Acct	CC	Invoiced	Tax	Backorder	TaxUsage	Price	Extended Price	Extended Margin
1	10-00 Medical Ultrasound	EA	3000			10.0	no			5,000.00	50,000.00	44,332.34
Currency: USD						Line Total:				50,000.00		
Tax Date: 09/29/10						0.00%	Discount:			0.00		
Containers: 0.00						FREIGHT	10 :			0.00		
Line Charges: 0.00						TAX-FREIGHT	11 :			0.00		
						SERVICE	20 :			0.00		
						Total Tax:				0.00		
						Total:				50,000.00		
USD Report Totals:											50,000.00	44,332.34

When the sales order is shipped, the system automatically generates the information for an invoice, referred to as a pending invoice.

Pending Invoice Register produces a printed list of all pending invoices, which in this example is just one. Notice that Invoice in the screen is blank. That is because the invoice number will be assigned using the Invoice Print function.

The Extended Margin of \$44,330.34, is the unit margin multiplied by the quantity shipped ( $\$4,433.234 \times 10$  medical ultrasounds shipped).

The invoice total of \$50,000.00 is calculated by multiplying the price per medical ultrasound (\$5,000.00) by the total quantity (10 medical ultrasounds) and adding the trailer charges, if any.

## Print Invoice

QAD  
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# Print Invoice

Invoice Print X

Go To Actions Copy Print Preview Attach

Sales Order: SO-10012 To: SO-10012 Sold-To: 00010000

Sales Order: SO-10012 To: SO-10012

Ship Date: To:

Sold-To: 00010000 To: 00010000

Bill To: 00010000 To: 00010000

Language ID: To:

Invoice Date: 9/29/2010 Include Debit Invoices:

Print Only Lines to Invoice:  Include Credit Invoices:

Print Lot/Serial Numbers Shipped:  Print Call Invoice Detail:

Print Features and Options:

Consolidate Invoices:

Company Address: 8000

Form Code: 1

Discount Detail: None

Discount Summary: None

Message:

Output:  
Batch ID:

QAD Proprietary QS-PR-1120

QMI's Accounts Receivable (AR) administrator uses Invoice Print to produce an actual invoice from the pending invoice. The invoice number is assigned by the print function.

## Invoice Print

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## Invoice Print

QMI Incorporated 17 Avenue of the Americas New York, NY 10065 United States of America	I N V O I C E Invoice: IV-10000 Revision: 2 Invoice Date: 09/29/10 Page: 1 Print Date: 09/29/10
---	--

Bill To: 00010000	Sold To: 00010000
Midwest Medical Distributors Suite 1000 Colossal Building Colossal Industrial Park 10350 Production Drive Evanston, IL 09087 United States of America	Midwest Medical Distributors Suite 1000 Colossal Building Colossal Industrial Park 10350 Production Drive Evanston, IL 09087 United States of America

Sales Order: 50-10012	Ship Date: 09/29/10
Order Date: 09/29/10	Purchase Order:
Salesperson(s):	Ship-To: 00010000
Credit Terms: 30	Ship Via:
Resale: DUE 30 DAYS FROM INVOICE	Bill Of Lading:
Remarks:	FOB Point: Shipping Point

Item Number	UM	Invoiced	Qty	B/O	Tax	Price	Extended Price
10-00	EA	10.0	0.0	No		5,000.00	50,000.00
Medical Ultrasound							

Currency: USD	Line Total:	50,000.00
Tax Date: 09/29/10	0.00% Discount:	0.00
Containers: 0.00	FREIGHT 10 :	0.00
Line Charges: 0.00	TAX-FREIGHT 11 :	0.00
	SERVICE 20 :	0.00
	Total Tax:	0.00
	Total:	50,000.00

7.13.3 sosorp10.p

QAD Proprietary QS-PR-1130

Here is a sample of the Invoice Print output. Note that an invoice number has now been assigned by the system.

At this point, if there were an error, it could be fixed in Pending Invoice Maintenance.

## Post Invoice

The screenshot shows the 'Invoice Post' window in QAD. The window title is 'Invoice Post'. At the top, there is a menu bar with 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. Below the menu bar, there are three dropdown menus: 'Sold-To: 00010000', 'To: 00010000', and 'Bill To: 00010000'. The main area contains several input fields with search icons: 'Invoice: IV-10000', 'Sold-To: 00010000', 'Bill To: 00010000', 'To: IV-10000', 'To: 00010000', and 'To: 00010000'. Below these fields are two dropdown menus: 'GL Effective Date: 9/29/2010' and 'GL Consolidated or Detail: Consolidated'. At the bottom left, there is a checkbox labeled 'Print Lot/Serial Numbers Shipped'. At the bottom right, there are labels for 'Invoice Post Output:' and 'Batch ID:'. The QAD logo and tagline 'Our Passion. Your Advantage.' are in the top left corner. The text 'QAD Proprietary' is in the bottom left corner, and 'QS-PR-1140' is in the bottom right corner.

To post the printed invoice to the general ledger, QMI's AR administrator uses Invoice Post. The output is shown below.

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## Example: Post Invoice 2 of 2

**Invoice Post**  
**Training**

09/29/10 14

Sales Journal Reference: S0100929000003 AR Batch: 1004

Invoice	Bill To	Name	Sold-To	Name	Slspsn
IV-10000	00010000	Midwest Medical Distributors	00010000	Midwest Medical Distributors	

Sales Order: S0-10012 Ship-To: 00010000 Midwest Medical Distributors Order Date: 09/29/10 P0:

Ln	Item Number	UM	Sales	Sub-Acct	CC	Invoiced	Backorder	Tax	Price	Extended Price	Extended Margin
1	10-00	EA	3000			10.0		No	5,000.00	50,000.00	44,332.34
	Medical Ultrasound					0.0					

Currency: USD	Line Total:	50,000.00	
Tax Date: 09/29/10	0.00% Discount:	0.00	
Containers: 0.00	FREIGHT 10 :	0.00	
Line Charges: 0.00	TAX-FREIGHT 11 :	0.00	
	SERVICE 20 :	0.00	
	Total Tax:	0.00	
	Total:	50,000.00	

**Invoice Post**  
**Training**

Sales Journal Reference: S0100929000003 AR Batch: 1004


Entry			Consolidated Dr	Consolidated Cr
1000	1200	09/29/10	50,000.00	.00
1000	3000	09/29/10	.00	50,000.00
			50,000.00	50,000.00

QAD Proprietary
QS-PR-1150


A summary of the GL transactions is printed at the end of the report. In this example, it shows that Accounts Receivable (1200) has been debited \$50,000.00 and that Sales (3000) has been credited \$50,000.00.

The Invoice Post function generates a debit/credit memo in the Accounts Receivable module and updates the customer's open account balance. Running Invoice Post also updates GL account balances for Sales and AR, salesperson quota and commission history, sales tax journals, and sales analysis history.

## Review Customer Account


09/29/10

### Review Customer Account


Customer Account Inquiry

Bill To: 00010000 Open Only: No Currency: Balance: 50,000.00  
 Midwest Medical Dist Reporting Currency: Output: page

Date	Ref	T	Due Date	C	Amount	Amount Open	Check	Days
09/29/10	IV-10000	I	10/29/10		50,000.00	50,000.00		


27.13
Customer Account Inquiry
arcsiq.p

QAD Proprietary QS-PR-1160

Notice that the Date of the invoice coincides with the effective date on the invoice post, whereas the Due Date is based on the credit terms specified in the invoice, which defaults from the sales order.

The column Check would show any checks that had been received and applied to the invoice; the column “Days” would show the number of days between the invoice date and the date the payment was applied to the invoice.

## Receive Payment


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# Receive Payment

		Midwest Medical Distributors, Inc.		552010
Voucher	Invoice	Gross Amount	Discount	Net Amount
	910025 IV-10000	\$50,000.00	0	\$50,000.00

---

Pay to the order of: 552010

GMI Incorporated 09/29/XX USD \*\*\*\*\*50,000.00

Fifty Thousand Dollars and 00/100

Midwest Medical Distributors, Inc.  
 Suite 1000 Colossal Building  
 Colossal Industrial Park  
 10350 Production Drive  
 Evanston, IL 09087

Signature \_\_\_\_\_

QAD Proprietary
QS-PR-1170

QMI has received a check from Midwestern Medical Distributors, Inc. The check number is 552010 and includes a reference to invoice number IV10000.

The amount of the check is \$50,000.00, which pays the invoice in full.

## Payment Maintenance

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# Payment Maintenance 1 of 2

Payment Maintenance
Go To ▾ Actions ▾ Copy ▾ Print ▾ Preview ▾ Attach

Currency: USD
Daybook: AR Pmt
Bank: A

Batch: 1005	Control:	50,000.000	Total:	0.000
-------------	----------	------------	--------	-------

Check: 552010	Bill To: 00010000	Midwest Medical Distributors
Currency: USD		Type: P
Check Control: <input type="text" value="50,000.00"/>		Amount: 0.00
Date: <input type="text" value="9/29/2010"/>		Batch: 1005
Effective: <input type="text" value="9/29/2010"/>		Daybook: <input type="text" value="AR Pmt"/>
Bank: <input type="text" value="A"/>		Account: 1040
Bank of QMI Inc.		
	Discount Account: 3910	
Remark: <input type="text"/>	Entity: 1000	
Auto Apply: <input type="checkbox"/>		

QAD Proprietary
QS-PR-1180

Once the check arrives, QMI’s AR administrator can enter the payment into Payment Maintenance. QMI’s AR administrator has entered the check number (552010), bill-to ID for Midwestern Medical Distributors, the total amount for this payment (\$50,000.00), the bank where the check will be deposited (bank A), and entity (entity 1000, which should match the entity for the bank).

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## Payment Maintenance 2 of 2

Payment Maintenance x

Go To Actions Copy Print Preview Attach

Check: 552010  
Bill To: 00010000

Payment Application Detail

Payment Maintenance x

Go To Actions Copy Print Preview Attach

Check: 552010 Check Control: 50,000.00 Amount: 50,000.00  
 Bill To: 00010000 Midwest Medical Distributors Unapplied: 0.00

Payment Application Detail

Reference	T	N/U Ref	Due Date	Balance	Cash Amount
IV-10000	I		10/29/2010	0.000	50,000.000

Payment Application Maintenance

Ref: IV-10000  
N/U Ref:  
Account: 1200  
Tax:

Payment Application Maintenance


Ref:  Type: Entity:  
N/U Ref: Amount to Apply:  
Account: Cash Amount:  
Tax: Discount:

QAD Proprietary QS-PR-1190


In the Payment Application Maintenance frame, notice the invoice number IV10000 as Reference and the transaction Type I = invoice.

Once the Application Maintenance frame is completed, the Payment Application Detail frame is updated. Note the unapplied amount is now zero as the entire amount has been applied to a specific invoice.

## Customer Account Inquiry


09/29/10

### Example: Customer Account Inquiry


Customer Account Inquiry
09/29/10

Bill To: 00010000 Open Only: No Currency: Balance: 0.00  
 Midwest Medical Dist Reporting Currency: Output: page

Date	Ref	T	Due Date	C	Amount	Amount	Open Check	Days
09/29/10	552010	P			-50,000.00		0.00	
09/29/10	IV-10000	I	10/29/10		50,000.00		0.00	552010

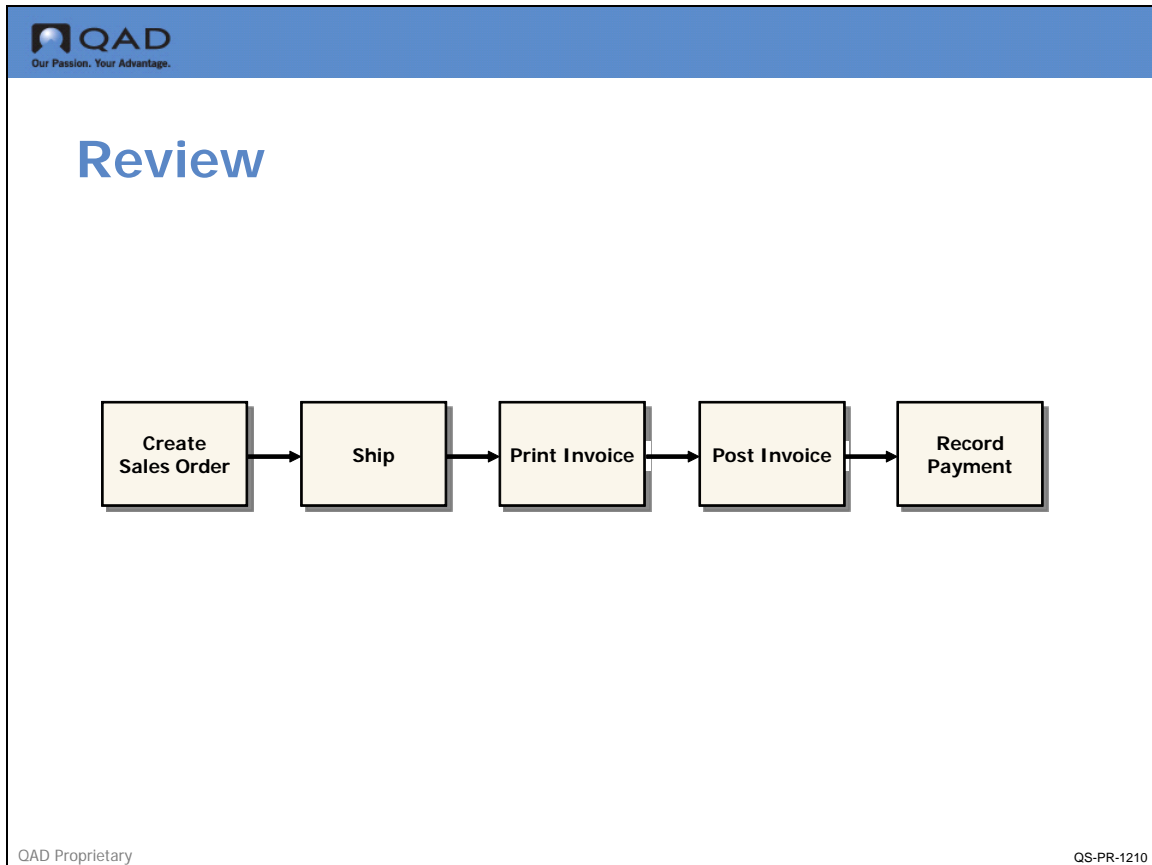
27.13
Customer Account Inquiry
arcsiq.p

QAD Proprietary QS-PR-1200

The Customer Account Inquiry screen shows that Midwestern Medical Distributors currently has a zero balance, and that it paid its previous balance of \$50,000.00 with check number 552010 per invoice IV10000.

After the payment has been entered the Balance and Amount Open fields are zero, as shown above. The payment (Type = P for payment), is shown with the check number as the reference. As the check was applied to a specific invoice the system has also put the check number on the line with the invoice. This is very useful when one check pays many invoices.

## Review



In this chapter, the customer's intent to buy was shown in the sales order records, listing the items, quantities, price, sales tax and other charges, and 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. An order that is flagged 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 printed and sent to customers. Invoices are posted on a regular basis.

When the customer sends the payment, it is recorded in the system.

## Exercise: 9 Sales Orders / Invoices and Accounts Receivable

In the following activity you

- Add a customer:
- Modify Sales Order Control
- Add a sales order record
- Print a packing list, and ship the sales order
- Review customer balance
- Receive payment in full for outstanding invoice
- Review customer balance after payment

### Add a Customer Record

- 1 Use Customer Maintenance (2.1.1) to create a customer record for Midwestern Medical Distributors, Inc.

Field	Value
Customer Code	< blank >
Name	Midwest Medical Distributors, Inc.
Address	Suite 1000 Colossal Building
Address	Colossal Industrial Park
Address	10350 Production Drive
City	Evanston
State	IL
Post	09087
Country Code	USA
Site	8000
Credit Limit	1,000,000
Terms	30
Bank Account	<blank>

Click Back to update.

### Modify Sales Order Control

- 2 Use Sales Order Control (7.1.24) to set the following fields:

Field	Value
Detail Allocations	No
Company Address	8000
Sales Order Comments	No
Sales Order Line Comments	No
Print Only Lines to Invoice	No
Line Format	Single
Sales Order Prefix	SO-
Invoice Prefix	IV-

Field	Value
Integrate with AR	Yes
Integrate with SA	Yes
Integrate with TrM	No
Confirmed Orders	Yes
Hold Order > Credit Limit	No

Save your changes and exit.

### Add a Sales Order Record

- Use Sales Order Maintenance (7.1.1) to add a sales order.

Header Information

Field	Value
Order	<blank>
Sold To	Midwestern Medical Distributors
Bill-To & Ship-To	(default)
Order Date	Today
Site	8000
Credit Terms	30

Accept remaining default values

Line 1 information:

Field	Value
Item	10-00
Site	8000
Quantity Ordered	10
List Price	\$5,000.00 (default)

Accept remaining default values.

Click Next to accept line 1.

The system is now ready for you to enter information for line 2. We are not entering a second line, so, to escape this frame, click End Lines. Click Trailer again until you come to the trailer frames.

Trailer information:

Field	Value
Print Sales Order	Yes

Accept remaining default values.

- Use Sales Order Print (7.1.3) to print and review a copy of the sales order.

Field	Value
Sales Order	Use the Lookup
Output	PAGE

**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.

Field	Value
Sales Order	Select yours
Update	Yes
Output	PAGE

- 6 Use Sales Order Shipments (7.9.15) to record the shipment of the sales order.

Field	Value
Ship Picked	Yes

Ship Picked = Yes (checked) automatically updates the quantity to ship in the shipment display. You can then modify the quantity that is actually being shipped and the location from where the items were taken.

Frame 1:

Field	Value
Line	1
Quantity	100
Site	8000
Loc	FINGDS

Frame 2:

Confirm that all information is correct

Frame 3:

Field	Value
Ready to Invoice	Yes

- 7 Use Inventory Detail by Site Browse (3.3) 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 which accounts were debited when you did the sales order shipment.

**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 will show you the invoices that have not yet been printed and posted. You can also change the flags to show you invoices that have printed but not yet posted.
- 10 Use Invoice Print (7.13.3) to print an invoice for your sales order. Print to page. Update? Yes.

**Post the Invoice to Accounts Receivable**

- 11** Use Invoice Post (7.13.4) to post the invoice and update the customer account balance, generate un-posted GL transactions debiting sales, and update sales and invoice history.

