Work Management Using MXES

maximo®

Work Management Using MXES

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Part Number MED0143

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100 Crosby Drive, Bedford MA 01730 (781) 280-2000
http://www.mro.com

MXES Curriculum for EAM

For Training Info, Course Descriptions, and Availability, go to:

Web: http://www.mro.com/corporate/mroservices/training/
E-mail: TrainSVC@mro.com
Fax: 781.280.2201

Key

Instructor-Led Training

Virtual Classroom Training

Foundation

Course #	Course Name	Length	Delivery Options	Prerequisites
MED0138	MXES Navigation & Querying	½ day, or 3-hr virtual		None

Upgrade

Course #	Course Name	Length	Delivery Options	Prerequisites
MED0136	MXES for EAM - New Features	3 days		None (Note: for users upgrading from Maximo 5)

Implementation

Course #	Course Name	Length	Delivery Options	Prerequisites
MED0146	MXES Immersion Training for EAM	5 days		MXES Navigation & Querying
MED0155	Maintenance Best Practices Using MXES	2 days		None

End-User / Functional

Course #	Course Name	Length	Delivery Options	Prerequisites
MED0137	System Administration for MXES	3 days		MXES Navigation & Querying
MED0139	Inventory Management Using MXES	3 days		MXES Navigation & Querying
MED0143	Work Management Using MXES	3 days		MXES Navigation & Querying
MED0147	Using SQL with MXES	1 day		MXES Navigation & Querying
MED0148	Workflow Management Using MXES	5 days		MXES Immersion Training for EAM (Note: Extensive hands-on Maximo experience preferred)
MED0150	Purchasing with MXES	2 days		MXES Navigation & Querying
MED0151	Developing MXES Reports with Actuate	TBD		MXES Navigation & Querying, Using SQL with MXES
MED0154	The MXES KPI Manager (VCT)	3-hr virtual		Using SQL with MXES

Flip for Curriculum Path by Role

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Suggested Curriculum Path by Job Role

MXES for EAM

Course Name	Manager Track	Implementation Track		Developer Track			Administrator Track			End-User Track				
	Managers, Supervisors, & Directors	Maximo Implementation Team Members	Maximo Upgrade Team (from MX 5)	Maximo Developer / Maximo App Support	Report Writer	Workflow Developer	Maximo Admin	Database Admin	Report Admin	Maintenance Personnel	Inventory Personnel	Contracts Manager	Accounts Payable / Receiving Personnel	Procurement Personnel
MED0138 MXES Nav & Query (1/2 day)		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MED0136 MXES for EAM - New Features (3 days)			✓											
MED0137 System Admin for MXES (3 days)		✓		✓		✓	✓	✓						
MED0139 Inventory Mgmt Using MXES (3 days)											✓			
MED0143 Work Mgmt Using MXES (3 days)										✓				
MED0146 MXES Immersion Training for EAM (5 days)		✓	✓	✓		✓	✓	✓						
MED0147 Using SQL with MXES (1 day)					✓			✓	✓					
MED0148 Workflow Mgmt Using MXES (5 days)						✓								
MED0150 Purchasing with MXES (2 days)													✓	✓
MED0151 Dev. MXES Reports w/ Actuate					✓				✓					
MED0152 Contract Mgmt Using MXES												✓		
MED0153 Using MXES App Designer		✓	✓	✓										
MED0154 The MXES KPI Manager (3 hours)					✓				✓					
MED0155 Maintenance Best Practices Using MXES (2 days)	✓	✓	✓											

MXES Curriculum for ITSM / ITAM

Key

- *Instructor-Led Training*
- *Virtual Classroom Training*

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Web: http://www.mro.com/corporate/mroservices/training/
E-mail: TrainSVC@mro.com
Fax: 781.280.2201

Foundation

Course #	Course Name	Length	Delivery Options	Prerequisites
MED0138	MXES Navigation & Querying	½ day, or 3-hr virtual	Instructor-Led, Virtual Classroom	None
MED0140	Introduction to ITIL (VCT)	3-hr virtual	Virtual Classroom	None

Implementation

Course #	Course Name	Length	Delivery Options	Prerequisites
MED0149	MXES Immersion Training for IT	5 days	Instructor-Led	MXES Navigation & Querying
MED0145	Implementing ITIL with MXES	1 day	Instructor-Led	Introduction to ITIL (VCT)

End-User / Functional

Course #	Course Name	Length	Delivery Options	Prerequisites
MED0141	IT Service Management Using MXES	3 days	Instructor-Led	MXES Navigation & Querying
MED0142	IT Asset Configuration & Management in MXES	2 days	Instructor-Led	MXES Navigation & Querying
MED0137	System Administration for MXES	3 days	Instructor-Led	MXES Navigation & Querying
MED0147	Using SQL with MXES	1 day	Instructor-Led	MXES Navigation & Querying
MED0148	Workflow Management Using MXES	5 days	Instructor-Led	MXES Immersion Training for IT (Note: Extensive hands-on Maximo experience preferred)
MED0150	Purchasing with MXES	2 days	Instructor-Led	MXES Navigation & Querying
MED0151	Developing MXES Reports with Actuate	TBD	Instructor-Led	MXES Navigation & Querying, Using SQL with MXES
MED0154	The MXES KPI Manager (VCT)	3-hr virtual	Virtual Classroom	Using SQL with MXES

Flip for Curriculum Path by Role

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Suggested Curriculum Path by Job Role

MXES for ITSM / ITAM

Course Name	Manager Track		Implementation Track		Developer Track			Administrator Track			End-User Track			
	Managers, Supervisors, & Directors	Service Level Managers	Maximo Implementation Team	Workflow Implementation Team	Maximo Developer / Maximo App Support	Report Writer	Workflow Developer	Maximo Admin	Database Admin	Report Admin	Service Desk / Support Personnel & Supervisors	IT Asset Managers / Configuration Managers	Contracts Manager	Procurement Personnel
MED0138 MXES Nav & Query (1/2 day)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MED0137 System Admin for MXES (3 days)				✓	✓			✓	✓			✓		
MED0140 Intro to ITIL (VCT) (3 hours)	✓													
MED0141 IT Service Mgmt Using MXES (3 days)		✓									✓			
MED0142 IT Asset Config & Mgmt in MXES (3 days)												✓		
MED0145 Implement ITIL w/ MXES (1 day)	✓	✓	✓											
MED0147 Using SQL with MXES (1 day)						✓			✓	✓				
MED0148 Workflow Mgmt Using MXES (5 days)				✓			✓							
MED0149 MXES Immersion Training for IT (5 days)			✓	✓	✓			✓						
MED0150 Purchasing with MXES (2 days)														✓
MED0151 Dev. MXES Reports w/ Actuate						✓				✓				
MED0152 Contract Mgmt Using MXES													✓	
MED0153 Using MXES App Designer			✓		✓									
MED0154 The MXES KPI Manager (3 hours)						✓				✓				

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Unit 4: Automating Business Processes

Chapter 11: Introduction to Workflow

Work Management Using MXES

Unit 1: Course Overview

In This Unit

This unit contains the following topics:

Unit Overview

Introduction

In this unit, we will lay the groundwork for the rest of the course.

Unit Purpose

Unit 1: Course Overview introduces you to:

- the organization and design of this course,
- the Maximo product structure and the applications that comprise it, and
- Asset Management concepts.

You will use the information you learn in this unit throughout the rest of this course and in any other MRO Software courses you attend.

Unit Learning Objectives

When you have completed this unit, you should be able to:

- Describe the objectives and outline of the course and match them with your learning objectives
- Identify outputs and key performance indicators (KPIs) that support Asset Management processes for various business areas

In This Unit

This unit is comprised of the following chapters:

Chapter	Title
1	Overview of Strategic Asset Management and Maintenance
2	Overview of Work Management in MXES

Course Introduction

Welcome

Welcome to the *Work Management Using MXES* course. This course is an in-depth introduction to the functionality and use of the Maximo Enterprise Suite (MXES) for Work Management. When you have completed this course, you should have a good understanding and competency level of how Maximo can help you track and manage the work being done in your organization.

Audience

The target audience for this course includes:

- Maintenance managers
- Planners
- Schedulers
- Maintenance supervisors
- Maintenance engineers

Course Prerequisites

MXES Navigation & Querying or demonstrable working experience with MAXIMO 5.x or greater

Key Information

If this course is being delivered through a hosted environment, to access Maximo, you will need the information indicated below.

Maximo URL: _____

Maximo User Name: _____

Maximo Password: _____

Assigned Student Number: _____

Database Instance (if applicable): _____

Your instructor will now provide this information; please write the information in the spaces above.

Course Goals and Objectives

Course Goal

The goal of *Work Management Using MXES* is:

- to provide you with an understanding of MXES functionality
- to teach you how to use Maximo to efficiently handle work management activities
- to provide you with hands-on experience

Course Learning Objectives

After completing this course, you should be able to:

- describe the basic components and functionality of Maximo,
- insert and build core data records into the system,
- generate work orders,
- create and modify work plans and job plans,
- assign craft and labor to work orders,
- issue materials,
- record labor and materials usage,
- report failure information,
- return materials,
- generate a follow-up work order, and
- process a work order using Workflow.

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Course Goals and Objectives continued

Your Learning Objectives

Now that you understand the basic objectives for the course, it is most important that you define the learning objectives *you* bring to the course. We want to make sure that these are clearly stated, mutually understood, and achieved.

List your objectives in the space below. We will conclude the course by asking you whether you have met your objectives. If you have not, we will then address your questions and unmet objectives.

