



Introduction to MAX ERP

MAX Enterprise – Internal Modules

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Intentions:

This document was written to provide a high level overview of ECI Software Solutions MAX Enterprise Resource Planning (ERP) application for both prospects and customers that are interested in learning more about its features and functions.

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About ECI Software Solutions

For more than 30 years, ECI has helped thousands of companies compete and grow with integrated and dedicated ERP business management software, technology solutions, ecommerce, and services for independent companies. We help Small and Medium-sized Enterprises (SME) compete and grow by providing industry expertise and purpose-built solutions that make doing business easier.

If you have any questions about the products and services that MAX offers, please contact your MAX Account Manager.



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MAX ERP Manufacturing Software

MAX ERP helps growing manufacturers control their resources with an easy-to-use solution that reduces the cost of manufacturing, automates manufacturing compliance, and improves profitability, all while enhancing customer service and satisfaction.

Through seamless integration with Microsoft Dynamics GP® and Intuit QuickBooks®, MAX offers the power of integrated ERP and boasts a particularly strong footprint with manufacturers that must maintain compliance with government or industry regulations, manages recalls and control, and document product revisions and engineering changes.

Introduction – MAX Module Walkthrough

With thousands of implementations in North America, MAX ERP Software provides complete manufacturing, sales, and accounting control. It is best suited for small to mid-sized discrete manufacturing companies who want a user-friendly interface combined with powerful ERP functionality that will help them get the most from their existing resources. Affordability and easy, rapid implementation help make MAX an attractive solution for independent companies as well as divisions of larger corporations.

MAX users can choose from over 35 fully integrated core modules that cover the full range of manufacturing and accounting requirements. A no-nonsense system, MAX offers a full-scale solution for enterprise needs like Engineering, Customers, Scheduling, Material Management, Production Management, Information Technology and Executive Finance.

By ensuring that everybody is “reading off the same page,” MAX will enable your team to produce better results with fewer mistakes and provide E-Manufacturing solutions to extend your visibility in the electronic supply chain.

Table of Contents

The MAX System manager is organized into departments or areas of operation.

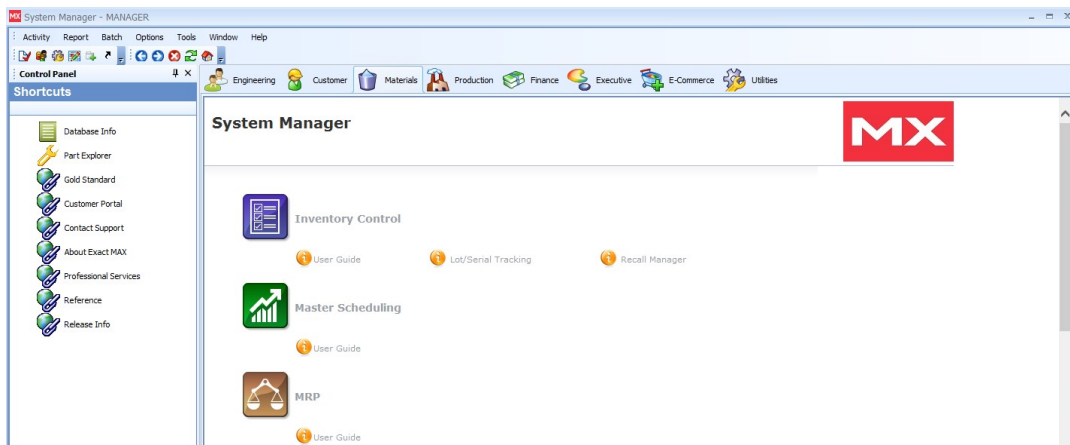


Figure1. MAX System Manager

These are the same areas illustrated in the ERP Systems Overview Model.



Figure2. ERP Overview Model



Engineering

- Bill of Materials
- Alternate BOM's
- Manufacturer's Part Control
- Product Configuration
- ECO Management



Customers

- Quoting/Estimating
- Sales Order Processing
- Shipping
- Advanced Shipping / EDI
- Consignment
- Warranty Tracking / RMA



Scheduling

- Demand Management
- Master Production Scheduling
- Capacity Management
- Planning Simulation



Production

- Shop Floor Execution
- Priority Planning & Control
- Alternate Processes
- Subcontract Services
- Labor Tracking



Materials

- MRP
- Inventory Control
- Physical Inventory
- Lot/Serial Tracking
- Recall Management
- Purchasing
- Subcontract Processing
- Repetitive Manufacturing



Finance

- Financial Integration
- Consolidated Invoice
- Multiple Currency
- Product Costing
- Multiple Cost Sets
- Job Costing
- Stock Revaluation



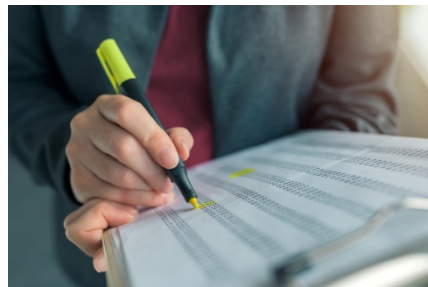
Information Technology

- On-premise or Hosted
- MAX System Manager
- User Designed Fields
- Extract Transform & Load
- Transaction Security
- Archive Manager
- MAXUpdate
- MAXAnywhere



Data & Reporting

- Standard Reporting
- Custom Reporting
 - Crystal Reports
 - Excel Analytics
 - SQL Server Reporting Services
- Alerts & Automation – KSAA



MAX Additional Resources

In addition to this document, please understand that the following resources are available to help you.

MAX Modules, Tools and Utilities

See our additional brochure for a complete listing of third party modules, tools and utilities.

See MAX in Action!

Visit us on the web at www.max4erp.com to view our online demonstrations, and find out why so any manufacturing pros have come to rely on MAX over the years.

Attend a FREE MAX Webinar

Choosing the right ERP solution doesn't have to be a daunting task. We provide “live” online demonstrations that are designed to provide an introductory look at MAX's core ERP functionality. Please contact us for a schedule of events.

MAX Professional Services



Behind every ERP implementation are what we refer to a “background concepts.” These concepts include manufacturing control systems and environments, business conflict, industries and methods (how volume and variety effects manufacturing), standard processes, manufacturing philosophies (lean manufacturing, constraint management, ERP), implementation planning, key performance indicators and keys for success. All of these topics, when understood and applied to your implementation can accelerate building business value.

In addition to all operational areas, our Professional Services team can help you navigate through these concepts and help assure a successful implementation.

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Engineering

The ERP system narrative typically begins with the products and services being produced by the manufacturer. In other words, sales need to have something to sell. The engineering function is tasked with identifying parts and how those parts go together to build product structures. For purchased material, this often includes specifying the manufacturer and their part numbers. This includes alternate structures areas where known substitutes are available. For the assemble to order environment, it involves product configuration. The engineering change order (ECO) management system governs and communicates changes to these parts and structures.

Engineering

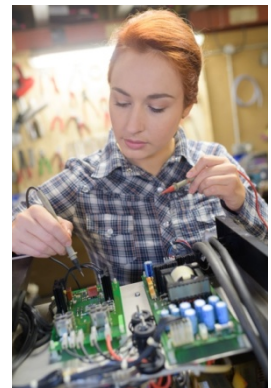
- Bill of Materials
- Alternate BOM's
- Manufacturer's Part Control
- Product Configuration
- ECO Management

Bill of Materials

Build and maintain Bills of Material (BOMs) in one visual workspace.

- Part creation and maintenance
- Multiple levels
- Reference designators
- Top Down or bottom-up product structure review
- Reports
- Mass updates

Bill of Materials is one of the cornerstones upon which the MAX system is built. The screens and reports offered in this module enable you to build and maintain BOMs in one visual workspace, with all relevant information at your fingertips with a click of your mouse. This module also maintains important part information and enables you to review product structure data from the top down or from the bottom up.



Part Master —Information at Your Fingertips

The screenshot shows the 'Part Master' software window. At the top, there are tabs for 'Master', 'Engineering', 'Planner', 'Inventory', 'Accounting', 'Bill of Materials', 'MPN', and 'Alternate Process'. The 'Master' tab is active. The form contains the following fields and values:

Part ID	1000	Part Type	M - Master Schedule Part
Desc	Computer	On Hand	1
		Non Nettable	10
BOM UOM	EA	Planner ID	000
Cost UOM	EA	Class Code	A
Cost/Unit	1548.67233186	Rev. Level	A
Default Stock ID	FG	Comm Code	FG
Zone	20	Buyer	000
		Yield	100
UDF Key		UDF Ref	

At the bottom of the window, there are five buttons: 'Close', 'Clear', 'Update', 'Delete', and 'Help'.

Figure 1. All Part Master data is just a mouse click away.

- All part master data is available using a tabbed dialog box.
- Data is departmentalized by company function for easy access and maintenance.
- Add notes to a part and/or BOM (Reference Designators) using Cut & Paste from your favorite word processor.
- Icons attached to parts allow you to quickly determine what type of part it is.
- Calculate standard costs using material, labor, and burden cost elements with "cost rollup" logic.
- Maintain separate units of measure for manufacturing, purchasing, and costing.
- Support for manufacturer's part control.

Part View —Audio and Visual Documentation

- View any BMP, PCX, TIFF, TGA, GIF, DCX or JPG graphics file.
- Play any voice, music or movie file associated with a part.
- Quickly start any application with the OPEN button.

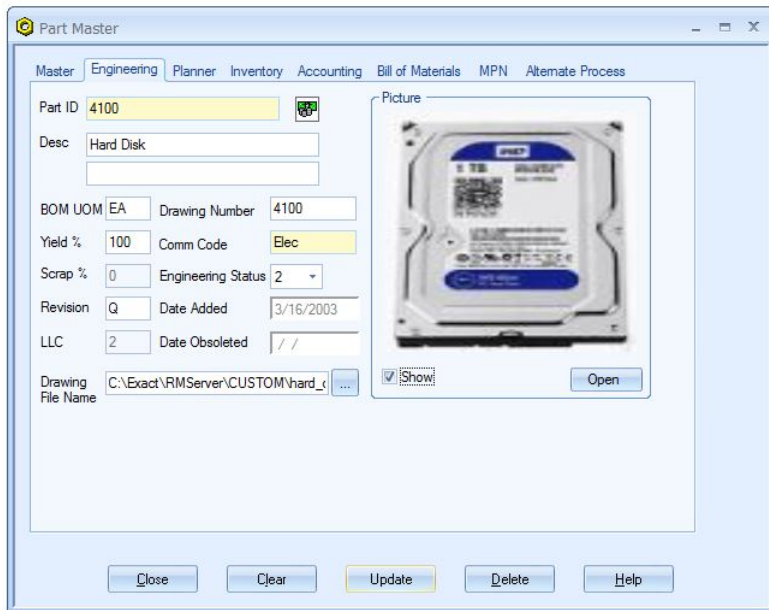


Figure 2. To get information you need quickly, MAX's Browser Technology allows you to have a window into even the largest databases.

Part Master Browser —Get the Information you Need

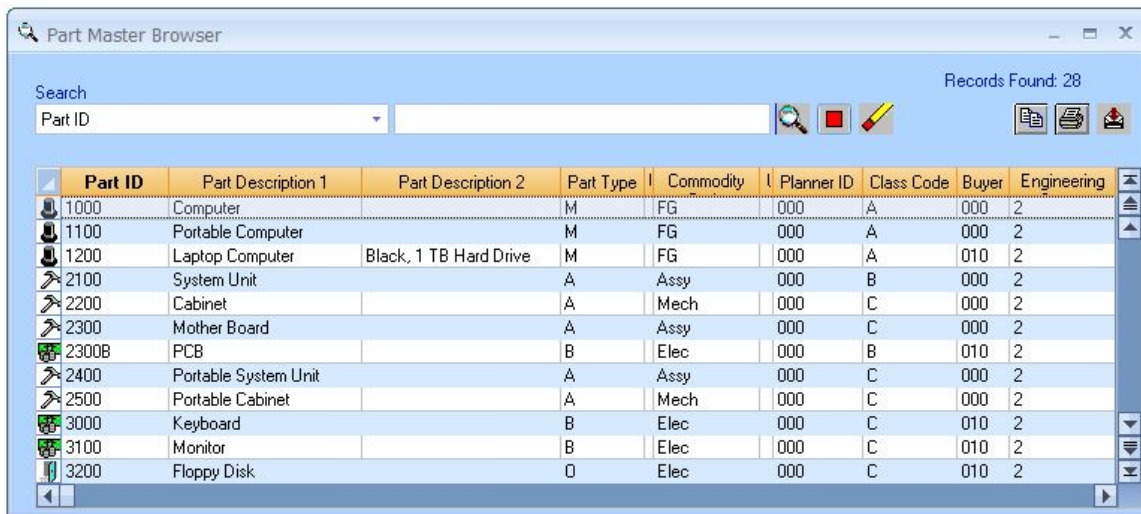


Figure 3. To get information you need quickly, MAX's Browser Technology allows you to have a window into even the largest databases.

Visual BOM Builder—Visual Workplace

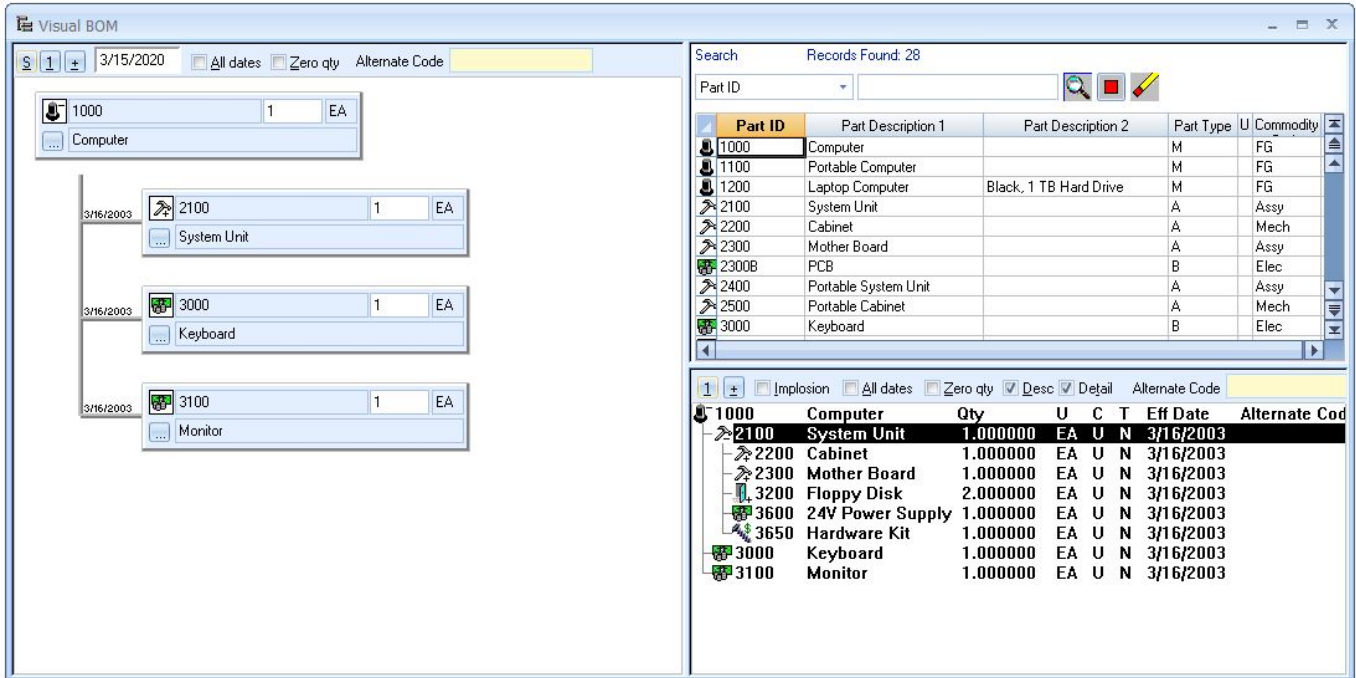
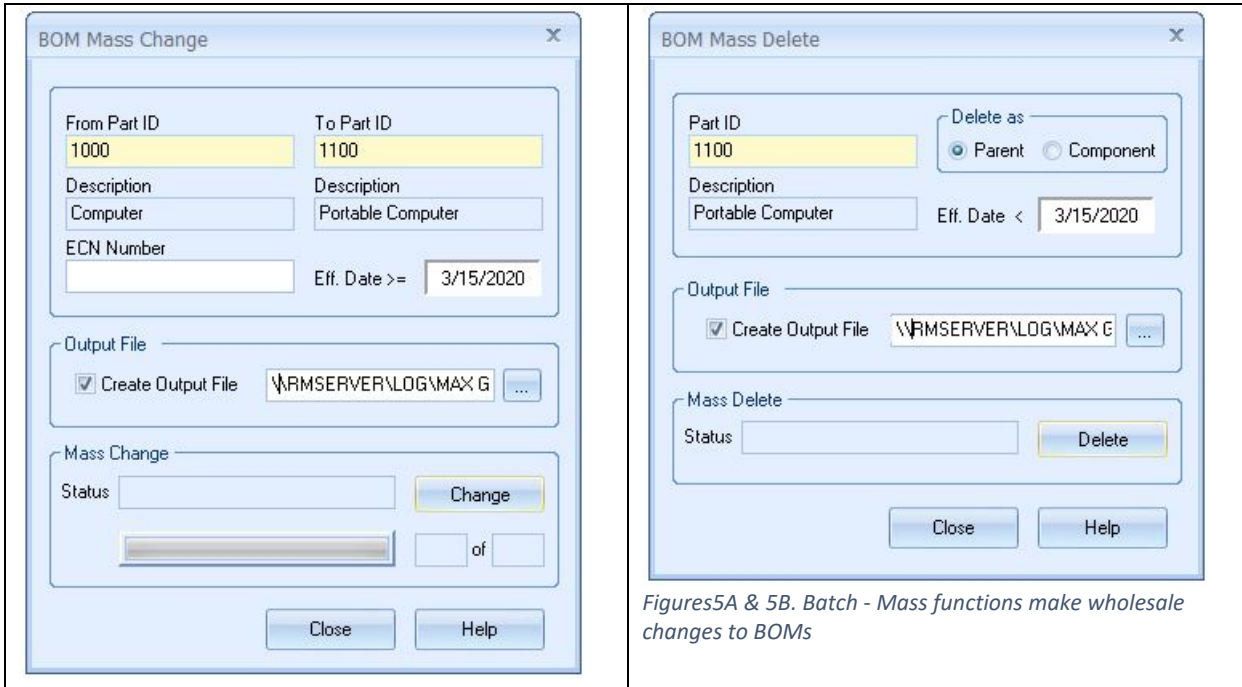


Figure 4. Visually build and maintain BOMs in a single workspace.

- Splitter windows define 3 separate panes designed to maximize the workspace by having all relevant data available on the desktop.
- Drag & Drop component parts and existing BOMs to build and maintain bills of material.
- Standard, planning, and alternate BOMs are produced utilizing the same user interface.
- Display any combination of single or multilevel explosion or implosion and all relevant data.
- Display standard and alternate BOMs in same format.
- Copy all component parts from one BOM to another.
- One centralized bill covers engineering, manufacturing & costing needs.
- Effective date logic (i.e., recent dates supersede previous dated records) allows for quantities of the same part to be changed, new parts added, parts removed, etc. over time providing a “historical” BOM.
- Drill down capability allows you to view related information with a click of the mouse.
- Color coded structure links indicate what changes have occurred in the BOM.
- Use pseudo and phantom logic to control “build through” assemblies.

BOM Mass Change & Delete —Quickly Implement Engineering Changes



Replace an old component part with a new component for every product structure where it is used.

- Delete all product structure relationships for a specific part as either a parent or component part.
- Enter the engineering change number authorizing the change.
- Control what BOMs are being changed or deleted with "effectivity date" logic.
- Automatically generate a report listing the new and deleted relationships.
- *Graphical status bar indicates % completion and if action was successful for immediate confirmation.*

Reports — Instant Access to Critical Information

MAX uses the #1, award-winning reporting tool, Crystal Reports, as its reporting engine. All reports are customizable and have extensive sort and filtering capabilities, giving instant access to the information you need in a format you are used to.

- Zoom in on reports with 3 levels of magnification.
- Display reports before you print.
- Send reports via e-mail.
- Export reports to another application

Alternate BOM's

There are often different methods to produce a manufactured item and this information also needs to be stored and controlled. With MAX Alternate Processes, Alternate BOMs may be stored along with normal or “standard” BOMs.

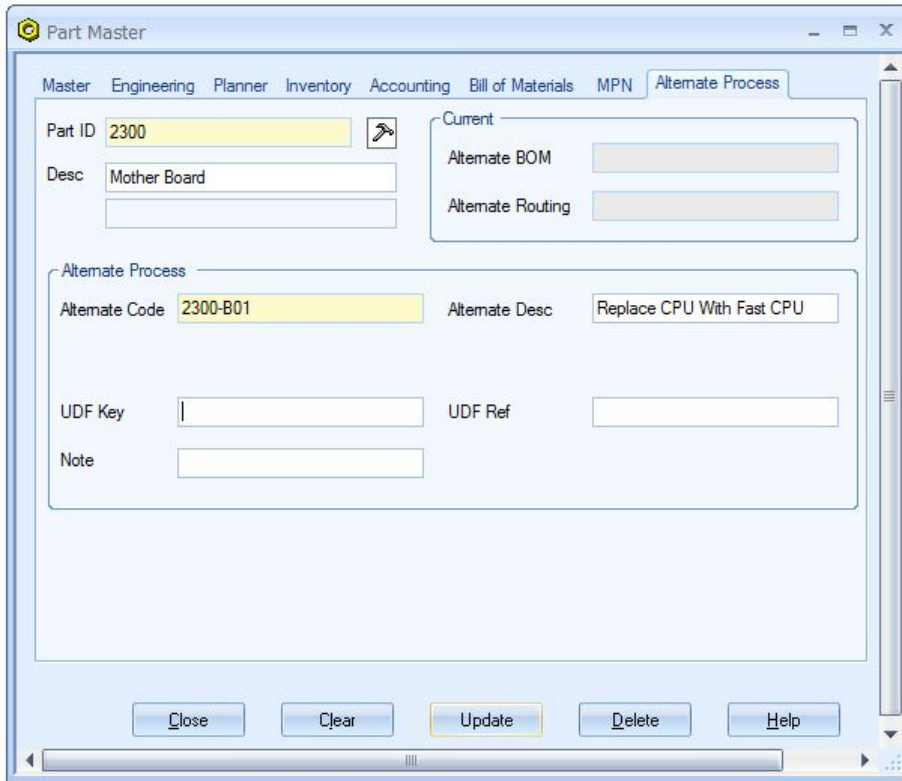


Figure 6. Maintain Alternate Process - BOM

Alternate BOMs begin with establishing a unique code. Then a BOM is typically copied from a standard BOM and modified to represent the change. Alternate BOMs can then be seen in inquiries and reports. Alternate BOMs can be costed.

The Alternate BOM can be entered into the Shop Order to instruct MAX to use the alternate pick list. From there, normal Shop Floor Execution takes over for managing and controlling that order.

If the Alternate BOM will be used as the “standard” for a long period of time, MAX can be directed to use it in both cost roll-ups for determining standard product costs and in Materials Requirements Planning MRP.

Manufacturer's Part Control

Do not wait until failure analysis to find out the wrong part was purchased or received.

With Manufacturer's Part Control in place, Engineering can define precise part relationships that specify exactly which manufacturers' parts fill a requirement. MAX Manufacturer's Part Control lets you assign and control relationships between your internal MAX part identifiers and manufacturer's part numbers, allowing you to control not only your product structure but also your inventory at the bills of material level. MAX displays manufacturer's part information to Purchasing so that competitively priced supply meets demand. Guarantee that finished goods match the exact product specifications using MAX Manufacturer's Part Control.

Manufacturer's Part Control gives you the ability to:

- Specify the approved manufacturer(s) and their part numbers for a particular MAX part number.
- Specify up to 10 preferences for which part to use.
- Create relationships between MAX parts, the vendors you purchase them from and manufacturers' part numbers.
- Use data throughout the purchasing and receiving process.
- Produce an "approved material list" as part of your incoming quality program.

The screenshot shows the 'Part Master' window with the 'MPN' tab selected. The 'Part Master' section contains a 'Part ID' field with the value '3400', a 'Desc' field with 'CPU', and a checked 'MPN Part' checkbox. The 'Manufacturer's Part Number' section includes an 'MPN' field with 'PT-500SX', a 'Manufacturer' field with 'Intel', a 'Description' field with '500 Mhz CPU', and a 'Preference Code' dropdown set to '1'. The 'User Defined' section has empty 'UDF Key' and 'UDF Ref' fields. At the bottom are buttons for 'Close', 'Clear', 'Update', 'Delete', and 'Help'.

Figure 7. Relate MAX part numbers with Manufacturer's Part Numbers

Manufacturer's	Part ID	Manufacturer	Preference	User Defined Key	User Defined
.032SS	3500	Bethlehem Steel	1		
350BL	3250	Verbatim	1		
6511-TW	3000	Acer	1		
6511-TW	3800	Acer	1		
ADM-1000S	3450	Advanced Micro	2		
ADM-500S	3400	Advanced Micro	2		
HW-1000	3650	General Metal	1		
ILP-3600	3600	Illinois Power	1		
ILP-3600F	3625	Illinois Power	1		
KG-256K	3700	Kingston	1		
MP-3601	3600	Midwest Power	2		
PT-1000SX	3450	Intel	1		
PT-500SX	3400	Intel	1		
SX-1G	4100	Conner	1		
V50	3900	Optquest	1		

Figure 8. Browse Manufacturer's Part Numbers throughout MAX core modules.

With Manufacturer's Part Control you will:

- Ensure purchase of only approved manufacturer's parts.
- Print approved manufacturers on PRs, POs, and shop paperwork.
- Cross reference your engineering, planning, and manufacturing staff reports to resolve shortages, quality problems, or pricing issues more simply.
- Add new part number relationships "on the fly".
- Increase visibility to alternative suppliers for each part.

Vendor Part Data

Vendor: 006 Part #: 3400 Part Master: ...

Mfg's P/N: PT-500SX MPN String Status: A - Active

Manufacturer: Intel Vendor Type: N - Normal

Vendor Name: Lo Trading Vendor Status: A - Active

Contact Name: Mr. Lo Vendor Phone: 1-365-9834

Part Description: CPU Purchasing UDM: EA

Currency: \$ US DOLLARS YTD Purchases: 833.33375

Vendor's Part #: YTD Receipts: 0

Tax Code: YTD PO Count: 1

User Defined Key: User Defined Reference:

Subcontract Charge

Base Charge: 0 Service ID:

Price Break Information

Quantity 1	1	Price/Unit 1	125.0000
Quantity 2	0	Price/Unit 2	0.0000
Quantity 3	0	Price/Unit 3	0.0000

Buttons: Close, Clear, Update, Delete, Extended Fields, Help

Figure 9. Choose approved parts required from the approved vendor list.

Product Configuration

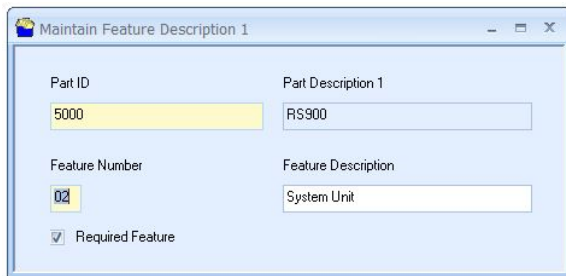
Is your product line configurable? Do you avoid offering your customers too many choices because you do not see how to avoid a logistical nightmare?

MAX Feature/Option Configurator gives you more logistical control over your configurable parts, making your operation more flexible and helping to increase customer satisfaction. Although you may build a "standard" product, you can configure it to match specific customer requirements with a variety of available features and options. For example, if your product happened to be a computer, you could offer different sized hard drives to accommodate the wide range of needs you are likely to face.

Using Assemble to Order (ATO) logic allows your order entry staff to build engineering approved, final assembly configurations during the Sales Order Processing process and automatically generate unique shop orders to produce that order. This process drastically reduces the number of actual part numbers to build all the combinations – saving engineering time and resources/

Offer your customers a configurable, flexible product line, and give them the means to purchase what THEY want!

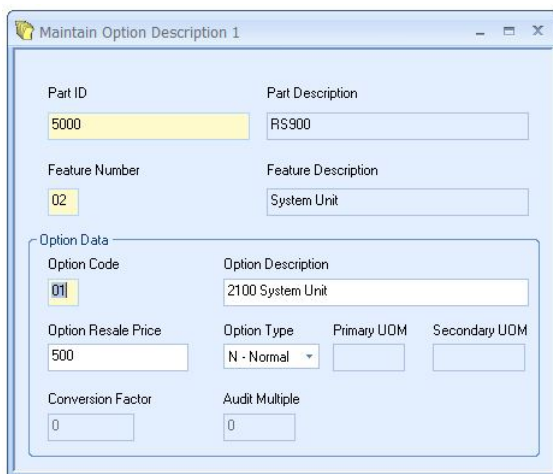
Maintain Descriptions for each Feature/Option



Maintain Feature Description 1

Part ID	Part Description 1
5000	RS900
Feature Number	Feature Description
02	System Unit
<input checked="" type="checkbox"/> Required Feature	

Figure 10. Maintain Feature Descriptions.



Maintain Option Description 1

Part ID	Part Description		
5000	RS900		
Feature Number	Feature Description		
02	System Unit		
Option Data			
Option Code	Option Description		
001	2100 System Unit		
Option Resale Price	Option Type	Primary UOM	Secondary UOM
500	N - Normal		
Conversion Factor	Audit Multiple		
0	0		

Figure 11. Define features and options for any configurable part in your system.

With Feature/Option Configurator, you can...

- Engineer features and options so that the final configuration of the product is performed during the sales order processing function and not in an engineering workflow.
- Empower your sales team to build products the way your customers want them.

- Direct shortcuts from Feature and Option Inquiries to Feature and Option Maintenance windows that eliminate navigational steps.
- View top selling options by product line with sales analysis reports.
- Automate communication with MRP planning with scheduled processes.
- *Appreciate a user-friendly UI that:*
 - *simplifies maintenance of feature and option information.*
 - *clarifies display of product line information.*
 - *minimizes the steps required to navigate through the module.*

When used with Planning BOMs, Configurator automatically balances the demand between "Planning" Master Schedule orders for the product line and actual Master Schedule orders. Other benefits include:

- Aids in accurate forecasting for a diverse variety of potential end items.
- Requires fewer bills of materials, and less maintenance.
- Makes adding or substituting options quick and easy.
- Minimizes overhead in the order entry function.
- Simplifies feature and option selection by opening the Configurator dialog automatically when a user enters a sales order line item for a family (F) type part.
- Allows you to copy feature and option descriptions from one part to another.
- Allows users to designate variable quantities of an option during sales order entry.
- Provides the ability to specify option quantities in user-definable primary and secondary units of measure, such as feet and inches.

Maintain Feature Bill Qualifier

Feature	Option	Include	Exclude
01 Power Supply	24-24v ps	<input checked="" type="checkbox"/>	<input type="checkbox"/>
02 System Unit	01-2100 System Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>
03 Diskettes	DK-3200 3.5" Floppy Disk (10 Pa	<input checked="" type="checkbox"/>	<input type="checkbox"/>
04 Network Cable	CB-6000 Network Cable - 6 to 25	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Figure 12. View series of features and options and their related prices

Planning Bill of Material

The screenshot displays the Visual BOM software interface. On the left, a hierarchical tree shows the assembly structure for part 5000 (RS900). The tree includes sub-assemblies like System Unit (2100), Portable System Unit (2400), Floppy Disk (3200), 24V Power Supply (3600), and 48V Power Supply (3625). Each sub-assembly is associated with a date (3/16/2003) and a quantity (e.g., 60 for System Unit). On the right, a table lists the components with columns for Part ID, Part Description 1, Part Description 2, Part Type, Commodity, Planner ID, and Class Code. Below the table, a detailed BOM table shows the quantities and attributes for each component.