**Review a Customer Account and Apply a Payment**

- 12** Use Customer Account Inquiry (27.13) to see the customer's Midwestern Medical Distributors open account balance.

Notice the type is I for invoice and the reference is the invoice number.

Your customer has sent you a check (552010).

- 13** Use Payment Maintenance (27.6.4) to apply the payment to the invoice. The value in the check control field should be the amount of the check you have received.

Frame 1:

Field	Value
Batch	<blank>
Control	50,000.00
Check	552010
Bill-To	Midwestern Medical Distributors
Check Control	50,000.00
Bank	A
Entity	1000

Frame 2:

Field	Value
Ref	Invoice Number
Amount to Apply	50,000.00
Cash Amount	50,000.00
Discount	0.0


Review the Customer Account Inquiry (27.13). Notice the payment is type P and the payment is pegged to the invoice.



Chapter 11

# **Planning in QAD Standard Edition**

## Overview



### Planning: Topics

#### 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 (APO)
- Process Work Order (APO)
- Post Transactions

▲ **Activity**

QAD Proprietary QS-PL-020

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. In this chapter, the interaction of some of these planning elements in the Example section-especially those among purchasing, manufacturing, and sales will be examined. First, the primary components of the planning system in the Key Concepts section will be discussed.

## Learning Objectives

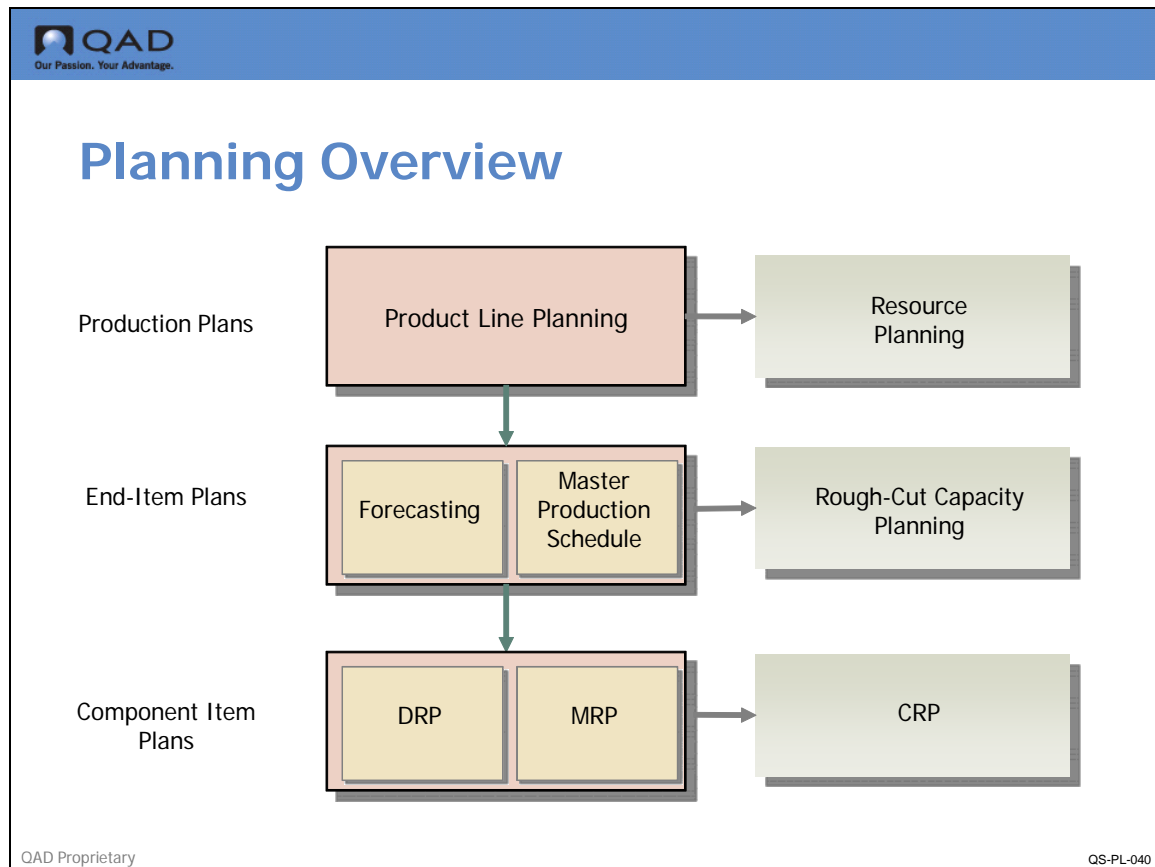


### Planning: Learning Objectives

When you finish this section, 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 relate to one another
- ▲ Enter a forecast
- ▲ Read Master Schedule Summary and Detail Inquiries
- ▲ Read MRP Summary and Detail Inquiries
- ▲ Approve planned orders

## Key Concepts



Within a corporation, planning is done at many levels by many different people. QAD SE 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, which are summarized below and discussed in more detail in this chapter.

### 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; product line planning is where they are brought together. Resource planning is used to determine whether there are sufficient resources to meet the plans.

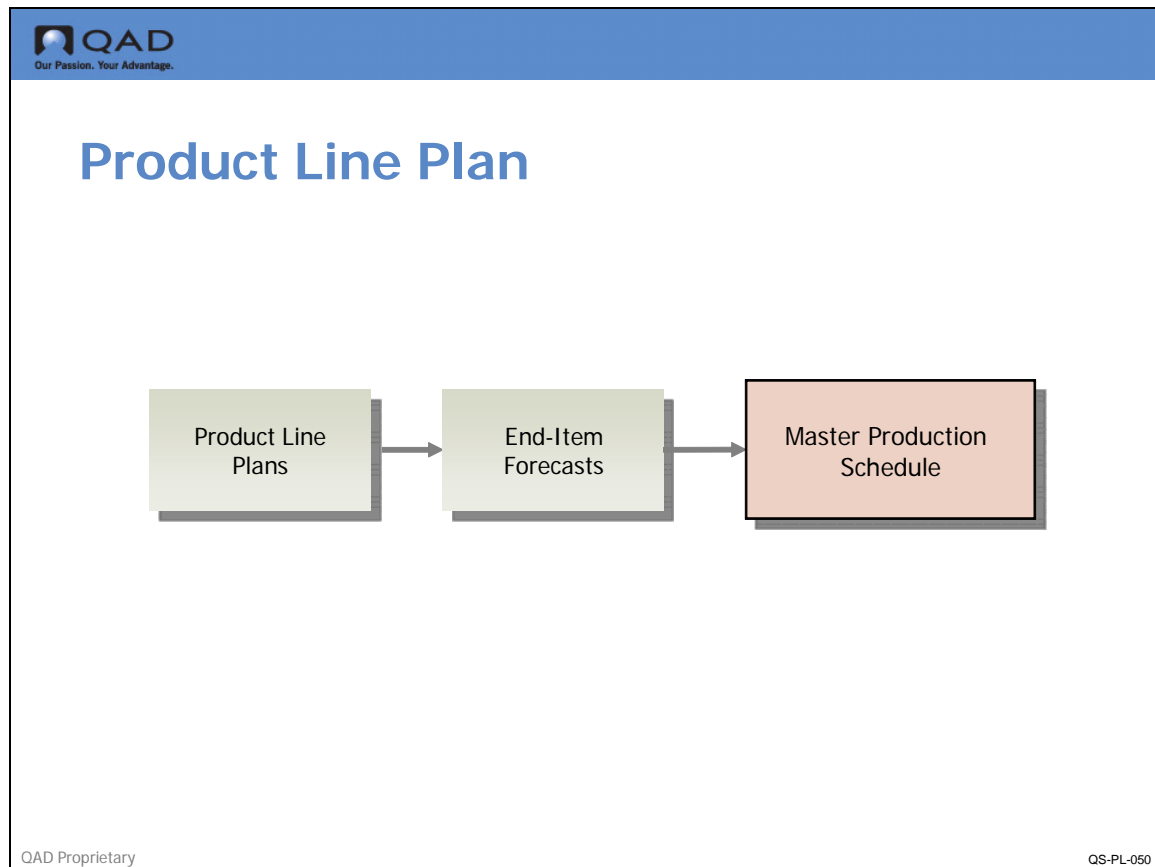
### End-Item Planning

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 resources at your site.

## Production Planning: Product Line Plan



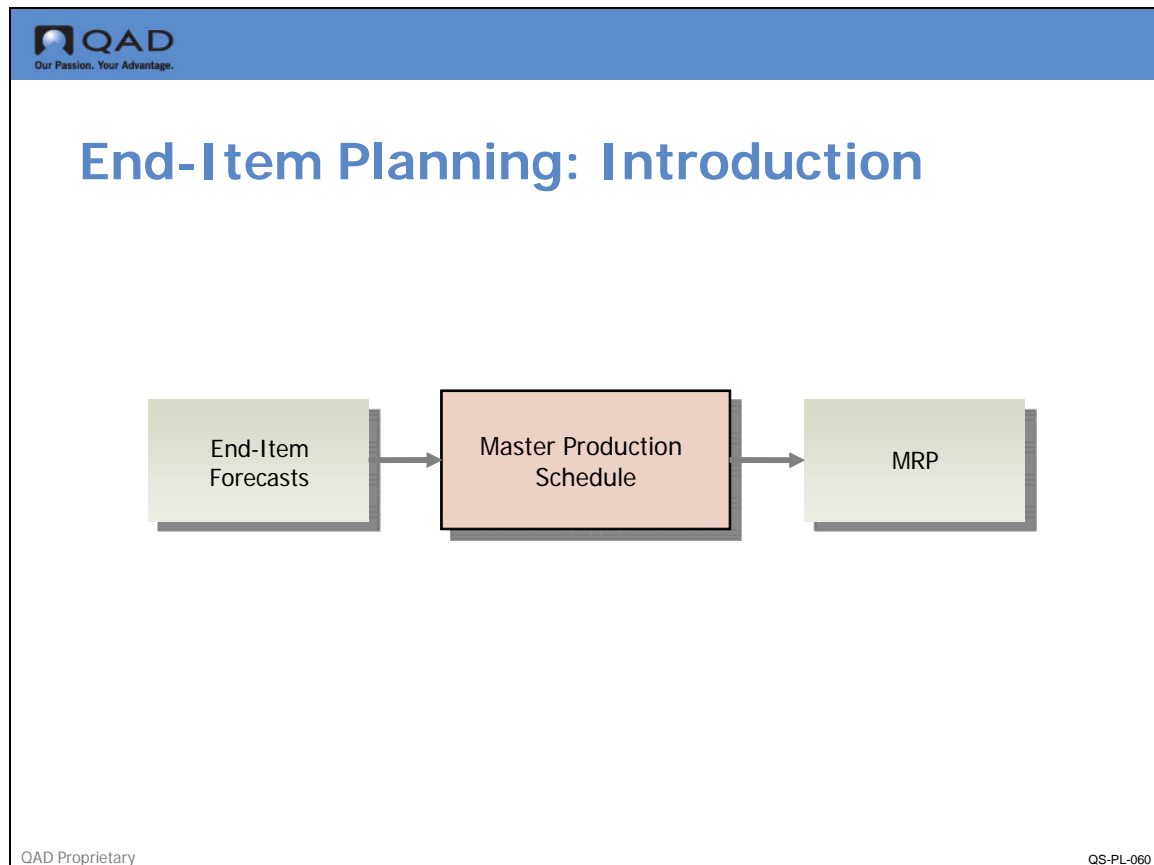
Product line plans generally cover 1 to 3 years, usually shown by months and quarters. They are composed of aggregate forecasts that are converted into end-item forecasts. These detailed forecasts provide input that the master scheduler uses to create a statement of production.

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
- Convert demand into 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

Product line plans are broken out into end items, planned in the master schedule, and exploded to component plans by MRP

## End-Item Planning: Introduction



End-item planning starts with the master schedulers, who estimate the demand for a product and determine how many to produce. The master schedulers planning horizon should be at least equal to the longest cumulative lead time in the system. Many companies like to plan and forecast 12 to 18 months into the future to insure adequate resource planning.

### 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.

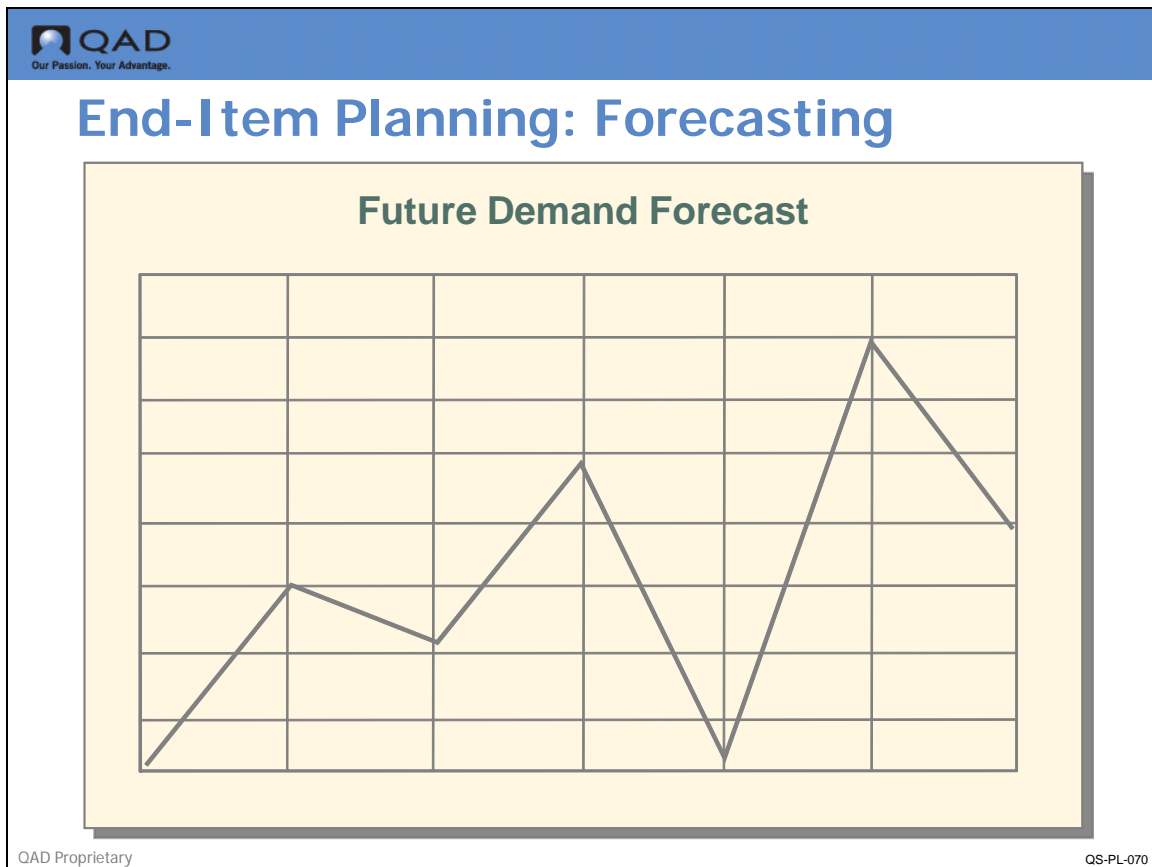
### Output

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.

In the system, end-item planning is done in the Forecast/Master Plan module.

## 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 SE, 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

### **Abnormal Sales Demand**

Some sales order demand cannot be anticipated by the forecast and is considered abnormal sales demand. These can be major new accounts or windfall orders. For example, orders for roofing materials after a hurricane. Since abnormal sales demand was not anticipated by the forecast, it does 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.

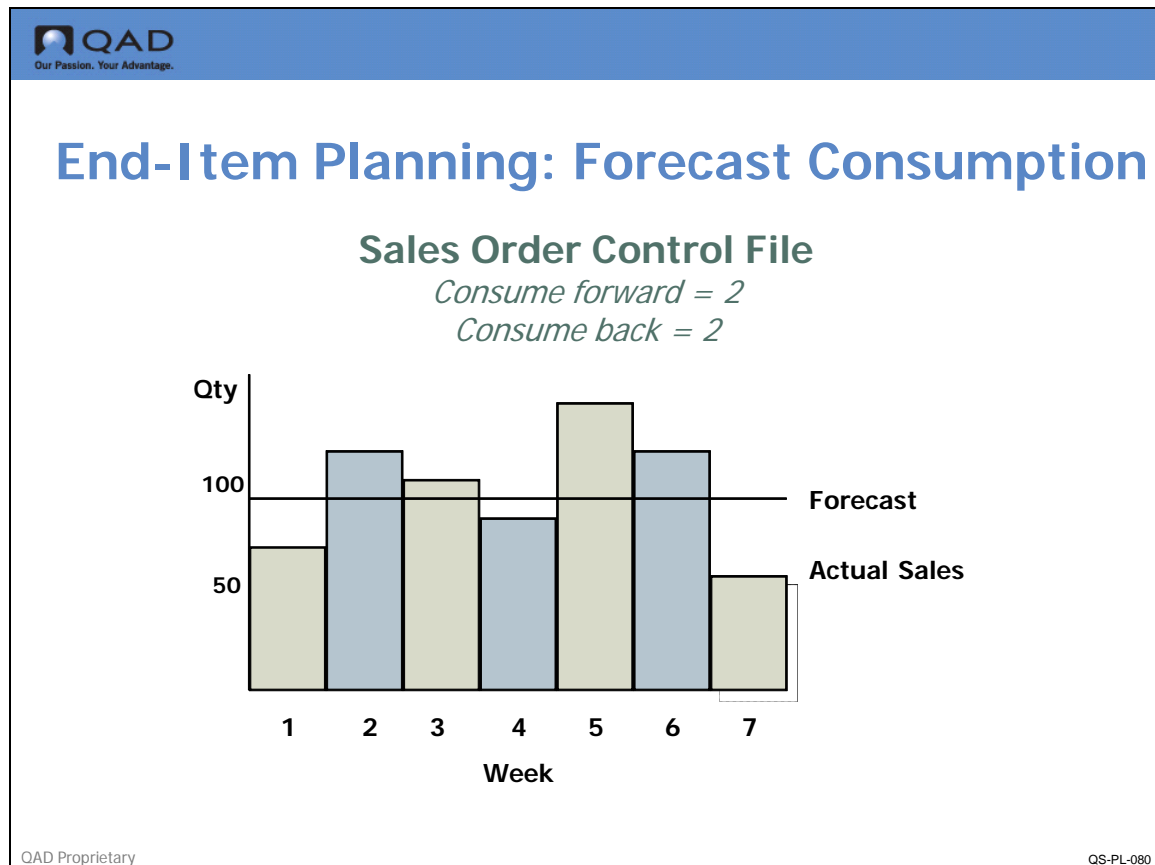
### **Net Forecast**

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 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.