-
-
-
-
-
-
-
-

Course Organization

Organization

This course has been organized into teaching modules made up of chapters. Each chapter focuses on a specific aspect of configuring and administering Maximo to help you maintain your Maximo installation.

Chapters

Each chapter in this book is an individual teaching module designed to provide an overview of its topic(s) and then provide in-depth instruction and practice.

Each chapter contains these components:

- A subject-matter overview and objectives

  This component provides orientation and perspective for the chapter, along with learning objectives.

- Instruction in concepts and procedures

  In this part of the chapter, the instructor and the text review relevant concepts, components, and procedures.

- Hands-on practice

  You will practice most of the important procedures and concepts that the instructor introduces. You will have opportunities for brief hands-on practice during the body of the module and, in some cases, longer hands-on practice in a workshop at the end of the unit.

Notes Pages

Notes pages are provided at the end of each chapter. You can use these pages to capture information specific to your situation, or important points covered in class discussions.

continued on next page

Course Organization continued

Special Note: Shared vs. Independent Databases

- Throughout this course there could be up to 20 participants accessing the same database. If you are *sharing* a single database, your instructor will assign you a two-digit student number (for example, 01–20) to avoid confusion and/or conflicting records in the database.

  Some exercises throughout this course will have an *xx* appended to data entry items. Whenever an *xx* is appended, substitute your assigned student number for the *xx*.

- If you are taking this course in an *independent*-database environment—that is, your database is independent from other students' databases and the instructor's database—student numbers are unnecessary. You can simply do the exercises using the records indicated, without adding a student number.

If you are not sure whether you are sharing a database, check with your instructor.

continued on next page

Course Organization continued

Chapter Topics The following table contains a list of units and chapters in this student guide:

Unit/Chapter	Title
Unit 1	**Course Overview**
Chapter 1	Overview of Strategic Asset Management and Maintenance
Chapter 2	Overview of Work Management in MXES
Unit 2	**Setting Up Database Records**
Chapter 3	Entering Assets and Asset Detail Records
Chapter 4	Entering Planning Records
Chapter 5	Entering Scheduled Maintenance Records
Unit 3	**Work Management Overview**
Chapter 6	Work Order Generation
Chapter 7	Planning
Chapter 8	Scheduling Work Assignments
Chapter 9	Dispatching and Executing Work Assignments
Chapter 10	Completing Work
Unit 4	**Automating Business Processes**
Chapter 11	Introduction to Workflow

Typographical Conventions

Introduction

We use a number of typographical conventions and icons in our course books.

Conventions Used in Course Materials

Here are some of the conventions you will see most frequently in the course materials:

Convention	Usage	Example
Italics	Introduces or emphasizes a term	A *system* is a single instance of a Maximo database.
Boldface	Indicates that the word or phrase names a menu item, field, button, or keyboard key	From the **Go To** drop-down menu, select **Administration**.
Arial font	Indicates that this is text you type into a field	Type ASSET_NDX8 in this field.
`Courier` font	Indicates programming code, a system message, or part of a screen display	Maximo displays the following message: `Work order 1000 status changed to APPR.`

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Typographical Conventions continued

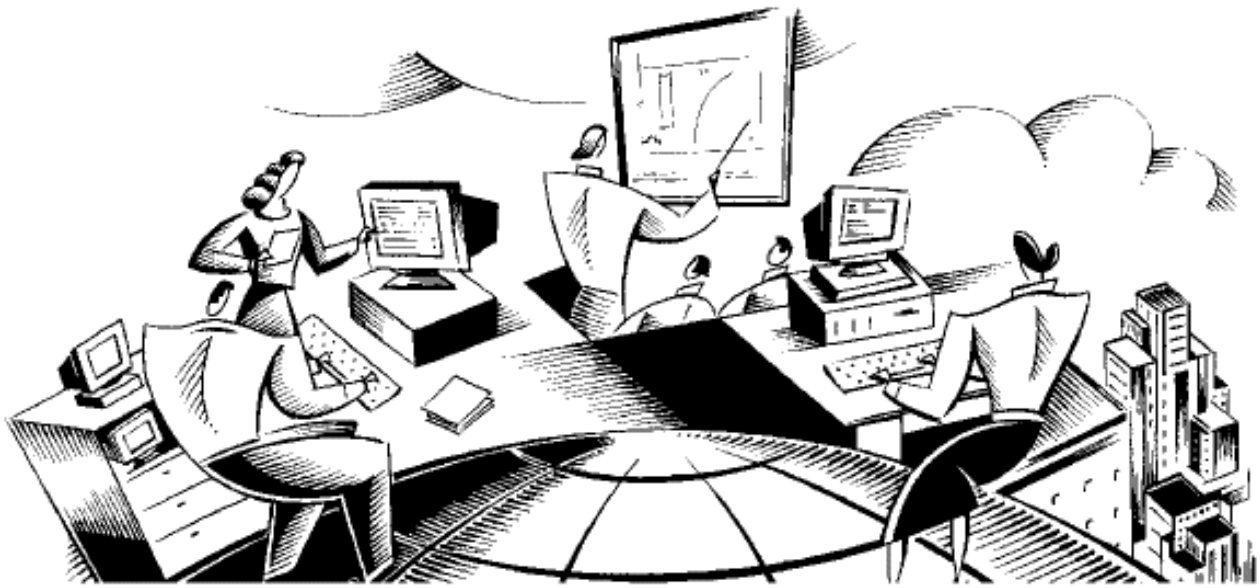
Icons

You will see several icons throughout this student guide. This table explains what they mean.

This icon…	Indicates…
	A procedure that you will practice on your own or with guidance from an instructor
	A paper-and-pencil exercise
	A special note or reminder
	A warning or cautionary note
	A question-and-answer session with the instructor, or a group discussion
	Your role in the next exercise is changing, e.g., from manager to user
	The data you are being asked to enter will be used in another exercise
	A challenge question or exercise
	An industry best practice, tip, or suggestion
	A recording that provides additional course content is available

Work Management Using MXES

Chapter 1: Overview of Strategic Asset Management and Maintenance



In This Chapter This chapter contains the following topics:

Chapter Overview

Introduction

The focus of this chapter is to familiarize you with Strategic Asset Management (SAM) at a high level, and to describe how Maximo supports work management for assets.

Learning Objectives

When you have completed this chapter, you should be able to:

- define Strategic Asset Management (SAM) and
- discuss the relationship between asset management and maintenance.

Strategic Asset Management

Introduction

This section will discuss what SAM is and how you can use Maximo to manage an organization's strategic assets.

What Is a Strategic Asset?

Strategic assets are those assets directly or closely associated with revenue generation, as well as those that are critical to the mission of the organization. The following types of assets can be considered strategic assets:

- Tangible
- Fixed
- Physical
- Capital

For example, manufacturing companies depend on equipment uptime to meet production goals; for them, plant floor *machinery* is clearly strategic. Hotels, hospitals, and airports require trouble-free *facilities* to deliver the quality of service their customers and users expect. Public transit and over-the-road transport companies depend on the reliability of their *fleets* to move people or goods. Financial services companies rely heavily on *computer systems* to manage transactions and maintain positive customer relationships that drive their business. All of these are strategic assets.

What Is SAM?

SAM does the following:

- Manages and optimizes the business processes related to fixed, physical, or capital assets that have a *direct* and *significant* impact on achieving corporate objectives
- Takes an enterprise-wide view of asset performance and the tools required to drive maximum return on asset investment
- Drives improved corporate performance by extracting greater lifetime value from asset investment

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Strategic Asset Management continued

Four SAM Categories

SAM is focused on four broad categories of fixed, physical, and capital assets: *Production*, *Facilities*, *Fleet*, and *IT*.

The following table describes these four categories in greater detail.

Asset Category	Description
Production	*Production assets* are traditionally understood to be those involved in discrete or process manufacturing. This can include robots on the assembly line at an automobile plant or steppers used in computer chip manufacturing. However, the scope of what can be defined as production assets is considerably broader. For example, in the utility industry, production assets are both the turbines and compressors used for power generation and the transmission and distribution assets that deliver output to end-users. In the telecommunications industry, the antennas and microwave towers involved in producing and delivering output to customers are production assets.
Facilities	*Facilities assets* include types of buildings spanning corporate headquarters, hotels, movie theaters, museums, shipyards, and passenger terminals. Maintaining facilities can involve mechanical, HVAC, and electrical systems, as well as landscaping and parking lots. In addition, there can be a variety of specialized facilities such as clean rooms, surgical theaters, laboratories, and satellite ground stations within a building.
Fleet	*Fleet assets* are often over-the-road vehicles such as cars and trucks; however, this category also includes airborne fleets (aircraft), rolling stock (rail cars), and marine assets (passenger boats and ships). Companies may build their core business around mission-critical fleet assets; for example, a commercial shipping company depends on its trucks and aircraft. Vehicles for a public transit organization such as a commuter railroad also fall into this category. Additionally, companies could have enterprise fleet assets that are important to the overall function of an operation but that do not directly generate revenue, such as employee shuttle buses, repair trucks, or forklifts.
IT	The operations of most companies today are critically dependent on the organization's IT infrastructure. For hardware this includes servers, desktops, laptops, cell phones, PDAs, hubs/routers, and telecom equipment. Software is equally important in day-to-day operations; ensuring software license compliance is an important part of IT Asset Management.

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Strategic Asset Management continued

Course Content Note

The focus of this course is Enterprise Asset Management (EAM) asset categories—Facilities, Production, and Transportation—and we will *not* be covering IT assets. For IT Asset Management courses, contact MRO Software Educational Services or your MRO Business Solutions Representative.