Part ID	Part Description 1	Part Description 2	Part Type	Commodity	Planner ID	Class Code
3625	48V Power Supply		B	Elec	000	C
3650	Hardware Kit		Y	Elec	000	C
3700	Memory		B	Elec	000	C
3800	Portable Keyboard		B	Elec	000	C
3900	Portable Monitor		B	Elec	000	C
4000	SUPER CPU		B	Elec	000	C
4100	Hard Disk		B	Elec	000	C
4180	1TB Hard Drive		B	ELEC	000	C
5000	RS900		F	FG	000	C
6000	Network Cable, 6 to 25'		B	Elec	000	C

Qty	U	C	T	Eff Date	Alternate Code
60.000000	EA	U	P	3/16/2003	
40.000000	EA	U	P	3/16/2003	
80.000000	EA	U	P	3/16/2003	
55.000000	EA	U	P	3/16/2003	
55.000000	EA	U	P	3/16/2003	
1.000000	EA	U	P	3/16/2003	

Figure 13. Define the percentage of options you expect your customers to order.

MAX Feature Option Configurator Highlights

- Consolidates Feature Bill Qualifier and Batch Master Schedule Order features directly into the Configurator module.
- Simplifies access to family part information.
- Permits 99 features per product line and over 1,000 options per feature.
- Enables "Master Schedule Material Planning" where establishing a master schedule for a product line creates component demand utilizing a "Planning Bill" based upon forecasted or historical percentages.
- Provides an assemble-to-order environment by automatically generating Master Schedule final assembly orders which specifically include or exclude components based upon the options selected when users enter sales order data.

ECO Management

Track all aspects of an engineering change order and control the planning, approval, and implementation process.

- Track ECRs & ECOs
- User Defined Documents
- Track Approvals & Notifications
- Project Time Tracking
- View MAX Data
- Field Level Security
- Customizable

ECO Manager helps you control the planning, process, documentation, and implementation of your engineering change orders. ECO Manager includes tools for defining all parts, bills of material and documents needed to make a complete engineering change with a minimum of effort. ECO Manager provides real-time access to inventory, vendor, sales, and transaction history records, synchronizing the engineering change process with MAX to ensure accurate tracking.

Engineering Change Orders—Track ECOs

The screenshot shows a software window titled "ECO 'New Keyboard'". It contains several input fields and dropdown menus. The "Title" field is set to "New Keyboard". The "Status" dropdown is set to "1-Requested | Feasibility Review". The "ECO Number" field is set to "2". The "Responsibility" dropdown is set to "Manager" and the "Category" dropdown is set to "Hardware". Below these are tabs for "ECO", "Parts", "BOMs", "Routings", "Documents", "Approvals", "Hours", and "Tasks". The "ECO" tab is active, showing fields for "Reference ECR", "Date Created" (3/15/2020), "Project", "Date Released", "Type" (Cost Reduction), "Effective Date", "Product Line" (Custom Configurations), "Sched Release", "Originator" (Manager), "Cost", "Phase" (Prototype), "Savings", and "Priority" (Normal). There is also a "Distribution" field with a browse button. At the bottom, there are tabs for "BOM/Parts/Eng Work", "DWGS/Spec Notes", "Material Disposition | WD Notes", "Description | Reason for Change", "Testing And Validation", and "ECO Meetings And General Work".

Figure 14. Quickly view ECO information

- Include in an ECO any combination and quantity of parts, bills of material, routings, and documents.
- Track Engineering Change Requests (ECRs) as separate items from ECOs.
- Relate ECRs to ECOs to record resolution of requests.
- Review ECOs on-screen and print or e-mail ECOs directly to the persons required for approval and notification.

- Release ECO BOMs and Routings automatically to MAX upon completion.
- Project tracking feature allows the Engineer to measure the progress of the ECO project by looking at the cost, hours, and completeness of the job.
- Track the time spent on each ECO.
- Look up on the Tasks screen all the items affected by an ECO including parts, BOMs, routings, documents, and approvals to quickly identify action required.

ECO Parts—Manage ECO Parts

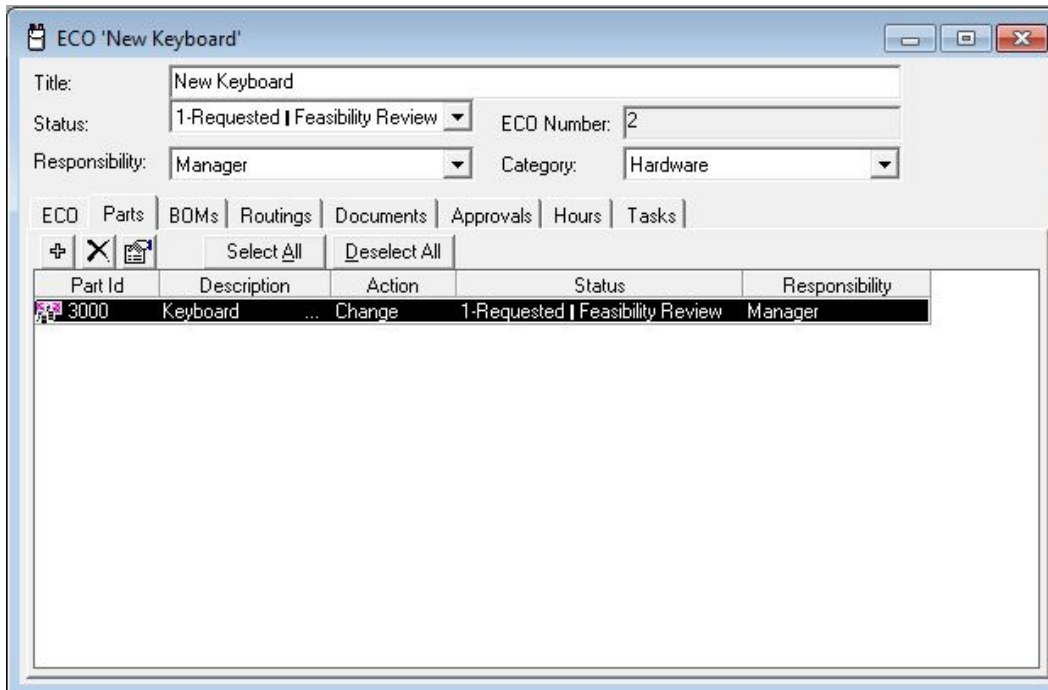


Figure 15. Real-time access to MAX Part Master data can be added or changed directly from ECO Manager. Codes are user-definable within the MAX requirements.

- Engineers can directly access manufacturing data from MAX for parts, bills of material, sales orders, shop orders, manufacturer's parts, inventory, other ECOs, engineering documentation, part notes and invoices.
- Each part on the ECO retains its own data so that status and reason for each part can be tracked separately.
- Locate Parts allows you to find data in MAX directly from ECO Manager giving you the data you need—at your fingertips.
- Find part vendor, manufacturer's part, and related data in MAX quickly and easily.

ECO Bills of Material — Manage ECO Bills of Material

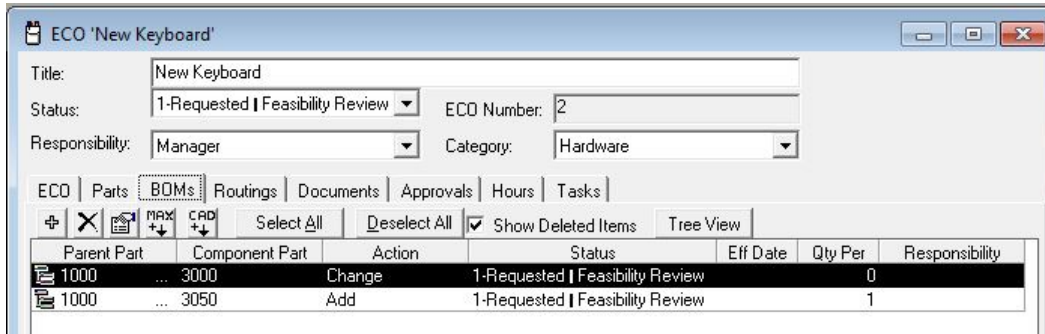


Figure 16. Locate and track bills of material from within ECO Manager and MAX

- Each ECO can have a Bill of Materials (BOM) associated with it, tracking additions, changes, and deletions to the BOM.
- Each ECO BOM is tracked separately to document the status of that BOM and where it is in the process of engineering change.
- Once ECOs are approved, ECO Manager allows you to automatically update the MAX BOMs with the approved changes.
- All codes in the master data are user-definable to help tailor ECO Manager to your environment and way of doing business.

ECO Documents—Manage ECO Documents

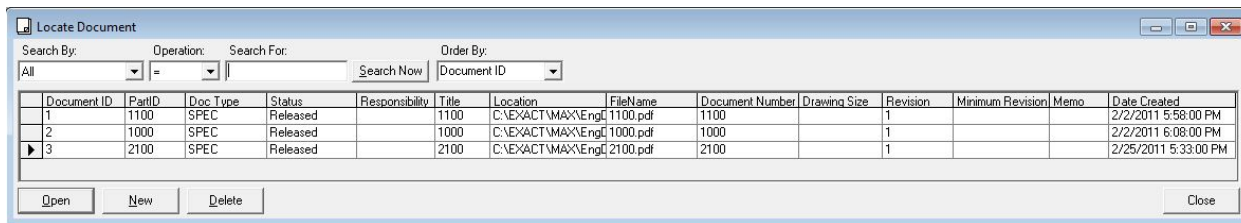


Figure 17. Manage documents from any application.

- Each ECO can have documents associated with the part(s) on that ECO. ECO Manager tracks changes on each document.
- Setup an unlimited number of document types and assign document names that conform to your business.
- A separate viewer and editor can be assigned to the document name so that each document can be viewed or edited according to your security rights.
- Master documents reflect your ability to define ECO data, using the same terms you commonly use to run your business.

ECO Routings—Manage ECO Routings

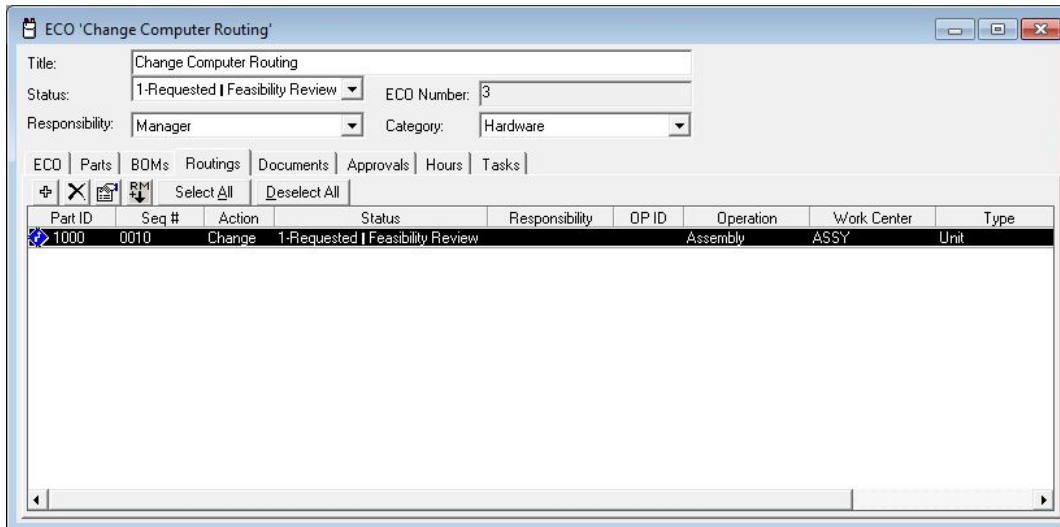


Figure 18. Track routing changes, additions, and deletions

- Each ECO can have routings associated with part(s) on the ECO.
- Display Part Routing information to easily assess the impact of an ECO on the production process.
- Maintain part routing data without affecting the manufacturing system until the ECO is approved and released.
- ECO Routings can be either imported from the manufacturing system in which they are updated or deleted, and new routing operations added.

ECO Notifications and Approvals—Track ECO Notifications and Approvals

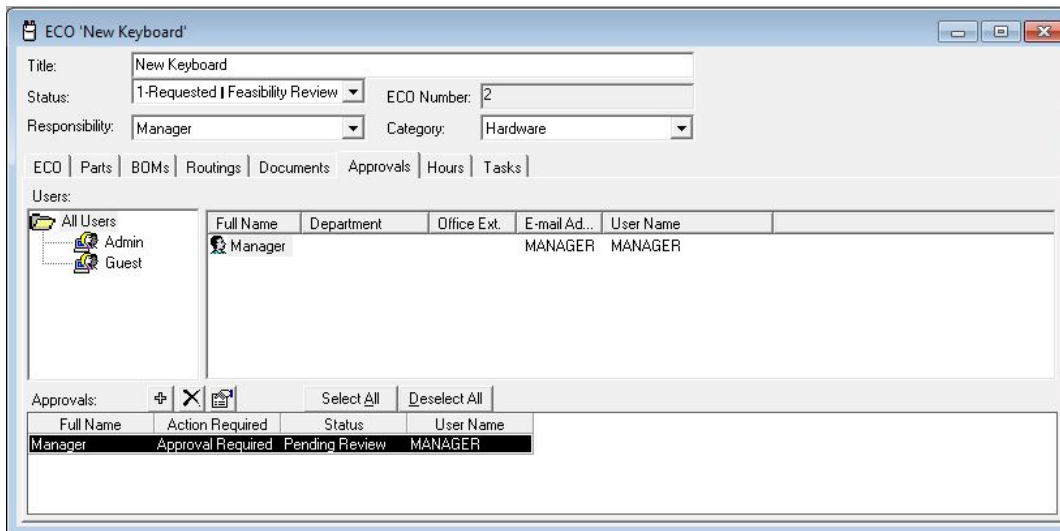


Figure 19. Send ECO notifications via e-mail to improve document management and review.

- Assign electronic notifications and approvals to ECOs.
- The engineering manager can track notifications and signoffs before releasing the ECO to the manufacturing system.
- E-mail the ECO form to a reviewer distribution list and speed the review and approval process.
- Record all notes and memos made by the ECO reviewer, providing a complete chronology of all comments for future reference.

- The Locate Approvals screen quickly displays all the ECOs requiring your actions and allows you to update your approval status.

Engineering Summary

The Bill of materials module holds all the part and structure information about the flow of materials through your plant. This data, along with the part routing, which is in the Shop Floor Execution module, forms the foundation for planning, transacting, and accounting information. This critically important information is a main building block of the Material Requirements Planning (MRP) system. A high degree of accuracy is required for successful operation.

Customers

No business can exist without customers willing to pay for their goods and services. Those Customers are identified and established in this area. This is where the parts and services that are sold are set up for use on customer orders (including consignment) and credit memos. In some industries (i.e., those not selling standard product from stock), quoting is critically important. Quotes are hopefully converted to sales orders. Orders can also be entered via Electronic Data Interchange (EDI).

Customers

- Quoting/Estimating
- Sales Order Processing
- Shipping
- Advanced Shipping / EDI
- Consignment
- Warranty Tracking / RMA

The order is the basis for tracking Bookings (incoming dollars), Backlog (orders waiting to ship) and Billings (outbound dollars). These metrics vary with the manufacturing environment in which the organization is found. This area also handles Shipping and Advanced Shipping is used to create Bills of Lading (BOL) for commercial carriers. Customer returns are tracked and managed via the Warranty Tracking model.

Quoting/Estimating

Start winning more business.
Create, revise, and close sales quotes quicker and easier.



The correlation between timely responses and increased conversions of quotes to orders is well documented and highlights the need for an efficient quoting mechanism. The ability to quickly respond to a request for a quote is critical in a competitive environment, and if you do not use your sales order system or manufacturing database to help you manage the information that goes into the quote, a quick, accurate response can become exceedingly difficult to provide to your customers. Fully integrated with MAX, the Quoting module allows you to create, estimate, revise, and clone sales quotes, then easily convert them into MAX sales orders, eliminating time-consuming and error prone data entry steps and allowing you to win more business.

Line	DL	Order Qty	Part ID	Description/Notes	Unit	Unit Price	Ext. Price	Due Date
01	01	2.00	1000	Computer	EA	3130.25	6260.50	02/19/2021

Figure 1. With a Quote form that contains familiar features of the Sales Order, the sales order process begins before the sales order is even initiated.

With Quoting, you can...

- Improve the response time and accuracy of quotes to customers.
- Quickly and easily convert quotes into Sales Orders.
- Run a Quote variance report for analysis.
- Print, fax, and email the quote document.
- Integrate with Customer Relationship Management (CRM).

MAX Quoting also presents a powerful estimating tool that enhances the sales order process by providing useful estimates to customers and collecting useful conversion data about each sale. Estimating allows you to produce price quotes using existing MAX product BOM and routing data, as well as MS Excel estimating spreadsheets. This flexibility exploits already existing data in your MAX database and the capabilities of industry standard estimating tools.

The screenshot shows the 'Estimate -90000001-01-01' window. At the top, there are input fields for Customer (Balancepoint Technologies), Part (1000), and Computer. Below these are fields for File Path and buttons for Load Data, Save File, and Clear. Further down, there are fields for BOM Part (1000) and Routing Part (1000) with a Load BOM & Routing button. On the right, there is an Estimated Price section with Col: J, Row: 19, and an Apply button.

	A	B	C	D	E	F	G	H	I	J
1	Parent Part ID	Component Part ID	Comp Description	Qty Per	Unit Cost	Extended Cost	Scrap %	Scrap Cost	Markup %	Total
2										
3	1000	2100	System Unit	1.00	855.67	855.67	0.00	0.00	0.00	855.67
4	1000	3000	Keyboard	1.00	110.00	110.00	0.00	0.00	0.00	110.00
5	1000	3100	Monitor	1.00	550.00	550.00	0.00	0.00	0.00	550.00
6										
7	Total Materials:					1515.67				1515.67
8										
9	Operation ID	Workcenter	Operation Description	Run Time	Setup Time	Labor Rate	LOH %	LOH Cost	Markup %	Total
10	0010	ASSY	Assembly	0.5000	0.0000	10.00	200.00	10.00	0.00	15.00
11	0020	QA	Test	0.6000	0.0000	10.00	200.00	12.00	0.00	18.00
12										
13	Total Labor:									33.0000
14										
15	Total:									1548.6700
16										
17	Yield:									100.0000
18										
19	Grand Total:									1548.6700

Figure 2. Create quotes directly from existing product price estimates.

MAX Quoting Highlights:

- Use Drag & Drop to add Quote Line Items to a MAX Sales Order for quick entry or develop quote templates for items repeated on a regular basis.
- Clone quotes using the same specific quote information as an existing quote. Modify that information to create the new quote and save data entry time.
- Print quotes for internal or external electronic distribution as confirmation of part quantities estimated and prices assigned per quote line item.
- Integrate with Synergy.
 - Update the Synergy customer account card during the MAX quoting process.
 - Convert Synergy customer/prospect IDs to MAX customer IDs.
 - Automatically save resulting quote to the Synergy customer document.
- The MAX Multi-Currency option allows you to select from several currency types and exchange rates that may be applied to quotes for customers using a different currency.

Line Item Currency Information

Line Item

Order-Line-Del: 90000001-01-01 Part ID: 1000

Order Quantity: 2 Desc: Computer

Currency

Symbol: \$ Desc: US DOLLARS Exc. Rate: 1.00

Foreign Value: 6,260.50 Fixed Rate:

Domestic Value: 6,260.50 Variable Rate:

Close Help

Figure 3. Customize currency info for each order.

MAX Quoting enhances your ability to respond to a customer's request for a quote. It eliminates repetitive data entry steps, saving time, increasing accuracy, and giving you the tools, you need to turn more quotes into sales orders. And with MAX's ability to handle multi-currency transactions, the borders of your business can stretch across the globe.

Now there is an easier, more efficient way to manage your quotes. Enhance your MAX System with MAX Quoting today!

Sales Order Processing

Instantly enter sales orders, ship and invoice product and satisfy customer inquiries. SOP functions include:

- Sales Order Entry
- Shipping
- Invoicing
- Online Inquiries
- Order Notes
- Context Sensitive Help
- Part & Customer Discounts

Sales Order Processing lets you easily enter sales orders, ship and invoice product and satisfy customer inquiries. Now you will always know where orders are going and who they are going to. Full integration with other MAX modules allows you to view on-hand balances and customer credit information during the order entry process. This module also maintains customer data, tracks sales and invoicing and accumulates sales data for financial reports.

Sales Orders—Everything from the Desktop

The screenshot shows a 'Sales Order' form in the eci MAX system. The window title is 'Sales Order 1 - 20000001'. The form includes the following sections:

- Header:** 'eci MAX' logo and 'Sales Order' title.
- Order Summary:** Order Number: 20000001, Order Date: 11/27/2020, Customer ID: BLNCPNT.
- Bill To:** Balancepoint Technologies, 437 Whispering Pines Road, Lindenhurst, IL 60046-8717, USA.
- Ship To:** Micro Manufacturing Systems, 5120 Cameron Road, Morristown, TN 37814, USA.
- Order Details:** Customer PO Number, Terms (2% 10 Net 30 Days), Ship VIA (UPS - Ground), F.O.B. Point (Origin).
- Ordering Information:** Ordered By, Sales Representative, Status (Open), Order No. (20000001), Customer ID (BLNCPNT).
- Line Item Table:**

Line	DL	Order Qty	Part ID	Description/Notes	Unit	Unit Price	Ext. Price	Due Date
01	01	2.00	1000	Computer	EA	3130.25	6260.50	01/05/2021
02	01	1.00	1100	Portable Computer	EA	2370.25	2370.25	01/05/2021
- Footer:** Comments, Order Notes, Extended Fields, Total: \$ 8,630.75.

Figure 4. Enter orders on a WYSWYG Form.

Shipping

Quickly Ship and Invoice Product

- Ship orders as complete, partial, or individual line items.
- Automatic backorder calculation and tracking.
- Maintain multiple ship-to locations.
- Multiple options exist for shipping products.
- Packing list functionality allows for multiple sales orders on one packing list.
- Look up stock information to see how many you can ship and where the stock is located.
- Sell miscellaneous products and services without the need for an “inventoried” part number.
- User preferences allow tax to be charged on freight, warnings if no credit available and what % to allow for over shipments.
- View and maintain order and line-item notes.

Shipping Totals window showing order details and financial summary. The order number is 20000004, Order Type is CU, and Status is Open. Customer ID is EXACT and Name is Exact Software. The Summary section shows: Line Item Total \$ 16400.00, Order Discount 0.00, Subtotal \$ 16400.00, Tax Amount \$ 1312.00, Freight Charge \$ 56.45, and Miscellaneous \$ 0.00. The Total Invoice is \$ 17768.450. Currency is set to US DOLLARS with an Exc Rate of 1.0000. Terms are Net 30 Days.

Figure 5. Enter order discount, freight charges, miscellaneous charges, and currency rate. MAX will automatically calculate subtotal and invoice total

Customer Master Maintenance window for customer EXACT. Customer ID is EXACT, Type is OEM, and Status is Release. Billing Information includes Exact Software, 777 Mainers Blvd, San Mateo, CA 94404, USA. Shipping Info shows Ship Via UPS - Ground, FOB Our Plant, and Ship To Use Bill To. Tax Info includes Taxable Y-Yes, Tax Code 1 SFCITY, and Tax Code 2 CASTATE. Financial information shows Terms Code Net 30 Days, Credit Limit 0, and Disc. Rate 10. Action buttons include Close, Update, Delete, Clear, and Help.

Figure 6. Enter new customer information or edit existing data including default shipping, tax, and financial information

Sales Order Detail window showing tax information. Taxable Flag is Y and Assign Tax per Line Item is checked. Tax Code 1 is SFCITY (San Francisco City Tax) with a Rate of 2.0000. Tax Code 2 is CASTATE (California State Sales Tax) with a Rate of 6.0000. Tax Code 3 is blank. Buttons include OK, Cancel, Apply, and Help.

Figure 7. Related sales order information

Stock Information window for Part ID 1000. Total is 0.00, Sales Committed is 23.00, and Total Available is -23.00. Rec. Del. Date is 4/30/2020. The table below shows live stock information:

Stock ID	Nettable?	Qty on Hand
BLNCPNT	N	10.00
FG	Y	0.00

Figure 8. Stock information window helps fulfill customer order requirements by displaying live stock information

Customer Inquiries—Satisfy Customer Inquiries on the First Call

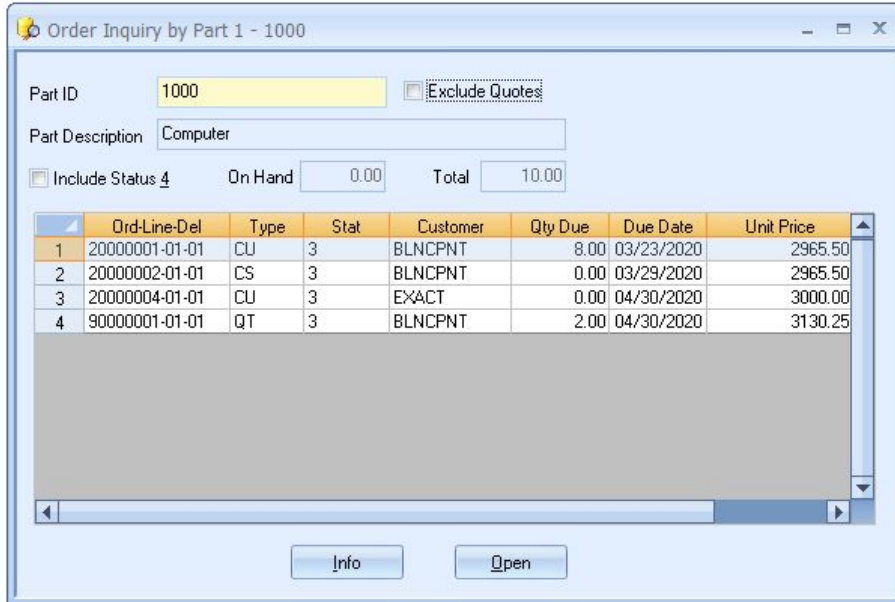


Figure 9. Order Inquiry by Part - See the total picture of item demand based upon open orders

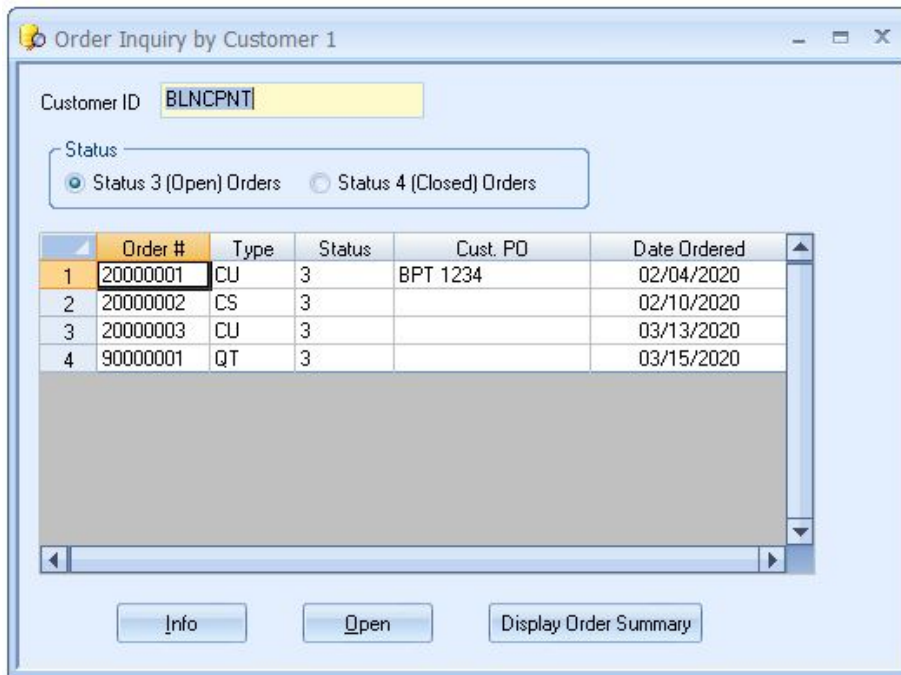


Figure 10. Order Inquiry by Customer - View sales and purchase order numbers by customer for a quick reference to order status

- Provide answers to customer questions quickly with real-time information.
- Instantly look up order information and delivery schedules.
- Review order information by part, customer, customer's part number or purchase order number.
- Each inquiry can be accessed directly or progressively through one another.
- Drill down within an inquiry to view detailed order information.
- View shop information to answer delivery schedule questions.
- Cross-module inquiries enable your sales team to accurately and knowledgeably handle customer questions, quickly and conveniently.

	Past Due	3/20/2020	3/27/2020	4/3/2020	4/10/2020
Forecast	60.00	0.00	0.00	0.00	40.00
Customer Demand	0.00	0.00	8.00	0.00	0.00
Dependent Demand	0.00	0.00	0.00	0.00	0.00
Total Demand	0.00	0.00	8.00	0.00	0.00
Projected Supply	60.00	0.00	20.00	0.00	20.00
Available to Forecast	0.00	0.00	20.00	20.00	0.00
Available to Promise	60.00	60.00	72.00	72.00	92.00

Figure 91. Schedule Summary Inquiry - Know what delivery schedule to quote with real-time supply and demand information.

Advanced Shipping / EDI

The MAX Advanced Shipping solution helps you streamline the process associated with allocating, picking, and shipping orders delivered by commercial carriers. Finished goods inventory can be allocated to sales orders based upon priorities you control.

MAX Advanced Shipping Highlights

- Available inventory can be allocated to specific line/delivery items.
- View and assign sales order line items to a Bill of Lading.
- Create Bills of Lading by grouping and palletizing sales orders.
- Automatically calculate total weights and counts for all line items included on a Bill of Lading.
- Complete support for parts under lot and/or serial control.
- Add all needed specialized information to the Bill of Lading and print it.
- Print Canadian Customs Forms requiring same basic data.
- Shipping Availability and Allocation Inquiry allow the user to reallocate priorities.
- Keep a detailed history of all shipping records.
- Query Bills of Lading by tracking number, shipper, or customer ID.