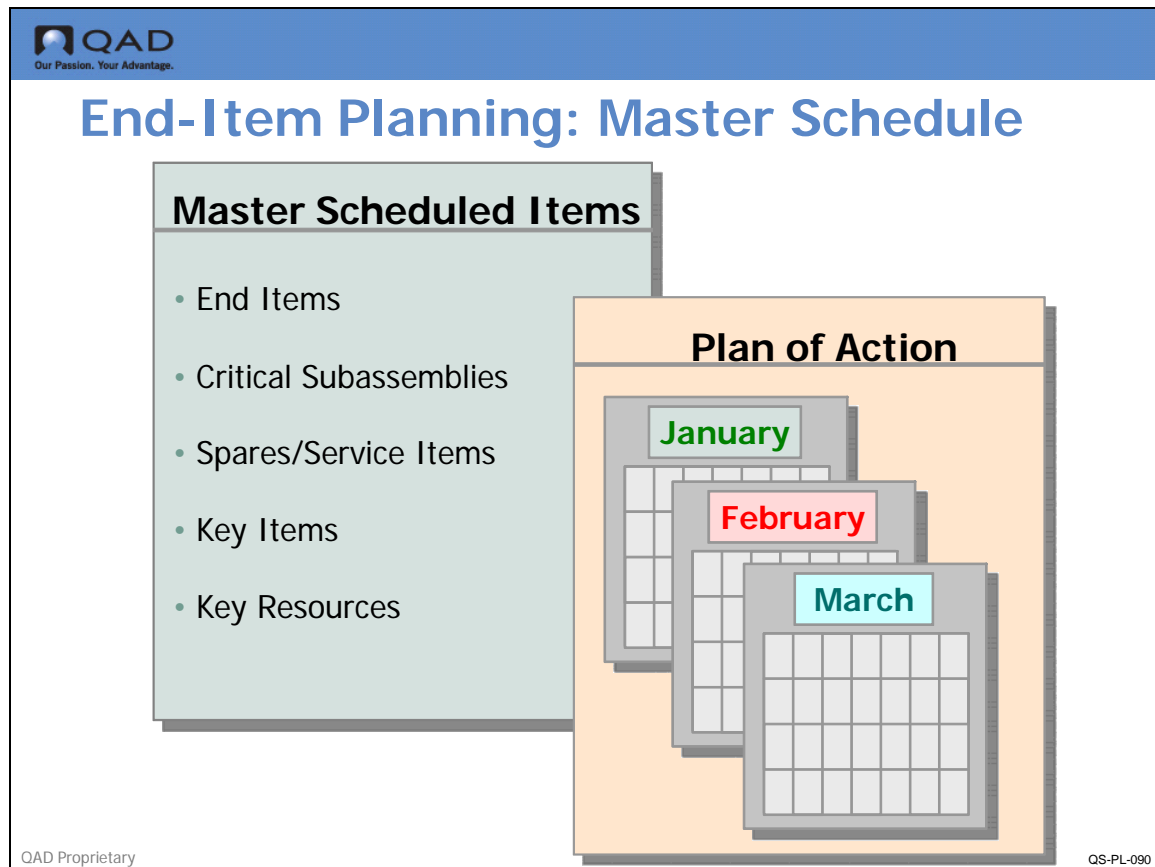
As a rule, forecasts are more accurate in the long term rather than the short term. Since forecasts are entered for one-week periods, actual shipments seldom correspond to the forecast for a single one-week period. Shipments may be predicted with more accuracy over a month or a quarter.

### 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 there may be unsold forecast in other weeks that should be consumed.

The rules for forecast consumption are set up in Sales Order Control.

## 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 is responsible for providing manpower, materials, manufacturing capability, money (cash flow), and management of all logistical activities.

### 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; and effective stabilization of MRP.

### Master Schedule and RCCP Uses

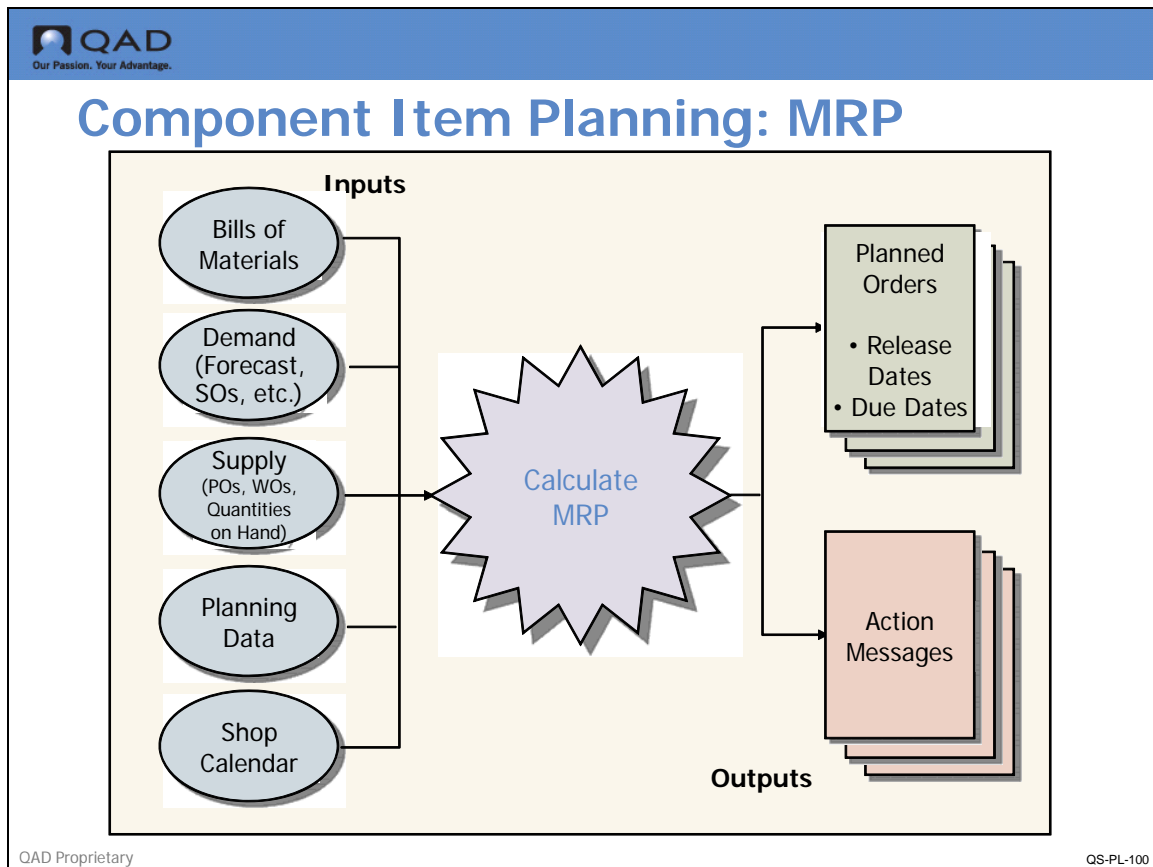
Normal uses of a master schedule include driving RCCP and MRP and planning future production.

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.

Master scheduling and RCCP should remove most of the capacity constraints before MRP is run.

## 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 may 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
- Product structures/formulas
- Shop calendar

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 re-plans items (for all selected sites) that have changed since the last MRP run. The primary advantage of net change MRP is that it often should take 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 priorities 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 medium-range capacity management to determine and provide the resources required to meet MRP's detailed item schedules.

## Terminology

### Time Fence

A time fence is a policy or guideline established to note where various restrictions or 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.

## Component Item Planning: Item Planning Parameters


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# Item Planning Parameters

### Item Planning Maintenance

Order Policies	Order Modifiers
LFL	Order Qty
POQ	Safety Stock Qty
FOQ	Min Order Qty
OTO	Max Order Qty
[Blank]	Order Qty Multiple

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The system uses item planning parameters to determine how items are planned by MRP. General item planning parameters may 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:

#### 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 will then count 30 days from five days from now to create the 30 day period bucket.

### Fixed Order Quantity (FOQ)

FOQ is 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 will then count 30 days from five days from now to create the 30 day period bucket.

### Lot for Lot (LFL)

LFL is a lot sizing technique where MRP plans a separate supply order for each demand order. For example there are sales orders for the same item with quantities of 5, 10, 15, and 20. MRP will plan four orders for; 5, 10, 15 and 20 units.

### One Time Only (OTO)

OTO is a lot-sizing technique that produces an order only once, based on the due date of the first item required. 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.

### Order Quantity

A specified quantity 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

A specified quantity 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.

### Maximum Order Quantity

MRP generates a warning message in the event 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 may be delayed unnecessarily. Further, setting a quantity limit can uncover data entry errors (for example, entry of 1,000 instead of 100).

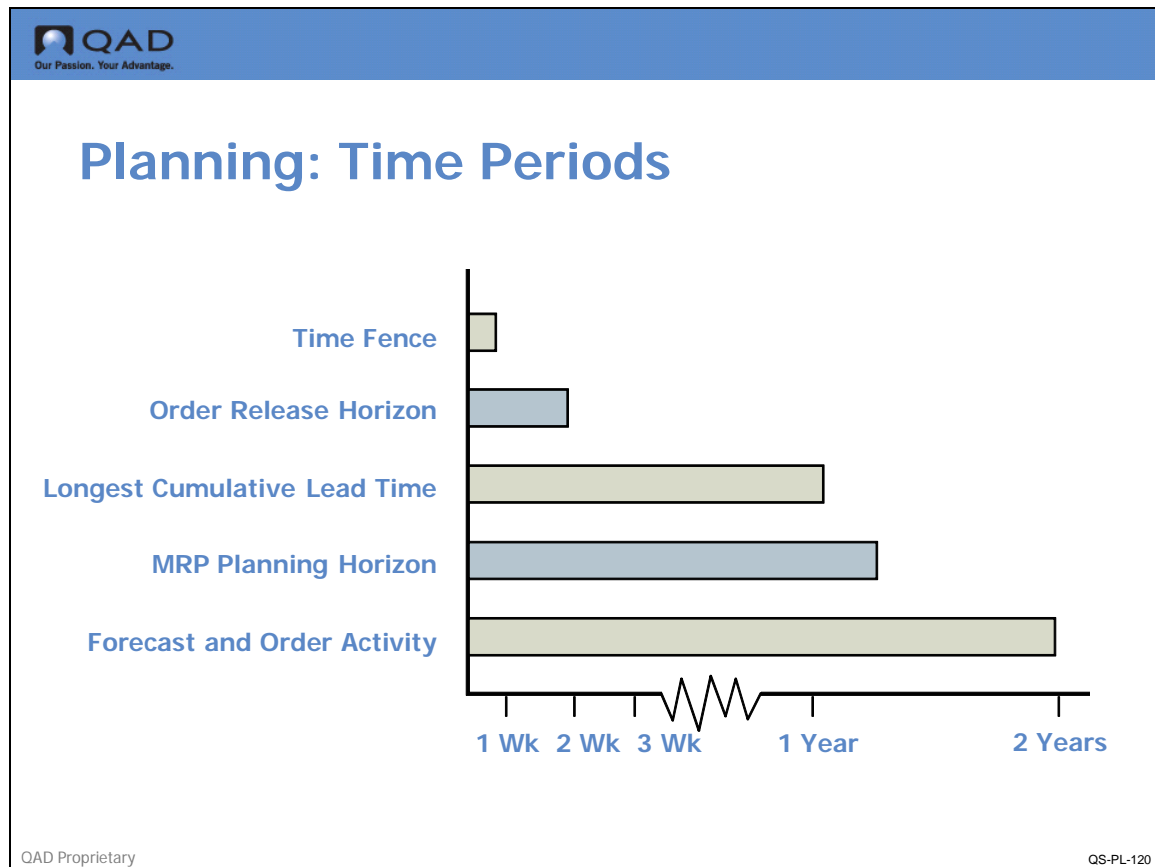
### Order Quantity Multiple

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. It is the sum of Manufacturing lead time for manufactured items, Purchasing lead time and Inspection lead time for purchased items. Safety lead time can be added to all. 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: Planning Time Periods



### Planning Horizon

Before running MRP, 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 sub-assemblies or components, and assemble and inspect the finished product.

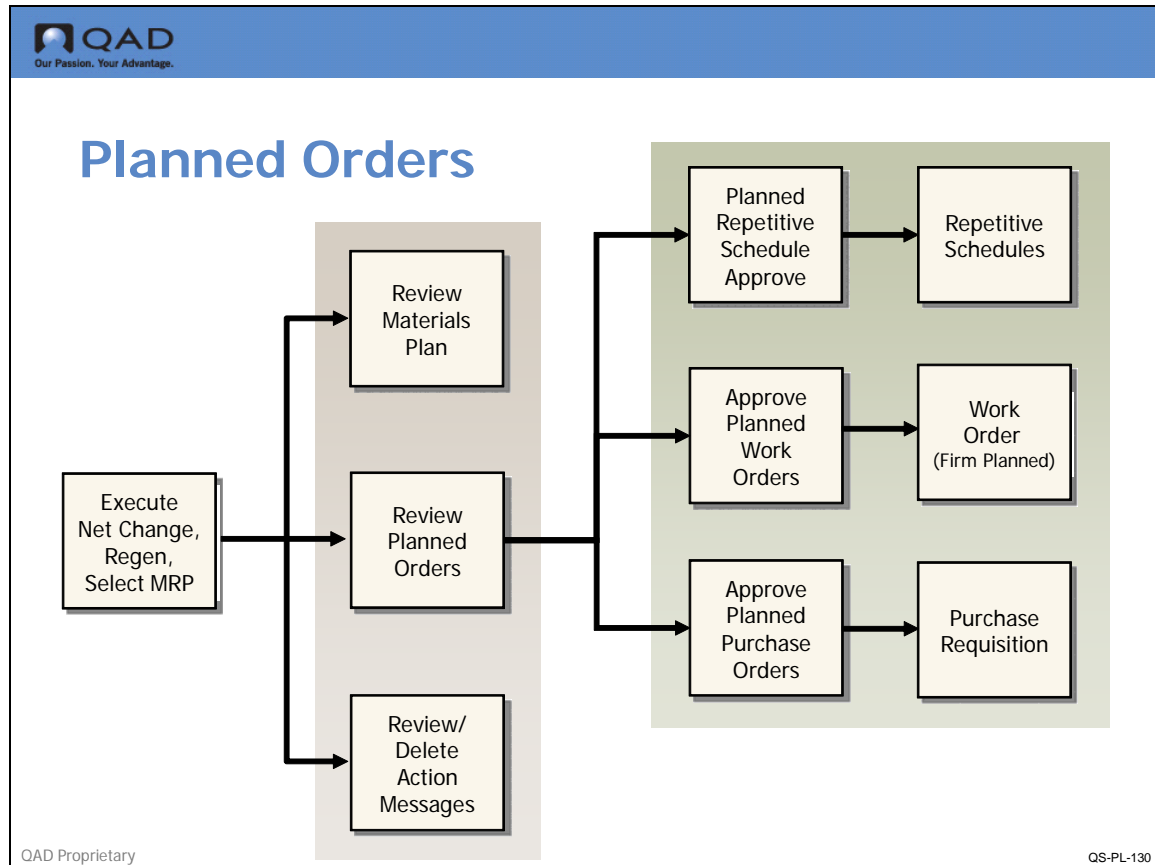
These times are entered in Item Planning Maintenance for each item in the fields Mfg LT, Pur LT, and Ins LT. Items acquired through DRP also have a Mfg LT value entered-this should include transit and order time. This time is not used for planning DRP items; it is used only in cumulative lead time calculations.

### Order Release Horizon

To provide visibility for which orders are due to be released, MRP generates Release Due action messages. Typically, you would like to see these in advance, not just on the day the order is due for release.

The release horizon can be set 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 planned work orders or planned purchase orders, depending 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 may 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 may 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


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# Planning: Action Messages

## MRP Output

Recommend actions to balance supply with demand

Supply exceeds demand	Demand exceeds supply
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <p style="color: #c00000; margin: 0;"><b>Action Messages</b></p> </div> <div style="border: 1px solid #ccc; padding: 5px;"> <p style="margin: 0;">De-expedite those orders Cancel that order</p> </div>	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <p style="color: #c00000; margin: 0;"><b>Action Messages</b></p> </div> <div style="border: 1px solid #ccc; padding: 5px;"> <p style="margin: 0;">Expedite those orders Create these orders</p> </div>

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To project inventory balances and calculate net requirements, MRP temporarily 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 as the required action is taken. They can also be printed along with the detailed plan.

## Example

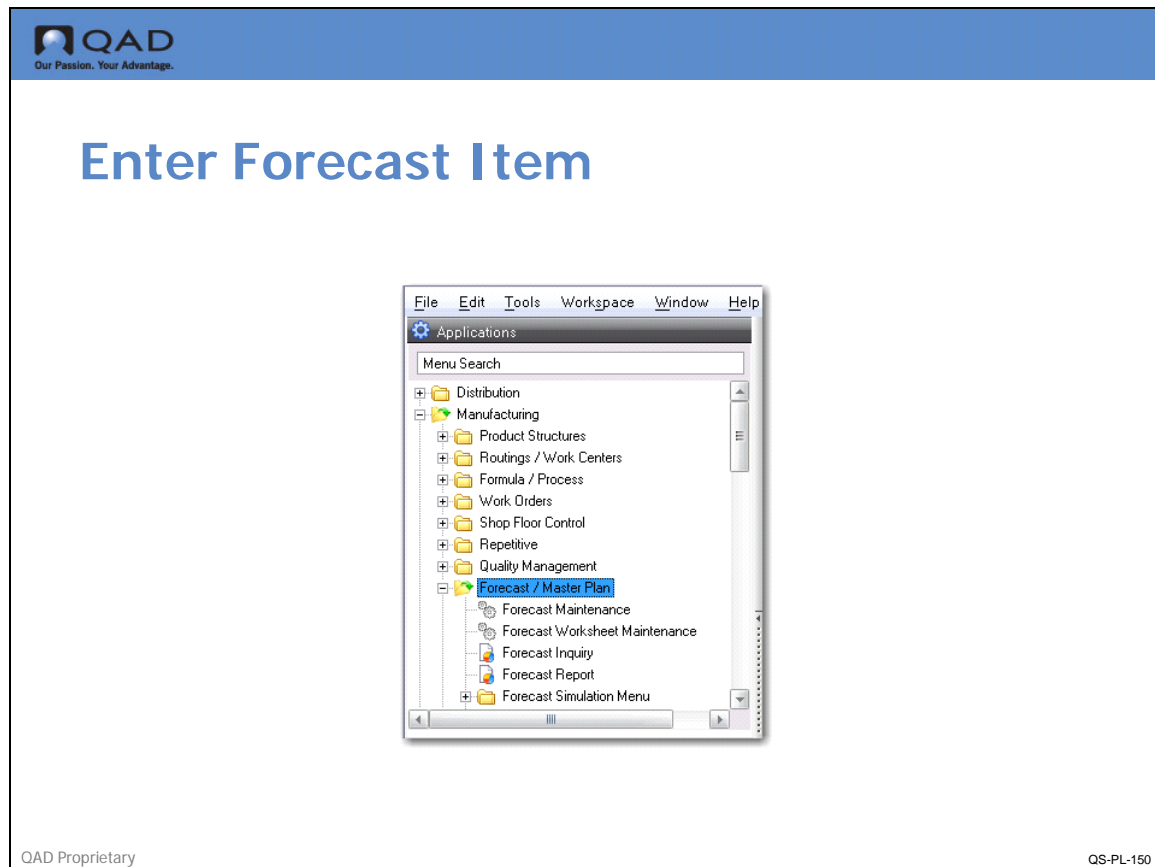
How the planning process works.