Objectives of Asset Management

There are five main objectives of asset management:

- *Investment*—Minimize funds invested to achieve business objectives.
- *Ownership Cost*—Minimize cost to ensure a required level of performance.
- *Commercial Return*—Maximize the value that the assets add to the business.
- *Strategic Value*—Optimize the market value and flexibility of the asset base.
- *Risk Management*—Manage commercial, health, and environmental risks.

SAM and Maintenance

Maintenance activities generate the demand for replacement equipment, system assemblies, and components. Therefore, the assets producing the revenue stream, the parts that keep those assets running, and the procurement processes by which those parts are obtained are all linked to a company's efforts to maximize its asset performance. How well a company can track its adherence to the five objectives of asset management ultimately affects the corporation's bottom line.

SAM and Maximo

Because maintenance operations generate large amounts of data, there is an abundance of information that can be derived to guide maintenance activities to greater levels of productivity and cost-effectiveness.

Maximo tracks and reports data and processes associated with maintaining assets. Examples include:

- parts catalogs, inventory, work orders, purchasing details, and supplier data, as well as
- equipment failures, causes, and remedies.

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Strategic Asset Management continued

Consequences of Haphazard Asset Management

Corporations can pay a high price for failing to synchronize different categories of strategic assets in a way that includes all levels of management within the organization. For example:

- Without a unified solution for managing labor priorities across the enterprise, downtime of equipment might be unnecessarily extended.
- Conflicting maintenance activities among different assets can lower productivity, extend downtime, and elevate costs.
- Limited labor resources might be assigned work orders for preventive maintenance that could be deferred, while emergency maintenance needs for production line equipment go unmet.
- Companies have no understanding of lifetime repair costs for key assets; as a result, they cannot make comparative, strategic decisions about repair, replace, or run-to-failure for different assets that impact budgets for the entire company.

Class Discussion

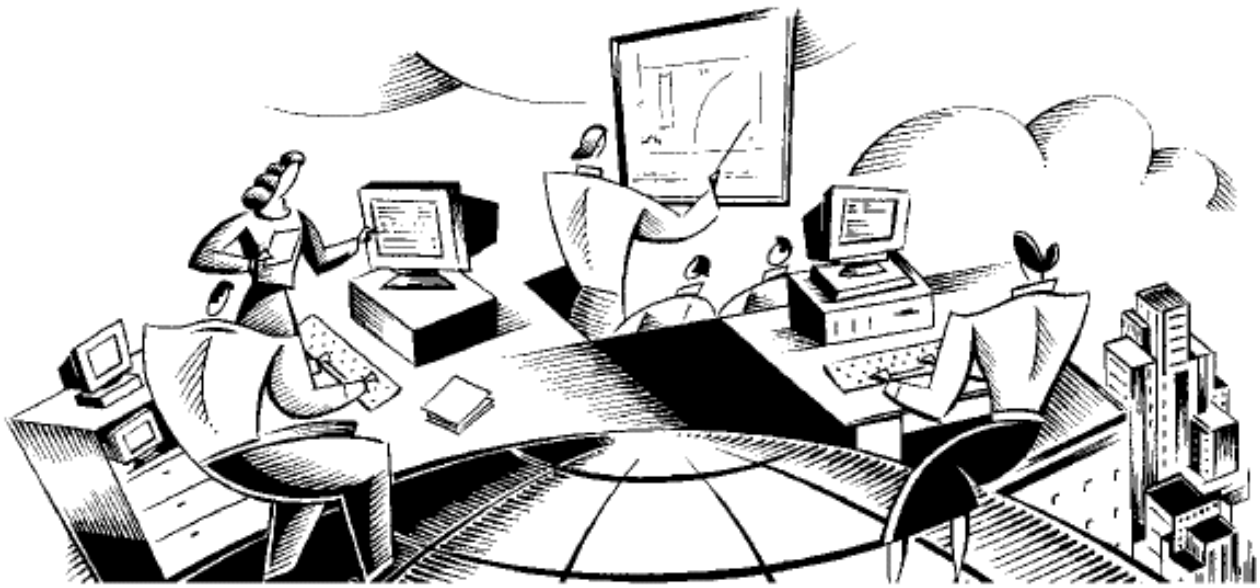
As a class and with the instructor, discuss the following questions:

- What assets drive your organization?
- How are your strategic assets managed?
- Does your organization capture the costs associated with its assets?
- Has your organization looked at ways to optimize asset performance? If so, how?
- Do you think about what you are working with as an asset?
- Are the assets you work with critical to the corporation's operations?
- Are your purchasing and inventory functions tied into asset maintenance?

NOTES:

Work Management Using MXES

Chapter 2: Overview of Work Management in MXES



In This Chapter This chapter contains the following topics:

Chapter Overview

Introduction

Although every site is different, when you use a computerized maintenance system, there fundamental transactions performed all. The focus of this chapter is to familiarize you with how Maximo supports these maintenance transactions.

Learning Objectives

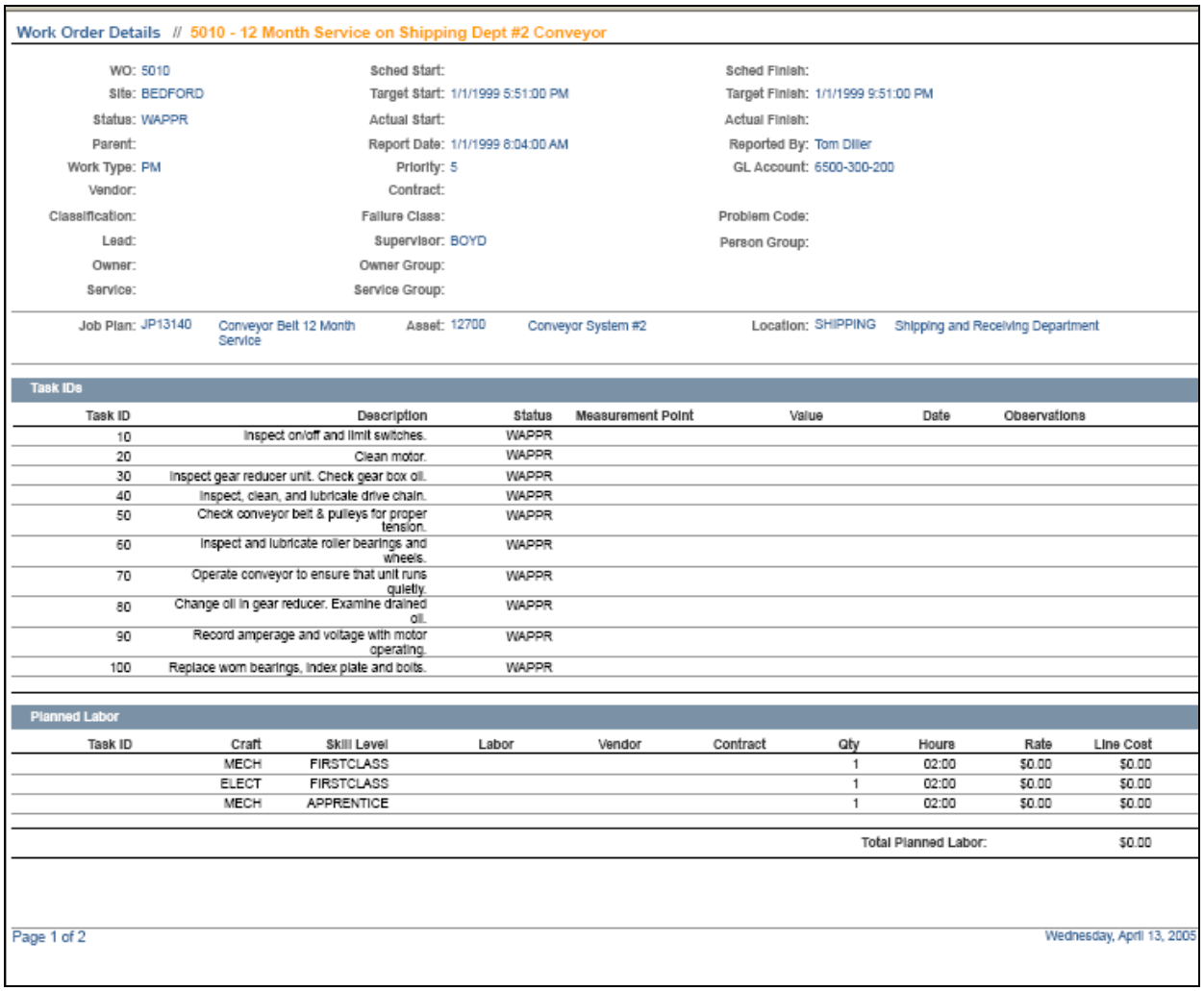
When you have completed this chapter, you should be able to:

- discuss maintenance performance metrics and benchmarks;
- describe the stages in a *general* work order lifecycle process;
- describe the purpose of the Work Order module, which primarily supports work management activities;
- identify applications in the Work Order module that support the phases in a lifecycle process; and
- discuss how Maximo applications can work together to manage maintenance work.

Work Management in MXES

Introduction

The primary responsibility of a maintenance dept is to perform the work required to keep a facility and its assets running efficiently. The work often is embodied in the form of a work order. Work orders are used to carry out work on your assets and are created for many reasons, including preventive maintenance, emergency maintenance, and corrective maintenance.