Bill of Lading Maintenance - Edit (007000)

Bill of Lading Master | Sales Order Shipments | Bill of Lading Detail | Shipping Instructions | Freight Carrier Information | Bill of Lading Totals

BOL Tracking # 007000 Status 3 - Released Scan Verify Required

Customer ID BLNCPNT Balancepoint Technologies

Ship to Code Balancepoint Technologies

Address 497 Whispering Pines Road Shipper ID Time Zone

Prepared by

Checked by

Loaded by

City Lindenhurst State IL

Zip 60046 Country USA

Current Ship Date 3/15/2020 Time 3:54:00 PM

Est. Arrival Date 3/15/2020 Time 3:54:00 PM

Totals

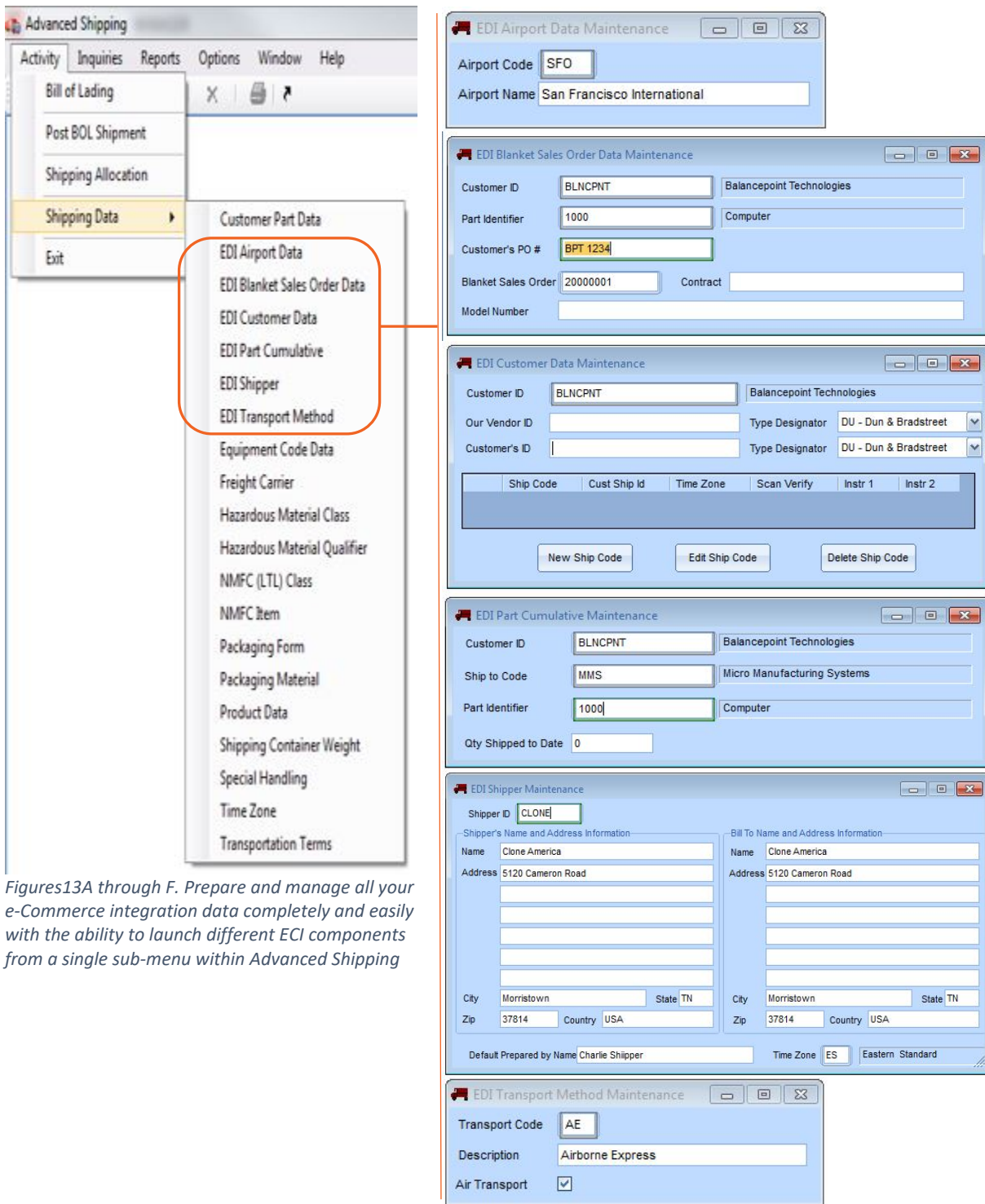
Total Unit Count 0 Gross Weight 0 Gross Weight UOM LB Freight Payment Prepaid

Net Weight 0 Net Weight UOM LB Freight Amount 0.00

Figure 12. Create and maintain Bill of lading from one multi-tabbed dialogue.

With MAX Advanced Shipping, you can...

- Review planned shipments and inventory allocation and make changes before recording the shipments.
- Review the dollar impact of inventory allocation choices before finalizing shipments.
- Process all shipments in one transaction, saving the usual line item by line-item shipping process.
- Benefit from automated shipping that is quick, accurate, and based upon priorities.
- you control.
- Prepare Pick Lists and Bill of Lading forms to augment the shipping process – BEFORE the truck arrives at the dock. Easily update and print the BOL with accurate data – BEFORE the truck leaves the dock.
- Automatically allocate finished goods inventory based on your priorities.



Figures 13A through F. Prepare and manage all your e-Commerce integration data completely and easily with the ability to launch different ECI components from a single sub-menu within Advanced Shipping

With Electronic Data Interchange (EDI) you can...

- Comply with customer requests to communicate electronically.
- Improve customer service.
- Streamline customer and vendor activity through the supply chain.
- Reduce the cost and improve the efficiency of your business transaction processes.

The MAX EDI module is a transaction-processing solution that provides inbound and outbound transaction processing to and from the MAX system and uses customer and shipment information in your existing MAX database to transact business-to-business (B2B) e-commerce between companies (i.e., your customers and suppliers) using different ERP systems.

Supported e-Commerce Transactions

- Inbound
 - Sales Order
 - Forecast
 - Shipment Schedule

- Outbound
 - Advance Shipment Notification
 - Invoice
 - Paging Notification

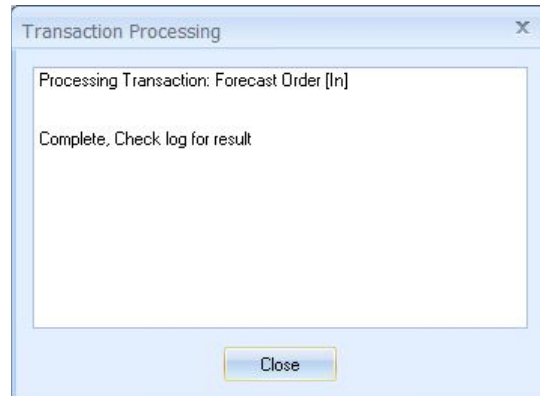


Figure 14. Loading Customer Forecasts

The customer facing side of EDI uses existing data from Advanced Shipping. For actual EDI transmission and communication, we partner with DiCentral (Houston, TX).

Now there is an easier, more efficient way to manage your shipping procedures. Enhance your MAX System with MAX Advanced Shipping and EDI.

Consignment

The MAX Consignment Module is designed to manage outbound consignment sales where title to goods on consignment remains with the manufacturer until the actual sale to the end user takes place. Items shipped to the consignee remain in inventory and have full visibility in either a customer specific or a generic consignment inventory location. The module offers the following benefits:

- Provides a method for tracking inventory shipped to a customer on consignment.
- Record and track orders for Consigned Inventory.
- Ship consigned items to Consignees.
- Manage Consigned Inventory (at the Consignee).
- Process Sales of Consigned Inventory and invoice upon shipment to the end user.
- Return unsold Consigned goods (to the Consignor from the Consignee).

Warranty Tracking / RMA

Build customer satisfaction by improving product design by collecting data on returned goods and learning from past mistakes. A warranty is the beginning of an ongoing relationship between a manufacturer and a customer. Managing that relationship well can be the difference between costly returns due to continued poor product designs and satisfied customers who will be more likely to become repeat business.

MAX's Warranty Tracking Module provides the tools to manage the entire warranty process efficiently and effectively. Every time a shipment is made, a record of that shipment is created. With this data at your fingertips, you will be able to provide your customers and distributors with efficient, timely service.

When a customer calls wishing to return a defective unit, the shipment history can be searched, and depending on the warranty status of the item, that data converted to a Return Material Authorization (RMA). The RMA is the authorization for the customer to return the product and forms the basis for tracking that item while in transit. Once received, the item RMA is updated, but remains available for further coding of the type of problem, parts that failed, final resolution, etc. This data helps identify and eliminate design and process problems, which will ultimately increase customer satisfaction.

Throughout the entire return/repair process, providing up-to-date status on:

- Incoming units from customers
- Repair orders for returned units.
- Shipments of repaired or replacement units that are owed to customers.

The screenshot displays the 'RMA 1' software window. At the top left are the 'eci' and 'MAX' logos. The main area contains several input fields and sections:

- RMA Number:** 80000001 - 01
- RMA Date:** 1/4/2021
- Order #:** 20000001 - 02 - 01 - 0000
- Part ID:** 1100
- Description:** Portable Computer
- Serial #:** (empty)
- Lot Number:** (empty)
- Customer ID:** BLNCPNT
- Customer Name:** Balancepoint Technologies
- Registrant Address:** (empty text area)

Below these fields is a navigation bar with tabs: Warranty, Return Info, Remarks, Notes, Part Details, Picture. The 'Warranty' tab is active, showing:

- Warranted:**
- Labor Expires:** 2/3/2021
- Material Expires:** 3/5/2021
- Original Price:** 2370.25
- Under Warranty Price:**
 - Repair: 0
 - Replace: 0
- Out of Warranty Price:**
 - Repair: 0
 - Replace: 0

Figure 15. Return Material Authorization tracks goods returned from customers.

The Warranty Tracking module allows you to:

- Provide up-to-date status on Warranty Part Data added to Part Sales Maintenance.
- Create Ship History flag for each part or update Ship History for all previous shipments.
- Visually manage RMAs from your desktop.
- Track RMAs through the entire repair and replacement process.
- RMA Maintenance tabbed dialog includes Warranty and Return Information as well as Failure Remarks, Notes, Part details, and picture association tabs.
- Process unplanned receipts directly from RMA form to stock for products returned under warranty.
- Create Replacement Shop Rework or Return Sales Orders directly from RMA form.

Coupling Return Material Authorization (RMA) capabilities—which help control the repair and replacement functions—with the ability to control and monitor costs gives you the necessary tools to keep service levels high and plan for future warranty liabilities.

Customers Summary

Setting customer expectations and making and holding customer promises is critical to the success of your business. This process begins in the quoting/estimating process and continues through to the customer invoice. MAX customer facing modules help you manage those processes.

Scheduling

Scheduling begins with Demand Management (i.e., how to interpret the customer orders and forecasts across the time horizon determined by cumulative lead-time). In some cases, a Master Production Schedule (MPS) is created to drive the manufacturing facility. In others, the raw demand (i.e., customer and forecast orders) are used. Where many organizations make a mistake is in not covering their cumulative lead-time adequately. If customer orders drop off after six weeks on a 16-week cumulative lead-time, then you have a 10-week planning problem. If not handled properly, purchasing is always expediting material at the last minute and shortages are abundant.

Scheduling

- Demand Management
- Master Production Scheduling
- Capacity Management
- Planning Simulation

Rough-cut capacity planning can also be performed at the master scheduling level using orders that do not yet appear on the shop floor. This makes WIP much more manageable and provides the ability to match longer term plans to resource requirements.

Simulation suggests that alternate plans should be considered. Based upon the current plan, what would happen if customer demand increased x% (represented by a list of parts and quantities)?



Demand Management

Demand Management includes the management of open sales orders within customer quoted lead-times and forecast orders beyond that point and out to the cumulative manufacturing lead-time. Forecast orders are important for driving demand beyond your current customer orders. Failure to do so results in chronic material shortages.

Independent Demand — Keep Up with Customer' Aggressive Demands

- Review Customer and Forecast orders online.
- Extensive filtering options let you select orders by Part ID, Current Due Date, Order Number, Planner ID, and User-definable fields.
- Powerful drill-down into Forecast Orders allows you to quickly view and edit detailed order information and add new independent demand orders.
- Quickly review and edit order due dates, quantities, and order status directly from the grid.
- Load forecast and customer orders from legacy systems.

	Order No.	Part ID	Description	Status	Cur Qty	Org Qty	Bal Due	Due Date	Org Date	Cur Promise	Org Promise	Planner	Reference
1	100000010000	1000	Computer	3	60.00	60.00	60.00	03/12/2020	03/12/2020	03/12/2020	03/12/2020	000	
2	100000020000	1000	Computer	3	40.00	40.00	40.00	04/09/2020	04/09/2020	04/09/2020	04/09/2020	000	
3	100000030000	1000	Computer	3	40.00	40.00	40.00	05/07/2020	05/07/2020	05/07/2020	05/07/2020	000	
4	100000040000	1000	Computer	3	40.00	40.00	40.00	06/11/2020	06/11/2020	06/11/2020	06/11/2020	000	
5	100000050000	1000	Computer	3	40.00	0.00	40.00	07/09/2020	07/09/2020	07/09/2020	07/09/2020	000	
6	100000060000	1000	Computer	3	40.00	40.00	40.00	08/12/2020	08/12/2020	08/12/2020	08/12/2020	000	
7	100000070000	1000	Computer	3	65.00	65.00	65.00	09/10/2020	09/10/2020	09/10/2020	09/10/2020	000	

Figure 1. Quickly review all Independent Demand Items

Forecast Order - 10000004

Order Info: Order No. 10000004, Reference

Part Info: Part ID 1000, Description Computer, Type M - Master Schedule Part

Quantities: Current 40, Original 40, Balance 40

Order Data: Status 3 - Released, Rev A, Planner 000

Dates: Current 6/11/2020, Current Promise 6/11/2020, Original 6/11/2020, Original Promise 6/11/2020

Lead Times: Manufacturing 5, Purchasing 0

Figure 2. Forecast demand to create customer orders for any part finished good, assembly or raw material

Customer Order - 200000030201

Order Info: Order 200000030201, Reference 200000030201

Part Info: Part ID 1100, Description Portable Computer, Type M - Master Schedule Part

Quantities: Current 2, Original 2, Balance 2

Order Data: Status 3 - Released, Rev B, Planner 000

Dates: Current 4/29/2020, Current Promise 4/29/2020, Original Due 4/29/2020, Original Promise 4/29/2020

Lead Times: Manufacturing 5, Purchasing 0

Figure 3. Customer orders only available in read only mode if Sales Order Processing is installed

Demand can be managed through multiple MAX planning strategies, including:

- Demand driven MRP – Open customer and forecast orders will “drive” parts that are planned via Materials Requirements Planning.
- Master Production Scheduling – Allow a “human” to decide on available information and build a production schedule to avoid the instability of customer and forecast demand patterns.
- Reorder Point – Do not forget we still have Re-Order Point (ROP) planning for those independent demand items with rather steady usage rates.

Match your planning with the type and pattern of demand. Understand how you are driving your manufacturing costs.

Master Production Scheduling

Put everyone on the same page with the best information available.

- Forecast Orders
- Master Schedule Orders
- Capacity Management
- Available to Promise.
- Available to Forecast.
- Paperless Planning
- What If Simulations

Master Scheduling plans production, thereby creating a consistent and realistic production plan that drives all aspects of your manufacturing and purchasing operations. This will enable you to routinely satisfy your company’s policies on customer service, production efficiency and inventory management. With Master Scheduling you will be certain that your plan is based on the best information available and that human schedulers have approved the plan and that everyone is working to the same plan. Create a schedule that makes sense to your production people yet meets customer demand with minimum instability.

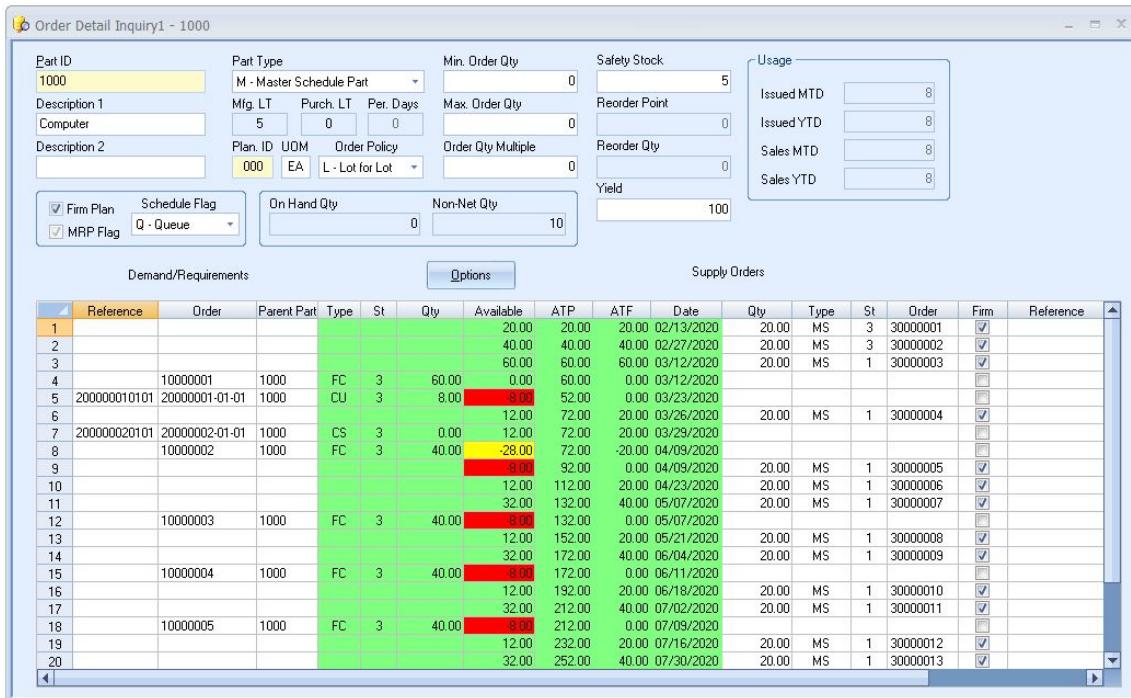


Figure 4. Complete Supply and Demand picture with top down and bottom-up pegging

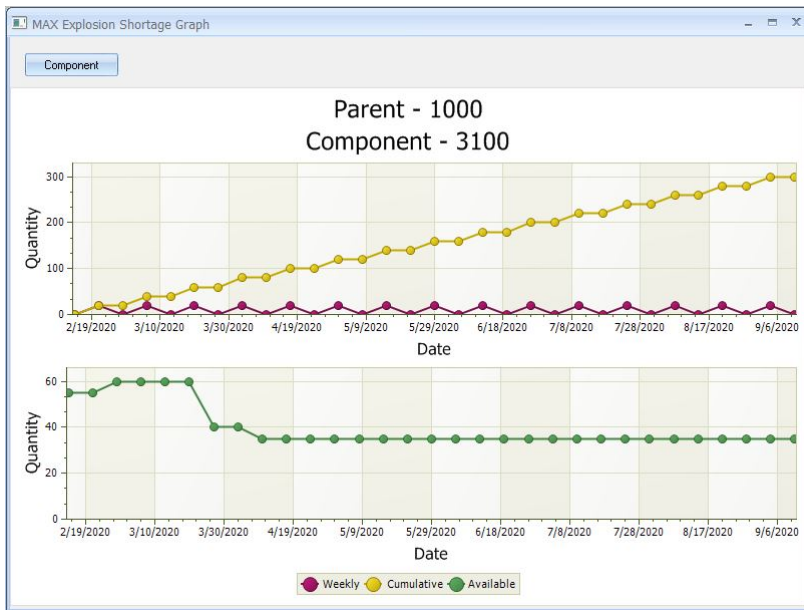


Figure 5. Graphically view project shortages differentiating between released and planned orders

Master Schedule Detail — Bucket less Demand and Supply Information

- View the entire time-phased supply and demand picture for a part.
- Intuitive display format is designed around the planner's job, simplifying use and training.
- Validate demand through single or multi-level pegging to the parent order.
- Accomplish time-phased rough-cut capacity planning with user-definable resources to plan work hours, capital, or work center requirements.
- Color coded projected available alerts the planner to actions required to prevent shortages.
- Store demand and supply data in an unlimited planning horizon.
- View the plan based on what is happening today, using extensive sort and filtering capabilities.
- Integrated with customer demand, forecast and schedule data for accurate scheduling by using "available to promise" and "available to forecast" logic.
- Maintain planning data online.

Master Schedule Orders—Create Realistic Production Plans

The screenshot shows a software window titled "Shop Order 1 - 30000020". The interface is divided into several sections:

- Order Information:** Ord Num: 30000020 (N), Type: MS - Master Schedule, Part ID: 1000, Part Desc: Computer, Status: 3 - Released, Cur Qty: 10, Ext Qty: 10, Bal Due: 10, Cur Due: 3/17/2020, Orig Due: 3/17/2020.
- Order Options:** Checkboxes for "Create Bill" (checked), "Create Routing" (checked), and "Rework" (unchecked).
- Reference:** Reference field, Customer Order field, Sched: Q - Queue, Pri Stk: FG, Rev Level: A, Priority: (blank), Planner ID: 000, Firm: (checked).
- User Defined:** Key field, Reference field.
- Buttons:** "Query" button, "Serial Allocation" button.
- Table:** A table with columns: Include, Status, Component Part ID, Description, Cur Qty, Bal Due, Cur Due, LT Offset, Qty Issued, Net Available, On Hand, Qty Per, Scrap. The table contains three rows of component parts: System Unit, Keyboard, and Monitor.

Include	Status	Component Part ID	Description	Cur Qty	Bal Due	Cur Due	LT Offset	Qty Issued	Net Available	On Hand	Qty Per	Scrap
1	3	2100	System Unit	10.00	10.00	03/10/2020	5.00	0.00	-3.00	1.00	1.00	0.00
2	3	3000	Keyboard	10.00	10.00	03/10/2020	5.00	0.00	34.00	44.00	1.00	0.00
3	3	3100	Monitor	10.00	10.00	03/10/2020	5.00	0.00	45.00	55.00	1.00	0.00
4			<- Add more parts here.									

Figure 6. Easily create demand for the component parts and resources providing a consistent and reliable product plan

The real power of using master scheduled orders is keeping them planned until it is time to start production. This plans for long lead-time lower-level parts without loading up work center queues. Other benefits include:

- Master Schedule at any level or multiple levels of the product structure.
- Preference allows you to automatically create corresponding master schedule orders during sales order entry.
- Create demand for the component parts and resources needed to build the master scheduled product, whether you manufacture the parts or purchase them, before the MS order is released.
- Yielded MPS adjusts the order quantity to compensate for expected loss so that enough product is started through the process.
- MRP manages balances the demand from the master schedule orders with the supply of materials required to meet that demand.
- Print routings and pick lists for master scheduled orders that have been released for manufacture.

Order Navigator—Working with Manufacturing Orders

The screenshot shows the 'Order Navigator 1' window. It features three filter panels at the top: 'Range' (Set to Part ID, Start: 1000, End: 1000), 'Include Order Status' (Checked: 1 - Planned, 2 - Approved, 3 - Released), and 'Include Order Part Types' (Checked: Manufactured Parts). A 'Query' button is located below the filters. The main area is a spreadsheet grid with the following columns: Order Number, Type, App, Rel, Firm, Ord Qty, Qty Due, Cur Due, Orig Due, Start Date, Part ID, Description, Priority, Planner, Stock, Sched, Rev, Reference. The grid contains 16 rows of data for 'Computer' parts, with dates ranging from 02/13/2020 to 09/10/2020.

Order Number	Type	App	Rel	Firm	Ord Qty	Qty Due	Cur Due	Orig Due	Start Date	Part ID	Description	Priority	Planner	Stock	Sched	Rev	Reference
30000001	MS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	02/13/2020	02/13/2020	02/06/2020	1000	Computer	1	000	FG	Q	A	
30000002	MS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	02/27/2020	02/27/2020	02/20/2020	1000	Computer	8	000	FG	Q	A	
30000003	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	03/12/2020	02/02/2020	03/05/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000004	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	03/26/2020	03/26/2020	03/19/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000005	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	04/09/2020	04/09/2020	04/02/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000006	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	04/23/2020	04/23/2020	04/16/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000007	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	05/07/2020	05/07/2020	04/30/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000008	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	05/21/2020	05/21/2020	05/14/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000009	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	06/04/2020	06/04/2020	05/28/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000010	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	06/18/2020	06/18/2020	06/11/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000011	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	07/02/2020	07/02/2020	06/25/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000012	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	07/16/2020	07/16/2020	07/09/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000013	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	07/30/2020	07/30/2020	07/23/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000014	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	08/13/2020	08/13/2020	08/06/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000015	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	08/27/2020	08/27/2020	08/20/2020	1000	Computer	PLANNED	000	FG	Q	A	
30000016	MS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.0000	20.0000	09/10/2020	09/10/2020	09/03/2020	1000	Computer	PLANNED	000	FG	Q	A	

Figure 7. Easily maintain all aspects of manufactured orders

The Order Navigator is the “gateway” to your production floor. From this window, planners decide on what orders to send to production.

- Display shop orders, master schedule orders and MRP-generated orders in a spreadsheet grid for easy processing.
- Select only the orders you want to view with extensive filtering and date range capabilities.
- Review, maintenance, approval, and release of manufacturing orders can be done completely online without printing a single piece of paper.
- Automatically calculates operation start and due dates based on MRP planned order due dates.
- Flexible record selection criteria allow approval and release of orders in bulk.
- Drill down on cells within the grid to view more detailed information.
- Optionally freeze (i.e., firm plan) operation dates to allow for your unique shop schedule (i.e., physical inventory periods, plant shut down, etc.) or supplier shutdowns.

Inquiries—Instant Visibility

Schedule Summary

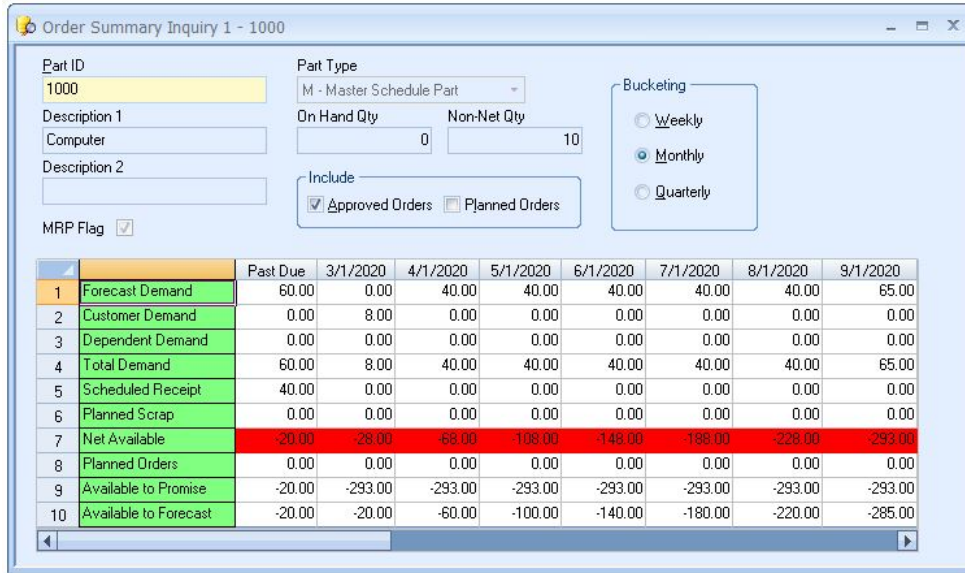


Figure 8. Schedule summary – You choose the bucket size.

- Analyze supply and demand information in summarized user-definable time buckets. Compare supply against forecast demand (ATF) and against actual customer and dependent demand (ATP) to optimize inventory levels.

Order Shortage

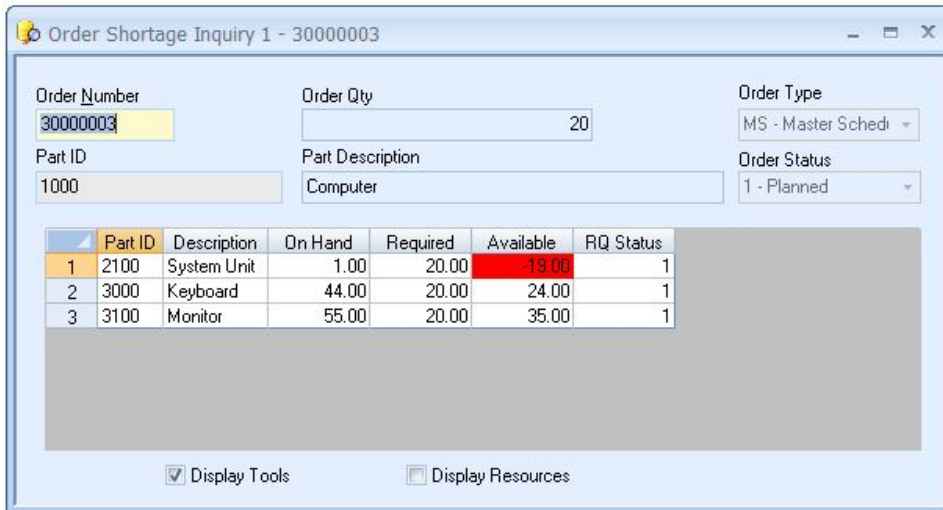


Figure 9. Order shortage inquiries stops incomplete orders.

- Quickly review and verify component parts, resources, and tool availability for orders, with shortages easily identifiable

Capacity Management

Capacity Management at the Master Production schedule is referred to as Rough-cut Capacity. Its purpose is to match the demand on resources generated from the master schedule with the supply of those same resources. There are many ways to accomplish this with MAX including:

- Resource parts for critical resources
- Resource BOMs calling the quantity of each resource part.
- Resource summary reports to compare the demand for and supply of resources across time, where the period is governed by your lead-time to change that resource level (i.e., hire and train the next person)
- Custom summary reports to look at planned hours for each critical resource by work center across time.

The screenshot shows the 'MRP Summary 1 - LABOR - ASSY' window. It includes a header section with filters for Part ID (LABOR - ASSY), Part Type (R - Resource), On Hand Qty (0), and Non-Net Qty (0). There are also checkboxes for 'Approved Orders' and 'Planned Orders', and a 'Bucketing' section with radio buttons for Weekly, Monthly (selected), and Quarterly. Below this is a table with 10 rows and 8 columns representing time periods from Past Due to 8/1/2020.

	Past Due	3/1/2020	4/1/2020	5/1/2020	6/1/2020	7/1/2020	8/1/2020
1 Forecast Demand	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Customer Demand	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 Dependent Demand	100.00	12.00	94.00	71.00	71.00	83.00	71.00
4 Total Demand	100.00	12.00	94.00	71.00	71.00	83.00	71.00
5 Scheduled Receipt	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 Planned Scrap	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 Net Available	-100.00	-112.00	-206.00	-277.00	-348.00	-430.00	-501.00
8 Planned Orders	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 Available to Promise	-511.00	-511.00	-511.00	-511.00	-511.00	-511.00	-511.00
10 Available to Forecast	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure 10. Capacity Management for direct labor

Capacity Management at the Shop Floor Execution level (i.e., released work) is concerned with supply and demand for each work center, as well as how orders compete for time in that work center (i.e., priority).

Planning Simulation

Make Promises You Can Deliver!

Through excellent design and reuse of the fundamental planning algorithms, the Planning Simulation option adds Available to Promise (ATP) to the MAX core functionality with no added implementation costs. We have embedded the Planning Simulation option in the MAX Master Scheduling and Sales Order Processing modules for carrying out “what if” ATP (available-to-promise) scenarios.

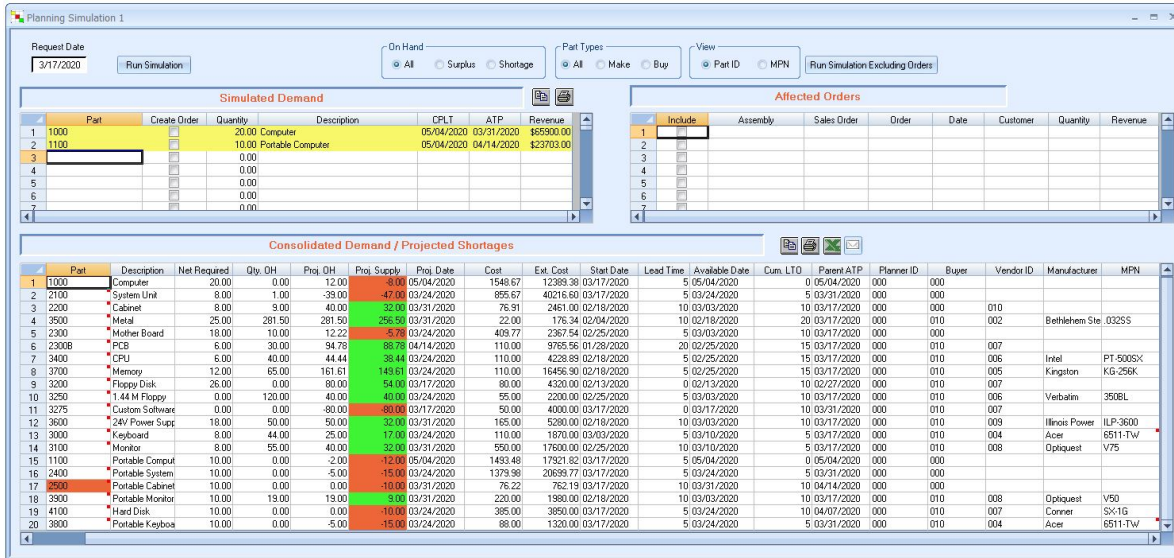


Figure 11. Run a Planning Simulation to Display Projected Surpluses and Shortages based upon Simulated Demand.

Planning Simulation provides your sales force with an easy-to-use tool that answers customers’ most frequently asked question: “When can I have it?”