In this example, QMI:

- Enters a forecast for medical ultrasounds
- Enters a sales order (where we can see how it consumes demand):
  - Line 1: normal SO, quantity = 10, due date = (today's date + X days)
  - Line 2: abnormal SO, quantity = 15, due date = (today's date + (X + 7) days)
- Runs MRP
- Approves planned work orders
- Approves planned purchase orders
- Creates a purchase order using a requisition: Items 10-01, 10-02, 10-03, and 10-04; purchase lead time = 5 days
- Builds work order items and puts the items into stock: Item 10-00, manufacturing lead time = 1 day
- Ships a sales order

In the process of reviewing the production schedule and MRP reports, we can 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 10-00



The system offers two screens for entering forecast data. Forecast Maintenance (22.1) and Forecast Worksheet Maintenance (22.2).

**Enter Forecast Item 10-00**

Forecast Maintenance x

Go To Actions Copy Print Preview Attach

Item Number: 10-00 Site: 8000

Item Number: 10-00 Site: 8000 Year: 2010

Week	Forecast	Week	Forecast	Week	Forecast	Week	Forecast
1/4/2010	0	4/5/2010	0	7/5/2010	0	10/4/2010	0
1/11/2010	0	4/12/2010	0	7/12/2010	0	10/11/2010	0
1/18/2010	0	4/19/2010	0	7/19/2010	0	10/18/2010	0
1/25/2010	0	4/26/2010	0	7/26/2010	0	10/25/2010	0
2/1/2010	0	5/3/2010	0	8/2/2010	0	11/1/2010	0
2/8/2010	0	5/10/2010	0	8/9/2010	0	11/8/2010	0
2/15/2010	0	5/17/2010	0	8/16/2010	0	11/15/2010	0
2/22/2010	0	5/24/2010	0	8/23/2010	0	11/22/2010	0
3/1/2010	0	5/31/2010	0	8/30/2010	0	11/29/2010	0
3/8/2010	0	6/7/2010	0	9/6/2010	0	12/6/2010	0
3/15/2010	0	6/14/2010	0	9/13/2010	0	12/13/2010	0
3/22/2010	0	6/21/2010	0	9/20/2010	0	12/20/2010	0
3/29/2010	0	6/28/2010	0	9/27/2010	0	12/27/2010	0
Total	0	Total	0	Total	0	Total	0

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In Forecast Maintenance (22.1) there are 52 weekly buckets so an entire years forecast for a given item and site can be entered in one screen. If forecast simulation is being used, this screen is populated automatically with data from the forecast simulation calculation.

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## Enter Forecast Item 10-00

Forecast Worksheet Maintena... x

Go To Actions Copy Print Preview Attach

Item Number: 10-00 Site: 8000

Item Number: 10-00 Site: 8000 Year: 2010

Week	Forecast	Sales	Abnormal	Prod Fcst	Net Forecast
27 7/5/2010	<input type="text" value="0"/>	0	0	0	0
28 7/12/2010	<input type="text" value="0"/>	0	0	0	0
29 7/19/2010	<input type="text" value="0"/>	0	0	0	0
30 7/26/2010	<input type="text" value="0"/>	0	0	0	0
31 8/2/2010	<input type="text" value="0"/>	0	0	0	0
32 8/9/2010	<input type="text" value="0"/>	0	0	0	0
33 8/16/2010	<input type="text" value="0"/>	0	0	0	0
34 8/23/2010	<input type="text" value="0"/>	0	0	0	0
35 8/30/2010	<input type="text" value="0"/>	0	0	0	0
36 9/6/2010	<input type="text" value="0"/>	0	0	0	0
37 9/13/2010	<input type="text" value="0"/>	0	0	0	0
38 9/20/2010	<input type="text" value="0"/>	0	0	0	0
39 9/27/2010	<input type="text" value="0"/>	10	0	0	0
Totals	0	10	0	0	0

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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 the Forecast Worksheet Maintenance the QMI planner has entered forecasts for the number of medical ultrasounds that he expects to ship each week for the next four weeks. Note that in a prior week the system is showing sales orders for 10 units, which were the sales order shipped in the last section of the course. As the screen is near the end of the year we advance to the next screen by adding the new year.

## Define Control Settings: Forecast Consumption

**Forecast Consumption**

Consume Forward: 2

Consume Back: 1

Check Customer Item Nbr First:

Taxable Trailer Code 1: 10

Taxable Trailer Code 2: 11

Taxable Trailer Code 3: 21

Nontaxable Trailer Code 1: 10

Nontaxable Trailer Code 2: 11

Nontaxable Trailer Code 3: 20

In Sales Order Control, QMI's planner has set up rules for forecast consumption. In this example, whenever there are excess sales in a period, the system will consume the forecast, first by going back, then forward, one period from the original forecast period. It then continues to search backward and forward until the specified number of previous periods (1) and future periods (2) have been examined or the entire sales order quantity has been applied.

## Enter Sales Order Line: Consume Forecast

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## Enter Sales Order Line Consume Forecast

Sales Order Maintenance X

Go To Actions Copy Print Preview Attach

Sales Order: SO-10014 Order: SO-10014 Sold-To: 00010000

Header Lines Trailer

Lines Line Details Freight Data Tax Info Comments

Header

Order: SO-10014 Sold-To: 00010000 Ln Format S/M: Single

Sales Order Line

Ln	Item Number	Qty Ordered	UM	List Price	Discount	Net Price
1	10-00	10.0	EA	5,000.00	?	5,000.00

Line Details

Desc: Medical Ultrasound Sales Acct:  
 Loc: FINGDS Site: 8000 Disc Acct:  
 USD Cost: 566.7662 Confirmed:  Credit Terms Int: 0.00  
 Lot/Serial: Required: Ship Type:  
 Qty Allocated: 0.0 Promised: UM Conversion: 1.0000  
 Qty Picked: 0.0 Due Date: 10/22/2010 Consume Fcst:   
 Qty Shipped: 0.0 Perform Date: Detail Alloc:   
 Qty to Invoice: 0.0 Pricing Date: 9/30/2010 Taxable:   
 Salesperson 1: Multiple:  Freight List:  
 Commission 1: 0.00% Category: Fixed Price:  Comments:

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In Sales Order Maintenance, QMI's customer service representative (CSR) has entered two sales order lines for its medical ultrasound (item 10-00); Line 1 (shown above) is for an order of 10 medical ultrasounds due 10/22/2010. This order, once confirmed, consumes forecast because the Consume Forecast box has been selected.

Examine line 2 on the next page.

## Enter Sales Order Line: Do Not Consume Forecast

The screenshot displays the 'Sales Order Maintenance' window with the title 'Do Not Consume Forecast'. The interface includes a header section with order details (Order: SO-10014, Sold-To: 00010000) and a table for 'Sales Order Line'. Below the table is a 'Line Details' section with various input fields for product information, pricing, and dates. The 'Consume Fcst' checkbox is clearly visible and unchecked.

Ln	Item Number	Qty Ordered	UM	List Price	Discount	Net Price
2	10-00	15.0	EA	5,000.00	0.0	5,000.00

**Line Details:**

Desc: Medical Ultrasound  
 Loc: FINGDS Site: 8000  
 USD Cost: 566.7662  
 Lot/Serial:   
 Qty Allocated:   
 Qty Picked:   
 Qty Shipped:   
 Qty to Invoice:   
 Salesperson 1:   
 Commission 1: 0.00%

Sales Acct: 3000  
 Disc Acct: 3900  
 Confirmed:   
 Required:   
 Promised:   
 Due Date: 10/29/2010  
 Perform Date:   
 Pricing Date: 9/30/2010  
 Multiple:   
 Category:   
 Fixed Price:

Credit Terms Int: 0.00  
 Ship Type:   
 UM Conversion: 1.0000  
 Consume Fcst:   
 Detail Alloc:   
 Taxable:   
 Freight List:   
 Comments:

Line 2 (shown above) is for an order of 15 medical ultrasounds due 10/29/2010. This order will not consume forecast because the Consume Forecast box has not been selected.

Consume Forecast is not selected (un-checked) when the order quantity is considered abnormal and is planned in addition to the forecast. Perhaps the best definitions of abnormal sales are those that were not anticipated in the forecast; often new customers, new markets, or a current customer significantly increase their volume. Businesses should establish their own rules and guidelines for sales order entry as to when an order is flagged abnormal.

## Review Forecast Worksheet: Item 10-00

Forecast Worksheet Maintenance

Item Number: 10-00 Site: 8000 Year: 2010

Week	Forecast	Sales	Abnormal	Prod Fcst	Net Forecast
40 10/4/2010	0	0	0	0	0
41 10/11/2010	0	0	0	0	0
42 10/18/2010	10	10	0	0	0
43 10/25/2010	0	0	15	0	0
44 11/1/2010	0	0	0	0	0
45 11/8/2010	0	0	0	0	0
46 11/15/2010	0	0	0	0	0
47 11/22/2010	0	0	0	0	0
48 11/29/2010	0	0	0	0	0
49 12/6/2010	0	0	0	0	0
50 12/13/2010	0	0	0	0	0
51 12/20/2010	0	0	0	0	0
52 12/27/2010	0	0	0	0	0
Totals	0	10	15	0	0

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In Forecast Worksheet Maintenance, we can see the effect of the confirmed order on the net forecast: line 1 for 10 medical ultrasounds in week 42, which consumes forecast, and line 2 for 15 medical ultrasounds in week 43, which does not consume forecast.

Line 1 is a normal order and, accordingly, the sales order quantity of 10 is placed in the Sales column for week 42. Note, though, that only 10 medical ultrasounds were forecast for that week. This consumes the entire forecast leaving a net forecast of 0 in week one. Based on the Sales Order Control setting for Forward/Backward Consumption, the excess sales of 15 can consume the forecast in another period. First, the system looks at the preceding period, but finds the forecast of 15 units in week 43 was consumed by the sales order of 10 in the preceding week. The system then looks to a future period and will consume the forecast in week 2 to satisfy the current period demand. This affects the Net Forecast column, which is calculated from the shipment forecast less quantity sold.

Line 2 is an abnormal order (consumption flag un-checked) and, accordingly, the order quantity of 15 is placed in the Abnormal column for week 43 and does not consume forecast.

Review Master Schedule: Item 10-00

**Master Schedule Summary Item 10-00**

Category	Past	9/27/2010	10/4/2010	10/11/2010	10/18/2010	10/25/2010	11/1/2010
Production Forecast	0	0	0	0	0	0	0
Forecasts	0	0	0	0	0	0	0
Sales Orders	0	0	0	0	10	15	0
Gross Requirements	0	0	0	0	0	0	0
Master Schedule	0	0	0	0	0	0	0
Projected QOH	0	0	0	0	-10	-25	-25
Available to Promise	0	-25	0	0	0	0	0
Cumulative ATP	0	-25	-25	-25	-25	-25	-25

In Master Schedule Summary Inquiry, QMI's master scheduler can observe 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.

**Note** The display defaults to a period length of week. The user may select periods of days, weeks, months or GL calendar periods. It is also possible to display multiple periods in each column.

Most importantly, though, this screen shows a summary of the master schedule demands for an item; in this example, item 10-00 and the current plan to satisfy those demands.

The net forecast is provided in the Forecast row, and the total of the sales order quantities are shown in the Sales Orders row. We discussed this information on the previous page.

The Projected QOH (quantity on hand) is the calculated on hand balance at the end of each period. In this example, there are no medical ultrasounds in stock or "on hand," so demand makes the Projected QOH number negative for each period. In the week of 10/18, the confirmed sales order demand for 10 means that the Projected QOH is -10 (QOH - demand; 0 - 10 = -10); in the next week, the net forecast of 15 pushes the QOH lower to -25.

In this example, there is no inventory Available to Promise.

Notice that the MRP Required field = Yes, indicating that MRP should be run again because changes have occurred since it was last run. We see the effect of running MRP when QMI's planner runs MRP later in this example.

## Item Planning Data: Item 10-00

Item Planning Maintenance

Go To Actions Copy Print Preview Attach

Item: 10-00 Item Number: 10-00 Supplier:

Item Number: 10-00 Description: Medical Ultrasound

Unit of Measure: EA

Item Planning Data

Mstr Sched:  Buyer/Planner: [dropdown] Phantom:

Plan Orders:  Supplier: [lookup] Minimum Order: [0]

Time Fence: [0] PO Site: [8000] Maximum Order: [0]

MRP Required:  Purchase/Manufacture: [M] Order Multiple: [0]

Order Policy: [POQ] Configuration Type: [lookup] Op Based Yield:

Order Qty: [0] Inspect:  Yield Percent: [100.00%]

Batch Qty: [1.0] Ins LT: [0] Cum LT: [0] Run Time: [0.2333]

Order Period: [7] Mfg LT: [1] Pur LT: [0] Setup Time: [1.000]

Safety Stock: [0] ATP Enforcement: [NONE] EMT Type: [NON-EMT]

Safety Time: [0] Family ATP:  Auto EMT Processing:

Reorder Point: [0] Run Seq 1: [dropdown] Network Code: [lookup]

Rev: [dropdown] Run Seq 2: [dropdown] Routing Code: [lookup]

Issue Policy:  BOM/Formula: [lookup]

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On the next few pages, we will look at some of the key planning related settings that QMI's planner has set up for the medical ultrasounds, and its components.

As the medical ultrasound is the end item subject to independent demand it is Master Scheduled and we want the system to plan orders for us so Plan Orders is enabled (checked). This means that these items will be master scheduled (forecasted in our example), and planned orders created by MRP.

**Note** MRP processes requirements the same whether the master schedule box is checked or not. However, most reports and inquires in the system may be selected for master scheduled items only. This is very useful for the master scheduler as they may select only their items for review.

A few of the planning settings that item 10-00 and its components have in common in Item Planning Maintenance are the following:

- Order Policy of POQ (Period Order Quantity). MRP calculates demand for this item over the number of calendar days specified as the Order Period and creates one order to satisfy this demand. In this example, the order period is 7.
- Item 10-00, is a manufactured item, and it has a manufacturing lead time of 1 day, shown in the Mfg LT field in the screen above. Because it is a manufactured item, it also has setup time (1 hr.) and run time (0.2333 hr.).

**Note** For more detailed information on planning data and MRP refer the courses MRP and CRP and the course Master Scheduling and RCCP.

### Item Planning Data: Item 10-01

**Item Planning Maintenance**

Go To | Actions | Copy | Print | Preview | Attach

Item: 10-01 | Item Number: 10-01 | Supplier:

Item Number: 10-01 | Description: CPU/Monitor  
Unit of Measure: EA

**Item Planning Data**

Mstr Sched: <input checked="" type="checkbox"/>	Buyer/Planner: <input type="text"/>	Phantom: <input type="checkbox"/>
Plan Orders: <input checked="" type="checkbox"/>	Supplier: <input type="text"/>	Minimum Order: <input type="text" value="0"/>
Time Fence: <input type="text" value="0"/>	PD Site: <input type="text"/>	Maximum Order: <input type="text" value="0"/>
MRP Required: <input checked="" type="checkbox"/>	Purchase/Manufacture: <input type="text" value="P"/>	Order Multiple: <input type="text" value="0"/>
Order Policy: <input type="text" value="POQ"/>	Configuration Type: <input type="text"/>	Op Based Yield: <input type="checkbox"/>
Order Qty: <input type="text" value="0"/>	Inspect: <input type="checkbox"/>	Yield Percent: <input type="text" value="100.00%"/>
Batch Qty: <input type="text"/>	1.0 Ins LT: <input type="text" value="0"/> Cum LT: <input type="text" value="0"/>	Run Time: <input type="text" value="0.000"/>
Order Period: <input type="text" value="7"/>	Mfg LT: <input type="text" value="0"/> Pur LT: <input type="text" value="5"/>	Setup Time: <input type="text" value="0.000"/>
Safety Stock: <input type="text" value="0"/>	ATP Enforcement: <input type="text" value="NONE"/>	EMT Type: <input type="text" value="NON-EMT"/>
Safety Time: <input type="text" value="0"/>	Family ATP: <input type="checkbox"/>	Auto EMT Processing: <input type="checkbox"/>
Reorder Point: <input type="text" value="0"/>	Run Seq 1: <input type="text"/>	Network Code: <input type="text"/>
Rev: <input type="text"/>	2: <input type="text"/>	Routing Code: <input type="text"/>
Issue Policy: <input checked="" type="checkbox"/>		BOM/Formula: <input type="text"/>

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Item 10-01 (shown above) and items 10-02, 10-03, and 10-04 are purchased items. This is indicated in the Purchase/Manufacture field by a P, as shown here. All of these component items also have purchase lead times of 5 days. Based on the information entered above, the planner has indicated to MRP that these materials should be ordered in quantities to cover demand during an order period of 7 days (Order Period), and that a purchase order for this item should be released five days before the item is needed (Pur LT). There is no setup or run time associated with purchased items.