Work Order Details // 5010 - 12 Month Service on Shipping Dept #2 Conveyor

WO:	5010	Sched Start:		Sched Finish:	
Site:	BEDFORD	Target Start:	1/1/1999 5:51:00 PM	Target Finish:	1/1/1999 9:51:00 PM
Status:	WAPPR	Actual Start:		Actual Finish:	
Parent:		Report Date:	1/1/1999 8:04:00 AM	Reported By:	Tom Diller
Work Type:	PM	Priority:	5	GL Account:	6500-300-200
Vendor:		Contract:			
Classification:		Failure Class:		Problem Code:	
Lead:		Supervisor:	BOYD	Person Group:	
Owner:		Owner Group:			
Service:		Service Group:			

Job Plan: JP13140 Conveyor Belt 12 Month Service Asset: 12700 Conveyor System #2 Location: SHIPPING Shipping and Receiving Department

Task IDs

Task ID	Description	Status	Measurement Point	Value	Date	Observations
10	Inspect on/off and limit switches.	WAPPR				
20	Clean motor.	WAPPR				
30	Inspect gear reducer unit. Check gear box oil.	WAPPR				
40	Inspect, clean, and lubricate drive chain.	WAPPR				
50	Check conveyor belt & pulleys for proper tension.	WAPPR				
60	Inspect and lubricate roller bearings and wheels.	WAPPR				
70	Operate conveyor to ensure that unit runs quietly.	WAPPR				
80	Change oil in gear reducer. Examine drained oil.	WAPPR				
90	Record amperage and voltage with motor operating.	WAPPR				
100	Replace worn bearings, index plate and bolts.	WAPPR				

Planned Labor

Task ID	Craft	Skill Level	Labor	Vendor	Contract	Qty	Hours	Rate	Line Cost
	MECH	FIRSTCLASS				1	02:00	$0.00	$0.00
	ELECT	FIRSTCLASS				1	02:00	$0.00	$0.00
	MECH	APPRENTICE				1	02:00	$0.00	$0.00
							Total Planned Labor:		$0.00

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Work Management in MXES continued

Maintenance Interface with Business and Operations

Strategic refers to the "what and why" and *tactical* refers to the "how." So, if maintenance is applied strategically or tactically, maintenance affects performance outcomes for:

Business

- Fixed asset turnover
- Return on fixed assets
- Asset contribution margin
- Capital expenditure (CAPEX)
- Operational expenditure (OPEX)
- Statutory compliance
- Risk mitigation
- Cost of ownership (TCO) for assets
- Asset availability
- Overall equipment effectiveness (OEE)

Operations

- Ensuring dependable, reliable, and repeatable operations
- Maintaining safe working environments
- Reducing the unit cost of operations
- Driving up profitability
- Eliminating waste and non-value-added activity
- Maintaining scheduled compliance
- Ensuring effective execution of operations strategy
- Supporting achievement of operations objectives

The bottom line:

- Return on net assets (enabling asset longevity)
- Return on capital employed (availability, reliability)
- Return on investment (maximizing the return on cost of capital, net present value, internal rate of return)

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Work Management in MXES continued

Work Situation Occurrences

Many different situations generate work for a maintenance department, such as a broken light fixture or a boiler failure. How you set up and track work in Maximo depends on the source of work and your site processes. Generally, but not exclusively, there are four situations of work occurrences:

- Work that is requested, planned, scheduled, assigned, performed, and recorded
- Work that is planned, scheduled, assigned, performed, and recorded
- Repetitive work that is planned ahead of time to occur at scheduled intervals, assigned, performed, and recorded
- Work that is performed and then recorded, with no formal request having been made

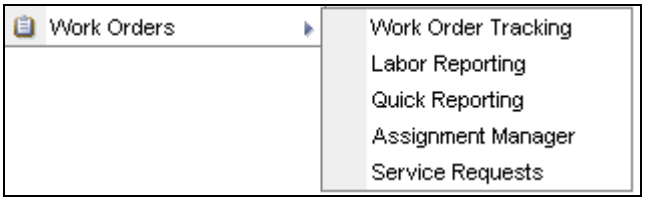
Maximo Work Management Modules

Introduction

The two modules that primarily are used to identify, plan, and manage work are the Work Orders and Preventive Maintenance modules. In this section we will look at these two modules and their relationships with other Maximo modules.

Work Orders Module Purpose

For most processing and managing work, the Work Orders module is the core tool used in maintenance organizations. Depending on how your maintenance program operates, the Work Orders module provides many ways for you to enter and manage work in the system.



The Work Orders module serves many purposes:

- Centralizes all information and options necessary for the planning and execution of work orders
- Provides maintenance planners with a tool that gives efficient access to all information needed to plan and report on work orders
- Provides a quick and efficient way to report work performed on work orders or request work that needs to be done
- Collects data that allows analytical decision-making in a maintenance organization

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Maximo Work Management Modules continued

Applications of the Work Orders Module

The Work Orders module consists of these standard applications:

- Work Order Tracking
- Labor Reporting
- Quick Reporting
- Assignment Manager
- Service Requests

Use this application…	To...
Work Order Tracking	• Create and modify work orders • Process work orders • Enter work plans and create job plans • Report actual usage of resources • Record equipment failures
Labor Reporting	Report actual usage of labor against a work order
Quick Reporting	Enter the work already performed, and incidents of equipment failure and downtime
Assignment Manager	Plan and dispatch work, and adjust craft/labor assignment to accommodate work priorities
Service Requests	Enter, view, and modify service request records

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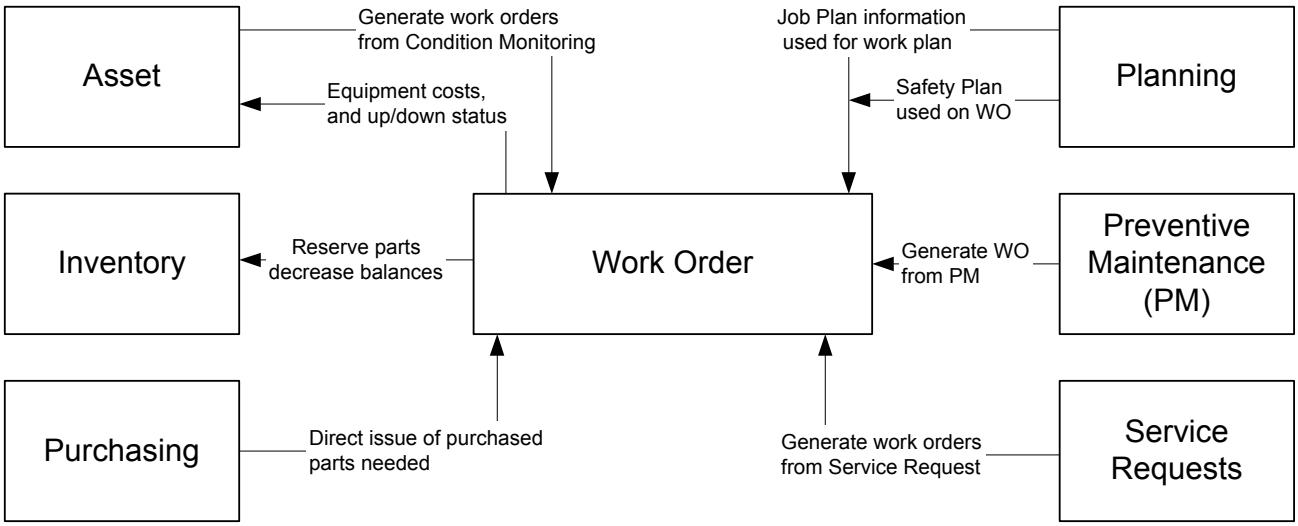
Maximo Work Management Modules continued

Module Relationship Diagram Overview

The following graphic illustrates a *high-level* overview of relationships between the work order module and other modules in Maximo.

Work Order Module Relationships



Work Orders and Assets

- Work orders are written against a piece of equipment or a location. When work orders are performed and completed, Maximo will send the total cost of work to the Assets module.
- Failure codes defined in the Assets module can be used to identify the problem, cause, and remedy on the work order.

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Maximo Work Management Modules continued

Work Orders and Inventory

- When a work order that has materials is approved, items are reserved in inventory.
- Items not available in inventory for a work order are ordered through the inventory reorder process.
- Items that are defined in the Inventory module are used on the work order requiring materials. When you report actual usage on a work order, the balances for the item in inventory are decreased accordingly.

Work Orders and Purchasing

If you plan items or materials that will be direct issue items, Maximo generates a purchase requisition for the item when you approve the work order and run reorder direct issue items and services in the Inventory application.

Work Orders and Planning

- Job plans can be used to create work plans on a work order. Job plans detail the tasks, materials, tools, labor, and services to be used on a work order and can be used for more than work orders.
- A work plan defined on a work order can create a job plan record.
- If you are adding rotating items to a job plan in the Job Plans application, you can specify that Maximo should create a single work order when any quantity of that item is specified on an approved purchase order.
- Routes attached to a work order will generate children work orders for each asset listed on the route.

Work Orders and Preventive Maintenance

Work orders that are generated in the Preventive Maintenance module can be tracked from start to finish in Work Order Tracking.

Work Orders and Service Requests

- Call center functionality that allows for external requests of services or work to be made.
- Work orders are created from the service tickets initially generated when a request is entered into the system.

Applications Used to Create and Manage Work Orders

Introduction

Because this unit focuses on work orders, this section provides an overview of the applications used to process a work order through a lifecycle.