- Quick and easy to use, get an ATP date in seconds with the "click of a button."
- Create "what if scenarios" without using complex spreadsheets.
- Simulate actual demand using real parts and existing MRP conditions without affecting current WIP.
- Provide accurate ATP dates directly to Sales Order Entry.
- View Part Lead Times directly on the Consolidated Demand Grid.
- Salespeople can reuse MRP data without changing MRP data.
- “Seal the Deal” by creating a Quote or Sales Order based on the projected ATP.

With Planning Simulation, you can...

- Improve customer communication.
- Simulate demand quantities.
- Project on-hand balances
- Highlight shortages and surpluses.
- Display projected ATP dates.
- Create “what if” scenarios.
- Re-use MRP data without overwriting it.

Planning Simulation Options include:

- Select to Display Surpluses, Shortages or Both
- Select to Include Purchased, Manufactured Parts, or Both
- Exclude or Include Planned Orders and Requirements

- Choose to Display Demand ONLY if Net Required > 0.
- Choose to Exclude Forecast Orders at the Simulated Level

Planning Simulation Display Highlights:

- **Green:** Items may be promised to ship by the displayed ATP date.
- **Yellow:** Warns Sales to confirm current shop workload before promising availability.
- **Red:** Indicates No Part Availability on the displayed ATP date, based on current supply.

The MAX Planning Simulation Option adds Available-to-Promise Date visibility to the core MAX Master Scheduling and Sales Order Processing modules without additional implementation cost. This easy-to-use design provides your sales force the opportunity to project product availability based upon simulated customer demand and real time MRP data without impacting WIP.

Scheduling Summary

Creating a realistic and stable schedule that meets all expected demand is a “cheap” secret to successfully managing your business. MAX ERP provides the tools to properly capture and schedule independent demand so that the power of MRP can plan the rest. Under the watchful eye of your planners, that schedule can be balanced with your capacity to maximize successful completion.

Production

The Production area is concerned with executing the schedule, mostly through the management of shop orders and is focused on the level and control of Work in Process (WIP). Operation of the Shop Floor Execution module is the focus here. Load, queue and backlog analysis by critical work center and short-term priority and capacity planning and key tasks. As delays are encountered on the floor, Alternate Processes may be utilized, as so can, subcontract services.

For internal work, labor may be tracked in many ways (i.e., directly in SFE, in the Labor Tracking module, or the MAX Data Collection System). Lean Manufacturing practices should also be considered in this area. This can show up as repetitive manufacturing, self-directed work cells, Kanban systems, etc. LM often makes ERP easier.

Production

- Shop Floor Execution
- Priority Planning & Control
- Alternate Processes
- Subcontract Services
- Labor Tracking



Shop Floor Execution

Create shop orders, track Work-In-Process (WIP), maintain work center information and analyze shortages and backlogs.

- Shop Orders
- Routings
- Pick Lists
- Capacity/Priority Planning
- Component Scrap
- Work Center Management
- Standard Routing Notes

Shop Floor Execution lets you create shop orders, track WIP, maintain work center information and analyze shortages and backlogs. With Shop Floor Execution in place, you will quickly realize increased labor efficiency, better machine utilization, less downtime, reliable capacity planning and more predictable overtime scheduling.

Shop Orders—Increase Labor Efficiency and On-time Deliveries

Shop Order 2 - 30000003

Ord Num: 30000003, Type: MS - Master Schedule, Part ID: 1000, Part Desc: Computer, Status: 3 - Released, Cur Due: 3/12/2020, Orig Due: 2/2/2020, Cur Qty: 20, Ext Qty: 20, Bal Due: 20.

Order Options: Create Bill, Create Routing, Rework.

Reference: Customer Order, Sched: Q - Queue, Pri Stk: FG, Rev Level: A, Priority: PLANNED, Planner ID: 000, Firm.

User Defined: Key, Reference.

Buttons: Query, Serial Allocation.

Include	Status	Component Part ID	Description	Cur Qty	Bal Due	Cur Due	LT Offset	Qty Issued	Shortage	On Hand	Qty Per	Manufacturer
<input checked="" type="checkbox"/>	3	2100	System Unit	20.00	20.00	03/05/2020	5.00	0.00	19.00	1.00	1.00	
<input checked="" type="checkbox"/>	3	3000	Keyboard	20.00	20.00	03/05/2020	5.00	0.00	24.00	44.00	1.00	Acer
<input checked="" type="checkbox"/>	3	3100	Monitor	20.00	20.00	03/05/2020	5.00	0.00	35.00	55.00	1.00	Optquest

Figure 1. Manage all aspects of a shop order, including order bill and routing information, with an easy to use and intuitive dialog.

Include	Status	Component Part ID	Description	Cur Qty	Bal Due	Cur Due	LT Offset	Qty Issued	Shortage	On Hand	Qty Per	Manufacturer
<input checked="" type="checkbox"/>	3	2100	System Unit	20.00	20.00	03/05/2020	5.00	0.00	19.00	1.00	1.00	
<input checked="" type="checkbox"/>	3	3000	Keyboard	20.00	20.00	03/05/2020	5.00	0.00	24.00	44.00	1.00	Acer
<input checked="" type="checkbox"/>	3	3100	Monitor	20.00	20.00	03/05/2020	5.00	0.00	35.00	55.00	1.00	Optquest

Figure 2. Order Bill of Material—Along with customized routings, the bill of materials for a specific order can be modified to include new components, exclude non-needed material, or change relationships between parts.

Include	Que Code	Oper Seq	Oper Description	WorkCenter	WorkCenter Desc.	Qty Per	Qty Comp	Qty Rem	Op Type	Run Time	Setup Time
<input checked="" type="checkbox"/>	Y	0010	Assembly	ASSY	Assembly	1.0000	0.0000	20.0000	U - Unit	0.5000	0.0000
<input checked="" type="checkbox"/>	N	0020	Test	QA	Test	1.0000	0.0000	0.0000	U - Unit	0.6000	0.0000
<input type="checkbox"/>			<- Enter seq, then wrkctr.								

Figure 3. Order Routing—Specific orders can be customized for variations in your manufacturing process by adding new operations, deleting inappropriate ones, or modifying an operation to your exact needs.

- Maintain and print standard routing data by operation for each manufactured part.
- Standard routing notes allow you to add routing information that is specific to a part or generic note for any part.
- Automatically generate a pick list and an order routing for each approved shop order.
- Maintain unique routings and bills of material for customized orders.
- Track standard queue times and runtimes for batch and unit processes.
- Calculate operation due and start dates using backward scheduling.
- Rework parts back through the shop without impacting the balance of an order.
- Split a shop order to expedite part of an order through the floor or change part numbers in the middle of the production.
- Track labor, material, and subcontract costs by order number for more accurate job costing and shop management.
- Track work center efficiency and spot bottlenecks by comparing planned hours per job against actual hours expended.

Post Operation Completion—Control Performance like Never Before

- Display load and queue by work center so you know exactly where it is and what it will take to finish a job.
- As each operator completes their portion of a job, they identify their actual run and setup times, how many units were completed, and where the job should go next.
- Track actual run and setup times to analyze against standards.
- Post Scrap at the operational level to monitor production flow and work center productivity.
- Automatic generation of new orders to compensate for part level scrap above planned levels.
- Auto Post feature saves valuable time by automatically posting the operation complete once the required data is entered.
- User preferences allow you to display only operation sequences that contain load.

Order # 30000003 Part # 1000 Description Computer

Order Data: Status 3 - Released, Planner 000, Priority PLANNED, Rev A, Sched Q - Queue, Firm

Quantities: Current 20, Act Scrap 0, Bal Due 20

Dates: Current Due 3/12/2020, Org Due 2/2/2020

Seq	W/ctr.	Hold	Type	Op Description	Queue Qty	Load Qty	Qty Comp	Qty Scrap	Run Time	Set Time	Shift	Defect
0010	ASSY	N	U	Assembly	20.0000	20.0000	0.0000	0.0000	0:00:00	0:00:00	1	
0020	QA	N	U	Test	0.0000	20.0000	0.0000	0.0000	0:00:00	0:00:00	1	

Figure 4. Enter actual run times, setup times and quantity completed for tracking performance

Workcenter ASSY

Description Assembly Critical Resource Include Setup

Type S - Shop Overhead Rate % 200

Std Queue 1 Labor Rate \$ 10

Available Hrs 40 Utilization % 100

User Defined: Key, Reference

Buttons: Monitor Load, Extended Fields

Figure 5. Work Center Maintenance — Create and maintain work center information including number of manned hours per day (for costing and capacity planning) and standard queue for proper queue management

May, 2020						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Figure 6. Shop Calendar — Specify your shop's unique scheduling requirements, eliminating tedious rescheduling by automatically bypassing non-working days and scheduling orders to the prior working day

Order: 5000000000 Component ID: 3700 Qty Issued: 20.00

Scrap Component: Qty to Scrap 2, Defect Code DM2, Reference Component Scrap, Scrap Override GA

Replace Component: Qty to Replace 2, Issue Replacement from Stock ID MS, Reference Repl Comp Scrap, Re Issue Override

Buttons: Post, Clear

Figure 7. Component Scrap—Quickly scrap component parts and issue replacement parts in one step

Workcenter ASSY Refresh

Current Load Weekly Statistics:

Total Load	80.49999	Total Queue	80.49999
Total Input	116.5	Total Output	36

Figure 8. Work Center Load—Total work center input, output, load, and queue are accumulated to quickly identify potential bottlenecks and help manage shop lead-times

Inquiries—Find Answers Fast

Job Progress Inquiry 1 - 50000008

Order Number: 50000008
 Amended Flag:
 Routing Rev:
 Routing Date: 2/10/2020

Part ID: 2300
 Part Description: Mother Board
 Rev Level: F

WorkCenter	Seq. #	Oper ID	Description	Quantity	Queue CD	Completion Date	Actual Run	Actual Set	Oper Type
1 ASSY	0010		Assembly	2.22	Y	02/26/2020	10.0000	0.0000	U
2 QA	0020		Test	0.00	N	02/27/2020	6.0000	0.0000	U

Figure 9. Job Progress Inquiry—Know the detailed progress of orders at each operation including quantity and completion dates.

Backlog Inquiry 3 - ASSY

Identification
 Workcenter: ASSY
 Assembly: Assembly

	Past Due	3/20/2020	3/27/2020	4/3/2020	4/10/2020	4/17/2020
Capacity	50.00	50.00	50.00	50.00	50.00	50.00
Queue	31.33	0.00	12.50	0.00	0.00	0.00
Backlog	0.00	0.00	0.00	0.00	0.00	0.00
Total Load	31.33	0.00	12.50	0.00	0.00	0.00
Over/Under Capacity	-18.67	-50.00	-37.50	-50.00	-50.00	-50.00
Cum. Over/Under	-18.67	-68.67	-106.17	-156.17	-206.17	-256.17

Buttons: Refresh, Graph

Figure 10. Work Center Backlog Inquiry—Display time-phased work center queue and backlog versus capacity, to identify capacity constraints and smooth shop demands.

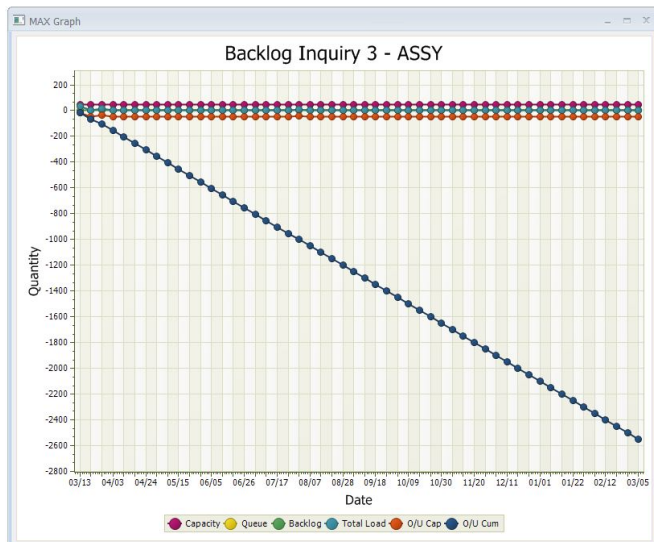


Figure 11. Work Center Backlog Inquiry—Display time-phased work center queue and backlog versus capacity, to identify capacity constraints and smooth shop demands.

Priority Planning & Control

A basic premise of any MRP system is to maximize efficiency on the shop floor. To do so, you need to effectively control work center queues (i.e., what is at the work center waiting). MAX's shop floor information provides the mechanism to accomplish that through queue, backlog (i.e., additional work scheduled for that work center, but has not arrived yet), and load (the sum of queue and backlog) calculations.

Within each work center, the contention of available jobs is the focus. Which job should be run next when multiple jobs in queue have various processing times but the same due date? This is where priority exists. MAX uses the industry standard Critical Ratio as the main mechanism to answer that question, however other priority calculations can be made from detailed shop floor data.

MAX * SHOP FLOOR CONTROL * WORKCENTER DETAIL REPORT											
WORKCENTER : ASSY		DESCRIPTION : Ass embly		STANDARD QUEUE : 1		HOURS MANNED : 10		TYPE : S			
TOTAL INPUT : 117		TOTAL OUTPUT : 36.0		SMOOTH INPUT : 0		SMOOTH OUTPUT : 12					
TOTAL LOAD : 80.5		DAYS OF LOAD : 8.0		TOTAL QUEUE : 80.5		DAYS OF QUEUE : 8.0					
ORDER #	PART ID	DESCRIPTION	SEQ#	CRTRAT	LT REM	CUR DUE	START	BAL DUE	Q	RUN HRS	SETUP HRS
30000018	1200	Laptop Computer	0010		2	3/25/20	3/24/20	25.00	Y	12.50	0.00
30000001	1000	Computer	0010	1	2	2/12/20	2/11/20	20.00	Y	10.00	0.00
30000002	1000	Computer	0010	8	2	2/26/20	2/25/20	20.00	Y	10.00	0.00
50000008	2300	Mother Board	0010	8	2	2/26/20	2/25/20	2.22	Y	1.33	0.00
30000003	1000	Computer	0010	PLANNED	2	3/11/20	3/10/20	20.00	Y	10.00	0.00
30000013	1000	Computer	0010	PLANNED	2	7/29/20	7/28/20	20.00	Y	10.00	0.00
TOTAL										53.83	0.00

Figure 12. Work Center Detail Report—the main mechanism to coordinate the short-term production schedule with production supervisors.

When overloaded conditions are found, standard routings on released may be changed to alternate work centers. These work centers could be outside the organization (i.e., subcontract processing). Upstream orders (i.e., unreleased MRP planned orders) may require alternate processes to smooth the flow.

Alternate Processes

MAX's standard WIP control allows work centers on released orders to be changed to alleviate overloaded conditions and reroute processes on the floor. When these conditions persist, Alternate Routings can be used to pre-approve these changes and plan for them. MAX can be directed to use them in both cost roll-ups for determining standard product costs and in Materials Requirements Planning (MRP) when required.

Include	Status	Component Part ID	Description	Cur Qty	Bal Due	Cur Due	LT Offset	Qty Issued	Shortage	On Hand	Qty Per
<input checked="" type="checkbox"/>	3	2300B	PCB	10.00	10.00	03/10/2020	5.00	0.00	20.00	30.00	1.00
<input checked="" type="checkbox"/>	3	3450	CPU - FAST	10.53	10.53	03/10/2020	5.00	0.00	10.53	0.00	1.00
<input checked="" type="checkbox"/>	3	3700	Memory	10.53	10.53	03/10/2020	5.00	0.00	54.47	65.00	1.00
<input type="checkbox"/>			<- Add more parts here.								

Figure 13. Alternate processes may be selected upon order release.

Alternate routings begin with establishing a unique code. Then a routing is typically copied from an existing routing and modified to represent the change. They can be seen in inquiries and reports. Once established, the alternate routing can be entered into the Shop Order to instruct MAX to use the alternate pick list. From there, normal Shop Floor Execution takes over for managing and controlling that process.

Subcontract Services

Track work to that cannot be performed in house to outside service providers. Subcontracted services often an expansion internal processes (i.e., painting, bending, fabrication, etc.) in peak period of demand.

- Streamline issuing material to and receiving product from subcontract supplier.
- Track open orders and manage order due dates.
- Establish separate subcontract cost as part of total product cost.
- Create subcontract price and usage variances.

Subcontract Processing allows you to track materials, shortages, and surpluses through every step of the process. MAX's automated processes reduce manual steps while capturing a separate cost component, allowing you to measure performance against that standard. Whether your operations require a subcontracted BOM method¹ or a subcontracted Service (Routing) method, the MAX Subcontract Processing module can be

¹ Reviewed in the Materials Section of this document.

configured to meet your needs based upon how you need the work done, where you need it done and how to account for it.

The Service method is used when material is provided to suppliers in a routing process where their service constitutes one, or more, of the sequences. In this case, the part number does not change for the part returned and there could be further internal processes, including inspection. These types of orders are managed by production as they are part of the routing.

Manage processing at outside suppliers as an extension of your manufacturing process.

- Use Service IDs to group similar suppliers.
- Specify order Minimums, Base Charges, and Price Break quantities for each service and supplier.
- Create Blanket Service Orders with authorization based on outstanding currency value.
- Assign, Transfer, and Receive subcontract orders from one easy-to-use interface.
- Highlight orders that do not reach order minimums.
- Ship to subcontractors directly from work-in-process.
- Receive from subcontractors directly into work-in-process.
- Display/report total and detail costs of materials shipped, product received, and subcontract costs totaled by vendor, part, or order number.

The screenshot shows a software window titled "Service Order 2". The top section contains header information with the following fields:

- Service Order: 70000003
- Service ID: PLATING
- Description: Electro Plating Service
- Vendor ID: 010
- Vendor Name: Outside Etching Company

On the right side of the header section are three buttons: Update, Clear, and Delete.

The bottom section is titled "Service Order Detail" and has three tabs: "Service Order Detail" (selected), "Shipping", and "Header Info". This section is divided into three columns:

- Amounts:** Authorized (20000), Outstanding (19900), Minimum Charge (0), Excess Percentage (10), Active Order (checked).
- Dates:** Creation (2/10/2020), Effectivity (2/10/2020), Expiration (2/9/2021).
- Revision:** Level (), Date (/ /).

Figure 14. Establish shipping details and spending limits with the Service Order Detail window

Shop Order 4 - 50000007

Ord Num: 50000007 Type: MF - Shop Order

Part ID: 2200 Part Desc: Cabinet

Status: 3 - Released Cur Qty: 20

Cur Due: 2/27/2020 Ext Qty: 20

Orig Due: 2/27/2020 Bal Due: 20

Order Options:
 Create Bill
 Create Routing
 Rework

Reference:
Customer Order:
Sched: Q - Queue Pri Stk: MS

Rev Level: E Priority: 1.778

Planner ID: 000 Firm

Lot/Serial:
Lot:
Serial Allocation:

User Defined:
Key:
Reference:

Query

Bill Routing Subcontract Alternate Code

	Include	Que Code	Oper Seq	Oper Description	WorkCenter	WorkCenter Desc.	Qty Per	Qty Comp	Qty Rem	Op Type	Run Time	Setup Time
1	<input checked="" type="checkbox"/>	Y	0010	Cut	CUT	Cut	1.0000	0.0000	20.0000	U - Unit	0.1000	1.0000
2	<input checked="" type="checkbox"/>	N	0020	Bend	BEND	Bend	1.0000	0.0000	0.0000	U - Unit	0.1000	1.0000
3	<input checked="" type="checkbox"/>	N	0030	Outside Vendor Shop	OVS	Outside Vendor Shop	1.0000	0.0000	0.0000	U - Unit	0.0000	0.0000
4	<input checked="" type="checkbox"/>	N	0040	Paint	PAINT	Paint	1.0000	0.0000	0.0000	U - Unit	0.1000	0.0000
5	<input checked="" type="checkbox"/>	N	0050	Inspect	QA	Test	1.0000	0.0000	0.0000	U - Unit	0.1000	0.0000
6	<input type="checkbox"/>			<- Enter seq, then wrkc								

Figure15. Orders with outside sequences are identified on the shop order.

Shop Order 4 - 50000007

Ord Num: 50000007 Type: MF - Shop Order

Part ID: 2200 Part Desc: Cabinet

Status: 3 - Released Cur Qty: 20

Cur Due: 2/27/2020 Ext Qty: 20

Orig Due: 2/27/2020 Bal Due: 20

Order Options:
 Create Bill
 Create Routing
 Rework

Reference:
Customer Order:
Sched: Q - Queue Pri Stk: MS

Rev Level: E Priority: 1.778

Planner ID: 000 Firm

Lot/Serial:
Lot:
Serial Allocation:

User Defined:
Key:
Reference:

Query

Bill Routing Subcontract

Oper Seq	Oper Description	WorkCenter	Service Order	Vendor	Service ID	Cost
1	0030 Outside Vendor Shop	OVS		010	PLATING	2.50

Figure16. Orders with outside sequences are identified on the shop order.

Service Navigator 2

Service ID	Description	Minimum Charge
PLATING	Electro Plating Service	0
Vendor ID	Description	Total
010	Outside Etching Company	0.000000
Service Order	User Defined Description	Outstanding Amount
70000003		19900

Assignment
 Transfer
 Receipt
 Undo Assign
 Undo Transfer
 Undo Receipt

Move

Last Number: 0000000002 Last Move Date: Next Number: 0000000003

	Include	Part ID	Description	Work Order	Service Order	Vendor	Base Charge	Qty Ready	Transfer Qty	Receipt Qty	Cost/Unit	Ext. Cost
1	<input type="checkbox"/>	2200	Cabinet	50000007		010	0.00	20.00	0.00	0.00	2.50	50.00

Figure 17. Assign and transact subcontract orders using the Service Navigator.

Service Scrap 1

Transaction

Order: 700000030101 Scrap Quantity: 0

Defect Code: DM3 GL Reference:

Service Order Detail

Part ID: 2200 Part Description: Cabinet

Vendor ID: 010 Vendor Name: Outside Etching Company

Quantity: 20.00 Due Date: 2/10/2020 Promise Date: 2/10/2020

Reference:

Job

Work Order: 500000010000 Oper Seq: 0030

Quantities

Shipped: 20.00 Total Scrap: 0.00

Received: 20.00 At Vendor: 0.00

Figure 18. Subcontract processing helps control vendor scrap costs and manage order due date changes.

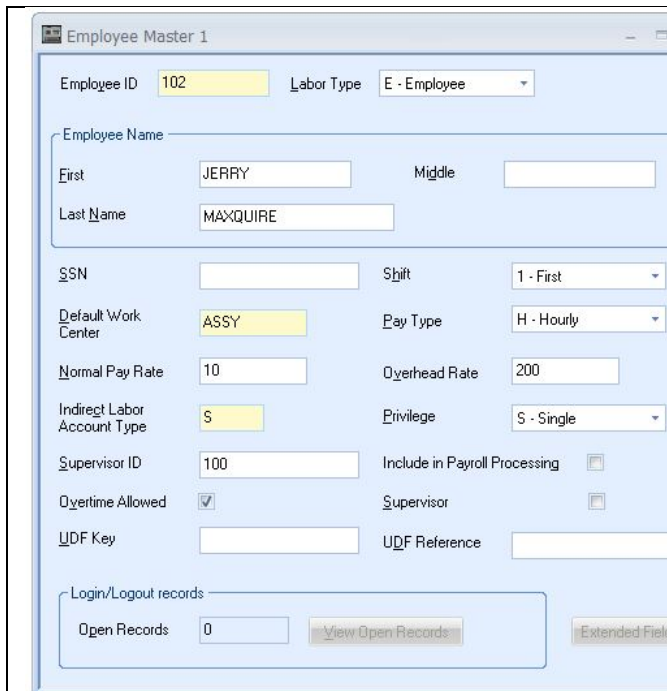
Labor Tracking

Keep track of worker activity with the accuracy and fairness your team deserves.

MAX Labor Tracking allows the computer to act as a time clock, resulting in more accurate time reporting. The Labor Tracking Module is an online labor tracking system that allows you to track actual work performed for specific work order operations or for indirect time (i.e., breaks, meetings, etc.) and can interface with your company's payroll system.

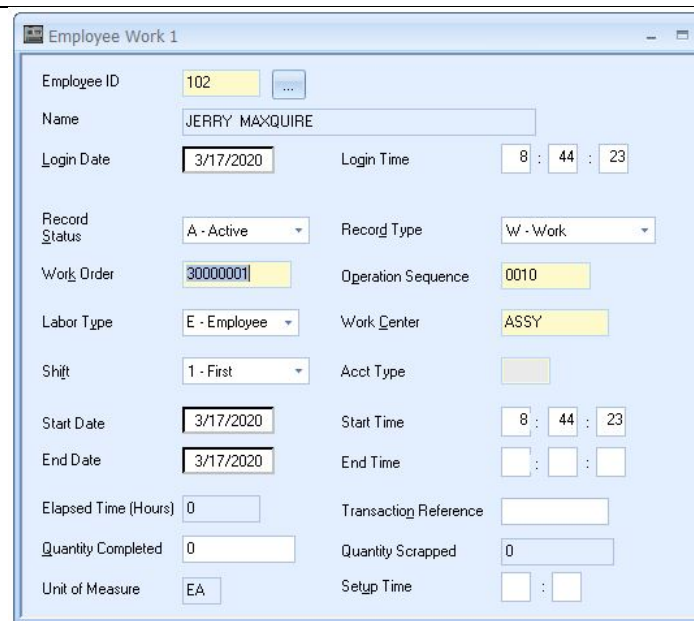
Labor Tracking Highlights

- Maintain employee data such as pay scales, pay rates, work shifts, and overhead rates.
- Assign hourly pay rates per employee and specify shift.



The screenshot shows the 'Employee Master 1' form. It contains fields for Employee ID (102), Labor Type (E - Employee), Employee Name (First: JERRY, Middle: , Last Name: MAXQUIRE), SSN, Shift (1 - First), Default Work Center (ASSY), Pay Type (H - Hourly), Normal Pay Rate (10), Overhead Rate (200), Indirect Labor Account Type (S), Privilege (S - Single), Supervisor ID (100), Include in Payroll Processing (checkbox), Overtime Allowed (checkbox), Supervisor (checkbox), UDF Key, and UDF Reference. There is also a section for Login/Logout records with an 'Open Records' field set to 0 and a 'View Open Records' button.

Figure 19. Employee Master holds all employee data (SSAN optional)



The screenshot shows the 'Employee Work 1' form. It contains fields for Employee ID (102), Name (JERRY MAXQUIRE), Login Date (3/17/2020), Login Time (8 : 44 : 23), Record Status (A - Active), Record Type (W - Work), Work Order (30000001), Operation Sequence (0010), Labor Type (E - Employee), Work Center (ASSY), Shift (1 - First), Acct Type, Start Date (3/17/2020), Start Time (8 : 44 : 23), End Date (3/17/2020), End Time, Elapsed Time (Hours) (0), Transaction Reference, Quantity Completed (0), Quantity Scrapped (0), Unit of Measure (EA), and Setup Time.

Figure 20. Maintain and correct actual employee direct and indirect time

With Labor Tracking, you can...

- Manage employee work on an individual, employee ID basis.
- Accurately track direct time on shop orders
- Allocate time expended on multiple simultaneous orders for more accurate job costing.
- Use actual run and setup times to refine standard times.
- Calculate efficiencies by shift, work center and employee.
- Track indirect labor costs by GL account.

Two Labor Collection Methods

The MAX Labor Tracking Module can operate in two modes simultaneously. Some employee groups may use the Time Ticket method while others the Login/Logout method.

- Time Ticket: Use Time Ticket Entry to enter employees reported direct and indirect time worked for specific period as a batch process. Typically entered the next day for the previous day.
- Login/Logout: Eliminate manual data entry by training employees to manage their own labor entry by manually logging in and out of each work order operation and/or indirect time code. This can be accomplished using the MAX Labor Tracking Module or with the integrated capabilities of the MAX Data Collection module.

Shift	Order No.	Part	Seq. #	Qty Completed	Qty Scrapped	Start Time	End Time	Setup Time	Elapsed Time
1	30000001	1000	0010	0.000000	0.000000	08:30	10:15	00:00	01:45
2			S	0.000000	0.000000	10:15	10:30	00:00	00:15
3	30000001	1000	0010	0.000000	0.000000	10:30	12:00	00:00	01:30

Figure 21. Enter employees' reported time worked for specific work order operations for both direct and indirect labor.

Employee ID	Employee WorkCenter	Employee Name	Login Date	Login Time	Order No.	Seq. #	Part	Lot Number	WorkCenter
1	102	ASSY	JERRY MAXQUIRE	03/17/2020	09:17:00	300000010000	0010	1000	ASSY

Figure 22. View all employees with open work records.

- System supervisor override allows maintenance of adjustments.
- Display all employees currently working on an operation.
- MAX automatically records transaction history information for all posted labor transactions, providing an accurate audit trail of work always performed.

Labor Tracking Report

By EMPLOYEE ID from '102' to '102' from '3/17/2020' to '3/17/2020'

EmployeeID	EmployeeName	StartDate	StartTime	End Date	End Time	WorkOrder	Opr Seq	ActualHour
102	JERRY MAXQUIRE							
		3/17/20	01:30:00	3/17/20	04:00:00	300000010000	0010	2.5000
		3/17/20	08:30:00	3/17/20	10:15:00	300000010000	0010	1.7500
		3/17/20	10:15:00	3/17/20	10:30:00	ISAF		0.2500
		3/17/20	10:30:00	3/17/20	12:00:00	300000010000	0010	1.5000
Total Time for 102 on 3/17/20								6.0000
Total Time for Employee 102, JERRY MAXQUIRE								6.0000
Total Reported Labor Time								6.0000

Figure 23. Review transaction history records

MAX Labor Tracking seamlessly integrates with MAX Data Collection to help you track your business' labor hours quickly and accurately so you can capture and report the data that reveals how well your labor is being utilized.

Now there is an easier, more effective way to track labor hours. Enhance your MAX System with MAX Labor Tracking today!

Production Summary

MAX ERP is a planning system – down to its time to execute and then, it is a detailed shop floor management and control system. Orders planned through Reorder Point or MRP are released to the floor as a shop order, which forms the basis for this control, as well as work in process accounting. As conditions on the floor changes, the shop orders may be modified to reflect those changes. Alternate processes and subcontract services may also be used to help balance the demand on production and the supply of productive capacity. The Labor Tracking module adds an extra layer of detail to actual direct time, as well as indirect time from production employees. Actual labor completes the accounting and allows for full variance analysis of planned vs. actual.

Materials

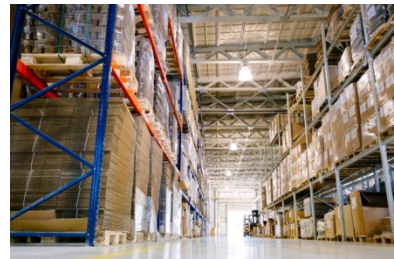
The key to success in Materials is to have the right level of inventory in place to maximize customer service and productivity metrics. The higher the volume of your shipments, the more inventory can be justified. Of course, Finance & Accounting will remind us of this, but as Material Managers we should be proactively acting in this area. Because many mistakes made in ERP translate into inventory, this area is typically a real mess in many organizations.

- Materials
 - MRP
 - Inventory Control
 - Physical Inventory
 - Lot/Serial Tracking
 - Recall Management
 - Purchasing
 - Subcontract Processing
 - Repetitive Manufacturing

Inventory Management and Control is the focus of the area. In some industries, lot and serial control are part of the inventory process and, in some of those, recall management is a critical function. Everyone is concerned with accuracy, thus Physical Inventory (a module) and Cycle Counting (a process) are important functions.

Although we can argue that MRP is a scheduling function, it is included in Materials due to the amount of data required for MRP to calculate properly (i.e., Part Type Codes, Order Policies, Order Qualifiers (minimum, maximum, multiple), lead-times, etc.).

In many organizations, the purchasing function is a sub-set of materials. Sourcing product from suppliers, negotiating costs and terms and then executing plans for all purchased material are managed.