## Item Planning Data: Item 10-03

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## Review Planning Data: Item 10-03

Item Planning Maintenance

Go To Actions Copy Print Preview Attach

Item:10-03 Item Number:10-03 Supplier:

Item Number: 10-03 Description: Cable  
Unit of Measure: IN

Item Planning Data

Mstr Sched: <input checked="" type="checkbox"/>	Buyer/Planner: <input type="text"/>	Phantom: <input type="checkbox"/>
Plan Orders: <input checked="" type="checkbox"/>	Supplier: <input type="text"/>	Minimum Order: <input type="text" value="0"/>
Time Fence: <input type="text" value="0"/>	PO Site: <input type="text" value="8000"/>	Maximum Order: <input type="text" value="0"/>
MRP Required: <input checked="" type="checkbox"/>	Purchase/Manufacture: <input type="text" value="P"/>	Order Multiple: <input type="text" value="3,000"/>
Order Policy: <input type="text" value="POQ"/>	Configuration Type: <input type="text"/>	Op Based Yield: <input type="checkbox"/>
Order Qty: <input type="text" value="0"/>	Inspect: <input type="checkbox"/>	Yield Percent: <input type="text" value="100.00%"/>
Batch Qty: <input type="text" value="1.0"/>	Ins LT: <input type="text" value="0"/>	Cum LT: <input type="text" value="0"/>
Order Period: <input type="text" value="7"/>	Mfg LT: <input type="text" value="0"/>	Pur LT: <input type="text" value="5"/>
Safety Stock: <input type="text" value="0"/>	ATP Enforcement: <input type="text" value="NONE"/>	Run Time: <input type="text" value="0.000"/>
Safety Time: <input type="text" value="0"/>	Family ATP: <input type="checkbox"/>	Setup Time: <input type="text" value="0.000"/>
Reorder Point: <input type="text" value="0"/>	Run Seq 1: <input type="text"/>	EMT Type: <input type="text" value="NON-EMT"/>
Rev: <input type="text"/>	Run Seq 2: <input type="text" value="2"/>	Auto EMT Processing: <input type="checkbox"/>
Issue Policy: <input checked="" type="checkbox"/>		Network Code: <input type="text"/>
		Routing Code: <input type="text"/>
		BOM/Formula: <input type="text"/>

QAD Proprietary QS-PL-250

The last component we will look at is item 10-03, the cable. The field to note here is the Order Multiple field. Some purchased items must be ordered in multiples, in this case the amount of Cable on a roll, which our vendor has told us is 3,000 inches. In this example, the order multiple is 3,000 (inches) so planned orders are only created for whole rolls, or in our unit of measure quantities of 3,000, 6,000, 9,000, inches, etc.

## Review MRP Control and Control Settings

MRP Control

Go To Actions Copy Print Preview

MRP Horizon: 365

MRP/DRP Combined:

Summary Default: Monday

Order Release Horizon: 21

Enable Op Based Yield:

Use AppServer:

AppServer Name:

Default Number of Threads: 0

Back Next

QAD Proprietary QS-PL-260

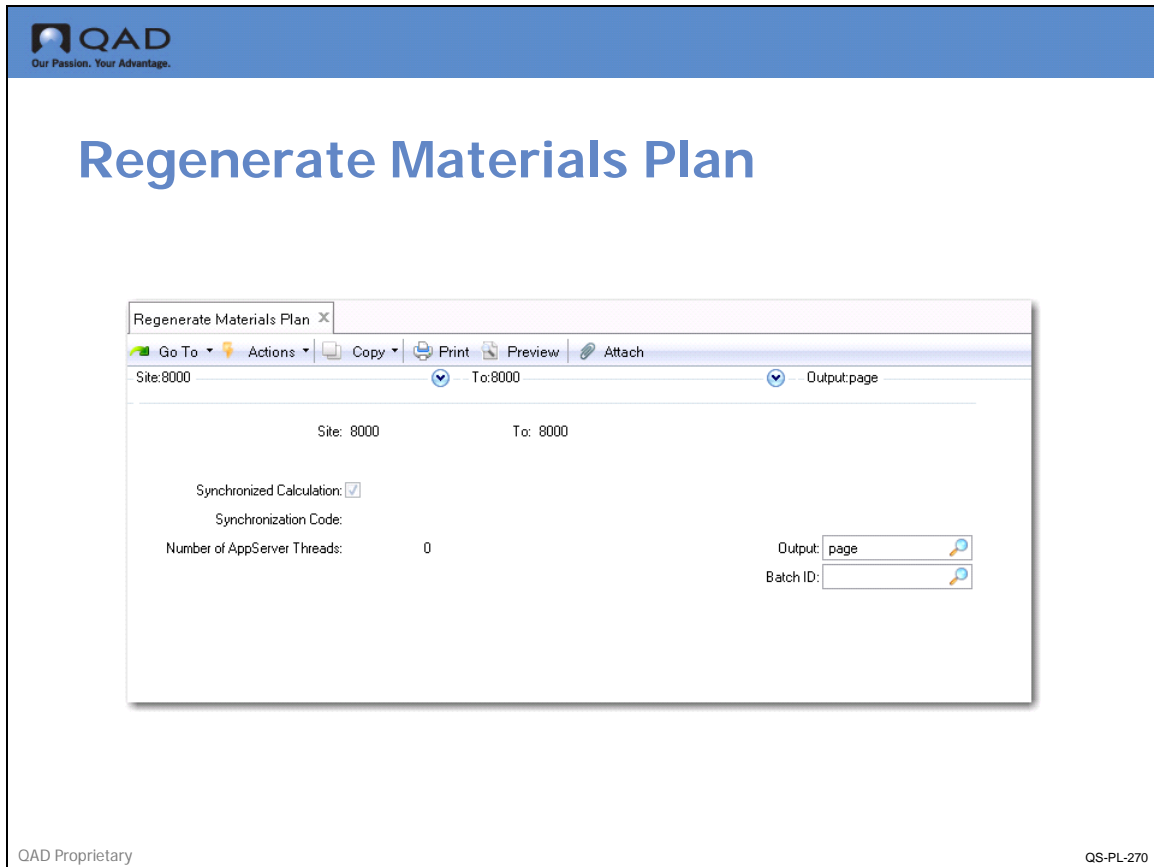
The MRP horizon is the number of days into the future MRP will plan. This needs to be at least one day longer than the longest cumulative lead time in your system. For purposes of this course 60 days is enough.

The Summary Default is the day of the week MRP and MPS summary inquires should start on.

The Order Release Horizon is 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 as set at 21 shown here, the system will flag all planned orders due to be released in the next 21 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 14 or 21 days work fine.

## Regenerate Materials Plan (23.2)



To recalculate demand and plan supply for all items at its site (8000), QMI's planner runs Regenerate Materials Plan (23.2).

The screenshot displays the 'Planned Order Browse' window in QAD. The window title is 'Planned Order Browse'. Below the title bar, there are navigation icons for Actions, Print, Add to Favorites, Chart, Chart Designer, and Refresh. A search bar is present with a search button and a 'Clear All' button. The window shows a table of 12 records, with the first record expanded to show a tree view. The table columns are: Item Number, Site, Work Order, ID, Buyer/Planner, Purchase/Manufacture, Quantity Ordered, U, and Release Date. The data is as follows:

Item Number	Site	Work Order	ID	Buyer/Planner	Purchase/Manufacture	Quantity Ordered	U	Release Date
10-01	8000	09300005	406003		P	10.0	EA	10/15/2010
10-02	8000	09300008	406012		P	10.0	EA	10/15/2010
10-04	8000	09300011	406015		P	10.0	EA	10/15/2010
10-00	8000	09300002	406006		M	10.0	EA	10/21/2010
10-01	8000	09300006	406010		P	15.0	EA	10/22/2010
10-02	8000	09300009	406013		P	15.0	EA	10/22/2010
10-04	8000	09300012	406016		P	15.0	EA	10/22/2010
10-00	8000	09300003	406007		M	15.0	EA	10/28/2010
10-01	8000	09300007	406011		P	10.0	EA	10/29/2010
10-02	8000	09300010	406014		P	10.0	EA	10/29/2010
10-04	8000	09300013	406017		P	10.0	EA	10/29/2010
10-00	8000	09300004	406008		M	10.0	EA	11/05/2010

At the bottom left of the screenshot, it says 'QAD Proprietary' and at the bottom right, it says 'QS-PL-280'.

An image of the Planned Order Browse (23.9) for the MRP run just completed is shown below. These are the planned orders MRP created based on the net forecast and sales orders for the end item medical ultrasound and its components based on the product structure.

Note this display shows the MRP planned Order number and WO ID and the release date, as well as the purchase/manufacture code M or P.

Master Schedule Detail: Item 10-00

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## Master Schedule Detail: Item 10-00

**Master Schedule Detail Inquiry** 09/30/10

**QAD**

Item Number: 10-00                      Site: 8000                      Start Date:                      Output: page  
 Medical Ultrasound

Item Number: 10-00                      Qty on Hand: 0.0                      Site: 8000  
 Medical Ultrasound                      UM: EA                      Pur/Mfg: M  
 Buyer/Planner:                      Order Policy: P0Q                      Min Order: 0                      Mfg LT: 1  
     Mstr Sched: Yes                      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 Percent: 100.00%                      Cum LT: 0

Due Date	Gross Reqs	Mstr Sched	Proj QOH	Plan Ords	Details
10/22/10	10		0		Beginning Available
10/22/10			-10	10	SO: SO-10014 Line: 1
			0		W/O: 09300002 ID: 406006
					Release Date 10/21/10
10/29/10	15		-15	15	SO: SO-10014 Line: 2
10/29/10			0		W/O: 09300003 ID: 406007
					Release Date 10/28/10
11/08/10	10		-10	10	Forecast
11/08/10			0		W/O: 09300004 ID: 406008
					Release Date 11/05/10

List complete

22.21                      Master Schedule Detail Inquiry                      msmsiq01.p

QAD Proprietary QS-PL-290

Examine the Master Schedule Detail Inquiry (22.21) screen. As its name implies, it provides more detail than the Summary screen and the organization of data is different.

In the summary screen, the information is organized in general “buckets” of weeks. In the detail screen, the information is organized chronologically by specific due dates, showing only dates that have a transaction.

In this example, 10/22 is the due date for 10 medical ultrasounds based on sales order SO10014 line item 1. That demand is displayed in the Gross Requirements column. The demand is subtracted from the beginning available projected quantity on hand (0 - 10= -10).

The next line in the detail screen shows that 10/29 is also the due date for 15 medical ultrasounds based on work order 09300003.

## MRP Summary Inquiry: Item 10-00

Master Schedule Summary Inq... X

Run Export to Excel View as PDF

Item Number: 10-00 Site: 8000 Display Negative ATP:  Start Date: 9/27/2010 End Date: Column Type: Week Per Column: 1 Columns: 12

Item Number:	10-00	Medical Ultrasound	Mfg LT:	1	Plan Orders:	Yes	MRP Required:	No
Site:	8000		Purchase LT:	0	Order Quantity:	0	Pur/Mfg:	M
Qty on Hand:	0.0 EA		Safety Stock:	0	Yield Percent:	100.00%	Minimum Order:	0
Order Policy:	POQ		Safety Time:	0	Time Fence:	0	Maximum Order:	0
Order Period:	7						Order Multiple:	0

Category	Past	9/27/2010	10/4/2010	10/11/2010	10/18/2010	10/25/2010	11/1/2010
Production Forecast	0	0	0	0	0	0	0
Forecasts	0	0	0	0	0	0	0
Sales Orders	0	0	0	0	10	15	0
Gross Requirements	0	0	0	0	0	0	0
Master Schedule	0	0	0	0	10	15	0
Projected QOH	0	0	0	0	0	0	0
Available to Promise	0	0	0	0	0	0	0
Cumulative ATP	0	0	0	0	0	0	0

QAD Proprietary QS-PL-300

The information in MRP Summary Inquiry (above) is similar to that shown in Master Schedule Summary Inquiry (22.18), 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 MRP Summary Inquiry deals more with the supply orders.

Planned Orders Due are calculated to satisfy demand from sales orders, and forecasts.

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.



Review MRP Summary Inquiry: Item 10-01

MRP Summary Inquiry

Run | Export to Excel | View as PDF

Item Number: 10-01 | Site: 8000 | Start Date: 9/27/2010 | End Date: | Column Type: Week | Per Column: 1 | Columns: 12

Item Number: 10-01 CPU/Monitor Site: 8000  
 Qty on Hand: 0.0 EA  
 Buyer/Planner: Order Policy: POQ Pur/Mfg: P Site: 8000  
 Master Schedule: Yes Order Period: 7 Mfg LT: 0 Minimum Order: 0  
 MRP Required: No Time Fence: 0 Purchase LT: 5 Maximum Order: 0  
 Plan Orders: Yes Safety Time: 0 Inspect LT: 0 Order Multiple: 0  
 Issue Policy: Yes Safety Stock: 0 Inspection Requi: No Order Quantity: 0  
 Cumulative LT: 0 Yield Percent: 100.00%

Category	Past	9/27/2010	10/4/2010	10/11/2010	10/18/2010	10/25/2010	11/1/2010
Gross Requirements	0	0	0	0	10	15	10
Sched Receipts	0	0	0	0	0	0	0
Projected QOH	0	0	0	0	0	0	0
Plan Ords Due	0	0	0	0	10	15	10
Plan Ords Rel	0	0	0	10	15	10	0

QAD Proprietary QS-PL-320

Shown above is the MRP Summary Inquiry screen for component 10-01 (CPU/Monitor). Why does QMI need 10 units in the third week? Examine the MRP Detail Inquiry screen on the next page.



### Review MRP Summary Inquiry: 10-03

**MRP Summary Inquiry: Item 10-03**

Item Number: 10-03 Cable Site: 8000 Start Date: 9/27/2010 End Date: Column Type: Week Per Column: 1 Columns: 12

Item Number: 10-03 Cable Site: 8000  
 Qty on Hand: 2,520.0 IN  
 Buyer/Planner: Order Policy: POQ Pur/Mfg: P Mfg LT: 0 Minimum Order: 0  
 Master Schedule: Yes Order Period: 7 Purchase LT: 5 Maximum Order: 0  
 MRP Required: No Time Fence: 0 Inspect LT: 0 Order Multiple: 3,000  
 Plan Orders: Yes Safety Time: 0 Inspection Requi: No Order Quantity: 0  
 Issue Policy: Yes Safety Stock: 0 Cumulative LT: 0 Yield Percent: 100.00%

Category	Past	9/27/2010	10/4/2010	10/11/2010	10/18/2010	10/25/2010	11/1/2010
Gross Requirements	0	0	0	0	480	720	480
Sched Receipts	0	0	0	0	0	0	0
Projected QOH	2520	2520	2520	2520	2040	1320	840
Plan Ords Due	0	0	0	0	0	0	0
Plan Ords Rel	0	0	0	0	0	0	0

QAD Proprietary QS-PL-360


The third component needed to build medical ultrasounds is the computer cable. The MRP Summary Inquiry for cable (10-03) is shown above.

QMI needs 48 inches of cable per medical ultrasound. In the second week, QMI needs to build and ship 10 units of 10-00. The cable requirements, are 10 medical ultrasounds × 48 inches per unit or 480 inches.


Looking ahead to the fifth week, QMI is scheduled to build 15 medical ultrasounds. That quantity would require 15 × 48 or 720 inches of cable.

Because 10-03 was purchased in a roll of 3000 inches, purchase of additional supplies will not be needed through week 6. But, at that point, QOH will only be 840 inches or enough to build 17 additional medical ultrasounds.

## MRP Detail Inquiry: Item 10-03


09/30/10

### MRP Detail Inquiry: Item 10-03


MRP Detail Inquiry
09/30/10

Item Number: 10-03      Site: 8000      Start Date:      Output: page  
Cable

Item Number: 10-03      Qty on Hand: 2,520.0      Site: 8000  
Cable      UM: IN      Pur/Mfg: P

Buyer/Planner:      Ord Pol: POQ      Min Order: 0      Mfg LT: 0  
Mstr Sched: Yes Order Period: 7      Max Order: 0      Pur LT: 5  
MRP Required: No      Time Fence: 0      Ord Mult: 3,000      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
			2,520	Beginning Available
10/21/10	480		2,040	W/O: 09300002 ID: 406006
				Assem: 10-00
10/28/10	720		1,320	W/O: 09300003 ID: 406007
				Assem: 10-00
11/05/10	480		840	W/O: 09300004 ID: 406008
				Assem: 10-00

List complete

23.16
MRP Detail Inquiry
mrmpiq01.p

QAD Proprietary
QS-PL-370

The MRP Detail Inquiry for the cable is shown above.

## Review MRP Action Messages

The screenshot shows the 'Action Message Browse' window in QAD. The table displays the following data:

Item Number	Site	Date	Message Detail	Order	Line/ID	Action Quantity	Due Date
10-00	8000	10/21/2010	Release due for "Planned Order	09300002	406006	10.0	10/22/2010
10-01	8000	10/15/2010	Release due for "Planned Order	09300005	406009	10.0	10/21/2010
10-02	8000	10/15/2010	Release due for "Planned Order	09300008	406012	10.0	10/21/2010
10-04	8000	10/15/2010	Release due for "Planned Order	09300011	406015	10.0	10/21/2010

Red boxes highlight the following columns in the table:

- #2: Date column
- #1: Message Detail column
- #3: Due Date column

1. Check action message
2. Check the date column
3. Check the due date

QAD Proprietary QS-PL-380


QMI's planner reviews the Action Message Browse (23.6), shown above. The message shown on this report is: Release due for Planned Order. The first date column is the planned order release date. The order due date is shown in the last field.

The recommended order in which to read this report is:

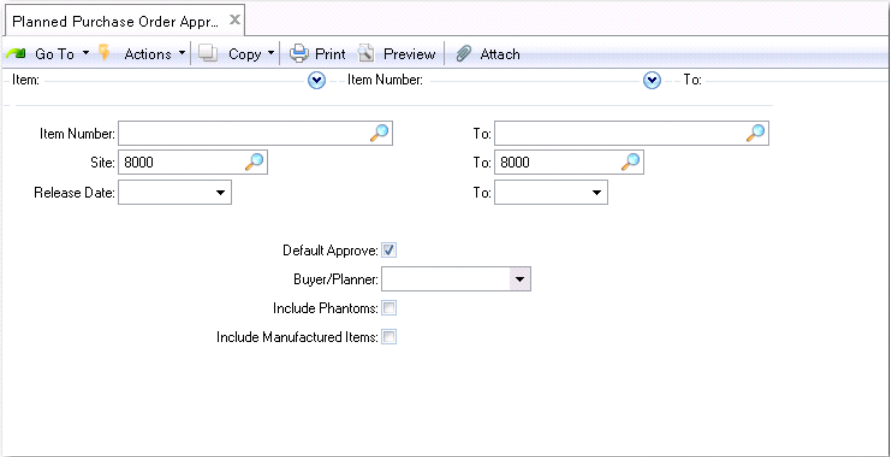
- Check the action message.
- Check the date column. This is the date associated with the action message.
- Check whether the item is a manufactured or purchased item. This indicates whether you need to approve a planned order as a work order or purchase requisition.
- Check the due date.