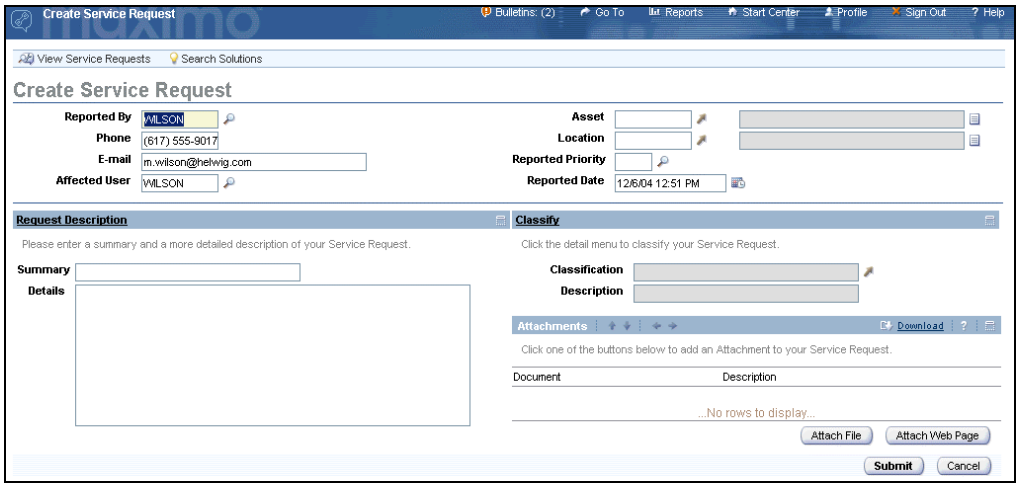
Work Order Applications

Maximo applications that can be used to create and manage work orders are:

- Create Service Request
- Work Order Tracking
- Quick Reporting
- Assignment Manager
- Labor Reporting
- Preventive Maintenance
- Condition Monitoring

Create Service Request

You can use the Create Service Request application to request a repair or change to a service. When a request is entered, Maximo creates a service ticket, from which a work order can be generated.



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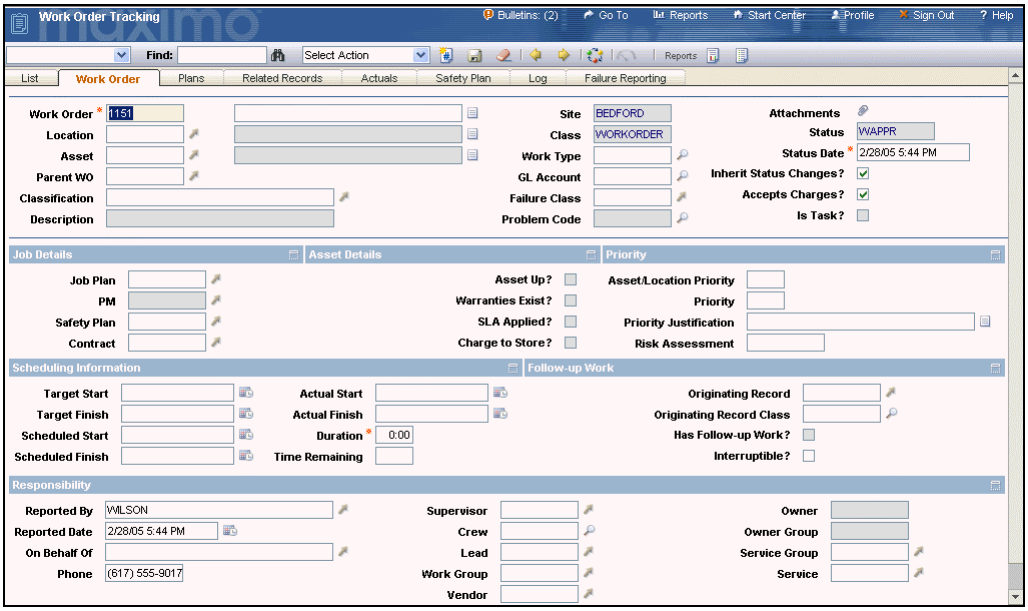
Applications Used to Create and Manage Work Orders continued

Work Order Tracking

While you can use the Work Order Tracking application to enter work orders into the system, the primary function of this application is to manage work orders through the lifecycle process. It is intended for maintenance supervisors, planners, and schedulers to plan, review, and approve work orders.

You can use the Work Order Tracking application to perform every function related to processing work orders. These tasks include creating, approving, and initiating work orders, checking their status history, and closing or reworking them when appropriate.



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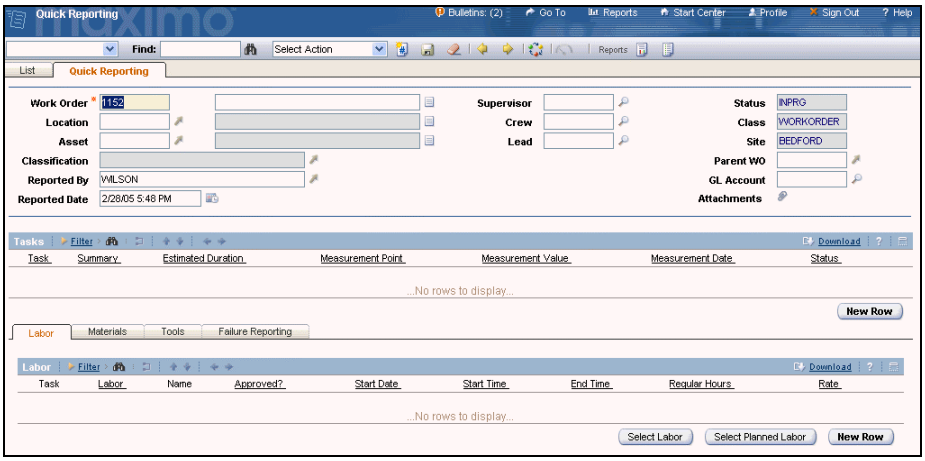
Applications Used to Create and Manage Work Orders continued

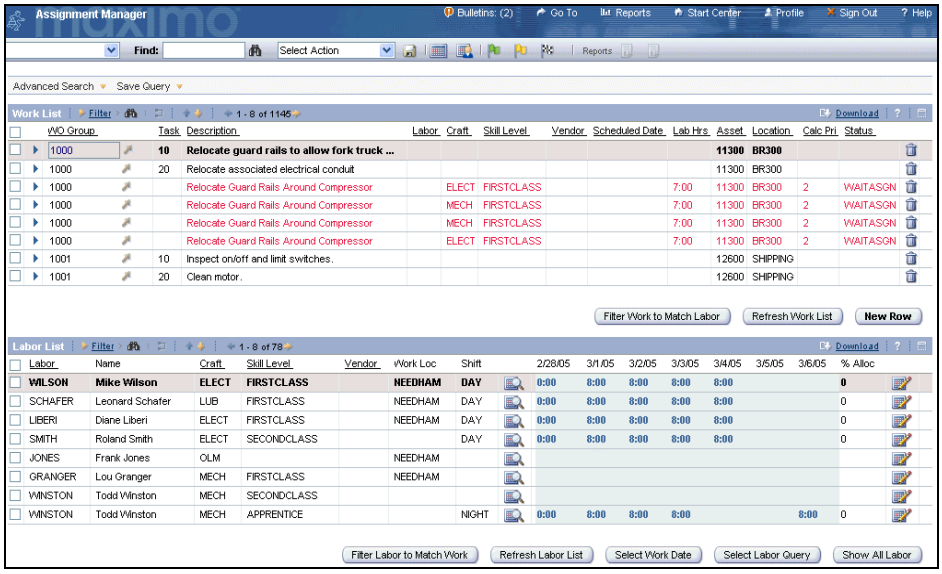
Quick Reporting

You can use the Maximo Quick Reporting application to create or report on open work orders or small jobs. You can enter actual labor and material usage information, or report events, such as equipment failures or downtime, that do not involve maintenance department work.



Assignment Manager

You use the Assignment Manager application to dispatch labor and schedule work in the same place. Using this application, you can view work order assignments and their craft requirements, dispatch labor according to work priority, or view labor and schedule work according to labor availability.



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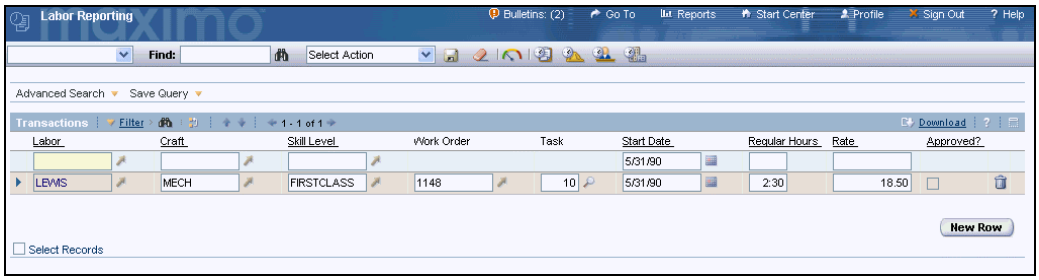
Applications Used to Create and Manage Work Orders continued

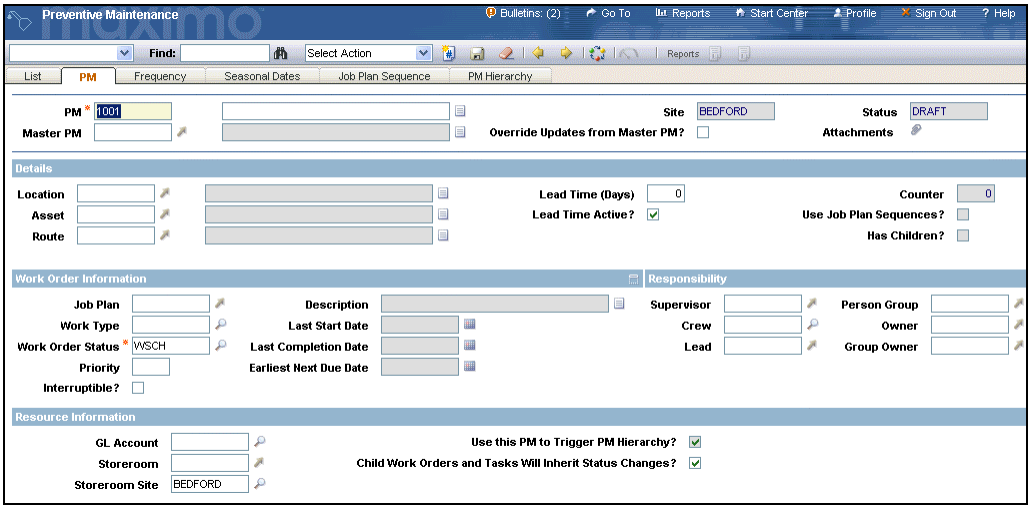
Labor Reporting

You use the Labor Reporting application to report the type and total number of hours of work that was performed by external contractors or internal employees. You can enter labor information by work order, labor ("timecard" reporting), ticket, or contract/vendor.