MRP

Material Requirements Planning (MRP) balances the supply and demand for all parts needed to satisfy your Master Schedule. The MRP process performs two essential tasks: Plans orders so that supply equals demand for each part. Explodes supply orders through the bills of materials to determine the quantity, and timing, of component parts required. The new time-phased plan is viewed as a series of new planned orders, and exception messages where human intervention is required. This module also maintains MRP planning data for parts.

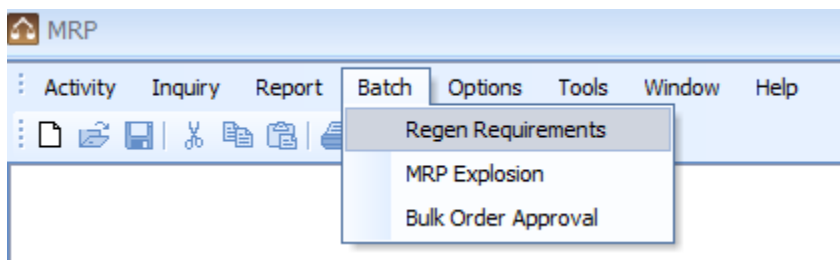


Figure 1. Completely regenerate the MRP plan or just process what has changed.

MRP Explosion— Accurate Material Plans

LLC	Processed	Total Parts
	2	2

Orders Created	29
Orders Rescheduled	0
Orders De-expedited	0
Reqs. Processed	160

Figure 2. Respond quickly to changes in supply and demand while improving delivery schedules.

- MRP routine is available as a “command-line” batch process that can run unattended (recommended).
- Calculate component requirements with regenerative or net change explosion logic.
- Due dates for component parts are automatically calculated using “backward scheduling”, making sure you get the right parts at the right time.
- Define a firm planned “time fence” to control orders within a user-defined planning horizon and prevent rescheduling, expediting, or de-expediting of already released orders.
- Control which parts are planned by setting Part Type Code.
- Instruct MRP on how to create planned orders through the Order Policy Code (i.e., lot-for-lot, weekly, periodic, etc.).
- This routine examines data for each MRP planned component including, dependent demand quantities over the time horizon, quantities on-hand, and existing scheduled receipts before suggesting new orders or providing exceptions.
- A flexible selection criterion allows you to run MRP on specific parts, planners, commodity codes or user-definable preferences.

Planner Action—Understand Your Plan

	Order	Part	Desc	Qty	Resched	Edit	MRP Need	Due Date	Exception	OK	Planner	Buyer	Vendor	Comm.
1	40001885	3400	CPU	22.22	05/13/2020	...	05/14/2020	05/14/2020	Couldn't Pull In (Firm)	<input checked="" type="checkbox"/>	000	010	006	Elec
2	40001832	3200	Floppy Disk	40.00	05/20/2020	...	05/21/2020	05/21/2020	Couldn't Pull In (Firm)	<input checked="" type="checkbox"/>	000	010	007	Elec
3	40001845	3600	24V Power S	20.00	05/20/2020	...	05/21/2020	05/21/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	009	Elec
4	40001858	2300B	PCB	22.22	05/13/2020	...	05/14/2020	05/14/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	007	Elec
5	40001777	3000	Keyboard	20.00	04/30/2020	...	05/14/2020	05/14/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	004	Elec
6	40001778	3000	Keyboard	20.00	05/14/2020	...	05/28/2020	05/28/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	004	Elec
7	40001779	3000	Keyboard	20.00	05/28/2020	...	06/11/2020	06/11/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	004	Elec
8	40001780	3000	Keyboard	20.00	06/11/2020	...	06/25/2020	06/25/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	004	Elec
9	40001781	3000	Keyboard	20.00	06/25/2020	...	07/09/2020	07/09/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	004	Elec
10	40001782	3000	Keyboard	20.00	07/09/2020	...	07/23/2020	07/23/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	004	Elec
11	40001783	3000	Keyboard	20.00	07/23/2020	...	08/06/2020	08/06/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	004	Elec
12	40001784	3000	Keyboard	20.00	08/06/2020	...	08/20/2020	08/20/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	004	Elec
13	40001785	3000	Keyboard	20.00	08/20/2020	...	09/03/2020	09/03/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	004	Elec
14	70000010-01-01	3700	Memory	100.00	03/05/2020	...	03/19/2020	03/19/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	005	Elec
15	40001893	3700	Memory	43.27	03/19/2020	...	04/16/2020	04/16/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	005	Elec
16	40001894	3700	Memory	46.78	03/19/2020	...	04/30/2020	04/30/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	005	Elec
17	40001895	3700	Memory	46.78	04/02/2020	...	05/14/2020	05/14/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	005	Elec
18	40001896	3700	Memory	46.78	04/16/2020	...	05/28/2020	05/28/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	005	Elec
19	40001897	3700	Memory	46.78	04/30/2020	...	06/11/2020	06/11/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	005	Elec
20	40001898	3700	Memory	46.78	05/13/2020	...	06/25/2020	06/25/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	005	Elec
21	40001899	3700	Memory	46.78	05/28/2020	...	07/09/2020	07/09/2020	Couldn't Pull In (Firm)	<input type="checkbox"/>	000	010	005	Elec

Figure3. Quickly identify problems with the plan and make changes to balance supply and demand.

- Displays items that require attention after an MRP run in an easy-to-use spreadsheet format (supply and demand is out of balance).
- Over 10 exception messages identify parts/orders that need immediate attention.
- Exception filters allow Planners to concentrate on the most critical problems first, eliminating overwhelming amounts of data.
- Clearly mark items as being resolved so they do not have to be viewed again.
- Quickly drill-down on an item bringing you to the MRP Detail for that part.
- “Edit” button on order exceptions allows for quick change of due dates.
- User preferences allow the grid to be customized to show desired information for a particular user.

MRP Detail—Do not Get Swamped in MRP Output

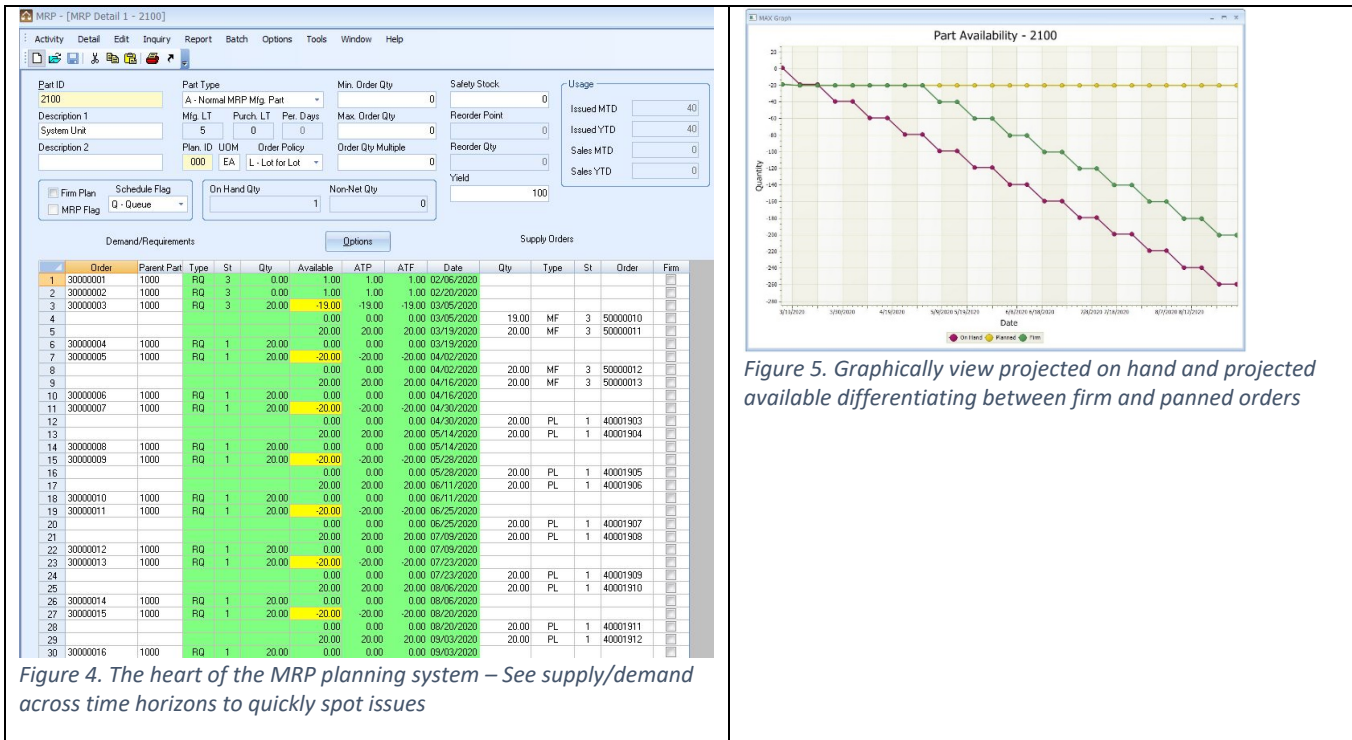


Figure 4. The heart of the MRP planning system – See supply/demand across time horizons to quickly spot issues

Figure 5. Graphically view projected on hand and projected available differentiating between firm and planned orders

- Maintain MRP planning data for manufactured and purchased parts.
- Intuitive display clearly shows demand and supply information and the projected available balance of the part over time.
- Color-coded projected available alerts the planner to actions required to prevent shortages.
- Validate demand through single level pegging to the parent order.
- Double-click the supply order on make parts to maintain the order in Order Navigator.
- Use the Purchasing Control – Activity – Purchasing Schedule to manage purchase orders.
- “Freeze” (firm plan) the date of any order with a click of the mouse.

Order Navigator—Real-time Editing & Approval of Orders

MRP - [Order Navigator 1]

Activity Order Edit Inquiry Report Batch Options Tools Window Help

Range: Select By: Order Number

Start: End:

Include Order Status: 1 - Planned 2 - Approved 3 - Released

Include Order Part Types: Purchased Parts Manufactured Parts Subcontract Parts Maintenance Objects

Query

Order Number	Type	App	Rel	Firm	Part ID	Description	Ord Qty	Qty Due	Cur Due	Org Due	Start Date	Priority	Planner	Vendor	Stock	Sched	Rev	MPN	Manufacturer
40001777	PL				3000	Keyboard	20.0000	20.0000	05/14/2020	05/14/2020	05/07/2020	PLANNED	000	004	MS	Q	A	6511-Tw	Acer
40001778	PL				3000	Keyboard	20.0000	20.0000	05/28/2020	05/28/2020	05/20/2020	PLANNED	000	004	MS	Q	A	6511-Tw	Acer
40001779	PL				3000	Keyboard	20.0000	20.0000	06/11/2020	06/11/2020	06/04/2020	PLANNED	000	004	MS	Q	A	6511-Tw	Acer
40001780	PL				3000	Keyboard	20.0000	20.0000	06/25/2020	06/25/2020	06/18/2020	PLANNED	000	004	MS	Q	A	6511-Tw	Acer
40001781	PL				3000	Keyboard	20.0000	20.0000	07/09/2020	07/09/2020	07/02/2020	PLANNED	000	004	MS	Q	A	6511-Tw	Acer
40001782	PL				3000	Keyboard	20.0000	20.0000	07/23/2020	07/23/2020	07/16/2020	PLANNED	000	004	MS	Q	A	6511-Tw	Acer
40001783	PL				3000	Keyboard	20.0000	20.0000	08/06/2020	08/06/2020	07/30/2020	PLANNED	000	004	MS	Q	A	6511-Tw	Acer
40001784	PL				3000	Keyboard	20.0000	20.0000	08/20/2020	08/20/2020	08/13/2020	PLANNED	000	004	MS	Q	A	6511-Tw	Acer
40001785	PL				3000	Keyboard	20.0000	20.0000	09/03/2020	09/03/2020	08/27/2020	PLANNED	000	004	MS	Q	A	6511-Tw	Acer
40001786	PL				3100	Monitor	15.0000	15.0000	04/02/2020	04/02/2020	03/19/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001787	PL				3100	Monitor	20.0000	20.0000	04/16/2020	04/16/2020	04/02/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001788	PL				3100	Monitor	20.0000	20.0000	04/30/2020	04/30/2020	04/16/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001789	PL				3100	Monitor	20.0000	20.0000	05/14/2020	05/14/2020	04/30/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001790	PL				3100	Monitor	20.0000	20.0000	05/28/2020	05/28/2020	05/13/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001791	PL				3100	Monitor	20.0000	20.0000	06/11/2020	06/11/2020	05/28/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001792	PL				3100	Monitor	20.0000	20.0000	06/25/2020	06/25/2020	06/11/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001793	PL				3100	Monitor	20.0000	20.0000	07/09/2020	07/09/2020	06/25/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001794	PL				3100	Monitor	20.0000	20.0000	07/23/2020	07/23/2020	07/09/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001795	PL				3100	Monitor	20.0000	20.0000	08/06/2020	08/06/2020	07/23/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001796	PL				3100	Monitor	20.0000	20.0000	08/20/2020	08/20/2020	08/06/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001797	PL				3100	Monitor	20.0000	20.0000	09/03/2020	09/03/2020	08/20/2020	PLANNED	000	008	MS	Q	B	V75	Optquest
40001798	PL				3800	Portable Key	5.0000	5.0000	03/16/2020	03/16/2020	03/09/2020	PLANNED	000	004	MS	Q	Y	6511-Tw	Acer
40001840	PL				3600	24V Power S	19.0000	19.0000	03/12/2020	03/12/2020	02/27/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001841	PL				3600	24V Power S	20.0000	20.0000	03/26/2020	03/26/2020	03/12/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001842	PL				3600	24V Power S	20.0000	20.0000	04/09/2020	04/09/2020	03/26/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001843	PL				3600	24V Power S	20.0000	20.0000	04/23/2020	04/23/2020	04/09/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001844	PL				3600	24V Power S	20.0000	20.0000	05/07/2020	05/07/2020	04/23/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001845	PL				3600	24V Power S	20.0000	20.0000	05/21/2020	05/21/2020	05/07/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001846	PL				3600	24V Power S	20.0000	20.0000	06/04/2020	06/04/2020	05/20/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001847	PL				3600	24V Power S	20.0000	20.0000	06/18/2020	06/18/2020	06/04/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001848	PL				3600	24V Power S	20.0000	20.0000	07/02/2020	07/02/2020	06/18/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001849	PL				3600	24V Power S	20.0000	20.0000	07/16/2020	07/16/2020	07/02/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001850	PL				3600	24V Power S	20.0000	20.0000	07/30/2020	07/30/2020	07/16/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001851	PL				3600	24V Power S	20.0000	20.0000	08/13/2020	08/13/2020	07/30/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001852	PL				3600	24V Power S	20.0000	20.0000	08/27/2020	08/27/2020	08/13/2020	PLANNED	000	009	MS	Q	H	ILP-3600	Illinois Power
40001853	PL				4100	Hard Disk	5.0000	5.0000	03/09/2020	03/09/2020	03/02/2020	PLANNED	000	007	MS	Q	Q	SX-1G	Conner

Figure 6. Edit order schedule in a real-time environment.

- Display orders for manufactured, purchased and subcontract parts.
- Maintain planned and approved orders (i.e., change quantity and/or date) on-line and immediately see the effect of the changes.
- “Freeze” (firm plan) the date of any order with a click of the mouse.
- Approve planned orders to either manufacture or purchase any parts (make/buy decisions).
- Approve planned orders for subcontracted parts.
- Bulk Order Approval allows you to approve groups of orders together rather than one at a time, saving valuable input time.

Inquiries—Critical Information at Your Fingertips

Part ID	Description	On Hand	Required	Shortage
1 2100	System Unit	1.00	20.00	19.00
2 3000	Keyboard	44.00	20.00	0.00
3 3100	Monitor	55.00	20.00	0.00
4 LABOR - ASSY	Assembly Labor	0.00	10.00	10.00

Figure 7. Quickly review and verify component part availability in inventory before releasing a shop order

Level	Part ID	2/14/2020	2/21/2020	2/28/2020	3/6/2020	3/13/2020	3/20/2020
1000		20.00	0.00	20.00	0.00	20.00	0.00
		20.00	20.00	40.00	40.00	60.00	60.00
1 2100	Available	0.00	0.00	0.00	1.00	0.00	0.00
1 3000	Available	0.00	44.00	50.00	50.00	30.00	30.00
1 3100	Available	0.00	55.00	60.00	60.00	60.00	60.00
1 LABOR - ASSY	Available	0.00	0.00	-6.00	-17.00	-44.00	-59.00

Figure 8. View shortages for assemblies of critical components in weekly time buckets or graphical format

	Past Due	3/20/2020	3/27/2020	4/3/2020	4/10/2020
1 Forecast Demand	0.00	0.00	0.00	0.00	0.00
2 Customer Demand	0.00	0.00	0.00	0.00	0.00
3 Dependent Demand	44.00	0.00	20.00	0.00	20.00
4 Total Demand	44.00	0.00	20.00	0.00	20.00
5 Scheduled Receipt	19.00	0.00	20.00	0.00	20.00
6 Planned Scrap	0.00	0.00	0.00	0.00	0.00
7 Net Available	25.00	25.00	25.00	25.00	25.00
8 Planned Orders	19.00	0.00	20.00	0.00	20.00
9 Available to Promise	25.00	25.00	25.00	25.00	25.00
10 Available to Forecast	69.00	69.00	89.00	89.00	109.00

Figure 9. Display supply and demand information in summarized time buckets

Inventory Control

Track and maintain inventory balances for each part you stock including finished goods, assemblies, component parts, and raw materials.

- On hand quantities
- Nettable (usable) and Non-nettable stockrooms
- Multiple Stock Locations per part
- Material Transaction Processing
- Multiple Record Processing
- Standard Transaction References
- Cycle Count Support
- Secure

Inventory Control is one of the foundation modules on which the MAX system is built. It enables you to track and maintain inventory balances for each part you stock, including finished goods, assemblies, component parts and raw materials—so you will always know where your inventory is located and how many parts are on hand.

This higher level of control and visibility will result in increased inventory turnover and improved inventory accuracy.

Multi Record Processing—Real Productivity Gains



Figure10. Process all the day's inventory receipts with a click of the mouse.

- Save time on all transactions by processing more than one record simultaneously.
- View all inventory transaction records in a spreadsheet grid.
- Customize the layout of the grid based on user preference.
- Grid contains only entry fields so transactions can be processed quickly.
- Transact the parts in the grid in bulk, rather than one at a timesaving valuable entry time.
 - Issue all components to a shop order.
 - Receive all parts from a purchase order.
 - Enter cycle count results.
- Cut & Paste grid contents to any windows application.
- Full security gives users access to only the transactions they need to do their job.

Inventory Transactions — Everything from the Desktop

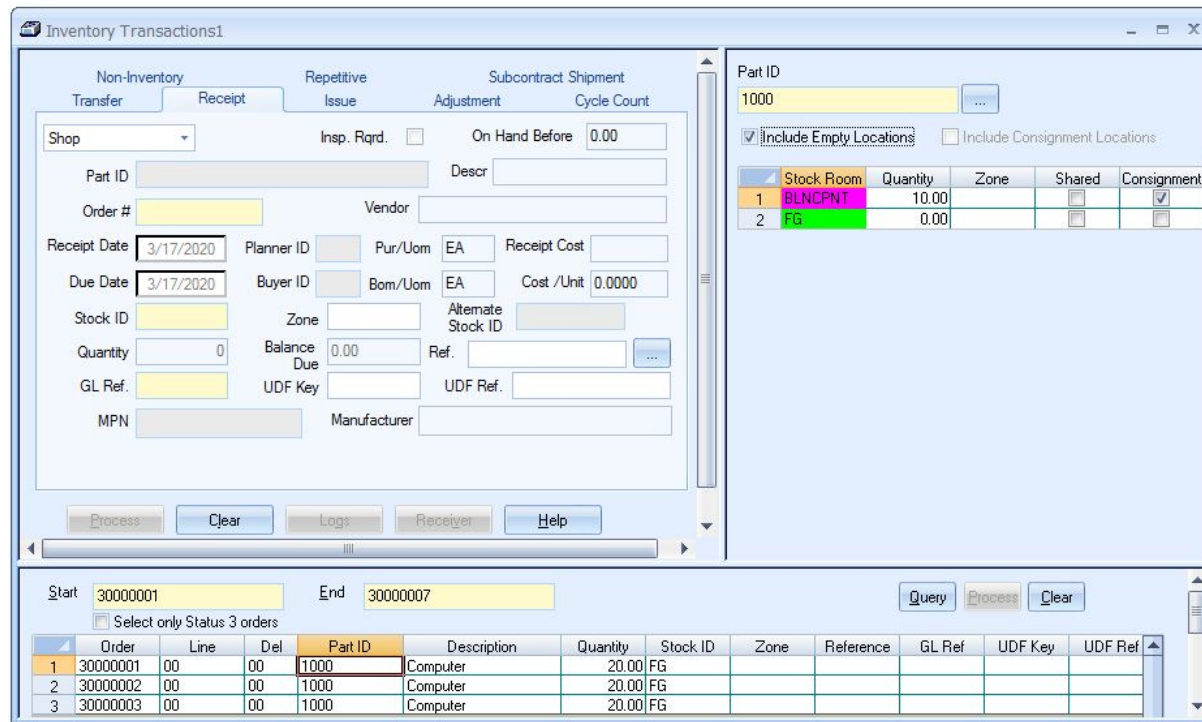


Figure 11. Top panes process individual records to accurately report movement. Stock status is automatically updated.

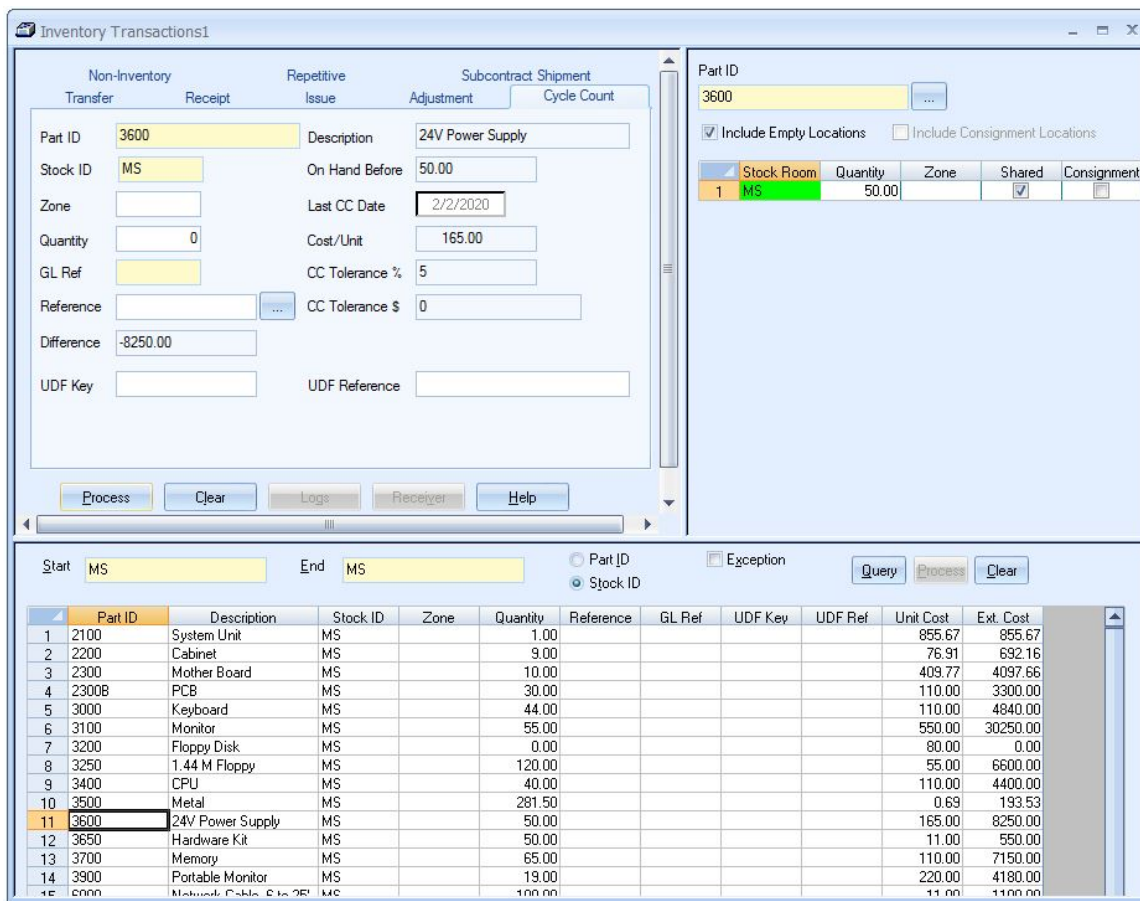


Figure 22. Lower pane provides multiple transaction processing capabilities (i.e., entire order)

- Create user-definable stockrooms that are either nettable or non-nettable for MRP.
- Maintain multiple stock locations per stockroom.
- All inventory transactions are available at the click of a button using a Tab dialogue.
- Instant online entry of receipts, issues, cycle counts, transfers, shipments, and adjustments.
- Transfer between stockrooms with one entry.
- Receive or Issue in decimal quantities.
- Optionally issue all components for an order with one transaction.
- Quickly make inventory Adjustments with one transaction to ensure accurate on-hand information.
- Use Cycle Count Logic for inventory accuracy improvements.
- Receive and issue both planned and unplanned material.
- Optionally print purchase order receiver documentation.
- Online warning messages alert you to out-of-tolerance and exception situations.
- All transactions contain user-definable fields.
- Optional support for Lot/Serial Tracking, Repetitive Manufacturing, and Transaction Load.

Visual Transaction History — A Graphical Audit Trail

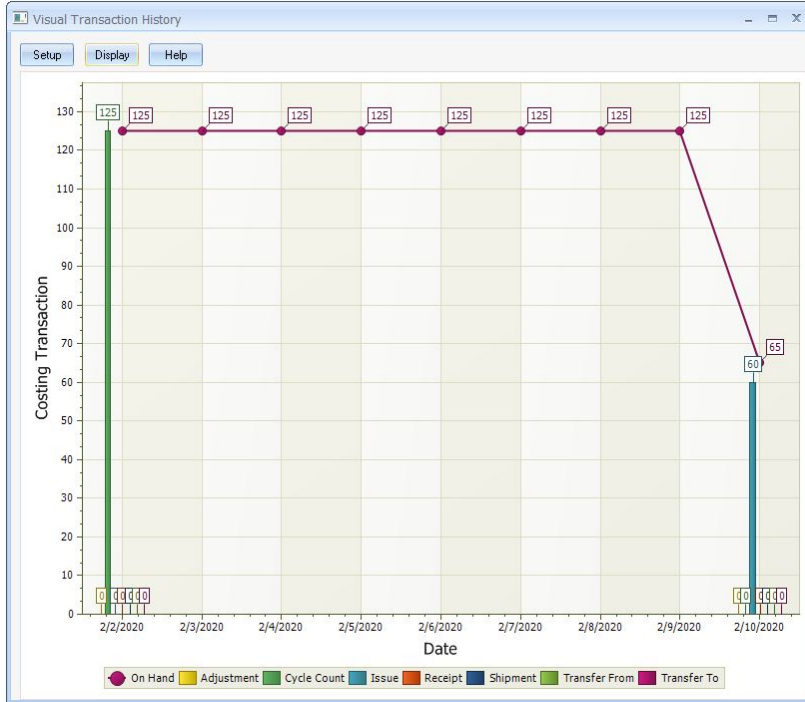


Figure 33. Graphically view a part's activity over time

- Quickly understand a part's activity without sorting through reams of data.
- See a visual representation of a part's activity over time.
- Line graph shows running inventory balance for a part over time.
- View a part's activity by type of transaction and date range.
- OLE enabled graphs allow you to link with any Windows application for management reports and presentations.

Inquiries—Instantly Know Where It Is and How It Got There

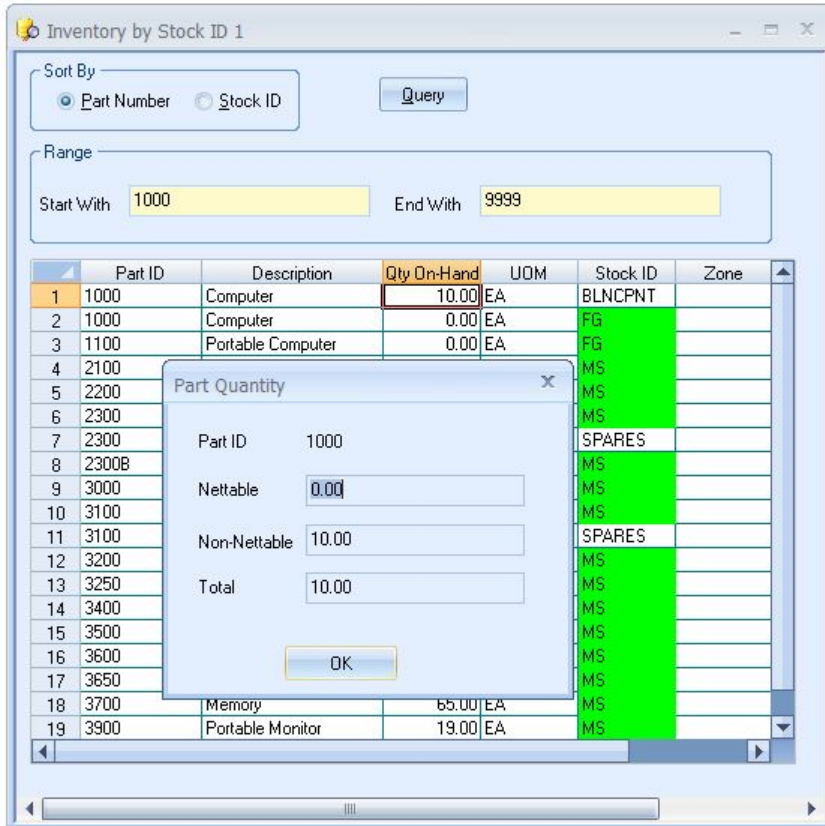


Figure 44. Display Stock by Location - Easily display all the parts in a stockroom or all the stockrooms where a part is stored.

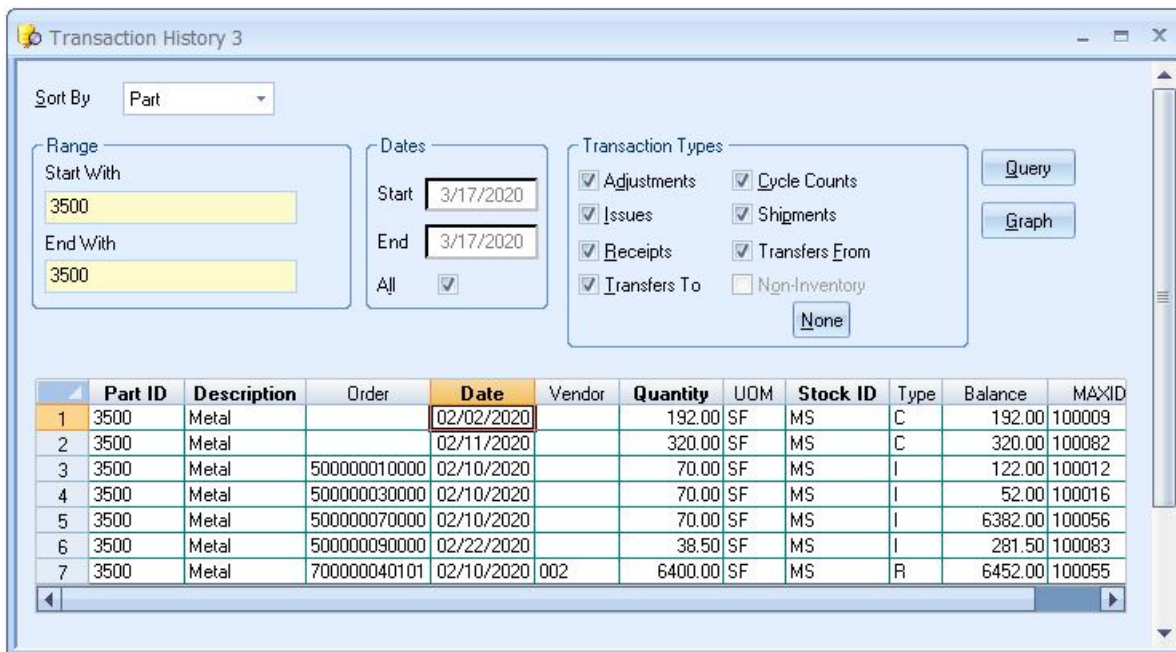


Figure 55. Display Transaction History Online visibility of inventory audit trail by part or by order number, allowing quick analysis of parts based on date and time stamp.