In this example, QMI's planner responds to the action message by approving the planned orders to create purchase requisitions for the material needed to build 10 medical ultrasound units as these have the closest release dates.

## Approve Planned Purchase Orders


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# Approve Planned Orders (1<sup>st</sup> Frame)



QAD Proprietary
QS-PL-390

QMI's planner uses Planned Purchase Order Approval to approve MRP planned purchase orders. By approving the MRP planned purchase orders, the system converts these orders into purchase requisitions. If the planner de-selects (un-checks) default approve, so that while all planned orders display they are selected for approval individually. As there are several weeks of planned orders on the system we only want to approve those needed for current release. A review screen displays next.

**Approve Planned Orders (2<sup>nd</sup> Frame)**

Ln	Req	Item Number	Qty Ordered	Rel Date	Due Date	Appr
1	09300005	10-01	10.0	10/15/2010	10/21/2010	<input checked="" type="checkbox"/>
2	09300006	10-01	15.0	10/22/2010	10/28/2010	<input checked="" type="checkbox"/>
3	09300007	10-01	10.0	10/29/2010	11/5/2010	<input checked="" type="checkbox"/>
4	09300008	10-02	10.0	10/15/2010	10/21/2010	<input checked="" type="checkbox"/>
5	09300009	10-02	15.0	10/22/2010	10/28/2010	<input checked="" type="checkbox"/>
6	09300010	10-02	10.0	10/29/2010	11/5/2010	<input checked="" type="checkbox"/>
7	09300011	10-04	10.0	10/15/2010	10/21/2010	<input checked="" type="checkbox"/>
8	09300012	10-04	15.0	10/22/2010	10/28/2010	<input checked="" type="checkbox"/>
9	09300013	10-04	10.0	10/29/2010	11/5/2010	<input checked="" type="checkbox"/>

Ln	Req	Item Number	Qty Ordered	Rel Date	Due Date	Appr
1	09300005	10-01	10.0	10/15/2010	10/21/2010	<input checked="" type="checkbox"/>

QAD Proprietary QS-PL-400

In this screen, QMI's planner can review the list of MRP planned orders available for approval. These are the components required to build 10 medical ultrasounds by the first week and 15 by the second week. After reviewing the list, QMI's planner approves the orders for the first requirement entering the line number in the lower frame which displays the order, then clicking Next and checking the Approval box and clicking Next again.

Continue this process until all the orders you wish to approval are selected as shown in the sequence of screen shots that follow. As orders are approved in the lower frame the check mark is displayed in the upper frame.

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## Approve Planned Orders (Approve)

Ln	Req	Item Number	Qty Ordered	Rel Date	Due Date	Appr
1	09300005	10-01	10.0	10/15/2010	10/21/2010	<input checked="" type="checkbox"/>
2	09300006	10-01	15.0	10/22/2010	10/28/2010	<input checked="" type="checkbox"/>
3	09300007	10-01	10.0	10/29/2010	11/5/2010	<input checked="" type="checkbox"/>
4	09300008	10-02	10.0	10/15/2010	10/21/2010	<input checked="" type="checkbox"/>
5	09300009	10-02	15.0	10/22/2010	10/28/2010	<input checked="" type="checkbox"/>
6	09300010	10-02	10.0	10/29/2010	11/5/2010	<input checked="" type="checkbox"/>
7	09300011	10-04	10.0	10/15/2010	10/21/2010	<input checked="" type="checkbox"/>
8	09300012	10-04	15.0	10/22/2010	10/28/2010	<input checked="" type="checkbox"/>
9	09300013	10-04	10.0	10/29/2010	11/5/2010	<input checked="" type="checkbox"/>

QAD Proprietary QS-PL-430

When all orders are selected for approval click Back and a verification pop up appears.

Verify that all required orders are checked in the upper frame and click Yes. This converts the planned orders into approved purchase requisitions.

Had default approve been selected in the selection screen, the process would be reversed, that is un-checking the orders you did not want approved.

## Review Purchase Requisition

Item Number	Requisition Number	Quantity	Release Date	Need Date	Requested By	Approved
10-01	09300005	10.0	10/15/2010	10/21/2010		Yes
10-01	09300006	15.0	10/22/2010	10/28/2010		Yes
10-01	09300007	10.0	10/29/2010	11/05/2010		Yes
10-02	09300008	10.0	10/15/2010	10/21/2010		Yes
10-02	09300009	15.0	10/22/2010	10/28/2010		Yes
10-02	09300010	10.0	10/29/2010	11/05/2010		Yes
10-04	09300011	10.0	10/15/2010	10/21/2010		Yes
10-04	09300012	15.0	10/22/2010	10/28/2010		Yes
10-04	09300013	10.0	10/29/2010	11/05/2010		Yes

QAD Proprietary QS-PL-440

The system has now converted the planned purchase orders into purchase requisitions, as shown above. Notice that there is a Release Date and a 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

**QAD**  
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# Create Purchase Order

Purchase Order Maintenance

Go To Actions Copy Print Preview Attach

Purchase Order: P0010001 Supplier: 5011000 Site: 8000 UM: EA

Header Lines Trailer

Lines Line Details Tax Info Comments

Header

Purchase Order: P0010001 Supplier: 5011000 Ln Format S/M: Single

Ln	Site	Req	Item Number	Qty Ordered	UM	Unit Cost	Disc%
1	8000	09300005	10-01	10.0	EA	450.00	0.00

Line Details

Qty Received: 0.0 Due Date: 10/21/2010 CRT Int: 0.00

Qty to Ret: 0.0 Pur Acct: 5100

Single Lot:  Performance Date: Project:

Location: Need Date: 10/21/2010 Type:

Revision: Sales/Job: Taxable:

Status: Fixed Price:  Inspection Requi:  Cmnts:

Supplier Item: UM Conversion: 1.0000

Manufacturer: Stock UM Quantity: 10.0 EA

Description: CPU/Monitor Update Avg/Last Cost:  Extended Net Cost: 4,500.00

QAD Proprietary QS-PL-450

QMI's buyer enters an order to purchase the components for the 10 Medical ultrasounds that need to be manufactured by the first week.

The supplier for the components is Dixon Corporation. The order date is today's date but must be at least 5-days before the need date based on the purchasing lead time for the components. The buyer enters a ? in the Due Date field on the PO header so that the line item due dates will default from the requisition for each line item.

QMI's buyer only needs to enter the requisition number for items 10-01, 10-02, and 10-04 (using the look-up) and the remaining fields are populated based on those requisitions. Use the requisition look-up and double click the Requisition Number to add it to the PO.

Once requisitions are added to a PO they are deleted from the requisition file. They now exist only as purchase order line items.

Line 1 for item 10-01 is shown above, and Line 2 for item 10-02 is shown on the following page.



## Add Purchase Order: Line 2 (10-02)

Purchase Order Maintenance

Go To Actions Copy Print Preview Attach

Purchase Order: P0010001 Supplier: 5011000 Site: 8000

Header Lines Trailer

Lines Line Details Tax Info Comments

Header

Purchase Order: P0010001 Supplier: 5011000 Ln Format S/M: Single

Ln	Site	Req	Item Number	Qty Ordered	UM	Unit Cost	Disc%
2	8000	09300008	10-02	10.0	EA	25.00	0.00

Line Details

Qty Received: 0.0 Due Date: 10/21/2010 CRT Int: 0.00

Qty to Ret: 0.0 Pur Acct: 5100

Single Lot:  Performance Date:

Location: RAWMAT Need Date: 10/21/2010 Project:

Revision:  Sales/Job:  Type:

Status:  Fixed Price:  Inspection Requi:  Cmmts:

Supplier Item:  U.M Conversion: 1.0000

Manufacturer:  Stock U.M Quantity: 10.0 EA

Description: Keyboard Update Avg/Last Cost:  Extended Net Cost: 250.00

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## Add Purchase Order: Line 3 (10-04)

Purchase Order Maintenance X

Go To Actions Copy Print Preview Attach

Purchase Order: P0010001 Supplier: 5011000 Site: 8000

Header Lines Trailer

Lines Line Details Tax Info Comments

Header

Purchase Order: P0010001 Supplier: 5011000 Ln Format S/M: Single

Ln	Site	Req	Item Number	Qty Ordered	UM	Unit Cost	Disc%
3	8000	09300011	10-04	10.0	EA	67.00	0.00

Line Details

Qty Received: 0.0 Due Date: 10/21/2010 CRT Int: 0.00

Qty to Rel: 0.0 Pur Acct: 5100

Single Lot:  Performance Date:  Project:

Location: RAWMAT Need Date: 10/21/2010 Type:

Revision:  Sales/Job:  Taxable:

Status:  Fixed Price:  Inspection Requi:  Cmnts:

Supplier Item:  UM Conversion: 1.0000

Manufacturer:  Stock UM Quantity: 10.0 EA

Description: Sensor Update Avg/Last Cost:  Extended Net Cost: 670.00

QAD Proprietary QS-PL-490

Item 10-03, the computer cable, exists in sufficient quantity in inventory to complete the planned orders as entered. QMI's buyer again just enters the requisition number to populate key fields for item 10-04 (sensor).

## Receive Items

The screenshot shows a software window titled "Purchase Order Receipts" with a standard toolbar (Go To, Actions, Copy, Print, Preview). The main area contains the following fields and options:

Order: P0010001	Supplier: 5011000	Status:	Effective: 10/1/2010
Packing Slip: 654321	Receiver: DIXON CORPORATION	Move to Next Operation: <input checked="" type="checkbox"/>	Receive All: <input checked="" type="checkbox"/>
		Comments: <input type="checkbox"/>	Ship Date:

In Purchase Order Receipts, the receiving clerk checks receive all as 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 that can be entered.

**Receive Purchase Order (2 of 5)**

Order: P0010001      Supplier: 5011000      Status:      Packing Slip: 654321

Ln	Item Number	UM	Qty Open	UM	Receipt Qty	UM	Project	Due Date	T
1	10-01	EA	10.0	EA	10.0	EA		10/21/2010	
2	10-02	EA	10.0	EA	10.0	EA		10/21/2010	
3	10-04	EA	10.0	EA	10.0	EA		10/21/2010	

Display purchase order lines being received

Line:      Unit of Meas      ID:      Lot/Ser:      Loc:

Quantity:      OP:      Reference:

Packing Qty:      Supplier Lot:

Cancel B/D:       Multi Entry:       Chg Attribute:

Item Number:      Cmmts:

Supplier Item:

QAD Proprietary QS-PL-530

This brings up a screen with all the receiving data pre-filled. By clicking Next a dialog box pops up. The receiving clerk selects Yes to display the receiving transaction.

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## Receive Purchase Order (3 of 5)

Purchase Order Receipts X

Go To Actions Copy Print Preview Attach

Order: P0010001      Supplier: 5011000      Status:      Packing Slip: 654321

Ln	Item Number	Site	Location Ref	Lot/Serial Supplier Lot	Quantity
1	10-01	8000	RAWMAT		10.0
2	10-02	8000	RAWMAT		10.0
3	10-04	8000	RAWMAT		10.0

QAD Proprietary QS-PL-540

Clicking Yes brings up a screen reviewing the transaction detail about to be completed including the default inventory location the system expects the material to be placed in. If all is correct click Next.

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## Receive Purchase Order (4 of 5)

Purchase Order Receipts X

Go To Actions Copy Print Preview Attach

Order: P0010001      Supplier: 5011000      Status:      Packing Slip: 654321

Ln	Item Number	Site	Location Ref	Lot/Serial Supplier Lot	Quantity
1	1	8000	RAWMAT		10.0
2	10-02	8000	RAWMAT		10.0
3	10-04	8000	RAWMAT		10.0

Is all information correct

yes no

QAD Proprietary QS-PL-550

If you need to change the location code or quantity for an item, check No when prompted is all information correct this returns you to the line item detail frame where you can specify an alternate location or change the quantity. Otherwise select Yes to complete the transaction.

The screenshot shows the 'Inventory Detail by Item Browse' window in QAD. The window title is 'Inventory Detail by Item Browse'. The search criteria are set to 'Item Number' starting with '10-01'. 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	Date Created
10-01	8000	10.0	10.0	RAWMAT			OI-NO		09/24/2010
10-02	8000	10.0	10.0	RAWMAT			OI-NO		09/24/2010
10-03	8000	2,520.0	2,520.0	RAWMAT			OI-NO		09/24/2010
10-04	8000	10.0	10.0	RAWMAT			OI-NO		09/24/2010

QAD Proprietary QS-PL-560

By using Inventory Detail by Item Browse (3.2), you can verify the addition to inventory of 10-01, 10-02, and 10-04. You can also see that item 10-03 has 2,520 inches left of the original 3,000 inches. (Enough to build an additional 52.5 medical ultrasounds.)

## Review Planned Order Report or Browse

QAD  
Our Passion. Your Advantage.

# Planned Order Browse

Planned Order Browse x

Actions Print Add to Favorites Chart Chart Designer Refresh

Search

Item Number starts at Search Clear All

Viewing 1 - 3 of 3 Records per page: 100

Item Number	Site	Work Order	ID	Buyer/Planner	Purchase/Manufacture	Quantity Ordered	Unit of Measure	Release Date
10-00	8000	09300002	406006		M	10.0	EA	10/21/2010
10-00	8000	09300003	406007		M	15.0	EA	10/28/2010
10-00	8000	09300004	406008		M	10.0	EA	11/05/2010

QAD Proprietary QS-PL-570

QMI's planner and buyer have handled the planned purchase orders. Next, let's focus on the manufacturing orders. QMI's production control planner checks the Planned Order Report or Browse to see a list of the orders that MRP has planned but that are not firm planned yet.

The planner sees three orders for item 10-00, the medical ultrasounds. One of the orders needs attention now because it has a release date of the coming week. The other has a later release date. For that one, the planner will wait to approve it until the date is closer. By doing so, if there are changes to the plan, MRP will alter the planned orders instead of prompting the planner (by action messages) to make the changes.

## Approve Planned Work Orders

Planned Work Order Approval

Go To Actions Copy Print Preview Attach

Item:10-00 Item Number:10-00 To:10-00

Item Number: 10-00 To: 10-00

BOM/Formula: To:

Site: 8000 To: 8000

Release Date: To:

Default Approve:

Buyer/Planner:

Include Phantoms:

Include Line Manufactured Items:

Include Purchased Items:

QAD Proprietary QS-PL-580

The planner uses Planned Work Order Approval (23.10) to approve the MRP planned order.

The planner has de-selected Default Approve and entered the item number to limit the screen to only planned orders for 10-00.

**Note** This selection screen can also be accessed by Planner code or release date to further limit the items displayed.

## Planned Work Order Approval: Line 1

QAD  
Our Passion. Your Advantage.

## Planned Work Order Approval: Line 1

Planned Work Order Approval

Go To Actions Copy Print Preview Attach

Item:10-00 Item Number:10-00 To:10-00

Ln	Work Order	ID	Item Number	Qty Ordered	Rel Date	OK
1	09300002	406006	10-00	10.0	10/21/2010	<input type="checkbox"/>
2	09300003	406007	10-00	15.0	10/28/2010	<input type="checkbox"/>
3	09300004	406008	10-00	10.0	11/5/2010	<input type="checkbox"/>

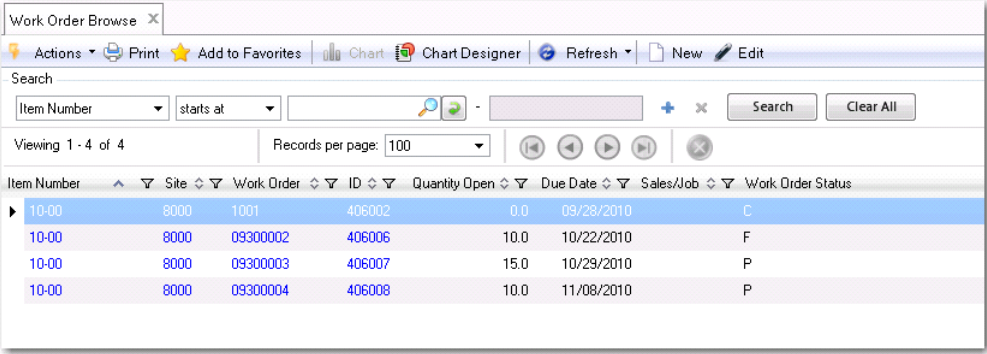
  

Ln	Work Order	ID	Item Number	Qty Ordered	Rel Date	OK
1	09300002	406006	10-00	10.0	10/21/2010	<input checked="" type="checkbox"/>

QAD Proprietary QS-PL-590

Because Default Approve was un-checked in the preceding frame, the default for all lines is OK blank (box un-checked). After reviewing the list, the planner approves the orders wanted by their line number in the first window of the lower frame, clicking Next and checking OK by clicking the cursor in the box.

## Review Work Order



The screenshot displays the 'Work Order Browse' window in QAD. The window title is 'Work Order Browse'. The interface includes a search bar with 'Item Number' selected and 'starts at' as the search criteria. Below the search bar, it shows 'Viewing 1 - 4 of 4' records and 'Records per page: 100'. The main data table is as follows:

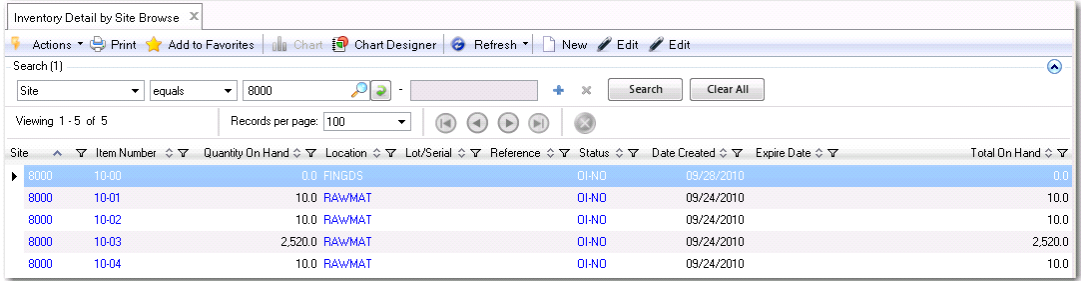
Item Number	Site	Work Order	ID	Quantity Open	Due Date	Sales/Job	Work Order Status
10-00	8000	1001	406002	0.0	09/28/2010		C
10-00	8000	09300002	406006	10.0	10/22/2010		F
10-00	8000	09300003	406007	15.0	10/29/2010		P
10-00	8000	09300004	406008	10.0	11/08/2010		P

QAD Proprietary QS-PL-600

In this example, the planner uses Work Order Browse (16.2) to review all work orders for item 10-00.