Preventive Maintenance

PM records are templates that contain job plan and scheduling information for your work assets. You copy this information to work orders you generate from the PM application.



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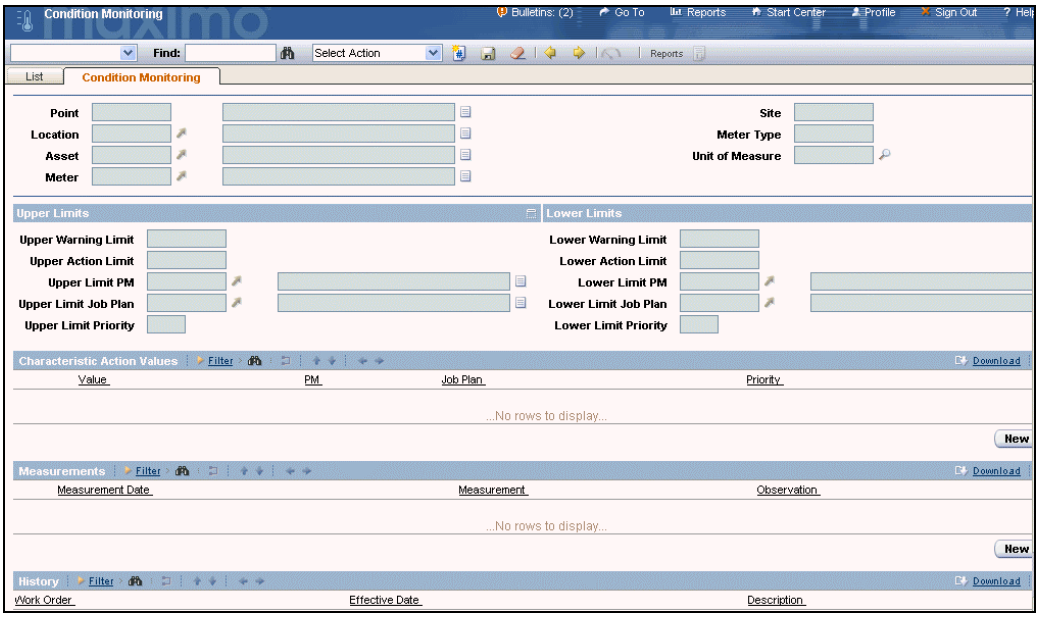
Applications Used to Create and Manage Work Orders continued

Condition Monitoring

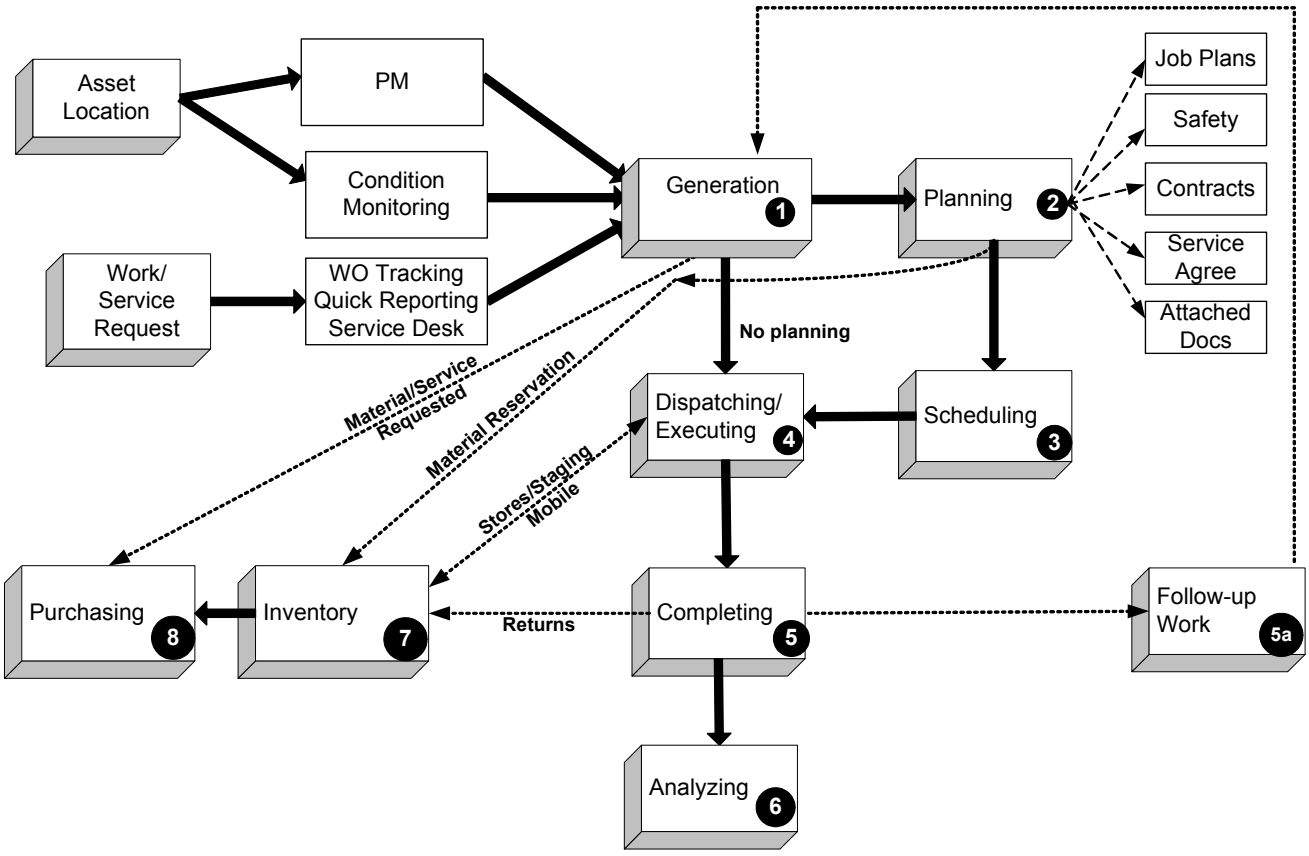
The Condition Monitoring application is used to set up measurement points and to generate work orders.



Applications Working Together

Applications Working Together

The following diagram shows how some of the Maximo applications and modules can work together when managing the work order through its lifecycle.



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Applications Working Together continued

Stage	Description
1	For equipment or location, you can create and generate work orders, sometimes with associated job plans, safety plans, and contracts, in the following ways: • A PM becomes due and is generated automatically by the system or by a cron task, or manually by using the PM application. • A condition measurement falls outside the limits and is generated automatically by a cron task or manually by using the CM application. • A problem is reported and can be manually (user) entered in the Work Order Tracking, Service Request, or Quick Reporting applications. • (5a) If necessary, a follow-up work order is generated from an originating work order.
2	Depending on the work order, job plans, related service contracts, and safety information is associated or added to the work order. When a job plan or work plan is used with a work order, and the work order is approved, planned materials are put on inventory reserve. Depending on the work situation, services and materials requisitioning is done by the maintenance organization or through inventory reorder.
3	Scheduling data drawn from the Scheduling Information table window in the Work Order Tracking application is used by a project scheduling application, such as Maximo Project Manager or Assignment Manager. Based on priority, backlog is ranked, with the highest-priority work being done first. Work assignments are then scheduled using the Assignment Manager application.
4	After work and labor assignments are scheduled, work is dispatched to staff using the Assignment Manager application. Work orders are then printed and dispatched to the staff. Staff picks up materials from the storeroom, warehouse, or staging, or (if an open storeroom) materials are drawn by the staff. If a storeroom issues materials, they can be issued using the issues and transfers application. The physical work begins.
5	Physical work is finished for part of or all of the work order. Actual Material, Labor, and Tool usage is entered against the work order using either the Quick Reporting or Work Order Tracking application. Unused materials are returned to inventory and actual work order costs are calculated. After a certain amount of time, the work order is closed, which represents that all the physical work and all the required electronic data for the work order is entered.
5a	If necessary, a follow-up work order is generated from an originating work order.
6	Use the data in the system to generate daily, weekly, and monthly reports and analysis summaries.
7	Manage your inventory and reconcile item balances using the Inventory module.
8	Manage the purchasing processes using the Purchasing module.

Chapter Summary

Work Orders Module Purpose

For most processing and managing work, the Work Orders module is the core tool used in maintenance organizations. Depending on how your maintenance program operates, the Work Orders module provides many ways for you to enter and manage work in the system.