Physical Inventory

Know your stock with accurate inventory audits.

The MAX Physical Inventory Module (PIM) helps MAX customers conduct an accurate, coordinated physical inventory and produces a critical final audit trail report with posted variances by part number. The PIM windows, reports, and related programs offer a formal method of printing numbered physical inventory tags, collecting details of the physical inventory count, and updating the inventory data in MAX after verifying that this information is up to date for printing audit reports.

Precise Data Gathering

In a closed-Loop MRP II system, a Physical Inventory has a significant impact. A completed Physical Inventory updates the current inventory balances for manufacturing operations. This affects both financial and MRP databases.

The MAX PIM provides audit trail reports, from initial input of counts and recounts to dollar variances and a final audit on the adjustments posted. The part stock records within MAX are then updated as a result. After posting the updates, the tag files may be retained for inventory audit purposes and troubleshooting up until the next count.

The PIM module is designed to be used to support an organization’s physical inventory policy and procedures. Its flexibility provides various checks and balances to assure physical inventory process control.

The screenshot shows the 'Tag Maintenance 2' window with the following data:

- Tag Number: 00000033
- Date Voided: //
- Part ID: 3500
- Material: Metal
- UDM: SF
- Count Type: Assembly, Stock, Void
- Stock ID: MS
- Material Stores: [empty]
- Zone: [empty]
- Assembly: Order Number [empty], Sequence Number [empty]
- Counts:
 - Count: Quantity 320, Counter WRE, Date 3/17/2020, Auditor [empty]
 - Recount: Quantity 0, Counter [empty], Date //, Auditor [empty]
- Lot Tracking: Lot [empty], Serial [empty], Expiration Date //, Disposition [empty], Quarenting
- Remarks: [empty]

Figure 66. Maintain all relevant data gathered during the physical inventory.

With Physical Inventory, you can...

- Set the PIM Count Mode
- Freeze inventory

- Create Tag files
- Print Inventory Tags with bar codes.
- Conduct a physical inventory count.
- Enter Tag Data including Lot/Serial.
- Verify a Completed Inventory Count
- Run audit reports that will help you keep your process under control.
- Review and print reports
- Update on hand inventory data

Variance by Part ID Inquiry

Tag ID	Type	Location	Order #	Seq #	Count Qty	On-Hand Qty	Variance
1 00000033	S	MS			320.00	281.50	38.50

Figure 17. Review count variances throughout the process

Throughout the physical inventory process, and before updating MAX data files with physical inventory count information, multiple inquiries and reports may be used to manage the process (i.e., find uncounted missing tags, review current physical count quantities, run a count variance, etc.). Reports should be processed in accordance with company policy and direction after a successful update has been processed.

Reports

Uncounted Inventory Reports

This report will provide a list of parts that have on-hand balances in MAX and were not counted during the physical inventory. A varied selection is available, listing by part identifier, stock ID/work center, order number or planner. Cost data may be included, and you may limit the range of part identifiers selected when using this report.

Part Exception Reports

Provides exceptions, variances of dollar or quantity between the on-hand book count and the actual physical inventory input from the tag. It includes both positive and negative values and is presented in a descending order per selection criteria. The positive and negative values are absolute numbers and will list on the report alternating between the highest number regardless of the plus or minus value.

You may also sort the parts in descending cost or quantity value by the planner code listed in MAX. The report will then list all part numbers in descending value (quantity or dollar) by planner responsibility.

Another sort option is to print the report in descending cost or quantity value by the commodity code. This option lets you select a dollar or quantity level above which you wish to see the variances between on-hand and actual physical count. Pinpointing the level focuses management action on the higher dollar or quantity variances.

Counted Tag Reports

This report provides a detailed listing of all the tags counted for a particular stock location, work center, or commodity code. The report can be all or designated part numbers and may include related cost data. Cost data available as an option includes material value, material overhead, labor value, labor overhead, and total value of the inventoried material in a stockroom.

Detail Parts Reports

This report provides a detailed part identifier list for parts in sequential order that includes all stocking locations and work centers. It shows parts with only on-hand balances from the Tag Work file and parts with physical counts from the Tags Detail file. Count and Cost Variances may be requested with totals for each part per stockroom. A specific part identifier range may also be requested, limiting the report size.

Update and Purge Files

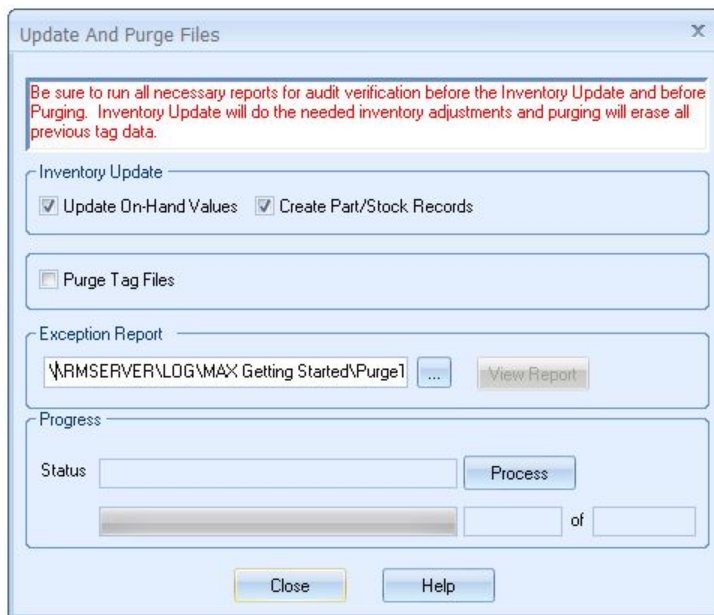


Figure 18. Post actual counts, update stock on hand records and produce detailed transactions for what has changed.

Used to complete the Physical Inventory Cycle, this feature allows for MAX inventory to be adjusted with the final physical inventory counts.

Now there is an easier, more effective way to conduct a physical inventory count. Enhance your MAX System with the MAX Physical Inventory Module today!

Lot/Serial Tracking

Maintain Lot/Serial Traceability Required for FDA, FAA, and Federal Contract Compliance

	Lot Number	Quantity	Inventory	Expiration	Override	Quar	Assoc	Disposition	Notes
1	0001		3.00		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
2	0005		4.00		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
3					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
4					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

Figure 19. Assign Lot and Serial Numbers at the Transaction Level and Link to Process Documentation

Use Lot/Serial Tracking to assign, monitor and control lot and/or serial numbers assigned to MAX components and finished goods. MAX builds and maintains an audit trail for all parts under lot and/or serial control by tracking lot and serial numbers at the transaction level. MAX provides instant access to all information captured for a specific lot/serial number from its receipt to stock until its shipment to a customer.

- Lot/serial strategy determined by parts or by groups of parts.
- Higher level of information collected on transactions (i.e., which lot/serial number?).
- Calculate lot/serial expiration dates based upon defined shelf life.
- Color-coded expiration dates clearly identify expired or near expiration lot/serial numbers.
- Disposition field provides quick reference to lot/serial number status.
- Quarantine logic stops all shipments and issues until quarantine is removed.
- Associate function allows you to attach any document or file to a lot/serial number for system-wide tracking.
- Automatically quarantine parts upon receipt from a vendor.
- Link important notes to any lot/serial number.

MAX Lot and Serial Tracking Supports...

	Lot Number	Quantity	Inventory	Expiration	Override	Quar	Assoc	Disposition	Notes
1	L-1	2.00	0.00		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
2					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
3					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
4					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
5					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
6					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
7					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
8					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
9					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
10					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
11					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
12					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
13					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
14					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
15					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
16					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
17					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
18					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
19					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
20					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

Figure 20. Assign lots to parts as they are received. Any transaction requires identification of the lot.

- Tracking and control of parts using lot and/or serial numbers.
- Alphanumeric lot/serial numbers.
- Assign lot/serial numbers before or after manufacturing.
- Automatically generate lot and/or serial numbers on work orders.
- Lot/Serial Number Range function allows quick selection of lot/serial numbers upon receipt of material.
- MAX Data Collection System (bar coded).
- Repetitive Manufacturing.

Lot Transaction History

Part ID	Description	Lot	Order	Type	Date	Quantity	Assoc	Stock ID	Quar	Cust/Vendor	Actual Cost	User Name
1	4100	Hard Disk	0001		C	03/17/2020	3.00		MS		0.00	MANAGER
2	4100	Hard Disk	0005		C	03/17/2020	4.00		MS		0.00	MANAGER
3	4100	Hard Disk	L-1	700000170101	R	03/17/2020	2.00		MS	007	700.00	MANAGER
4	4100	Hard Disk	0001	300000180000	I	03/17/2020	3.00		MS		0.00	MANAGER
5	4100	Hard Disk	L-1	300000180000	I	03/17/2020	2.00		MS		0.00	MANAGER

Figure 21. Display the Complete Lot/Serial Transaction History or Any Part of the Picture

- Captures a Complete Transaction History of Each Numbered Part
- Look-up lot/serial transactions by part ID, order number, serial number, or lot number.
- Zoom in on Lot/Serial Transactions by date range and/or transaction type, limiting “information overload”.
- Select all or up to 10 specific transaction type records.

As-Built Configuration

Part	Lot	Serial	Order	Quar
1	4100	L-1		2

Shop Odr: 700000170101 S.O:

Part: 4100

LOT: L-1

Net Quantity: 2.00

Figure 22A. Order information is shown with lot transactions.

Part ID	Description	Lot	Serial	Expiration	Order	Type	Date	Quantity	Assoc	Stock ID	Quar
1	4100	Hard Disk	L-1		300000180000	I	03/17/2020	2.00		MS	
2	4100	Hard Disk	0001		300000180000	I	03/17/2020	3.00		MS	

Figure 22B. A “Where-Used” Inquiry for Lot/Serial Controlled Parts

Shows Which Lot and Serial Numbered Parts Were Used to Build Specific Products

- Double-click a lot or serial number displayed in the transaction history to view the As-Built Configuration.
- Implosion logic easily locates all finished goods that included a particular lot/serial-controlled component and identifies customer orders affected by discrepant material as required by FDA, FAA, and government contract suppliers.
- Quickly search by Lot Number, Serial Number, Order Number or Part ID
- Serial number nesting provides complete visibility of all component serial numbers used to manufacture a serial controlled parent part.
- Explosion logic provides quick access to all component lots used to make a particular finished good to locate possible discrepant component lots.
- Join new component lot/serial numbers to parent lot/serial numbers for complete Configuration Management without the overhead of full top-to-bottom lot/serial tracking.
- Automatically record As-Built Configurations as you issue material to shop orders.

Recall Management

The Recall Management Module was written for when you need to quickly identify the scope and complexity of a recall situation, should you experience a product recall. When coupled with Lot/Serial Tracking, is an effective way to analyze large volumes of data so that decisions can be made.

- Accurately account for all affected items.
- Multiple filter criterion allows for narrowing down data returned in search.
- Pulls all transaction history, or lot/transaction history for the part, lot, or serial number.
- Shows status of item, including in stock, on floor, consumed (i.e., issued to another order) or recall (item has been shipped to customer).
- Saving the query records a snapshot of all parts affected and their locations.
- Assigns a recall identifier for managing the situation.
- Notes may be added.
- Documents relevant to the recall may be associated.
- Cost the recall anytime and/or after it is closed.

Part ID	Lot Number	Serial Number	Status	Quantity	Cost	Extended Cost	Shop Order Number / Stock ID	Parent Part	Parent Lot Number	Parent Serial Number	Sales Order Number	Company ID	Company Name
4100	0001		Floor	3	385.00	1155.00	300000180000	1200					
4100	0005		Stock	4	385.00	1540.00	MS						
4100	L-1		Floor	2	385.00	770.00	300000180000	1200					

TOTAL - Consumed 0.00
TOTAL - Stock 1540.00
TOTAL - Recall 0.00
TOTAL - Floor 1925.00
GRAND TOTAL 3465.00

Figure 23C. The Recall Manager allows you to see where all the items in a lot are located so action can be taken.

Management action is oriented around the status code. For example, transfer existing stock to a quarantine stockroom, place WIP on hold, notify customers receiving shipped items, etc.

Purchasing

Drag & Drop MRP-generated orders and Purchase Requisitions directly to the Purchase Order Form and then email the completed purchase order to suppliers.

- Purchase Requisitions
- Paperless Purchasing
- WYSIWYG PO Form
- Standard Notes
- Online Inquiries and reports
- *Context Sensitive Help*

Purchasing Control allows you to create purchase orders, track purchased materials, and maintain solid vendor information and accurate cash requirements. Now you will know exactly what a part will cost, when you can get it, and from which approved vendors. This module also gives you “Information at Your Fingertips,” helping you make the most cost-effective decisions and enabling you to accurately control all your purchasing requirements.

Purchasing Schedule—Paperless Work Environment

Planner/buyers work directly from the purchase schedule where data can easily be sorted and processed.

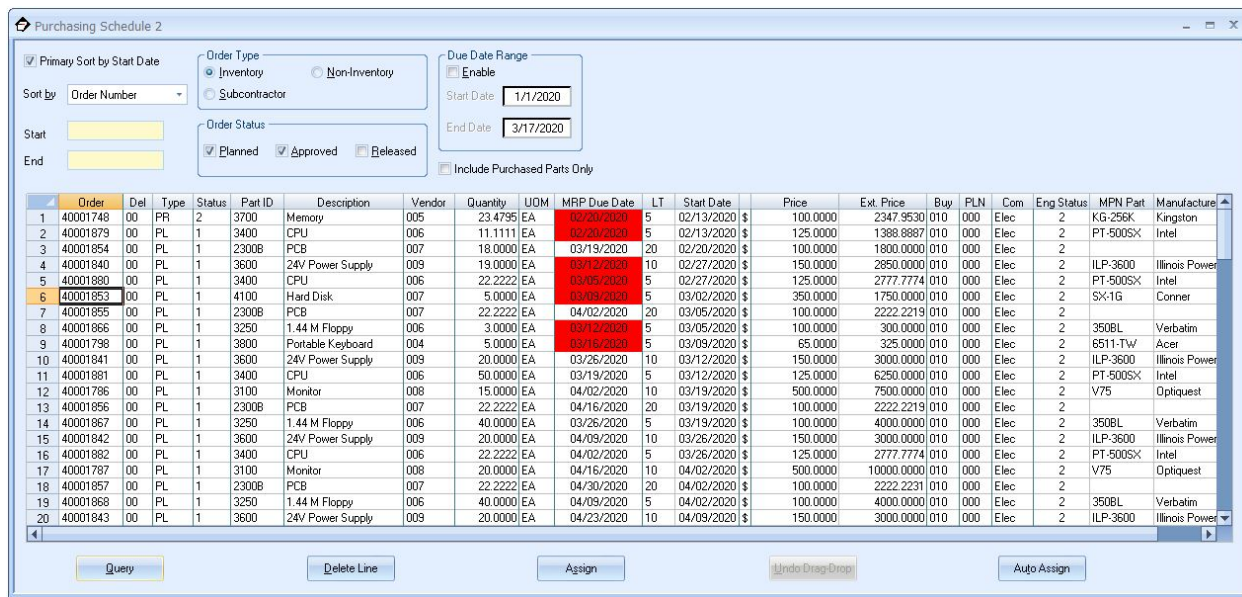


Figure 24. Assign purchase requisitions and planned orders to existing PO or Auto-assign to a new order.

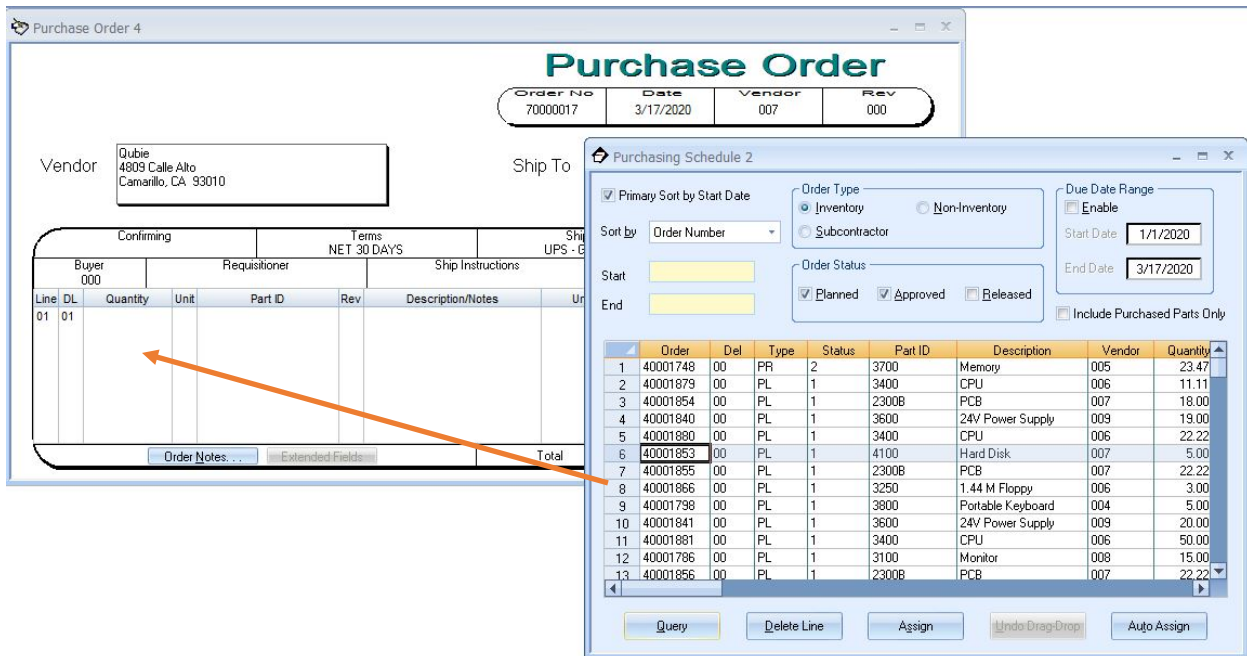


Figure 25. Online planning, approval, and assignment of MRP generated orders and Purchase Requisitions in a paperless environment

- Drag & Drop MRP-generated orders & Purchase Requisitions directly to the Purchase Order Form.
- Require MRP-generated orders to be approved before assigning them to PO's.
- Allow input of purchase requisitions (inventoried and non-inventoried) by other departments.
- Display MRP-generated orders and Purchase Requisitions in a spreadsheet grid.
- Select only the orders you want to view with extensive filtering and date range capabilities.
- Customize the layout of the Purchasing Schedule grid based on user preferences.
- Flexible record selection criteria allow processing of bulk or specific orders.
- Problem orders are displayed in red and yellow for quick identification.
- Drill down on cells within the grid to view more detailed information.
- Select, Maintain and Auto-Assign MRP-generated orders to either new or existing POs, eliminating the need to use Purchase Requisitions if desired.
- Browsable fields are quickly identified by an active cursor which changes when passing over a "HOT SPOT" on the PO Form.

Purchase Orders — Enter Orders on a WYSIWYG Form

Purchase Order 4 - 70000017

Purchase Order

Order No	Date	Vendor	Rev
70000017	3/17/2020	007	000

Vendor: Qubie
4809 Calle Alto
Camarillo, CA 93010

Ship To: 5120 Cameron Road
Morristown
TN

Confirming	Terms	Ship Via	FOB Origin
Buyer 000	NET 30 DAYS	UPS - GROUND	

Line	DL	Quantity	Unit	Part ID	Rev	Description/Notes	Unit Price	Ext. Price	Due Date
01		5.00	EA	4100	Q	Hard Disk	350.0000	1750.00	03/09/2020

Total \$ 1750.00

Figure 26. Enter directly on the PO form

Vendor Master

VENDOR ID: 007 Type: N - Normal Status: A - Active

Terms: NET 30 DAYS Currency Code: US

General: Name: Qubie, Phone: 415-555-3333

Remit To: Address 1: 4809 Calle Alto, City: Camarillo, State: CA, Zip Code: 93010

Vendor Part Data

Vendor: 007 Part #: 4100

Mfg's P/N: SX-1G Manufacturer: Conner

Part Description: Hard Disk

Currency: US DOLLARS

Price Break Information:

Quantity	Price/Unit
1	350.0000
0	0.0000
0	0.0000

Figure 27. Vendor information shared with integrated accounting system

Figure 28. Access all information and know what vendors are approved to provide what parts

- PO Form is designed to maximize the workspace by having all relevant data easily accessible (e.g., price break information).
- Schedule up to 99 parts per order and 99 deliveries per part.
- Include specific order or line-item notes.
- Maintain separate stocking and purchasing units of measure.
- Purchase non-manufacturing parts as well as inventoried items.
- Know which vendors provide the parts you need, what their delivery track records have been, and how their prices compare.
- Take advantage of quantity/price breaks for a particular item with Blanket Purchase Orders.

- Optional support for Multi-currency, Subcontract Processing and Manufacturer's Part Control.

Inquiries—Get Answers to Your Questions Fast

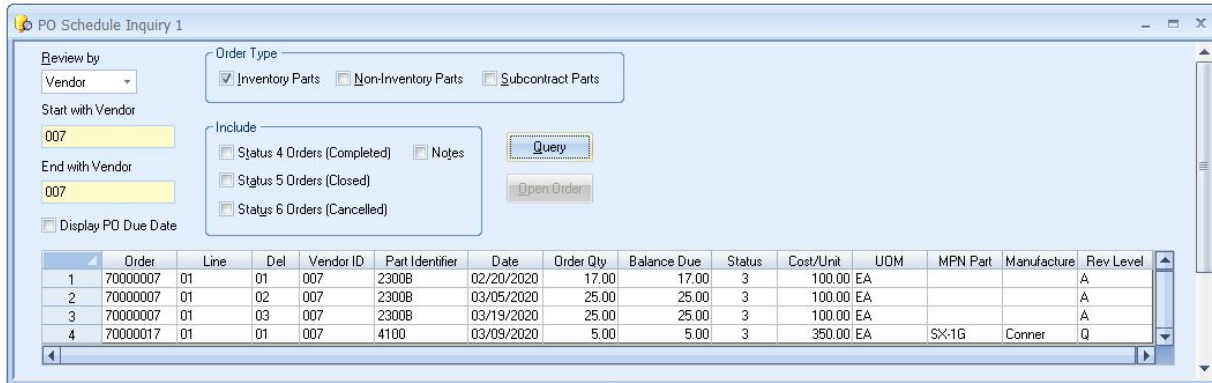


Figure 29. Examine current PO delivery schedule information at any time in a detailed format.

- Display inventory orders, non-inventory orders, or subcontract orders.
- Review POs by Order Number, Vendor, Part ID, Blanket PO, or Date Range.
- Include Order Notes.
- Open a PO by double clicking a displayed order.

Reports—Instant Access to Critical Information

MAX uses the #1 award winning reporting tool, Crystal Reports, as the engine for standard reports. All reports are customizable and have extensive sort and filtering capabilities, giving access to information you need in the format you are used to.

Cash Requirements Report By Vendor Identifier													
PartIdentifier	PartDescription	VendorID	S	F	OrderNumber	CurrQty	UM	Due Qty	Due Date	Prm Date	BUY	PLN	Order
3000	Keyboard	004	A	Y	70000005-01-01	6.00	EA	6.00	2/20/2020	2/20/2020	010	000	450.00
3400	CPU	006	A	Y	70000006-01-01	6.67	EA	6.67	2/20/2020	2/20/2020	010	000	833.33
3200	Floppy Disk	007	A	Y	70000002-01-01	40.00	EA	40.00	2/13/2020	2/13/2020	010	000	1000.00
3200	Floppy Disk	007	A	Y	70000002-01-02	40.00	EA	40.00	2/27/2020	2/27/2020	010	000	1000.00
2300B	PCB	007	A	Y	70000007-01-01	17.00	EA	17.00	2/20/2020	2/20/2020	010	000	1700.00
3100	Monitor	008	A	Y	70000008-01-01	5.00	EA	5.00	2/20/2020	2/20/2020	010	000	2500.00
OVERDUE TOTAL												7,483.33	

Figure 30. The Cash Requirements Report enables you to see what your cash requirements will be by month, using expected delivery dates and cost per line item.

Dispatch Report By Vendor Identifier

PartIdentifier	PartDescription	Verid	S	F	UM	OrderNumber	BalDueQty	CurrQty	PO Date	PrmDate	BUY	PLN
3500	Metal	002	4	Y	SH	70000004-01-01	0.00	200.00	2/24/2020	2/24/2020	010	000
3000	Keyboard	004	3	Y	EA	70000005-01-01	6.00	6.00	2/20/2020	2/20/2020	010	000
3000	Keyboard	004	3	Y	EA	70000012-01-01	20.00	20.00	4/16/2020	4/16/2020	010	000
3000	Keyboard	004	3	Y	EA	70000012-01-02	20.00	20.00	9/3/2020	9/3/2020	010	000
3000	Keyboard	004	3	Y	EA	70000018-01-01	15.00	15.00	3/19/2020	3/19/2020	010	000
3000	Keyboard	004	3	Y	EA	70000018-01-02	20.00	20.00	4/2/2020	4/2/2020	010	000
3700	Memory	005	3	Y	EA	70000010-01-01	100.00	100.00	3/19/2020	3/19/2020	010	000
3700	Memory	005	3	Y	EA	70000015-01-01	100.00	100.00	8/13/2020	8/13/2020	010	000
3400	CPU	006	3	Y	EA	70000008-01-01	6.67	6.67	2/20/2020	2/20/2020	010	000
3200	Floppy Disk	007	4	Y	EA	70000001-01-01	0.00	80.00	2/13/2020	2/10/2020	010	000
3200	Floppy Disk	007	3	Y	EA	70000002-01-01	40.00	40.00	2/13/2020	2/13/2020	010	000
3200	Floppy Disk	007	3	Y	EA	70000002-01-02	40.00	40.00	2/27/2020	2/27/2020	010	000
2300B	PCB	007	3	Y	EA	70000007-01-01	17.00	17.00	2/20/2020	2/20/2020	010	000
2300B	PCB	007	3	Y	EA	70000007-01-02	25.00	25.00	3/5/2020	3/5/2020	010	000
2300B	PCB	007	3	Y	EA	70000007-01-03	25.00	25.00	3/19/2020	3/19/2020	010	000
4100	Hard Disk	007	3	Y	EA	70000017-01-01	5.00	5.00	3/9/2020	3/9/2020	010	000
3100	Monitor	008	3	Y	EA	70000008-01-01	5.00	5.00	2/20/2020	2/20/2020	010	000
3100	Monitor	008	3	Y	EA	70000008-01-02	20.00	20.00	3/5/2020	3/5/2020	010	000
4180	1TB Hard Drive	008	3	Y	EA	70000011-01-01	45.00	45.00	3/26/2020	3/26/2020	010	000
2200	Cabinet	010	4	N	EA	70000003-01-01	0.00	20.00	2/10/2020	2/10/2020	010	000
2200	Cabinet	010	4	N	EA	70000003-02-01	0.00	20.00	2/10/2020	2/10/2020	010	000

Figure 31. The Dispatch Report lists Purchase Order details for immediate vendor follow up and identification of data.

Standard Notes—Make Sure Your Vendors have all the Data

Automatically attach standard notes to print on POs for...

- All orders
- Specific parts
- Specific part and vendor combinations
- Specific vendors

Standard PO Notes for Vendors

Vendor:

Vendor Description:

Please include our part numbers on all purchase orders and packing lists.

Action:

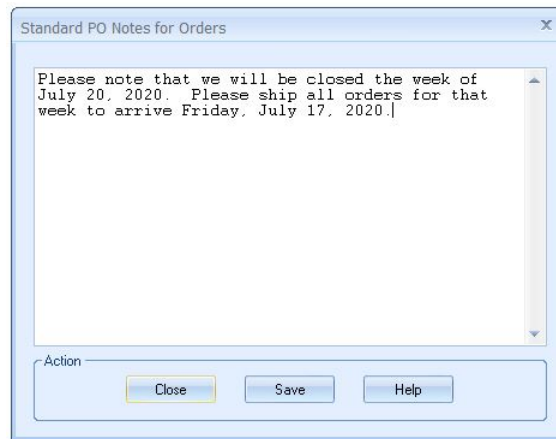
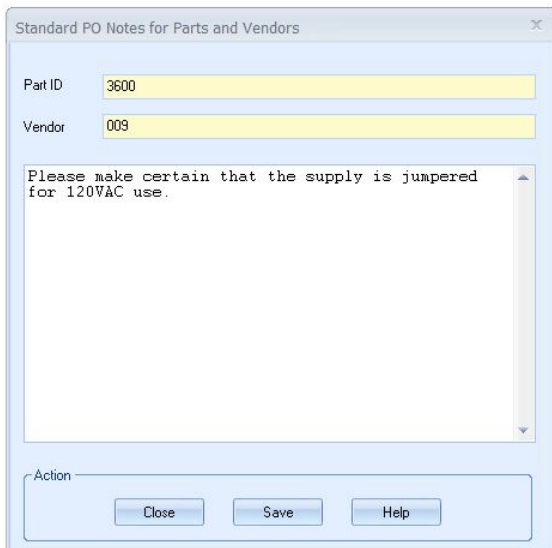
Standard PO Notes for Parts

Part ID:

Part Description:

Please make certain that the supply is jumpered for 120VAC use.

Action:



Figures 32A to D. Standard notes automatically appear on purchase orders, providing additional important information.

Subcontract Processing

Track work to that cannot be performed in house to outside service providers. Common examples include where components are provided to a supplier for special processing (i.e., anodizing, plating, heat treating, board stuffing, sterilization, etc.).

The Bills of Material Method is used when material is provided to suppliers and they perform 100% of the service. In this case, the part number changes for the part returned. These types of subcontract orders are typically managed by purchasing as they are purchase orders with a pick list.

Procure necessary services with precise control between you and your suppliers.

- Assign a subcontract standard cost and keep that cost component separate from material, labor, and overhead components.
- Use MRP to plan subcontracted component requirements.
- Control inventory and material track shortages
- Let MAX generate subcontractor purchase requisitions/orders.
- Issue components to the subcontract purchase order.
- Capture costs at every step.

Purchase Order 7

Subcontract PO

Order No	Date	Vendor	Rev
70000019	3/17/2020	007	000

Vendor: Qubie
4809 Calle Alto
Camarillo, CA 93010

Ship To: 5120 Cameron Road
Morristown
TN

Confirming	Terms	Ship Via	FOB
Buyer 000	NET 30 DAYS	UPS - GROUND	Origin

Line	DL	Quantity	Unit	Part ID	Rev	Description/Notes	Unit Price	Ext. Price	Due Date
01	01	50.00	EA	3200	C	Floppy Disk	25.0000	1250.00	03/17/2020
02	01							0.00	03/17/2020

Total \$ 1250.00

Figure 33. Familiar, intuitive subcontract purchase order form

Subcontract Purchase Order 1 - 700000190101

Ord Num: 700000190101 Type: SO - Subcontract Order

Part ID: 3200 Part Desc: Floppy Disk

Status: 3 - Released Cur Qty: 50

Cur Due: 3/17/2020 Ext Qty: 50

Orig Due: 3/17/2020 Bal Due: 50

Lot/Serial: User Defined: Key: Reference: Query

Reference: Sched: Pri Stk: MS Rev Level: C Priority: Planner ID: 000 Firm

Bill	Include	Status	Component Part ID	Description	Cur Qty	Bal Due	Cur Due	LT Offset	Qty Issued	Shortage	On Hand	Qty Per
	<input checked="" type="checkbox"/>	3	3250	1.44 M Floppy	50.00	50.00	03/17/2020	0.00	0.00	70.00	120.00	1.00
	<input checked="" type="checkbox"/>	3	3275	Custom Software	50.00	50.00	03/17/2020	0.00	0.00	50.00	0.00	1.00
	<input type="checkbox"/>			<- Add more parts here.								