Several work orders display with various due dates and status codes. The planner notes that the order approved in the previous step (work order 406006) now has a status code of F (Firm). This means that it is no longer under MRP control.

## Verify Availability of Components



The screenshot displays the QAD Inventory Detail by Site Browse application. The search criteria are set to Site equals 8000. The results table shows the following data:


Site	Item Number	Quantity On Hand	Location	Lot/Serial	Reference	Status	Date Created	Expire Date	Total On Hand
8000	10-00	0.0	FINGDS			DI-NO	09/28/2010		0.0
8000	10-01	10.0	RAWMAT			DI-NO	09/24/2010		10.0
8000	10-02	10.0	RAWMAT			DI-NO	09/24/2010		10.0
8000	10-03	2,520.0	RAWMAT			DI-NO	09/24/2010		2,520.0
8000	10-04	10.0	RAWMAT			DI-NO	09/24/2010		10.0

QAD Proprietary QS-PL-610


QMI's production activity control (PAC) manager uses Inventory Detail by Site Browse (3.3) to verify the availability of components in inventory.

The medical ultrasound components are included in the listing, and the quantities in stock are as expected.

## Work Order Component Check

 QAD  
Our Passion. Your Advantage.

# Work Order Component Check


Work Order Component Check
10/01/10

Work Order 09300002	ID 406006	Component Item	Short Only No	Output PAGE	
Component Item	Qty Req	UM	On Hand	Qty Alloc	Qty Short
10-01 CPU/Monitor	8000	10.0 EA	10.0	0.0	0.0
10-02 Keyboard	8000	10.0 EA	10.0	0.0	0.0
10-03 Cable	480.0	IN	2,520.0	0.0	0.0
10-04 Sensor	8000	10.0 EA	10.0	0.0	0.0


16.5
Work Order Component Check
wowocc.p

QAD Proprietary
QS-PL-620

Another way to verify the inventory of components for a work order is with Work Order Component Check (16.5).

In the selection screen you enter the specific work order in question. If you un-check the Short Only box you will see the display pictured above. The specific quantities required for this order and the quantity on hand. Note the existing inventory of 10-03.

## Release Work Order


Our Passion. Your Advantage.

# Release Work Order

Work Order Release/Print x

Go To Actions Copy Print Preview Attach

Work Order: 09300002 ID: 406006

Work Order: 09300002	Deliver To: <input type="text"/>
ID: 406006	Print Bar Code: <input type="checkbox"/>
Batch:	Operation: <input checked="" type="checkbox"/>
Print Picklist: <input checked="" type="checkbox"/>	
Print Routing: <input checked="" type="checkbox"/>	
Print Co/By-Products: <input checked="" type="checkbox"/>	
Item Number: 10-00	Release Date: 10/21/2010
Medical Ultrasound	
Quantity Ordered: 10.0	Work Order Due Date: 10/22/2010
Quantity Completed: 0.0	Work Order Status: F
Sales/Job:	Supplier:
Remarks:	
	Output: Batch ID:

QAD Proprietary
QS-PL-630



## Work Order Routing

QAD  
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# Work Order Routing

**Work Order Release/Print**  
**Training**

10/01/10 19:05:58  
**Page:2**

Work Order Routing

Work Order: 09300002  
 ID: 406006  
 Batch:  
 Item Number: 10-00                      Rev:                      Work Order Due Date: 10/22/10  
 Medical Ultrasound  
 Remarks:    Sales/Job:  
 Qty Ordered: 10.0                      EA    Deliver To:

Op	Work Center	Std Op	Tooling Supplier	Setup Time Run Time	Actual	By
10	ASM			1.0		( )
	Assembly			0.5		( )
	Medical Ultrasound					
20	ASM			0.0		( )
	Assembly			0.333		( )
	Test Medical Ultrasound					
30	ASM			0.0		( )
	Assembly			1.5		( )
	Pack Medical Ultrasound					

16.6
Work Order Release/Print
woworl.p

QAD Proprietary
QS-PL-650

## Issue Work Order Components

Work Order Component Issue

Go To Actions Copy Print Preview Attach

Work Order: 09300002 ID: 406006

Work Order: 09300002 ID: 406006 Op: Effective: 10/1/2010  
 Item Number: 10-00 WD Stat: R Issue Alloc:   
 Medical Ultrasound Issue Picked:

Item Number	Site	Location	Lot/Serial	Ref	Quantity
10-01	8000	RAWMAT			10.0
10-02	8000	RAWMAT			10.0
10-03	8000	RAWMAT			480.0
10-04	8000	RAWMAT			10.0

Is all information correct

QAD Proprietary QS-PL-660

The PAC manager 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 Pick List created in the previous step.

## Report Labor

**QAD**  
Our Passion. Your Advantage.

# Report Labor

Labor Feedback by Work Order

Go To Actions Copy Print Preview Attach

Work Order: 09300002 ID: 406006 Employee: 00000001

Work Order: 09300002 ID: 406006  
 Operation: 10 Medical Ultrasound Op Status: QUEUE

Employee: 00000001 WHITEHEAD Pay Code: REG  
 Department: PROD Work Center: ASM Time Ind: DecHours  
 Shift: Machine: Project:

Quantity Completed: 10.0 Effective Date: 10/1/2010  
 Rejects:  Operation Complete:   
 Rework:  Next Operation:   
 Start Setup: 0.000 Ops Complete:   
 Elapsed/Stop Setup: 1.000 Elapsed Setup: 1.000  
 Start Run: 0.500 Elapsed Run: 23.500  
 Elapsed/Stop Run: 0.000  
 Comment: Down Time Reason:  
 Down Time: 0.000

Is all information correct

QAD Proprietary QS-PL-670

On the shop floor, labor to build the 10 medical ultrasounds is reported by employee Whitehead. Labor for operation 10 is shown above. Both setup and run times are standard. Recall that setup time is 1 hour, regardless of quantity, and run time is 0.5 hour per medical ultrasound. So a run time of 5 hours is standard to build 10 medical ultrasounds ( $10 \times 0.5$ ).

Labor reported for operation 20 (not shown) is also standard. There is no setup time required for operation 20, and run time to build 10 medical ultrasounds is 3.333 hours ( $10 \times 0.333$  hr. per medical ultrasound).

### Review

The standard setup and run times were entered in Routing Maintenance.

## Receive and Close Work Order

The screenshot shows the 'Work Order Receipt' window in QAD. The window title is 'Work Order Receipt' and it has a standard menu bar with 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. Below the menu bar, the work order details are displayed:

- Work Order: 09300002
- ID: 406006
- Effective: 10/1/2010
- Remarks:
- Batch:
- Item Number: 10-00
- Lot/Serial Control:
- UM: EA
- Description: Medical Ultrasound
- WD Stat: R
- Open Quantity: 10.0
- Automatic Lot Numbers:
- Quantity: 10.0
- Site: 8000
- UM: EA
- Location: FINGDS
- Conversion: 1.0000
- Lot/Serial:
- Scrapped Qty: 0.0
- Reference:
- UM: EA
- Multi Entry:
- UM Conversion: 1.0000
- Set Attributes:
- Total Units: 10.0

At the bottom of the window, there is a 'Remarks:' text box and a 'Close:' checkbox which is checked.

Using Work Order Receipt (16.11), the PAC manager receives and closes work order 09300002 for 10 units of 10-00.

**Note** Note the check mark in 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 as R, running, and open to receive the balance of the items at a latter time.

## Review MRP Summary

The screenshot displays the QAD MRP Summary Inquiry window. At the top left is the QAD logo with the tagline "Our Passion. Your Advantage." The main title "Review MRP Summary" is centered. Below the title is a search bar with the following fields: Item Number (10-00), Site (8000), Start Date (9/27/2010), End Date, Column Type (Week), Per Column (1), and Columns (12). There are buttons for "Run", "Export to Excel", and "View as PDF".

Item Details:

- Item Number: 10-00 Medical Ultrasound
- Qty on Hand: 10.0 EA
- Buyer/Planner: [blank]
- Master Schedule: Yes
- MRP Required: Yes
- 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
- Inspection Requ: No
- Cumulative LT: 0
- Site: 8000
- Minimum Order: 0
- Maximum Order: 0
- Order Multiple: 0
- Order Quantity: 0
- Yield Percent: 100.00%

Requirements Table:

Category	Past	9/27/2010	10/4/2010	10/11/2010	10/18/2010	10/25/2010
Gross Requirements	0	0	0	0	10	15
Sched Receipts	0	0	0	0	0	0
Projected QOH	10	10	10	10	0	0
Plan Ords Due	0	0	0	0	0	15
Plan Ords Rel	0	0	0	0	0	15

QAD Proprietary QS-PL-690

QMI's planner uses MRP Summary Inquiry (23.13) to review the status of the 10-00 after the close of the work order.

The 10 on hand will satisfy the requirement for 10 in the fourth week. An additional order planned for the fourth week will be needed to satisfy the requirement in the fifth week.

## Ship Sales Order

**QAD**  
Our Passion. Your Advantage.

### Ship Sales Order

Sales Order Shipments x

Go To Actions Copy Print Preview Attach

Sales Order: SO-10014 Site: Site:

Order: SO-10014 Ship Allocated:  Sold-To: 00010000 Site:  
 Effective: 10/1/2010 Ship Picked:  Midwest Medical Distributors

Sales Order Line Items

Ln	Item Number	T	Qty Alloc	Qty Picked	To Ship	Backorder Site
1	10-00		0.0	0.0	0.0	10.0 8000
2	10-00		0.0	0.0	0.0	15.0 8000

Line: 1 Cancel B/D:  Site: Loc:  
 Quantity: Lot/Serial:  
 Item Number: UM: Ref: Multi Entry:   
 Description:

QAD Proprietary QS-PL-700

QMI's shipping clerk ships 10 medical ultrasounds Midwest Medical Distributors based on line 1 of sales order SO10014. Only line 1 is shipped because it is due; line 2 is not ready yet because it is due later.

Print and Post Invoice

QAD  
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## Print Invoice

<p>QMI Incorporated 17 Avenue of the Americas New York, NY 10065 United States of America</p>	<p style="text-align: right;">I N V O I C E</p> <p style="text-align: right;">Invoice: IV-10001    Revision: 0 Invoice Date: 10/01/10    Page: 1 Print Date: 10/01/10</p>
<p>Bill To: 00010000</p> <p>Midwest Medical Distributors Suite 1000 Colossal Building Colossal Industrial Park 10350 Production Drive Evanston, IL 09087 United States of America</p>	<p>Sold To: 00010000</p> <p>Midwest Medical Distributors Suite 1000 Colossal Building Colossal Industrial Park 10350 Production Drive Evanston, IL 09087 United States of America</p>
<p>Sales Order: 50-10014 Order Date: 09/30/10 Salesperson(s): Credit Terms: 30 Resale: Remarks:</p>	<p>Ship Date: 10/01/10 Purchase Order: Ship-To: 00010000 Ship Via: Bill Of Lading: FOB Point: Shipping Point</p>

Item Number	UM	Invoiced	Qty	B/O	Tax	Price	Extended Price
10-00	EA	10.0	0.0	No		5,000.00	50,000.00
Medical Ultrasound							
10-00	EA	0.0	15.0	No		5,000.00	0.00
Medical Ultrasound							

	Currency: USD	Line Total:	50,000.00
		0.00% Discount:	0.00
Tax Date: 10/01/10		FREIGHT 10 :	0.00
Containers: 0.00		TAX-FREIGHT 11 :	0.00
Line Charges: 0.00		SERVICE 20 :	0.00
		Total Tax:	0.00
		Total:	50,000.00

7.13.3
sosorp10.p

Using Invoice Print (7.13.3), the shipping clerk prints the invoice, shown above. Notice the invoice number: IV10001.

## Invoice Post

QAD  
Our Passion. Your Advantage.

# Post Invoice (1 of 2)

Invoice Post x

Go To Actions Copy Print Preview Attach

Sold To: 00010000 To: 00010000 Bill To: 00010000

Invoice: IV-10001 To: IV-10001  
 Sold To: 00010000 To: 00010000  
 Bill To: 00010000 To: 00010000

GL Effective Date: 10/1/2010  
 GL Consolidated or Detail: Consolidated

Print Lot/Serial Numbers Shipped:  Invoice Post Output:  
 Batch ID:

QAD Proprietary QS-PL-720

The invoice is posted for invoice number IV10001 using Invoice Post (7.13.4). The output is shown below.



## Post Invoice (2 of 2)

**Invoice Post**  
**Training**

10/01/10 21  
 P

Sales Journal Reference: S0101001000004 AR Batch: 1009


Invoice	Bill To Name	Sold-To Name	Slspsn
IV-10001	00010000 Midwest Medical Distributors	00010000 Midwest Medical Distributors	

Sales Order: S0-10014 Ship-To: 00010000 Midwest Medical Distributors Order Date: 09/30/10 PO:


Ln	Item Number	UM Sales	Sub-Acct CC	Invoiced Backorder	Tax	Price	Extended Price	Extended Margin
1	10-00 Medical Ultrasound	EA	3000	10.0 0.0	No	5,000.00	50,000.00	44,332.34

Currency: USD	Line Total:	50,000.00
	0.00% Discount:	0.00
	FREIGHT 10 :	0.00
Tax Date: 10/01/10	TAX-FREIGHT 11 :	0.00
Containers: 0.00	SERVICE 20 :	0.00
Line Charges: 0.00	Total Tax:	0.00
	Total:	50,000.00

## Review Customer Account


10/01/10

### Review Customer Account


Customer Account Inquiry

Bill To: 00010000 Open Only: No Currency: Balance: 50,000.00  
 Midwest Medical Dist Reporting Currency: Output: page

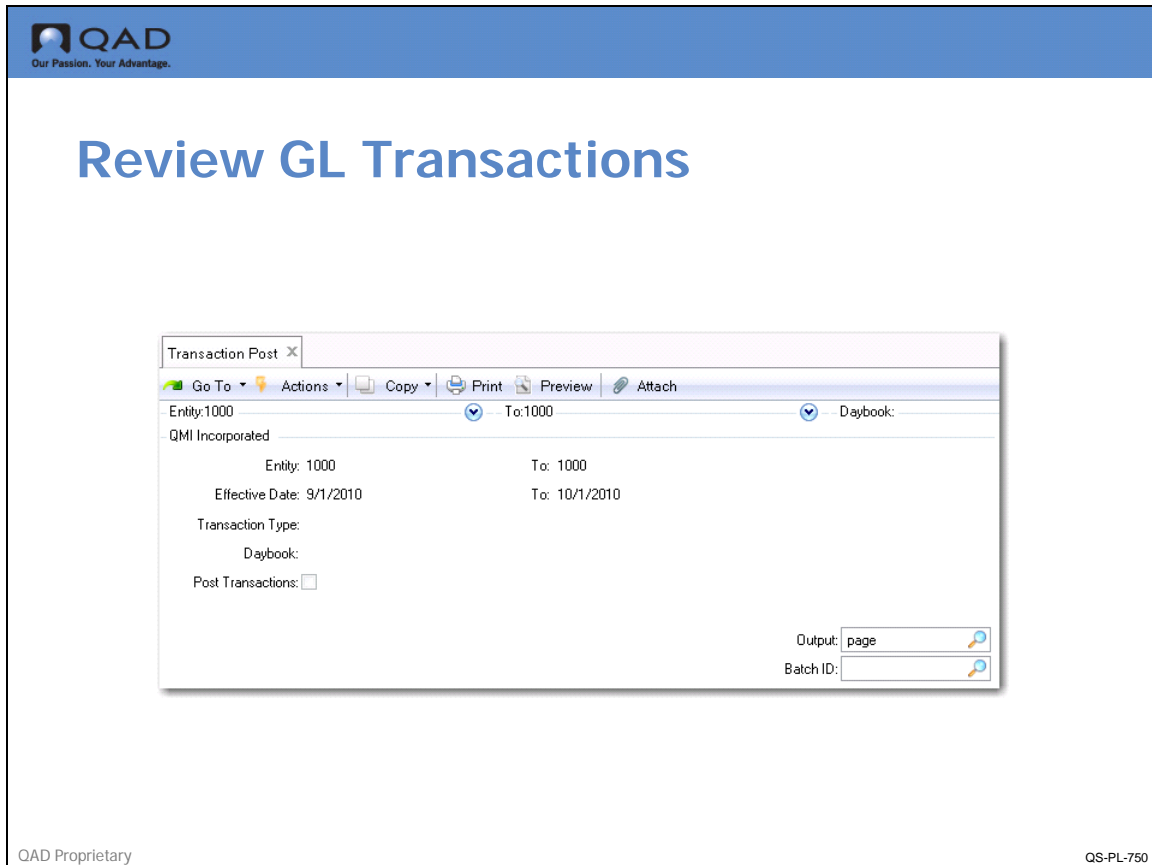
Date	Ref	T	Due Date	C	Amount	Amount	Open	Check	Days
10/01/10	IV-10001	I	10/31/10		50,000.00	50,000.00			
09/29/10	552010	P			-50,000.00	0.00			
09/29/10	IV-10000	I	10/29/10		50,000.00	0.00		552010	

27.13
Customer Account Inquiry
arcsi.q.p


QAD Proprietary
QS-PL-740

Customer Account Inquiry (27.13) shows that the invoice (Transaction Type = I for invoice) was posted to the customer's account.

## Review GL Transactions



To view the GL transactions that have been created, QMI's controller uses Transaction Post (25.13.7). The controller only wants to review the transactions at this point, so Post Transactions is not selected.