The Work Orders module serves many purposes:

- Centralizes all information and options necessary for the planning and execution of work orders
- Provides maintenance planners with a tool that gives efficient access to all information needed to plan and report on work orders
- Provides a quick and efficient way to report work performed on work orders or request work that needs to be done
- Collects data that allows analytical decision-making in a maintenance organization

Applications of the Work Orders Module

The Work Orders module consists of these standard applications:

- Work Order Tracking
- Labor Reporting
- Quick Reporting
- Assignment Manager
- Service Requests

Work Orders and Assets

- Work orders are written against a piece of equipment or a location. When work orders are performed and completed, Maximo will send the total cost of work to the Assets module.
- Failure codes defined in the Assets module can be used to identify the problem, cause, and remedy on the work order.

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Chapter Summary continued

Work Orders and Inventory

- When a work order that has materials is approved, items are reserved in inventory.
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- Routes attached to a work order will generate children work orders for each asset listed on the route.

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Work Orders and Service Requests

- Call center functionality that allows for external requests of services or work to be made.
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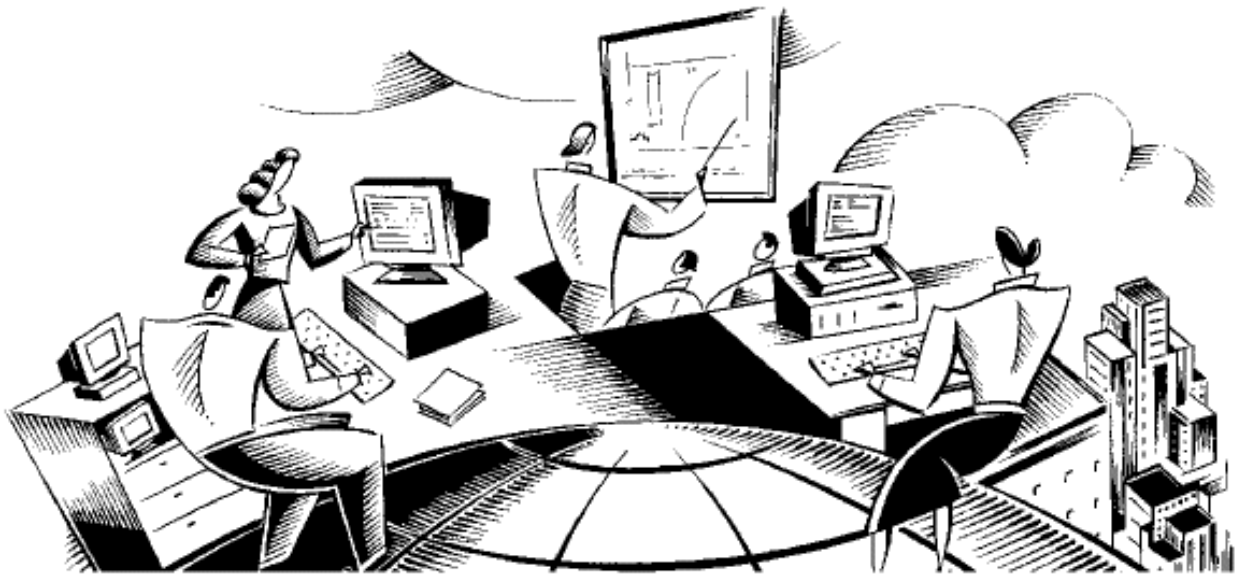
NOTES:

Work Management Using MXES

Unit 2: Setting Up Database Records



In This Unit

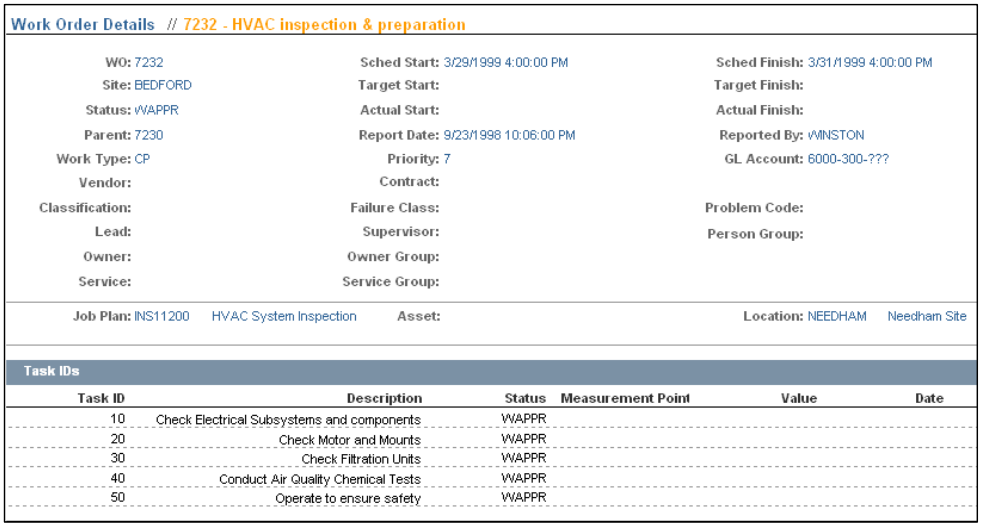
This unit contains the following chapters:

Chapter	Topic
3	Entering Assets and Asset Details Records
4	Entering Planning Records
5	Entering Scheduled Maintenance Records

Unit Overview

Introduction

Before using Maximo, data must be entered into the database so that you can "act" on the database. Setting up the Maximo database requires that you examine in detail your maintenance processes and your organization's reporting needs. You also need to determine what performance indicators should be analyzed.



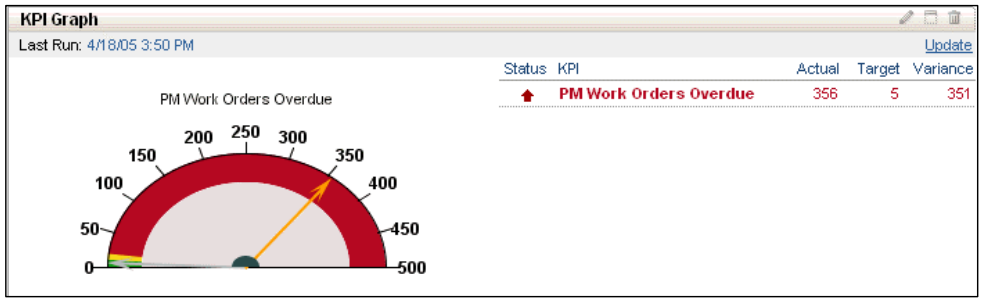
Work Order Details // 7232 - HVAC inspection & preparation

WO: 7232	Sched Start: 3/29/1999 4:00:00 PM	Sched Finish: 3/31/1999 4:00:00 PM
Site: BEDFORD	Target Start:	Target Finish:
Status: WAPPR	Actual Start:	Actual Finish:
Parent: 7230	Report Date: 9/23/1998 10:06:00 PM	Reported By: WINSTON
Work Type: CP	Priority: 7	GL Account: 6000-300-???
Vendor:	Contract:	
Classification:	Failure Class:	Problem Code:
Lead:	Supervisor:	Person Group:
Owner:	Owner Group:	
Service:	Service Group:	

Job Plan: INS11200 HVAC System Inspection Asset: Location: NEEDHAM Needham Site

Task IDs

Task ID	Description	Status	Measurement Point	Value	Date
10	Check Electrical Subsystems and components	WAPPR			
20	Check Motor and Mounts	WAPPR			
30	Check Filtration Units	WAPPR			
40	Conduct Air Quality Chemical Tests	WAPPR			
50	Operate to ensure safety	WAPPR			



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Unit Overview continued

Check-In

√

A database is a collection of data that is organized so that its contents can be easily accessed, managed, and updated. In Maximo, the data within the database consists of records that you or the system administrator enters.

Learning Objectives

While each chapter has its own unique objectives, when you have completed all of the chapters in this unit, you should be able to:

- discuss the various database relationships,
- describe the applications primarily used to set up Maximo for processing and managing work, and
- enter asset and supporting work management records into the database.

Note

Although this unit focuses on building the database, we will enter only a few data items, because the intent of this course is to show you *how* the Maximo applications work together. However, in actuality, implementing Maximo involves mass loading/converting much data. MRO Software Professional Services can help by providing their expertise.

Entering Data Overview

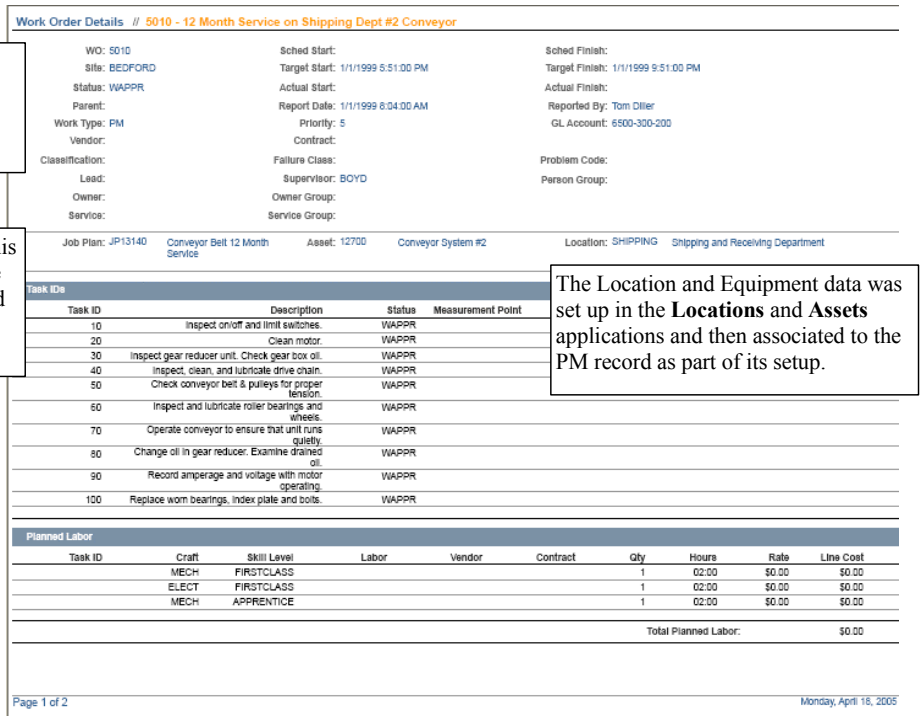
Introduction

Applications function to *build* or *act on* the database. Although many applications build *or* act on the database, some applications can do both. In this unit's corresponding chapters, we will focus on those applications that are primarily used to *build* a Maximo database.