Figure 34. The subcontract PO pick list may be edited like a shop order.

Inventory Transactions4

Non-Inventor Transfer
 Receipt
 Repetitive Issue
 Subcontract Adjustment
 Shipment Cycle Count

Subcontract:
Insp. Rqrd:
On Hand Before:

Part ID:
Descr:

Order #:
Vendor:

Receipt Date:
Planner ID:
Pur/Uom:
Receipt Cost:

Due Date:
Buyer ID:
Bom/Uom:
Cost /Unit:

Stock ID:
Zone:
Alternate Stock ID:

Quantity:
Balance Due:
Ref.:

GL Ref.:
UDF Key:
UDF Ref.:

MPN:
Manufacturer:

Part ID:

Include Empty Locations
 Include Consignment Locations

Stock Room	Quantity	Zone	Shared	Consignment
1 MS	0.00		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Start:
End:

Select only Status 3 orders

Order	Line	Del	Part ID	Description	Quantity	Stock ID	Zone	Reference	GL Ref	UDF Key	UDF Ref
1	70000019	01	01	3200	Floppy Disk	50.00	MS				

Figure 35. Issue components and ship BOM subcontract orders using inventory module transactions.

Repetitive Manufacturing

Repetitive Manufacturing provides, in a single transaction, the capability to receive a finished item and “backflush” all the component items required to build that assembly. This is ideal for higher volume environments, or those that are practicing Lean Manufacturing techniques, where shop orders are no longer required, thereby eliminating time-consuming order processing, and providing a paperless environment.

- Support Lean Manufacturing (formerly Just in Time)
- Backflush – By part or by order
- Paperless Environment
- Report Repetitive Scrap
- Lot/Serial Tracking
- Complete Audit Trail
- Flexible Processing

Repetitive Transaction—One Simple Step

The screenshot displays the 'Inventory Transactions6' window. The 'Receipt' tab is active, and the 'Repetitive' sub-tab is selected. The 'Part ID' is 2200, and the 'Description' is 'Cabinet'. The 'Receipt Date' is 3/17/2020, and the 'On Hand Before' is 9.00. The 'Receipt Quantity' is 10. The 'Stock' is MS, and the 'Zone' is empty. The 'GL Ref.' is empty, and the 'Buyer ID' is 000. The 'UDF' is empty, and the 'Cost /Unit' is 76.91. The 'UDF Ref.' is empty, and the 'Reference' is empty. The 'Process' button is highlighted. On the right, the 'Part ID' is 2200, and the 'Include Empty Locations' and 'Include Consignment Locations' checkboxes are unchecked. A table shows the following data:

Stock Room	Quantity	Zone	Shared	Consignment
1 MS	9.00		<input checked="" type="checkbox"/>	<input type="checkbox"/>

At the bottom, a table shows the following data:

Part ID	Description	Issue Qty	On Hand	Stock ID	Zone	Reference	GL Ref	UDF Key	UDF Ref	Unit Cost	Ext. Cost
1 3500	Metal	35.00	281.50	MS		Repetitive				0.69	24.06

Figure 36. Backflush by part identifier and eliminate the need for shop orders.

- Optionally use Repetitive Manufacturing for some or all your parts, depending on your internal requirements.
- Receive finished items into inventory and issue all components required to build the final product in a single transaction.
- Quick data entry only requires the Parent Part ID and the quantity completed to process the transaction.
- Eliminates overhead intensive order processing and reduces WIP.
- Maintains complete transaction history information for auditing and control purposes.
- Significantly reduces the costs of tracking requirements for parts or products that do not need complex control procedures.
- Produce finished products without the need of generating work orders, allowing you to reduce processing time and paperwork without compromising data integrity.

- Requires less than half of the normal processing time of using conventional shop orders.
- Quickly review repetitive transactions with the Transaction History Report or Inquiry.
- Component stock can be issued from the primary (point of use) stock location or alternative (buffer stock) locations.
- Blows through phantom and pseudo parts while issuing components.
- Perfect for companies who use cellular manufacturing techniques.
- User Preference allows you to remove all cost information from view (for security purposes) while processing the transaction.
- Optional support for Lot/Serial Tracking.



Figure 35. Paperless manufacturing.

Repetitive Scrap Transaction — Flexible Scrap Processing

Part ID	Description	Issue Qty	On Hand	Stock ID	Zone	Reference	GL Ref	UDF Key	UDF Ref	Unit Cost	Ext. Cost
1	3500 Metal	3.50	281.50	MS		Repetitive sc				0.69	2.41

Figure37. Easily record repetitive scrap to keep accounting and component inventory accurate.

- Record actual scrap from repetitive cells in one transaction for increased inventory accuracy.
- Does not require an order number to scrap component items.
- Adjust scrap quantities for component parts on the bill.
- Accurately record by-products during the manufacturing process for recovery of expensive or hazardous materials.
- Requires entry of GL Account for accurate general ledger accounting.

Cellular Manufacturing—A Pull System

Boost productivity by creating a cellular manufacturing environment where workspaces are more closely coupled and include all necessary tools and materials within arm’s reach. Production is only reported as units are finished, thereby reducing WIP inventories and increasing efficiencies.

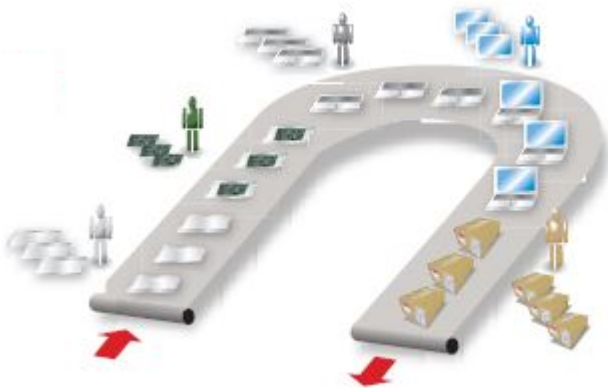


Figure 38. Cellular flow, or any in-line production is a candidate for repetitive.

Transaction History Inquiry

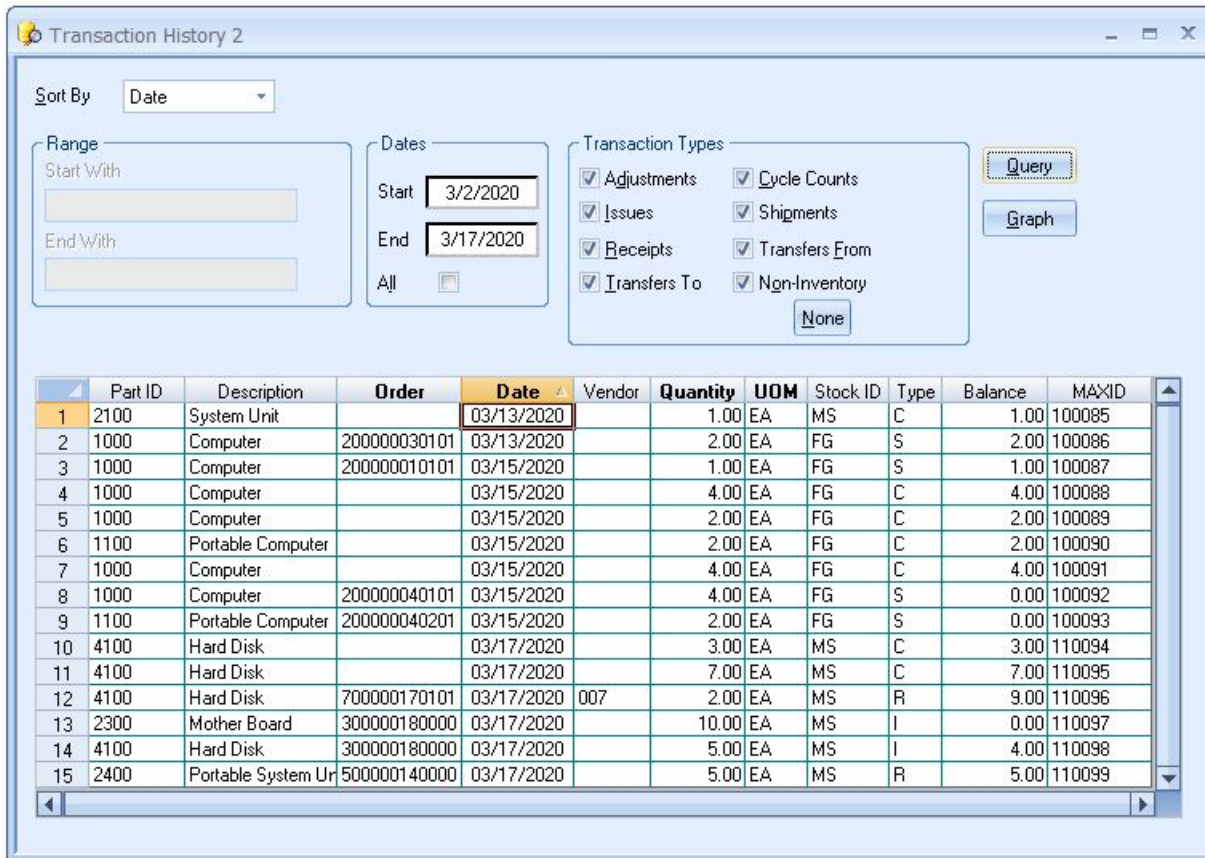


Figure 39. Easily and accurately troubleshoot part balances through transaction detail.

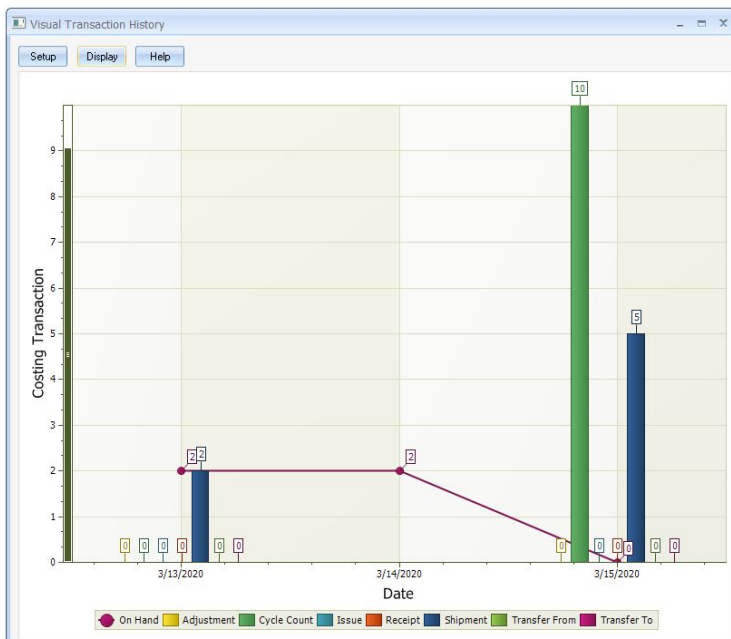


Figure 40. Transaction History Inquiry — Adds RPM Part Receipt or RPM Part Issue flags in the reference field to identify these repetitive transaction types for auditing and control purposes.

Materials Summary

Every materials management organization shares the goal of having the right part in the right place at the right and MAX's materials area is based upon true industry fundamentals. MAX tracks your entire inventory, and with the Physical Inventory module, it simplifies very that inventory is present. All transactions, regardless of if lot or serial tracking is used, have been designed to process individual or as groups (i.e., receive the entire PO from a pick list). Purchasing management is streamlined using the Purchasing schedule and the Repetitive manufacturing module helps process production completions where shop orders are not required. These features lower the overhead associated with operating MAX and using it to run your business.

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Finance

See the dollar and cent impact from your operations in both MAX and your integrated accounting system. Accounting includes both product costing and operational accounting (i.e., debits and credits behind all transactions). The product costing process is part of Engineering, including routings. Multiple costs sets are supported, thus different views of the same inventory may be made.

On the operational side, leaders/managers of these areas must know the T-account flow for the operational transactions in their area, and more importantly, what action drives them. MAX follows the standard cost accounting model for discrete manufacturers.

Finance

- Financial Integration
- Consolidated Invoice
- Multiple Currency
- Product Costing
- Multiple Cost Sets
- Job Costing
- Stock Revaluation

- Accurately cost your products
- Run Variance Analysis
- Practice single point of entry for:
 - Sales - accounts receivable – cash collection
 - Purchase - accounts payable – payment flows
- Convert operational transactions into general ledger transactions.
- Report inventory asset values:
 - Stockroom inventory
 - WIP inventory
 - Material at supplier inventory
- Execute Quick Journal Entry
- Multiple currency also exists for those that transact across international borders and currencies.



Financial Integration

Regardless of the size of your company MAX can be electronically integrated to your accounting system reducing your overhead and saving you time and money.

- Sales Order Processing to Accounts Receivable
- Purchasing to Accounts Payable
- Costing module (inventory & shop floor transactions) to General Ledger.

Two Electronic Integrations

Microsoft Great Plains Dynamics

For decades, Microsoft Great Plains (MGP) Dynamics has been the recommended choice for MAX manufacturing organizations with annual sales volume over \$5M in sales. The MAX/Dynamics Financial Integration Module maps the necessary general accounts and then makes sure that all MAX side activity hits those accounts.

Intuit QuickBooks Enterprise

More recently, an electronic integration Intuit QuickBooks Enterprise has been added for those smaller organizations that appreciate the need for electronic integration but are not quite ready for MGP yet. The

MAX/QuickBooks Financial Integration module controls the mapping and flow of MAX accounting into your QuickBooks General Ledger, A/R and A/P modules.

Compare Supplier Invoices to PO's and Receipt Records

Match vendor invoices with purchase order and receipt information to create payable vouchers.

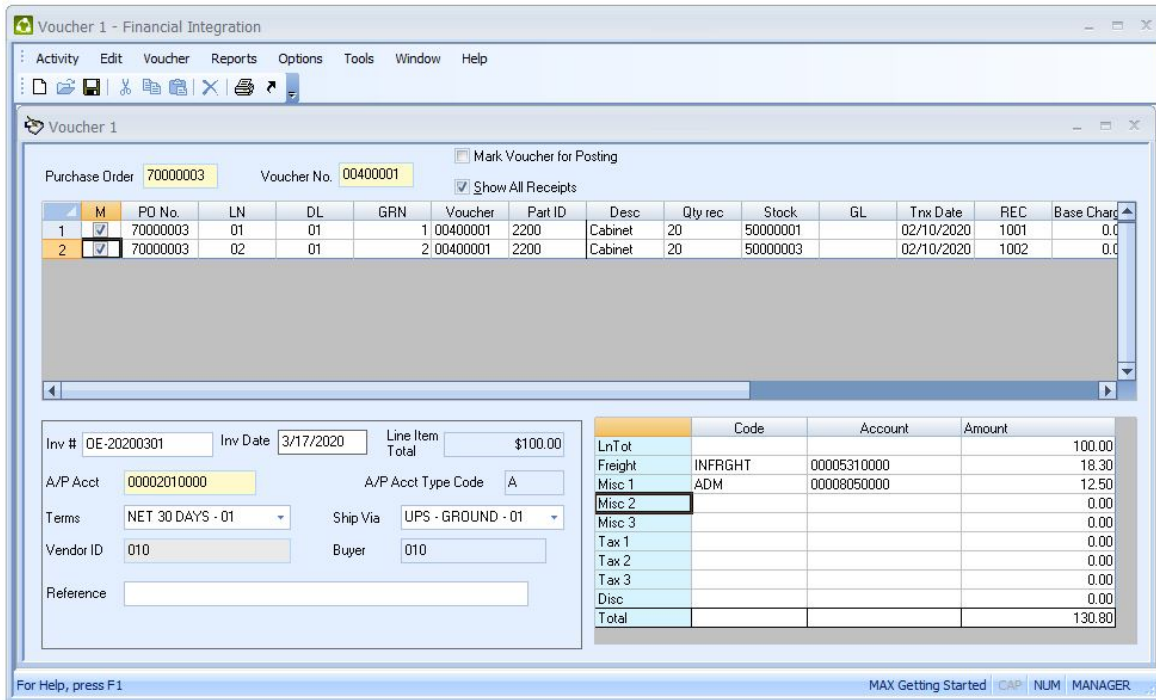


Figure 1. Easy-to-use Vouchering System Helps You Match Vendor Invoices with Purchase Order and Receipt Information so You Can Process A/P Invoices more quickly.

Post Sales Orders, Vouchers, and General Ledger Transactions to Accounting

Either integration will allow you to:

- Automatically post accounts receivable, accounts payable using real-time integration without double entry.
- Run the From/To Charge report to provide detailed or summarized inventory and shop transactions for a user-specified accounting period required to post to General Ledger accounts.
- Eliminate surprises by generating Audit Reports which provide detailed information about data sent to the accounting system.

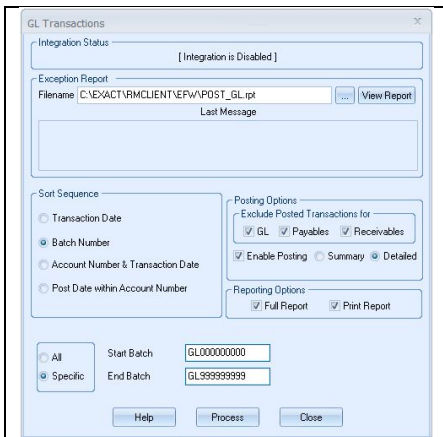


Figure 2. Post all unposted batches so they can be moved to the general ledger

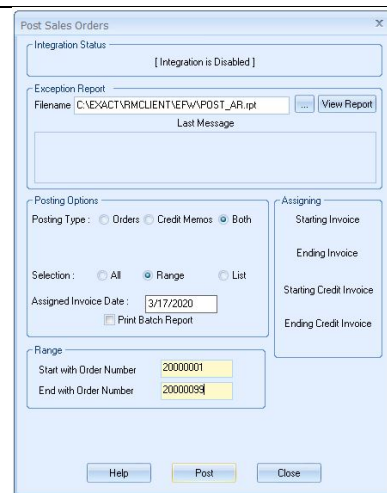


Figure 3. Quickly post sales orders to receivables management prior to printing invoices

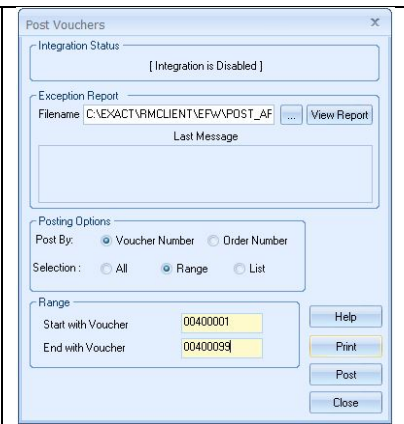


Figure 4. Send approved vouchers to payables management so suppliers can be paid

Make General Ledger Adjustments

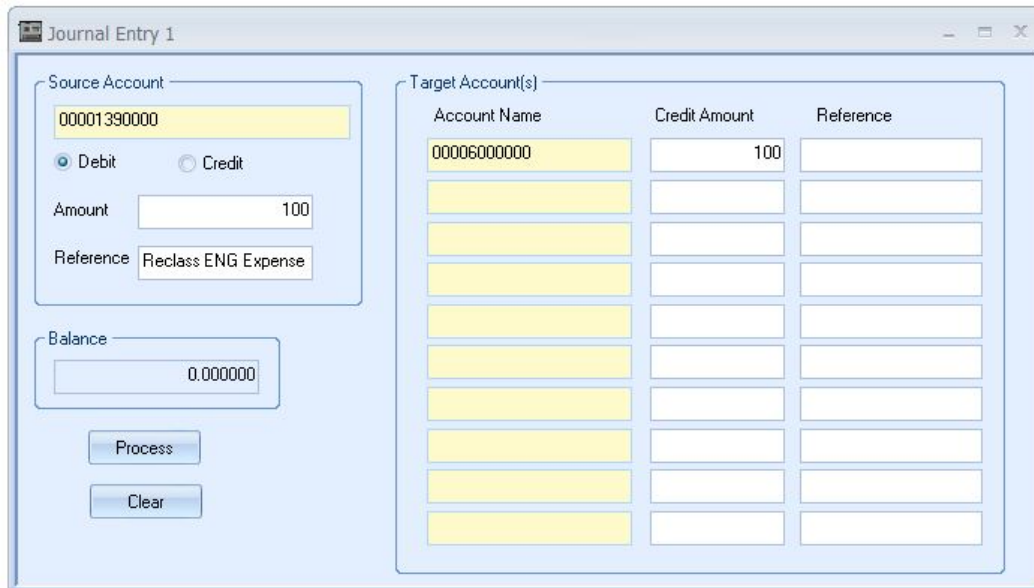


Figure 5. Make adjusting entries from MAX.

MAX Journal Entry allows:

- Double entry adjustment transactions to be entered.
- Writes directly to Work General Ledger accounting interface table.
- Posted with next MAX G/L batch

Report Inventory Value

- Inventory value can be reviewed at any time by running:
 - Stock Cost or Inventory Value Reports – Determine the value of your stockroom inventory by material, material overhead, and labor, labor overhead and subcontract cost elements to ensure proper inventory management.

- End-Of-Period Work-In-Progress (WIP) report that calculates the value of inventory currently on the shop floor (issues minus receipts and scrap).

Consolidated Invoice

When high volumes of shipments are made to the same customer, those shipments may be consolidated and billed on a single invoice, even if they span multiple customer orders. Invoices, however, must be compatible (i.e., all orders in the batch must have the same Currency Code, Terms Code, General Ledger Accounts, and Exchange Rates).

Consolidating invoices provides the following benefits:

- Simplifies communication with customers on invoices and payments.
- Reduces administrative work because the number of invoices and payments will be reduced.
- In some cases, generates direct cost savings because of customs fees or taxes that are applied per invoice document.

Multiple Currency

With the enlarging of supply chains, some of which extend to beyond international borders, the ability to move from one foreign currency to another is required. The MAX Multiple Currency option opens that ability for both sales (i.e., outward to customers) and purchasing (i.e., outward to suppliers).

Multiple Currency allows for:

- Establishing a base domestic currency.
- Assign foreign currency to channel partners (i.e., customers and suppliers.).
- Allow for adjusting exchange rates between base and foreign currencies.
- Changes currency on printed sales and purchase orders to that assigned to channel partners.
- Calculates gains and losses on exchange rate fluctuations.

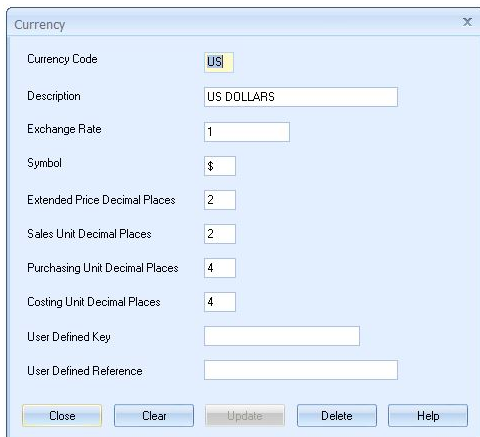


Figure 6. Set-up operating and foreign currencies.

Product Costing

Every part in the system requires a standard cost made up of material, material overhead, labor, labor overhead and subcontract cost elements, where required. This cost is used in cash flow projections, asset valuation (stockroom and WIP inventory) and all transactions generated. As a standard cost system, variance analysis is critically important to understanding market conditions and controlling operations.

Standard Cost Reports — Know the Cost of Everything

- Print (or inquiry) part cost data for cost details.
- Print a Costed BOM to review cost data for manufactured parts.
- Print a Costed Order BOM which displays cost data for specific order(s).

Costing enables you to track cost variances for all cost elements by multiple factors (i.e., part, order number, or by work center) depending on the type of part. Begin controlling your company's costs and performance today by knowing exactly how much cost every order, part and operation consumes.

The screenshot shows the 'Part Master' window with the 'Accounting' tab selected. The 'Part ID' is 1000 and the description is 'Computer'. The 'Cost per Unit' is 1548.67233186. The 'Labor Cost' is 11, 'Material Cost' is 1515.67233186, and 'Subcontractor Cost' is 0. The 'Cumulative Labor' is 58.22222222, 'Cumulative Material' is 1201.36878655, 'Cumulative VOH' is 116.44444444, and 'Cumulative FOH' is 120.13687865. The 'Cost Date' is 4/27/2019, 'Labor Burden %' is 200, 'Mat Burden %' is 0, 'Labor Burden \$' is 22, and 'Mat Burden \$' is 0. The 'Yield \$' is 0. The 'Cost Type' is 'A - Automatic' and the 'BOM UOM' is 'EA'. The 'Acct. Type' is 'A' and the 'Yield' is 100. The 'Labor Hrs/Unit' is 1.1, 'Cum Labor Hrs' is 5.8222, and 'Cum Sub Cost' is 52.5. The 'Material X & Y' is 0 and 'Cost Conversion' is 1. The window has buttons for 'Close', 'Clear', 'Update', 'Delete', and 'Help'.

Part ID	1000	Cost per Unit	1548.67233186
Desc	Computer	Labor Cost	11
BOM UOM	EA	Material Cost	1515.67233186
Acct. Type	A	Subcontractor Cost	0
Cost UOM	EA	Cumulative Labor	58.22222222
Yield	100	Cumulative Material	1201.36878655
Cost Type	A - Automatic	Cumulative VOH	116.44444444
Cost Date	4/27/2019	Cumulative FOH	120.13687865
Labor Burden %	200	Material X & Y	0
Labor Hrs/Unit	1.1	Cum Labor Hrs	5.8222
Mat Burden %	0	Labor Burden \$	22
Cum Labor Hrs	5.8222	Mat Burden \$	0
Cum Sub Cost	52.5	Yield \$	0
		Cost Conversion	1

Figure 7. Maintain All Cost Data Including Material, Subcontract, Labor and Overhead

Track Cost Variances — Compare standard costs to actual costs

- Maintain separate units of measure for stocking and costing.
- Automatically calculate standard costs for each part using implode or explode logic.
- Compare actual material usage to planned usage.
- Compare actual labor costs to planned costs by order or work center.
- Examine cost variances at order close.
- Use variance analysis to update standard cost data.

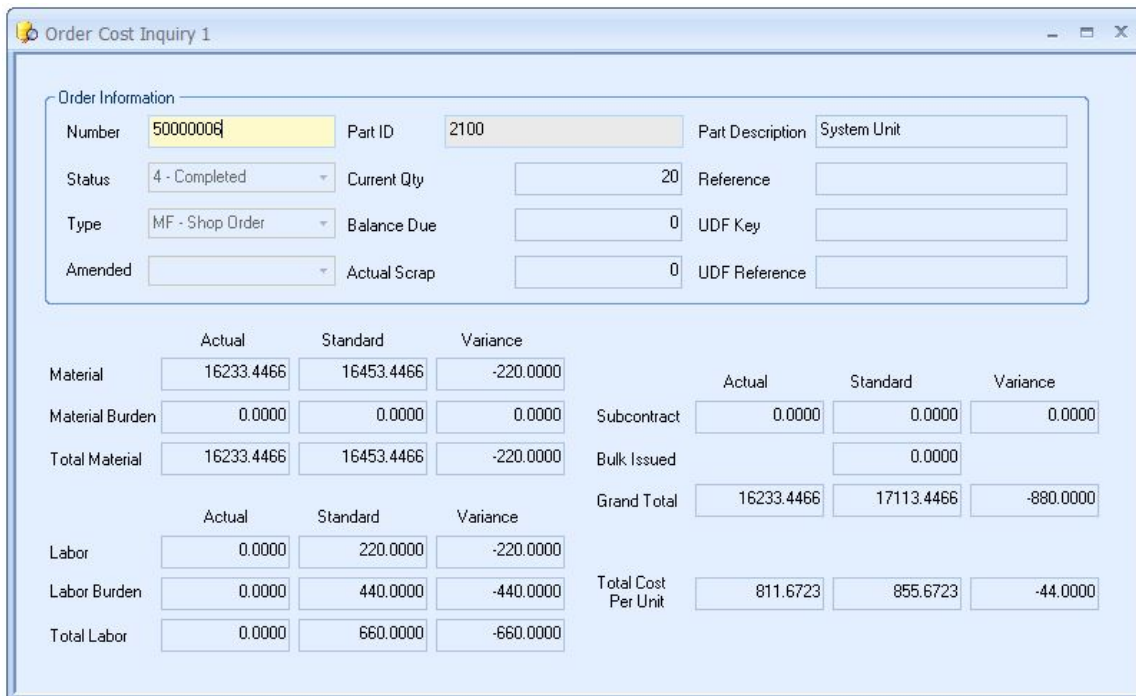


Figure 8. Accumulate an Order's Cost and Compare Differences between Planned Material, Labor and Subcontract Costs against Actual

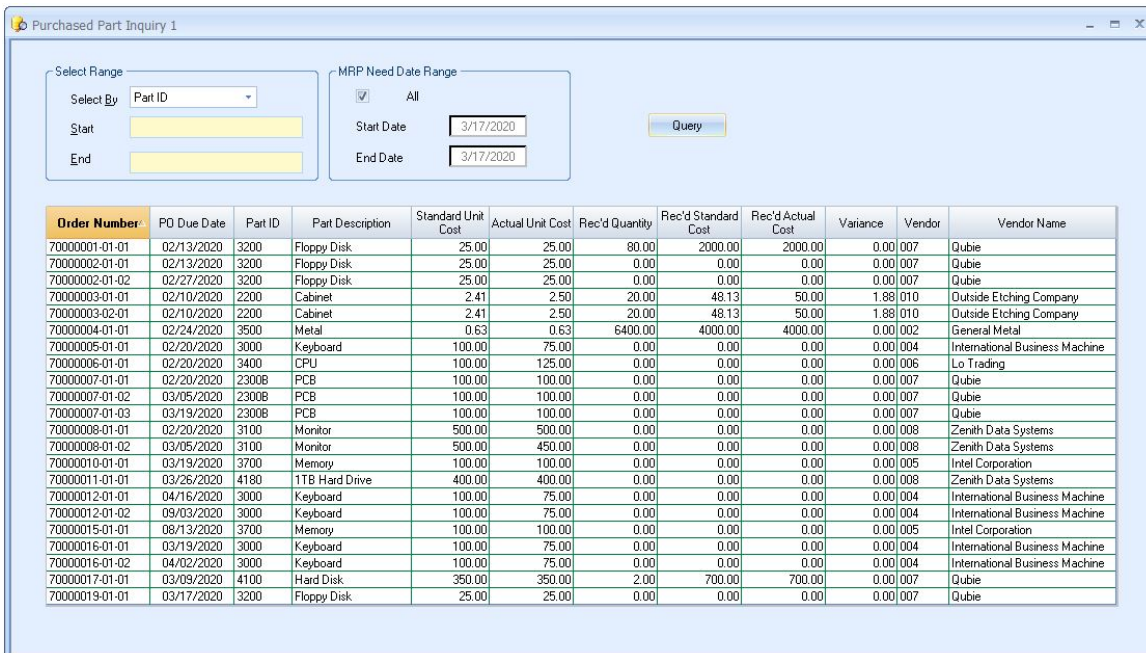


Figure 9. Compare Standard and Actual Costs of Purchased Parts

Multiple Cost Sets

The MAX Multiple Cost Set option allows for multiple sets of costs to be stored in the MAX database for operational use (i.e., tracking standard, average and/or last in costs), historical use (i.e., saving period end costs) and cost modeling (i.e., model a 5% purchased cost price increase, set next year's standard cost, etc.).