## Review GL Transactions

10/01/10 21:58:31

Page: 1

GL Reference	Entered User ID	Eff Date	Line Account	Project	Enty Description	Amount	Cur Daybook
AP100928000005	mfG	09/28/10	1 2100		1000 AP Voucher	-5,818.43	USD SYSTEM
		09/28/10	2 2200		1000 PO RECEIPTS (AP HOLD)	5,818.43	USD SYSTEM
		09/28/10	3 2100		1000 AP Voucher	5,818.43	USD SYSTEM
		09/28/10	4 5020		1000 AP RATE VARIANCE	-5,818.43	USD SYSTEM
						-----	0.00 USD
AP100928000006	mfG	09/28/10	1 2100		1000 System Default Daybo	-17,455.29	USD SYSTEM
		09/28/10	2 5100		1000 PURCHASES (EXPENSED)	5,818.43	USD SYSTEM
		09/28/10	3 2100		1000 AP Voucher	5,818.43	USD SYSTEM
		09/28/10	4 5020		1000 AP RATE VARIANCE	5,818.43	USD SYSTEM
						-----	0.00 USD
AR100929000009	mfG	09/29/10	1 1040		1000 AR Payment	50,000.00	USD AR Pmt
		09/29/10	2 1200		1000 AR Payment	-50,000.00	USD AR Pmt
						-----	0.00 USD
IC100924000001	mfG	09/24/10	1 1500		1000 RCT-PO P0010000	4,500.00	USD SYSTEM
		09/24/10	2 2200		1000 RCT-PO P0010000	-4,500.00	USD SYSTEM
						-----	0.00 USD
IC100924000002	mfG	09/24/10	1 1500		1000 RCT-PO P0010000	250.00	USD SYSTEM
		09/24/10	2 2200		1000 RCT-PO P0010000	-250.00	USD SYSTEM

How to read the GL Reference Number = Module YYMMDD Seq#

= AP 100414 000005

QAD Proprietary
QS-PL-760

**Note** This is an extract of the report. The complete report has several more pages.

In general, first notice that the GL reference number includes a two-character code for the transaction type, such as AP (accounts payable), AR (accounts receivable), and IC (inventory control). Also notice that the listing is arranged alphabetically by GL reference, not chronologically. Notice too that a minus sign before the transaction amount indicates that this is a credit; an amount without the minus sign is a debit. Each transaction has balanced debits and credits.

- The first two transactions are based on QMI purchasing supplies for 10 medical ultrasounds from Dixon Corporation, which were part of the first example. The supplies cost \$5,818.43. The first transaction affects accounts 2100 (credit Accounts Payable) and 2200 (debit PO Receipts). The second transaction affects accounts 1040 (debit Cash) and 2100 (credit Accounts Payable).
- These 10 medical ultrasounds are sold to Midwest Medical Distributors for \$5,000 each. The AR payment for these is the third transaction shown in the report. The accounts affected are 1040 (debit Cash) and 1200 (credit Accounts Receivable). The accounts affected are 1040 (debit Cash) and 1200 (credit Accounts Receivable).
- The next three transactions are the components purchased from Dixon Corporation being issued to the work order. When the work order is issued for 10 medical ultrasounds. The accounts affected are 1600 (debit Work in Process) and 1500 (credit Inventory).
- The next transaction shown in this list is another inventory control transaction, for the work order receipt.

Upon work order receipt, the value of the medical ultrasound includes not only the cost of materials for the manufacture of 10 units, but also the labor involved in putting 10 units together.

## Review Balance Sheet

QAD  
Our Passion. Your Advantage.

# Review Balance Sheet

**Balance Sheet**  
**Training**

QMI Incorporated

Reporting Currency: USD  
Exchange Rate:

Balance as of  
10/31/10

---

**ASSETS**

**CURRENT ASSETS**

CASH

CASH	60,000.00
<hr/>	
TOTAL CASH - USD	60,000.00
CASH - FOREIGN	0.00
<hr/>	
TOTAL CASH	60,000.00

RECEIVABLES

ACCOUNTS RECEIVABLE

ACCOUNTS RECEIVABLE	50,000.00
<hr/>	
TOTAL ACCOUNTS RECEIVABLE	50,000.00
DRAFTS RECEIVABLE	0.00
INTERCOMPANY RECEIVABLES	0.00
NOTES RECEIVABLE	0.00
<hr/>	
TOTAL RECEIVABLES	50,000.00

INVENTORY

INVENTORY	15,300.00
INVENTORY	0.00
INVENTORY	0.00
INVENTORY	0.00
COST REVALUE	0.00
COST REVALUE	0.00
COST REVALUE	0.00
WORK IN PROCESS	3,273.01
<hr/>	
TOTAL CURRENT ASSETS	128,573.01

FIXED ASSETS

FIXED ASSETS	0.00
LESS: DEPRECIATION	0.00
<hr/>	
TOTAL FIXED ASSETS	0.00

**TOTAL ASSETS**

<hr/>	<hr/>
TOTAL ASSETS	128,573.01

**Balance Sheet**  
**Training**

QMI Incorporated

Reporting Currency: USD  
Exchange Rate:

Balance as of  
10/31/10

---

**LIABILITIES & EQUITY**

**LIABILITIES**

CURRENT LIABILITIES

TAXES PAYABLE	0.00
<hr/>	
TOTAL CURRENT LIABILITIES	0.00

LONG TERM LIABILITIES

ACCOUNTS PAYABLE	11,636.86
PD RECEIPTS (AP HOLDING)	5,420.00
<hr/>	
TOTAL CURRENT LIABILITIES	17,056.86

LONG TERM LIABILITIES

LONG TERM DEBT	10,000.00
<hr/>	
TOTAL LONG TERM LIABILITIES	10,000.00

**TOTAL LIABILITIES**

<hr/>	<hr/>
TOTAL LIABILITIES	27,056.86

**EQUITY**

RETAINED EARNINGS	0.00
YTD PROFIT(LOSS)	101,516.15
<hr/>	
TOTAL EQUITY	101,516.15

**TOTAL LIABILITIES & EQUITY**

<hr/>	<hr/>
TOTAL LIABILITIES & EQUITY	128,573.01

End of Report

QAD Proprietary

QS-PL-770

Next, the controller wants to view the balance sheet for entity 1000. The output is shown on the following page.

Review Income Statement

QAD  
Our Passion. Your Advantage.

## Review Income Statement

Income Statement

Training

QMI Incorporated

Reporting Currency: USD

Exchange Rates:

	Activity 10/01/10 To 10/31/10	% OF Income
SALES	50,000.00	100.0%
SALES	50,000.00	100.0%
TOTAL SALES	50,000.00	100.0%
COST OF GOODS SOLD		
COGS - MATERIAL		
COGS MATERIAL	5,495.00	11.0%
COGS MATERIAL	0.00	.0%
COGS MATERIAL	0.00	.0%
TOTAL COGS - MATERIAL	5,495.00	11.0%
COGS BURDEN	49.33	.1%
COGS BURDEN	0.00	.0%
COGS LABDR	123.33	.2%
COGS LABDR	0.00	.0%
TOTAL COST OF GOODS SOLD	5,667.66	11.3%
STANDARD GROSS MARGIN	0.00	0.0%
PRODUCTION VARIANCES		
MATERIAL VARIANCES		
PURCHASE PRICE VARIANCE	0.00	.0%
AP RATE VARIANCE	0.00	.0%
TOTAL MATERIAL VARIANCES	0.00	0.0%
LABDR VARIANCES		
LABDR - COST OF PRODN	0.00	.0%
LABDR ABSORBED	(187.38)	-.4%
LABDR ABSORBED	0.00	.0%
LABDR RATE VARIANCE	(92.46)	-.1%
LABDR USAGE VARIANCE	216.50	.4%
TOTAL LABOR VARIANCES	(33.34)	-0.1%
BURDEN VARIANCES		
BURDEN ABSORBED	(74.95)	-.1%
BURDEN ABSORBED	0.00	.0%
BURDEN RATE VARIANCE	(24.98)	.0%
BURDEN USAGE VARIANCE	86.60	.2%
TOTAL BURDEN VARIANCES	(13.33)	0.0%

Income Statement

Training

QMI Incorporated

Reporting Currency: USD

Exchange Rates:


	Activity 10/01/10 To 10/31/10	% OF Income
OVERHEAD VARIANCES		
METHOD CHANGE VARIANCE	0.00	.0%
TOTAL OVERHEAD VARIANCES	0.00	0.0%
SUBCONTRACT VARIANCES		
VOLUME VARIANCES	0.00	0.0%
TOTAL PRODUCTION VARIANCES	(46.67)	-0.1%
TOTAL GROSS MARGIN	44,379.01	88.8%
OPERATING EXPENSES		
SALARIES & WAGES	0.00	0.0%
GENERAL EXPENSES		
PURCHASES (EXPENSED)	0.00	.0%
PURCHASES (EXPENSED)	0.00	.0%
TOTAL GENERAL EXPENSES	0.00	0.0%
TRAVEL & ENTERTAINMENT	0.00	0.0%
Service Expense	0.00	0.0%
TOTAL OPERATING EXPENSES	0.00	0.0%
TOTAL INCOME FROM OPERATIONS	44,379.01	88.8%
OTHER INCOME & EXPENSES		
EXCHANGE GAIN(LOSS)	0.00	0.0%
TOTAL OTHER INCOME & EXPENSES	0.00	0.0%
TOTAL PROFIT(LOSS) BEFORE TAX	44,379.01	88.8%
TAXES	0.00	0.0%
TOTAL NET PROFIT(LOSS)	44,379.01	88.8%

End of Report

QAD Proprietary
QS-PL-780

This report prints format headings based on the descriptions entered for format positions in the Format Position Maintenance function. The % of income column shows the percent of total income attributed to this account.

**Exercise: 10 - Balance and Order Quantity Values**

										
<h2 style="text-align: center;">Order Policy and Modifier Activity</h2>										
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										

QAD Proprietary QS-PL-800

Instructions: Use the accompanying table to determine in which periods orders are required and for what quantities. Assume there is no on-hand inventory. For example, looking at period 1 and its demand, the correct entry for LFL is 25. Looking at POQ covering two periods, the correct entry is 55.

**Enter a Forecast for Parent Item**

- 1 Use Forecast Worksheet Maintenance (22.2) to enter a forecast for parent item 10-00 at site 8000 for the next four weeks.

Field	Value
Item Number	10-00
Site	8000
Year	Current Year
Current Week (CW)	0
CW+1	10
CW+2	20
CW+3	30

Be sure to click Next 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 Forecast Consumption. On the third frame:

Field	Value
Consume Forward	2
Consume Back	1

**Enter a Sales Order**

- 3 Use Sales Order Maintenance (7.1.1) to enter a sales order containing two lines.

Field	Value
Order	<blank> system generated
Sold-To	Midwest Medical Distributors
Bill-To	Midwest Medical Distributors
Ship-To	Midwest Medical Distributors

## Line 1

Field	Value
Item	10-00
Site	8000
Quantity	10
Due Date	(next week)
Consume Forecast	Yes

## Line 2

Field	Value
Item	10-00
Site	8000
Quantity	20
Due Date	(current week + 3
Consume Forecast	No

Click End Lines, then Trailer, then Next until you return to the first frame

**Review Forecast**

- 4 Use Forecast Worksheet Maintenance (22.2).

**Review Master Schedule Summary**

- 5 Review the Master Schedule Summary Inquiry (22.18) for item 10-00 at site 8000.

Field	Value
Item	10-00
Site	8000
Start Date	Monday of current week

Field	Value
Buckets	W (weekly)
Per/Bkt	1

The display screen has two sections. In the top section, locate the following fields and record the following values:

QOH (quantity on hand): \_\_\_\_\_

MRP required flag: Yes/No

Plan Orders flag: Yes/No

Order Policy flag: \_\_\_\_\_

Review the bottom frame. Notice forecast amounts, sales order amounts, projected QOH, available to promise (ATP), and cumulative ATP.

**Review Planning Data and Run Net Change MRP**

- 6 Use Item Planning Maintenance (1.4.7) to review planning data for item 10-00 at site 8000 and add the following data if necessary:

Field	Value
Order Policy	POQ
Order Period	7
Order Quantity	10
Manufacturing Lead Time	1

- 7 Use Item Planning Maintenance (1.4.7) to review planning data for item 10-01 at site 8000 and add the following data if necessary:

Field	Value
Order Policy	POQ
Order Period	7
Purchase Lead Time	5

- 8 Repeat step 7 for items 10-02 and 10-04.

- 9 Use Item Planning Maintenance (1.4.7) to review planning data for item 10-03 at site 8000 and add the following data:

Field	Value
Order Policy	POQ
Order Period	7
Purchase Lead Time	5
Order Multiple	3,000

**Review MRP Control**

- 10 Use MRP Control (23.24).

Field	Value
Order Release Horizon	21 (days)

### Run MRP to Calculate a Master Schedule for Parent Item

- 11 Use Regenerate Materials Plan (23.2) for site 8000.

This program will not print to page so you must either print to a printer, or enter a filename for the system to save it as.

Field	Value
Output	Enter your initials

- 12 Use Master Schedule Summary Inquiry (22.18) to make sure the master schedule meets the forecast demand of the parent item.

Field	Value
Item	10-00
Site	8000

- 13 Click the Run Icon.

The master schedule meets the forecast demand of parent item.

- 14 Use Master Schedule Detail Inquiry (22.21) to compare the information it provides that the Master Schedule Summary Inquiry did not provide?

### Review Action Messages and Approve Planned Orders

- 15 Use MRP Summary Inquiry (23.13) and MRP Detail Inquiry (23.16) to review the information for parent item 10-00 and component items 10-01, 10-02, 10-03, and 10-04 at site 8000.

- 16 Use Action Message Browse (23.6) to review the information for each of the items.

- 17 Use *Planned Purchase Order Approval* (23.11). Based on Action Message Browse, approve any MRP-planned work orders.

Field	Value
Site to Site	8000
Release Date	<blank>
Default Approve	Yes
Approve Orders	Yes

- 18 Use Purchase Requisition Browse (5.1.5) to check items 10-01, 10-02, 10-03, and 10-04 to ensure that planned orders have been changed to purchase requisitions.

In the following activity we go through the basic processing functions and look at how they affect planning. During this activity 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)

- 19 Use Purchase Order Maintenance (5.7) to add a purchase order with each of the component items (10-01, 10-02, 10-03, and 10-04) on a purchase order line.

Header information:

Field	Value
Purchase Order	Default
Supplier	Dixon Corporation
Due Date	<blank>

20 Line information for item 10-01 and 10-02.

Field	Value
Req	Select a requisition

- On the line, in the Req (requisition) field, use your look-up browse to select a requisition

Line information for item 10-03.

Field	Value
Req	Select a requisition
UM	RL
Pop-up Convert?	Yes

Update and exit.

21 Use Purchase Order Receipts (5.13.1) to receive your purchase order.

### Approve Planned Work Orders

22 Use Planned Order Browse (23.9) to view MRP-planned orders that need your approval.

Based on the report, there are two planned work orders for item 10-00. You will want to approve the first one at this time. Note the release date of this work order to be approved. You will need to enter that date in the next step.

23 Use Planned Work Order Approval (23.10) to approve the work order you noted in the previous step.

Field	Value
Item Number	10-00
Site	8000
Release Date	Date from step 22

Release Date of work order to approve based on information from Planned Order Browse in previous step

24 Go to 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

25 Use Inventory Detail by Site Browse (3.3) to verify the availability of components in inventory for site 8000.

**Note** Simulate Picklist (13.8.17) can also be used.

26 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.

**27** Use Work Order Component Issue (16.10) to issue components to your work order.

**28** Use Labor Feedback by Work Order (17.1) to report labor against your work order

Operation 10:

Field	Value
Work Order	Use Lookup
Operation	10
Employee	<blank?
Quantity Completed	20
Elapse/Stop Setup	1
Elapse/Stop Run	.5

Accept remaining default values.

E-Signature frame

Field	Value
User ID	Your Login (example: mfg)
Password	Your PW or <blank>
Reason Code	Approve

Operation 20:

Field	Value
Work Order	<defaults>
Operation	20
Employee	<blank>
Quantity Completed	20
Elapse/Stop Setup	0
Elapse/Stop Run	.333

E-Signature frame

Field	Value
User ID	Your Login (example: mfg)
Password	Your PW or <blank>
Reason Code	Approve

Elapse/Stop Run = .333 (standard run time for 10 units) These standard times can be viewed on the work order routing that was printed when the order was released.

Operation 30

Field	Value
Work Order	<defaults>
Operation	30
Employee	<blank>
Quantity Completed	20

Field	Value
Elapse/Stop Setup	0
Elapse/Stop Run	.25

E-Signature frame

Field	Value
User ID	Your Login (example: mfg)
Password	Your PW or <blank>
Reason Code	Approve

- 29 Use Work Order Receipt (16.11) to receive a quantity of 20 of item 10-00 into inventory and close the work order (checkbox = Yes)
- 30 Use MRP Summary Inquiry (23.13) to check for item 10-00.  
Select Details so that both summary and detail information display on this report.  
Re-run MRP and then run this report again. What changes do you see?

Ship and Invoice a Sales Order

- 31 Use Sales Order Shipments (7.9.15) to ship line 1 of your sales order. Do not ship line 2.  
**Note** If necessary, use Sales Order Auto Credit Approval (7.1.17) to ok shipment if over credit limit.
- 32 Use Invoice Print (7.13.3) to print the invoice. Note the Invoice #\_\_\_\_\_
- 33 Use Invoice Post (7.13.4) to post the invoice.
- 34 Use Customer Account Inquiry (27.13) to review the customer's account (Midwest Medical Distributors).

Review GL Transactions

- 35 Use Transaction Post (25.13.7). Review the GL transactions that have been created by the transactions in the activities.

Field	Value
Entity	1000 to 1000
Effective Date	Today's Date
Post Transactions	No

We only want to review the transactions at this time.

- 36 Use Transaction Post (25.13.7) again after you have reviewed the GL transactions report. This time, choose Post Transactions = Yes.
- 37 Use Balance Sheet (25.15.8) to review the for entity 1000.
- 38 Use Income Statement (25.15.13) to run and review the income statement for entity 1000.

## Answers: Order Policy



### Answers: Order Policy

Period	1	2	3	4	5	6	7	8	9	10
<b>Demand</b>	25	30	20	35	25	30	25	35	30	25
<b>LFL</b>	25	30	20	35	25	30	25	35	30	25
<b>FOQ = 35</b>	35	35	35	35	---	35	35	35	35	---
<b>POQ 2 periods</b>	55	---	55	---	55	---	60	---	55	---
<b>POQ - 2 periods Min. Qty. = 60</b>	60	---	60	---	60	---	60	---	60	---
<b>POQ - 2 periods Multi. Qty. = 25</b>	75	---	---	75	---	50	---	75	---	25