Cost Set	Cost Date	Unit Cost	Material Cost	Material Burden %	Labor Cost	Labor Burden %	Hours	Yield %	Sub Cost	Material/XY	Cum. Material	Cum. Material Burden	Cum. Labor	Cum. Labor Burden	Cum. Hrs	Cum. Sub	Material Burden \$	Labor Burden
00 - Part Master	03/07/2016	385.0000	350.0000	10.0000	0.0000	0.0000	0.0000	100	0.0000	0.0000	350.0000	35.0000	0.0000	0.0000	0.0000	0.0000	35.0000	0.00
01 - Part Master Standard at v5.5.3 Upgrade	03/07/2016	385.0000	350.0000	10.0000	0.0000	0.0000	0.0000	100	0.0000	0.0000	350.0000	35.0000	0.0000	0.0000	0.0000	0.0000	35.0000	0.00
AV - Average Cost	03/17/2020	385.0000	350.0000	10.0000	0.0000	0.0000	0.0000	100	0.0000	0.0000	350.0000	35.0000	0.0000	0.0000	0.0000	0.0000	35.0000	0.00
LP - Last Purchase Price	03/17/2020	385.0000	350.0000	10.0000	0.0000	0.0000	0.0000	100	0.0000	0.0000	350.0000	35.0000	0.0000	0.0000	0.0000	0.0000	35.0000	0.00

Figure 10. Multiple Costs allow multiple cost sets for tracking cost fluctuation, for modeling future cost situations and for historical purposes.

- Use a cost set to track the average cost of purchased material as parts are received.
- Use a cost set to track the last in cost of purchased material as parts are received.
- Create user definable cost sets for any management purpose.
- Set work center labor rates to be used in cost modeling (in anticipation of labor rate changes).
- Perform cost set roll-ups to calculate the new cost of manufactured items.
- Copy to a cost set from the Part Master to a cost set from another cost set, or to the Part Master from cost set.
- Run internal reports using cost set costs (i.e., what is current inventory when valued at next year's standard?).
- Compare any two cost sets using Crystal Reports.
- Clear cost sets when they are no longer required.

Job Costing

In manufacturing, a job can be a single shop order or a series of shop orders that comprise one product shipped to a customer. Every MAX Master Scheduled, or Shop Order is costed so that planned and actual data can be evaluated. This data can be reviewed on the Total Order Cost report.

Total Order Cost Report												
Order Number Range 30000000 to 79999999; any Date; Status 4; by Order Number												
Order Number 50000001			Order Type: MF - Manufactured Order			Standard Cost						
PartID: 2200			Order Status: 4 - Complete			Order		Unit				
Description: Cabinet			Order Qty: 20.00			Material:	48.13	2.4063				
Commodity Code: Mech			Balance Due: 0.00			Material OH:	0.00	0.0000				
Part Type: A - Normal MRP Manufactured Part			Excess Receipt Qty: 0.00			Labor:	480.00	24.0000				
Cost UOM: EA Cost Conv: 1.00			Actual Scrap Qty: 0.00			Labor OH:	960.00	48.0000				
Reference:			Complete Qty: 20.00			Material XY:	0.00	0.0000				
UDF Key:			Due Date: 1/30/2020			Subcontract:	50.00	2.5000				
UDF Reference:			Amended Order: N - No			Totals:		1,538.13	76.9063			
Rework: N												
Planned Materials												
Component	Description	Part Type	UOM	Cost/Unit	Plan Qty	Scrap Qty	Issue Qty	Plan Cost	Actual Cost	Variance		
3500	Metal	D	SF	0.6875	70.00	0.00	70.00	48.13	48.13	0.00		
Totals:									48.13	0.00		
Planned Labor												
Op Seq	Operation Description	Wrkcntr	Workcenter Description	Hours		Labor		Overhead		Variance		
				Planned	Actual	Planned	Actual	Planned	Actual	Labor	Overhead	
0010	Cut	CUT	Cut	3.00	3.00	30.00	30.00	60.00	60.00	0.00	0.00	
0020	Bend	BEND	Bend	3.00	3.00	30.00	30.00	60.00	60.00	0.00	0.00	
0030	Outside Vendor Shop	OVS	Outside Vendor Shop	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0040	Paint	PAINT	Paint	2.00	2.00	20.00	20.00	40.00	40.00	0.00	0.00	
0050	Inspect	QA	Test	2.00	11.00	20.00	110.00	40.00	220.00	90.00	180.00	
Totals:				19.00	19.00	190.00	190.00	380.00	380.00	0.00	0.00	
Sub Totals												
		Standard	Actual	Variance								
	Material:	48.13	48.13	0.00								
	Material Overhead:	0.00	0.00	0.00								
	Labor:	480.00	190.00	-290.00								
	Labor Overhead:	960.00	380.00	-580.00								
	Subcontract:	50.00	50.00	0.00								
	Total Order:	1,538.13	668.13	-870.00								

Figure 11. Total Order Cost reports show the costing details of each job/shop order.

- Total order cost report shows:
 - The planned and actual values for all cost elements (material, material overhead, labor, labor overhead and subcontract cost).
 - The variances for each of the cost elements.
- A custom order cost report can be used to pull the data from a series of related master scheduled and/or shop orders.

Stock Revaluation

Stock Revaluation is a background operation tracks the differences in inventory value for parts in inventory that experience cost change. Any cost change that is made will now generate an inventory transaction that captures the change in inventory based upon the quantity on hand and the amount of the cost change. This transaction is written to the Transaction History table, which is subsequently used by the From to Charge report. When the From to Charge report is then run, reviewed, and posted to the integrated accounting system, those transactions are sent with the others for the period.

- Uses a new default account to track revaluation activity.
- Revaluation activity can also be tracked for: Material cost, material overhead cost, labor cost, labor overhead cost, subcontract cost and yield cost.
- As a SQL database trigger, it will generate the transaction for any cost change from within MAX or from an external application including SQL scripts, the Extract, Transform and Load (ETL) module or through the MAX Update Dynamic Link Library (DLL).
- Revaluation transactions are coded with the reason and a description of that reason for auditing purposes.

Inventory Transaction History Sorted By Part Identifier												Page 1
Part Identifier Range From Begin to End, Date Range From 3/2/2020 to 3/17/2020												
Part Identifier	Description	Order Number	Vendor ID	Trx. Date	Trx. Time	Quantity	UM	Stock ID	T	Reference	GL	
3500	Metal			3/17/2020	15:11:57	281.50	SF	MS	E	INVENTORY		
3500	Metal	500000010000		3/17/2020	15:11:57	70.00	SF		E	SHOP ISSUE		
3500	Metal	500000030000		3/17/2020	15:11:57	70.00	SF		E	SHOP ISSUE		
3500	Metal	500000070000		3/17/2020	15:11:57	70.00	SF		E	SHOP ISSUE		
3500	Metal	500000090000		3/17/2020	15:11:57	38.50	SF		E	SHOP ISSUE		
3600	24V Power Supply			3/17/2020	15:11:32	50.00	EA	MS	E	INVENTORY		
3600	24V Power Supply	500000040000		3/17/2020	15:11:32	20.00	EA		E	SHOP ISSUE		
3600	24V Power Supply	500000060000		3/17/2020	15:11:32	20.00	EA		E	SHOP ISSUE		

Figure 12. Stock revaluation transactions keep MAX and integrated accounting systems in balance.

Finance Summary

The MAX Costing and Financial Integration modules take care of the “accounting” side of the system. Product costing establishes the standard cost for every part in the system, which is then used to track performance against that standard. All transactions generated are also costed using these same costs and the results posted to the integrated accounting system. In addition, three vertical flows of data move from MAX to accounting: Sales Order Processing to A/R, Purchasing to A/P and all other inventory type transactions to G/L.

Information Technology

Information Technology includes the infrastructure (i.e., On-premises or Hosted) to runs the ERP application. System security, system configuration and system administration, including archiving data, are all found here. This area could have been called System Administration.

On-premises or Hosted

MAX was originally designed to be a client-server on premise system but can now be configured to run in a hosted solution. The hosted solution allows for those organizations with high performing Internet services to take advantage of lower IT support costs.

MAX System Manager

When you login to the MAX Enterprise Resource Planning (ERP) application, it provides a login screen just as most respectable enterprise level applications do. If the user successfully enters the security credentials, the system allows access, and the System Manager starts. The System Manager is the “portal” into the application, which is organized first by tabs, where most are equivalent to the sections in this document, and then into modules. User documentation accompanies each of the modules.

While every user uses the System Manger to access MAX, the module functions are primarily related to Information Technology users.

Information Technology

- On-premises or Hosted
- MAX System Manager
- User Designed Fields
- Transaction Security
- Extract Transform & Load
- Archive Manager
- MAXAnywhere
- MAXUpdate

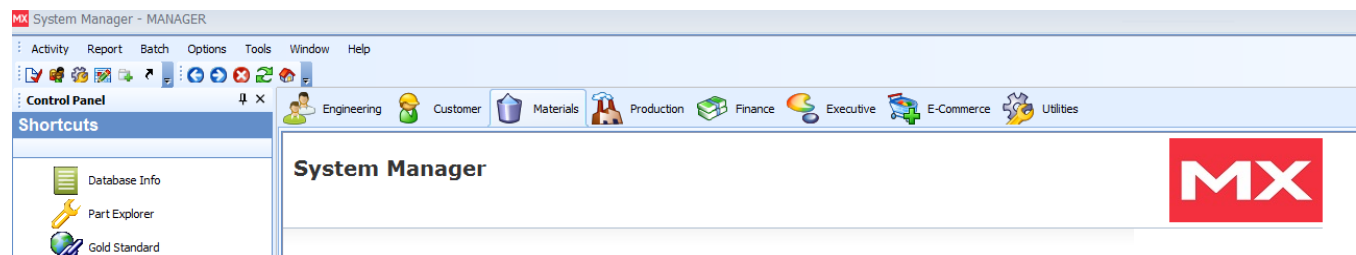


Figure 1. MAX System Manager contains HTML web pages for user navigation, plus system administration ad configuration functions.

Features of the System Manager include:

- Choose to authenticate through Windows or use MAX’s authentication.
- Maintain user security for all MAX users.
- Maintain manager security for manager series products (i.e., ECO Manager).
- Allows for User Personalization (i.e., fonts, colors, etc.).
- Company maintenance (creating new, attaching companies, etc.).
- System Configuration – Setting system level switches effecting MAX operation.
- Maintenance of the Shop Calendar, Tool’s menu, and Web tabs.
- Other maintenance functions:
 - Requirements status update.
 - Requirements and job audit.

- Order delivery mass change for dates and status codes.
- Purge part stock table.
- Reset cycle count and MTD/YTD counters.
- User designed fields and user designed forms.
- Calls other IT related modules such as ETL and Archive Manager.

User Designed Fields

User Designed Fields allows the MAX user to create additional screens, determine what fields are to be on those screens, determine what those fields are called and store more local data. This allows the addition of local “custom” fields to be entered through the normal MAX interface and be available for internal report.

- Creates extended tables containing custom fields for many 14 MAX tables.
- Allows for the use of 7 data types (i.e., Boolean, Date, Integer, Text, etc.).
- Creates additional tab or button for MAX tables.
 - Tab or button name is user definable.
 - Field position on new screen is user definable.
- Users can also now specify the labels that appear on MAX screens for many of the UDF Key and UDF Reference fields.

Table	Customer_Master	Tab/Button Label	More Info	Group Label	UDF Key Label	UDF Ref Label			
Label	Field Name	Data Type	Browser	Length	Default Value	Data Range	List Separator	Selection List	Screen Location
Market Sector	Market_Sector	ComboBox		50			:	Medical;Agriculture;Consumer_Products	1
*									

Figure 2. User Designed fields allows for local data to be collected and used within MAX.

Figure 3. Market sector added to Customer Master Table

Transaction Security

Where MAX System Manager security will determine if a given user can perform inventory transactions, this functionality allows you to control the locations of those transactions by physical area (i.e., stockroom) and by specific parts (i.e., parts used in a given area). For example, a user that works in the service parts department may only be allowed to perform a cycle count transaction in that stockroom area. You may also have a distribution warehouse where those personnel can transact based upon that location, but not within other MAX stockrooms.

Features of transaction security include:

- Produces a “sub-set” of security for “W” and “S” rights for inventory control and shop floor execution transactions.
- Allows rules to control if a particular user can perform transactions, or not, based upon the Part Identifier, Stockroom or both part and stockroom.
- Allows for security profiles to be copied to users from users.
- Select specific criteria or ranges.
- Allows the use of wildcards for parts and/or stockrooms.

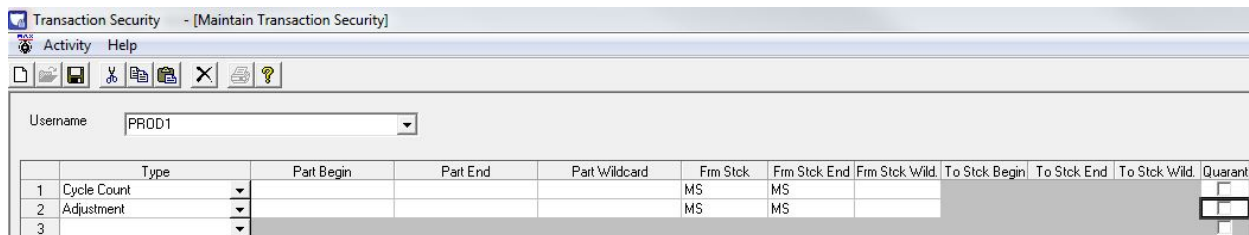


Figure 4. Specify parts and/or stockrooms to allow processing.

Extract Transform & Load

Move your MAX Data with MAX ETL

The Extract Transform & Load (ETL) uses Extensible Markup Language (XML) as a format for manipulating data or passing it between MAX companies or between MAX and another application. The name of the module is the process:

- EXTRACT—download a file into XML format.
- TRANSFORM—edit a file in Excel 2003 or any other XML editor¹
- LOAD—upload a validated XML file into MAX.

The main benefit of using ETL to update MAX tables data validation. In the ETL process, data is validated as it is loaded, and the module will reject records that do not meet the standard. This makes the ETL process much safer for those that lack database knowledge.

¹Altova XMLSpy® 2016, which is the industry's best-selling XML editor for modeling, editing, transforming, and debugging XML-related technologies, is recommended.



Figure 5. Load or unload your MAX Business Objects with the click of a button.

With MAX ETL, you can...

- Load/Unload individual or multiple MAX Business Objects (i.e., tables)
- Reap the benefits of XML tagged files.
- Structured data
- Published Validation Standards
- More structured (safer) than working in SQL database directly.

Top Twelve Things You Can Do with MAX ETL That DOS Loads/Unloads Did Not Do

1. Simplify MAX Data Clean-Up
2. Access All fields in your MAX Data.
3. Automatically Perform Batch Data Loads in the proper order
4. Setup Batch Data Loads and Unloads, then run Load/Unload Data after hours
5. Leverage the advantages of .NET technology.
6. Automatically Identify Data Errors & Omissions with the Load Function
7. Set User Security for Data Loads/Unloads using a Single Key.
8. Load/Unload only Data (no filler) from and to the MAX Database
9. Use XML tags to identify each data field.
10. Access the UDF and Key fields in each MAX data file.
11. Automatically route ETL activity to the System Admin via email
12. Program ETL XML using .NET with purchase of MAXUpdate.

Archive Manager

Keep older data where it should be...in the annals of history!

Effectively capturing and maintaining data is a cornerstone of a successful business. But databases are not limitless in their capabilities, and the simple accumulation of data can eventually turn this valuable company asset into a quagmire of liability. Although with the right tools, even data quagmires can be managed easily. If your MAX system is slowing under the weight of old records, consider rejuvenating it with the MAX Archive Manager.

Archiving your data is a useful strategy for keeping your MAX database performing at peak levels. Data files that grow too large can hinder the ability of your server to efficiently search and retrieve the work records that you need to keep the day going. And by archiving your data (rather than just purging) you can keep many years' worth of valuable data available for real time lookup.

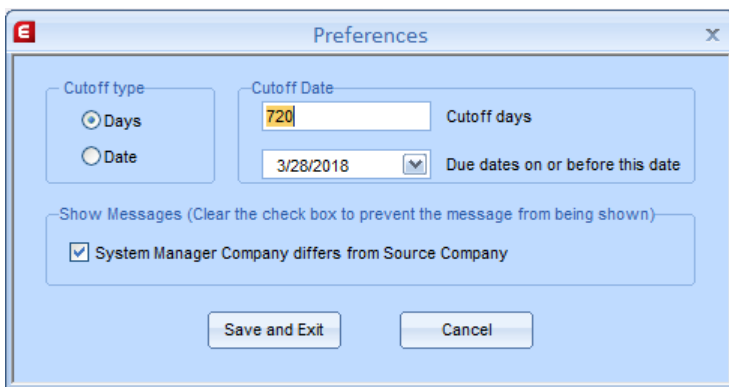


Figure 6. Specify the cutoff period in days or specify a date.

With Archive Manager, you can...

- Increase MAX system performance.
- Enjoy quicker search capabilities and more efficient retrieval of records without giving up important historical data.
- Archive Sales Orders, Transaction History, and Work GL
- Look up archived data using standard MAX modules.
- Run multi-period reports with live and archived data.
- Purge data not requiring to be archived.

Archive Sales Orders, Shop Orders, and Purchase Orders

Archive Manager contains three routines referred to as order centric data. These three routines correspond to the three largest MAX order types: sales orders, shop orders and purchase orders. These functions will purge all the dynamic data files related to the data. For example:

- Sales orders – SO Master, Detail, Notes, Requirements Detail. Ship history, RMA detail, Invoice Master, and detail, etc. These tables are listed on the screen.
- Shop orders – Order Master, Job Progress, Requirements Detail and Transaction History are used, as are Employee Work and Time Ticket data.
- Purchase orders – Order Master, PO Code, PO Notes, PO Receipts, Transaction History, etc.

Basically, as an order is found within the archive criterion, every dynamic data table associated with that order is also processed.

Sales Orders

BACK UP YOUR FILES BEFORE RUNNING THIS PROGRAM

Order Type

- Sales Order
- Credit Memo
- Consignment
- Quote

Range Option

- All Orders
- Order Number
- Customer ID
- Part ID

Option

- Archive
- Copy
- Purge

Cutoff Date Option

- Line item due date
- Last shipment date
- Last Invoice date

Cutoff Date

Cutoff days:

Due Dates on or before this date:

Archive Progress

Progress

Start time End time

Figure 7. Archive Sales Orders, Consignment Orders, Credit Memos and Quotes

Shop Orders

BACK UP YOUR FILES BEFORE RUNNING THIS PROGRAM

Order Type

- MF & MS
- MS - 30000000
- MF - 50000000

Range Option

- All Orders
- Order Number
- Part ID

Include Status 4 Orders

Option

- Archive
- Copy
- Purge

Cutoff Date Option

- Due date
- Last TNX date

Cutoff Date

Cutoff days:

Due dates on or before this date:

Archive Progress

Progress

Start time End time

Figure 8. Archive Shop Orders

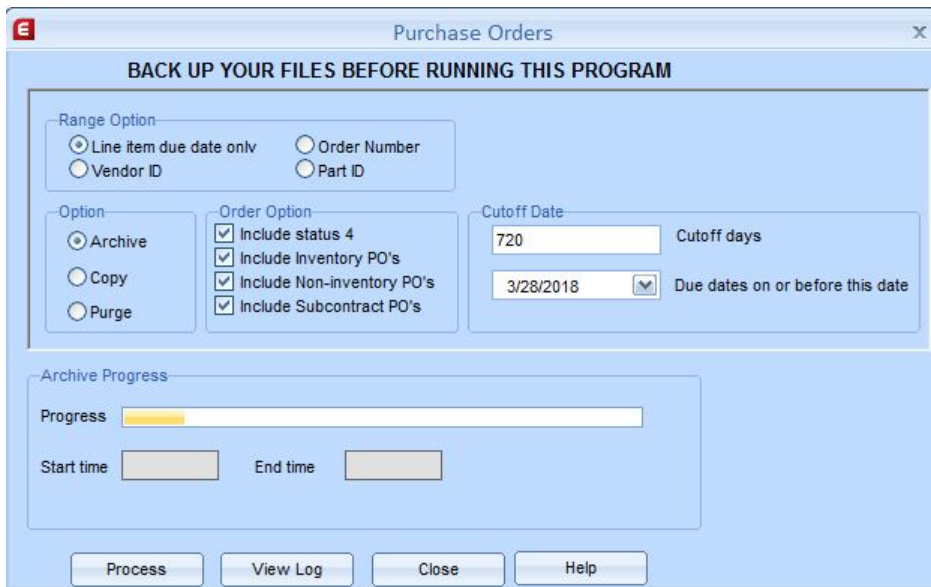


Figure 9. Archive purchase orders - define specific characteristics for each archive.

MAX Archive Manager Highlights

- No longer choose between system processing performance and valuable historical data. Archive Manager allows all historical data to be retained online without sacrificing performance.
- Look up historical data using standard MAX applications and include both live and historical data in custom reports.
- Order histories can be archived with one process keeping record sets together in either the live or archive data sets.
- Transaction specific archiving allows you to choose which transaction type(s) to archive, including unplanned transactions and transactions not related to orders.
- Re-archive feature ensures that no data is lost in case of system or power failure during the archive process.
- Archived history reports are generated and saved with each archive process. These are easily accessed anytime via the reports window in the Archive Manager.
- Reports are included to check specific data conditions before archiving to ensure best results.

The MAX Archive Manager can be the utility to help resolve your data quagmire.

MAXAnywhere

MAX Anywhere is a web-based application built in HTML5 and .NET. It is NOT resident on mobile devices; but rather is a browser-based application which is intended to be hosted on a web server (IIS) and accessible via web browsers and mobile browsers by the employees/users on their laptops, desktops, smart phones, and tablets.

We refer to individual MAX Anywhere activities, inquiries, or transactions as Functional Items. Each Functional Item (activity, inquiry, or transaction) is represented by an Icon or List Item depending on the Menu View chosen. Some functional items can also be accessed through buttons on the screens of other functional items – for example accessing the RMA Receipt screen from the RMA Order screen.

Features include:

- Fifty-five functional Items organized in three modules: Sales, Materials, and Shop Floor.
- Enable at the MAX Company level.
- User security controlled.
- Users MAX System Manager – System Configuration settings.
- Accessed via a web browser from within or external to the firewall.
- Devices may use Bluetooth Bar Code scanners.
- Reports may be emailed.

Use MAXAnywhere to deploy MAX remotely and wirelessly throughout your organization.

MAXUpdate

MAXUpdate is a programmer's reference to the Windows Dynamic Link Libraries (DLLs) that contain the low-level code for the MAX Manufacturing Software package. This Application Programmer's Interface (API) package should allow an experienced programmer to build custom interfaces that interact with MAX function code without having to worry about how to update the MAX database.

MAXUpdate was developed to extend the foundation built by the MAX for Windows modules. At present, MAXUpdate supports Sales Order, Purchase Order and Shop Order Entry as well as Shipping, Purchasing, Inventory and Shop Floor Control transaction functions.

MAXUpdate provides the experienced programmer with tools and an example method with which to program applications that "talk to" the MAX database. Generally professional work experience in .NET software development is recommended before considering working at this level.

Information Technology Summary

The MAX System Manager is the first screen every user sees when they log into MAX, but also contains basic functionality for system administration and configuration used by the Information Technology (IT) department.

Data & Reporting

The Data & Reporting area is concerned with supporting users with data and information required to manage the ERP database and effectively operate the business. There is a great deal of Standard Reporting throughout all the areas and much of that reporting may be customized if needed.

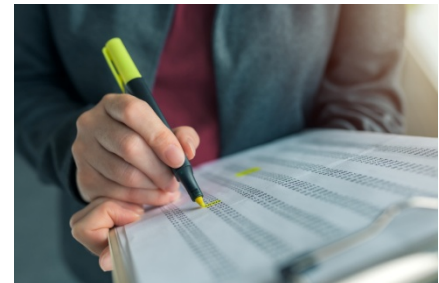
To successfully create custom reports, you must first understand the underlying data structure of the system.

Data & Reporting

- Standard Reporting
- Custom Reporting
 - Crystal Reports
 - Excel Analytics
 - SQL Server Reporting Services
- Alerts & Automation - KSAA

Standard Reporting

MAX reporting is based upon SAP Crystal Reports Writer, the leading third-party report writer for Small to Mid-sized Enterprises (SME). This means that the internal reports may easily be modified for local conditions, as well as external reports easily developed. MAX ships with over 250 internal reports and forms.



Custom Reporting

There are many options available for custom reporting. The “big three” in the MAX ERP market include:

Crystal Report Writer

All internal reports and forms to MAX are written using SAP’s Crystal Report Writer. With a development license, these reports and forms can be modified for your local needs. Create custom reports with this powerful, easy to use application. Crystal Reports for MAX contains a wide range of built-in tools for report design and data analysis. Crystal reports are either distributed from within MAX or through local reports/shortcuts.

- Connect to MAX database through OLE DB (ADO).
- Link MAX tables as required.
- Use powerful Formula Editor to process MAX data into information.

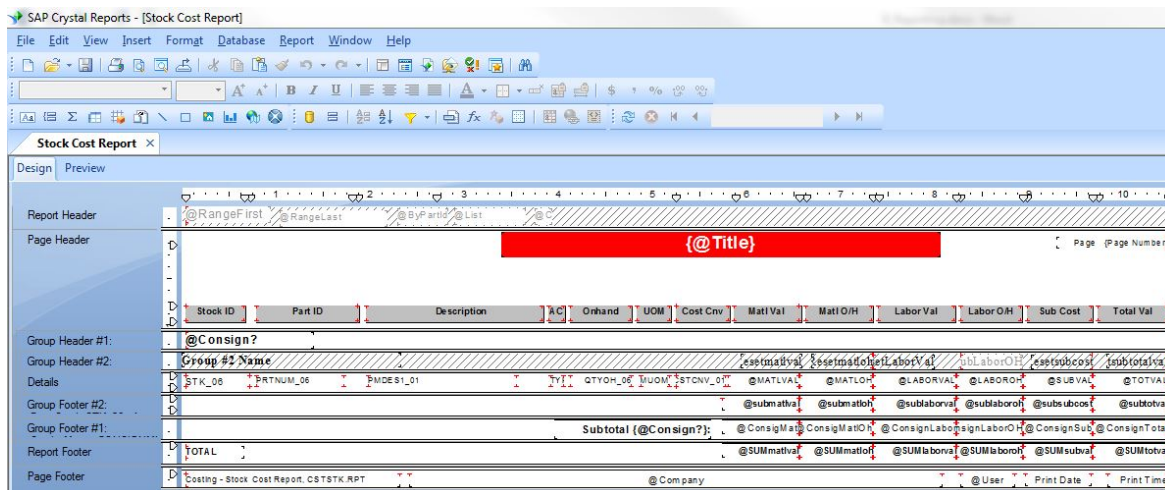


Figure 1. Customize MAX Reports using Crystal Reports Writer

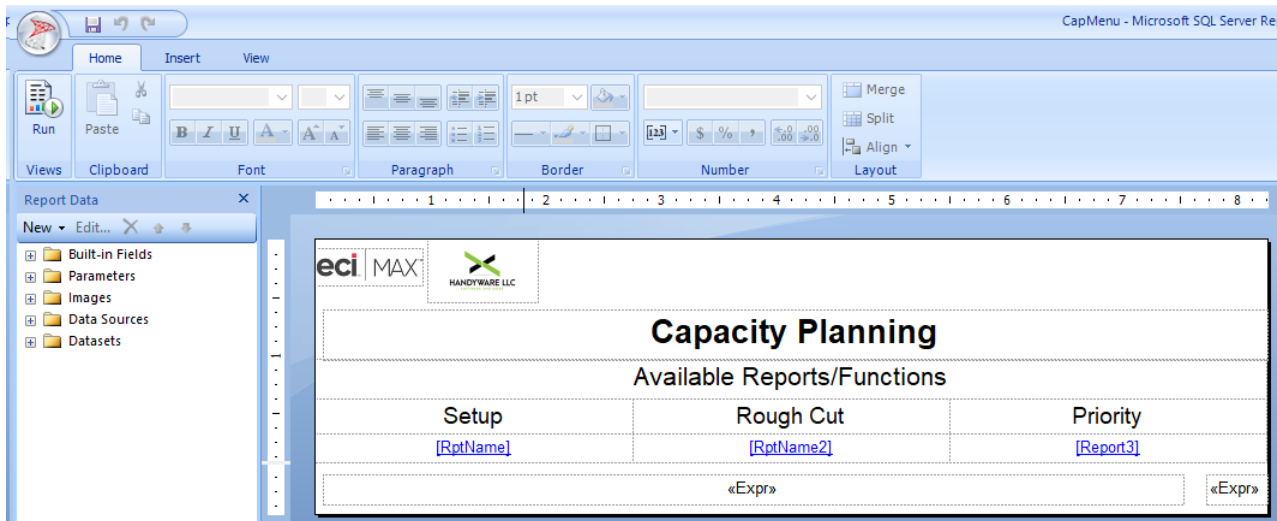


Figure 3. Use the power of SQL Server Reporting Services (SSRS) to deploy MAX reports.

Alerts & Automation – KnowledgeSync Alerts & Automation (KSAA)



Exceptions are inevitable to every business. Even the most meticulously planned and well-defined operations will have to deal with exceptions, and the successful handling of those exceptions can prevent potential costly errors from becoming actual costly errors.

ECI Software Solutions' KnowledgeSync Alerts & Automation (KSAA) application's timely recognition of exceptions and efficient, reliable warning system ensure that everyone is on the same page and that your business will not suffer because a key member of your team is working with outdated information.

Users may receive many different types of notifications (i.e., automate emailing of invoices, generate reports of late shipments, etc.) in their organizations. Events can help eliminate manual tasks and human error, provide immediate and accurate information to key personnel, generate early awareness to problems and align individual actions to priorities.

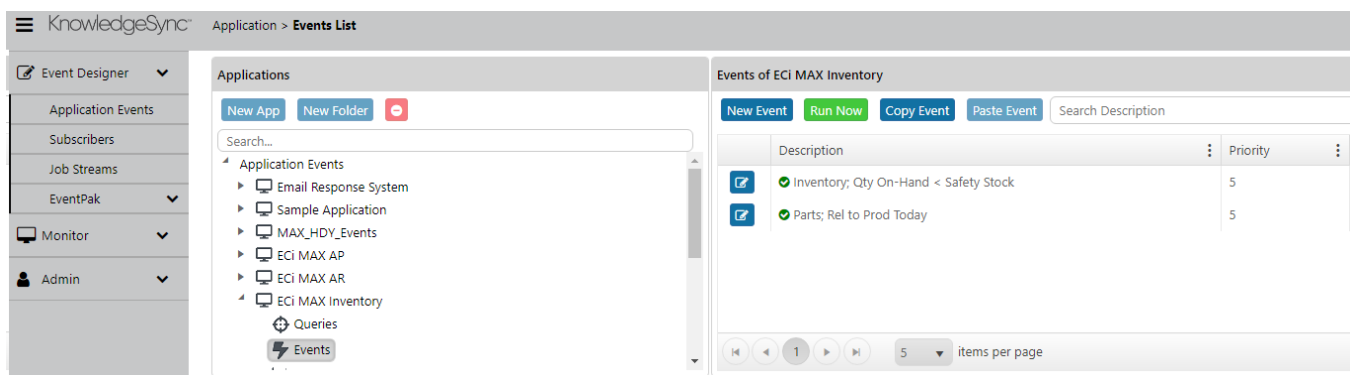


Figure 4. Use the power of SQL Server Reporting Services (SSRS) to deploy MAX reports.

Use the data in the database to work for you. Here is a sample of what you can monitor:

- Email sales order acknowledgements and invoices to customers
- Update purchase orders so they are received into Incoming Inspection.

- Alert the Finance department about any customers whose aged receivables go over 'x' dollars in the 'over 30', 'over 60' or 'over 90' day buckets.
- Send recall email to customers who bought Product 'x' with lot number 'y'.
- Increase/decrease Unit Prices in the Part Sales table by 'x'%
- Identify parts with no cost, Cost Type errors or Cost Conversion errors
- Identify purchase orders that have not been acknowledged.
- Identify customers who have not reordered in the last 'x' days.
- Automatically distribute updated product literature and price lists

KSAA will prevent costly errors by helping your company enhance its internal communications.

Reporting Summary

For decades, MAX has been known for its open database. It is your data. Whether you want to verify data it, analyze it or use it produce charts and graphs, just pick the tool of choice, and turn data into information to operate your business. Use alerts and automation to drive the correct actions throughout your organization.

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ERP Software