This work order (WO), **WO # 5010**, was generated based on the **Frequency** data entered as part of a PM set up using the **Preventive Maintenance** application.

The **Job Plan** and its details are part of this WO because a **Job Plan** was set up in the **Job Plans** application and then associated to a PM record that was created when setting up PMs.

The Location and Equipment data was set up in the **Locations** and **Assets** applications and then associated to the PM record as part of its setup.



Work Order Details // 5010 - 12 Month Service on Shipping Dept #2 Conveyor

WO:	5010	Sched Start:		Sched Finish:	
Site:	BEDFORD	Target Start:	1/1/1999 5:51:00 PM	Target Finish:	1/1/1999 9:51:00 PM
Status:	WAPPR	Actual Start:		Actual Finish:	
Parent:		Report Date:	1/1/1999 8:04:00 AM	Reported By:	Tom Diller
Work Type:	PM	Priority:	5	GL Account:	6500-300-200
Vendor:		Contract:			
Classification:		Failure Class:		Problem Code:	
Lead:		Supervisor:	BOYD	Person Group:	
Owner:		Owner Group:			
Service:		Service Group:			

Job Plan: JP13140 Conveyor Belt 12 Month Service Asset: 12700 Conveyor System #2 Location: SHIPPING Shipping and Receiving Department

Task IDs

Task ID	Description	Status	Measurement Point
10	Inspect on/off and limit switches.	WAPPR	
20	Clean motor.	WAPPR	
30	Inspect gear reducer unit. Check gear box oil.	WAPPR	
40	Inspect, clean, and lubricate drive chain.	WAPPR	
50	Check conveyor belt & pulleys for proper tension.	WAPPR	
60	Inspect and lubricate roller bearings and wheels.	WAPPR	
70	Operate conveyor to ensure that unit runs quietly.	WAPPR	
80	Change oil in gear reducer. Examine drained oil.	WAPPR	
90	Record amperage and voltage with motor operating.	WAPPR	
100	Replace worn bearings, index plate and bolts.	WAPPR	

Planned Labor

Task ID	Craft	Skill Level	Labor	Vendor	Contract	Qty	Hours	Rate	Line Cost
	MECH	FIRSTCLASS				1	02:00	$0.00	$0.00
	ELECT	FIRSTCLASS				1	02:00	$0.00	$0.00
	MECH	APPRENTICE				1	02:00	$0.00	$0.00
							Total Planned Labor:		$0.00

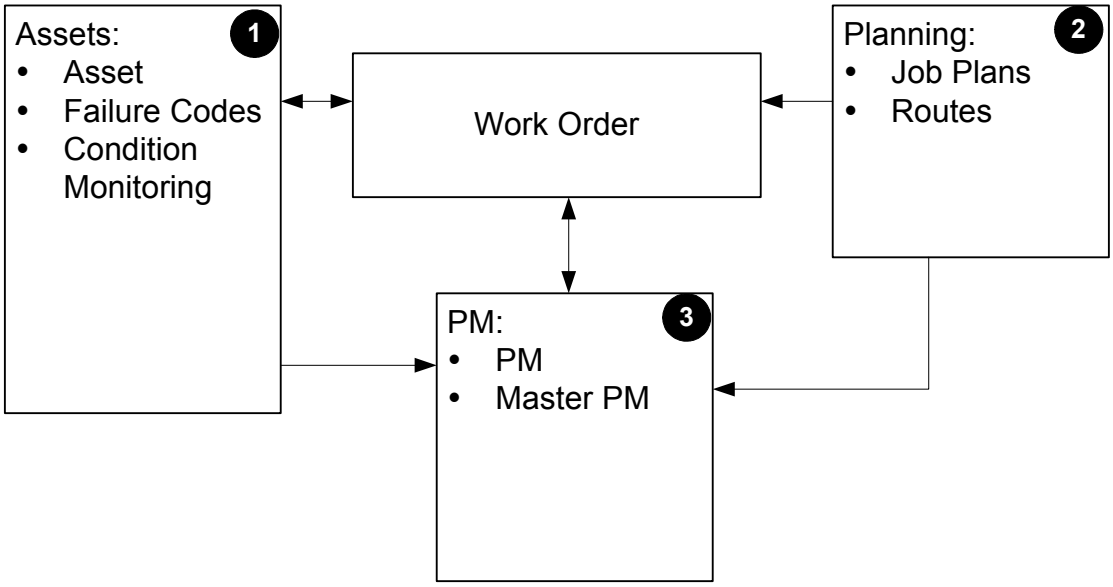
Page 1 of 2 Monday, April 18, 2005

Setting Up the Database

Process Flow

As we discussed, there are numerous possibilities for what data is entered into Maximo and when it is entered. For this unit, we will assume that setting up Maximo will follow the flowchart below.

Setting Up WO Referencing and Supporting Records



Stage	Description
1	We will enter records that answer the question of what is worked on, and where, by entering equipment records using the **Assets** application. We will also enter asset-supporting records that can indicate why something has occurred by using the **Failure Codes** application, as well as entering records that allow us to gather important data from the asset itself by entering condition-monitoring points with the **Condition Monitoring** application.
2	Using the **Job Plans** application, we will enter job plan records that answer the question of how the work gets done. We will also be able to plan for work stops along routes by using the **Routes** application.
3	We will enter records that answer the question of when, what, and how often work needs to be done by entering records using the **Preventive Maintenance** and **Master PM** applications.

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Setting Up the Database continued

Database Building Applications

To acquaint you with the Maximo modules and applications that are used to set up Maximo, here is a brief overview of each module's applications and a description of their functionality that will be used in this unit's chapters.

Module	Application	Description
PM	Preventive Maintenance	Holds templates for scheduled work
	Master PM	Holds template templates for other PM (Preventive Maintenance) records
Assets	Assets	Allows you to enter and display detailed data on equipment
	Failure Codes	Holds templates for failure hierarchies
	Condition Monitoring	Allows you to create and view measurement point records for assets and locations
Planning	Job Plans	Holds templates for the operations, labor, material, tools, and work assets required to do a specific job
	Routes	Lists related work assets, which are considered "stops" along the route

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Setting Up the Database continued

Multisite

Multisite is a way of implementing Maximo that allows a large company or corporation with multiple facilities to share data from a single database, while allowing the flexibility to have different business practices and data at different facilities. A multisite setup allows you to organize your Maximo database to model your company's organizational structure. The table below describes the levels of data storage.

Level	Description
System or Database	Data that is stored at the system level can be accessed by all users who are connected to the Maximo database. You might also hear this level referred to as *enterprise* level.
Organization	Data that is stored at the organization level can be accessed only by users within a specific organization. An organization can contain one or more sites. Organization-level data cannot be shared with other organizations.
Site	Data that is stored at the site level can be accessed only by users at the specified site. Site-level data cannot be shared with other sites or organizations.

Priorities

Maximo uses values to indicate priority for work orders, assets, and locations, and can use these different priority values to generate a calculated priority to determine the overall priority of a work order among work orders "competing" for similar assets or locations.

Maximo uses two values:

- **Priority**—If the work order is created in Work Order Tracking, you can specify the priority of the work order. Work orders generated from a PM inherit their priority from the PM.
- **Asset/Location Priority**—Maximo copies the priority value from the asset record. If no priority value is specified on the asset record, Maximo copies the priority from the location record.

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Setting Up the Database continued

Priority Value Range

In Maximo, the default is 0. Values from 0–999 are valid, but it is recommended to limit the range of value to 0–10, where 0 is designated the lowest priority.

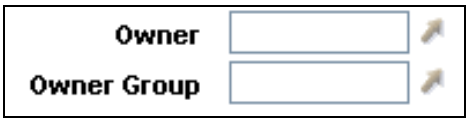
Priority Calculation Options

The calculated work priority can be the work order priority, or a combination of the work order priority and the asset/location priority. Maximo can be set to use any one of the following formulas to determine work priority:

Option	Formula
NONE	No calculation
PRIORITY	Work Order Priority
EQPRIORITY	Asset/Location Priority
PRIORITY + EQPRIORITY	Work Order Priority + Asset/Location Priority
2* PRIORITY + EQPRIORITY	2 * Work Order Priority + Asset/Location Priority
PRIORITY + 2*EQPRIORITY	Work Order Priority + 2 * Asset/Location Priority

Ownership

The *owner* of a record is the person or person group in charge of the record from an administrative perspective. The owner keeps the customer updated and acts as the point person for any issues involving the work. Individuals or groups can assume responsibility, or *ownership*, of a work order in Maximo. When an owner group owns a work order, all members of that group see the work order in their Work View. Ownership designations can be made when setting up Job Plan or PM records in the database or on the work order record itself. Job plan and preventive maintenance records contain Owner and Group Owner fields, and when you generate a PM work order or apply a job plan to a work order, Maximo automatically copies the values in these fields to the work order.



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Setting Up the Database continued

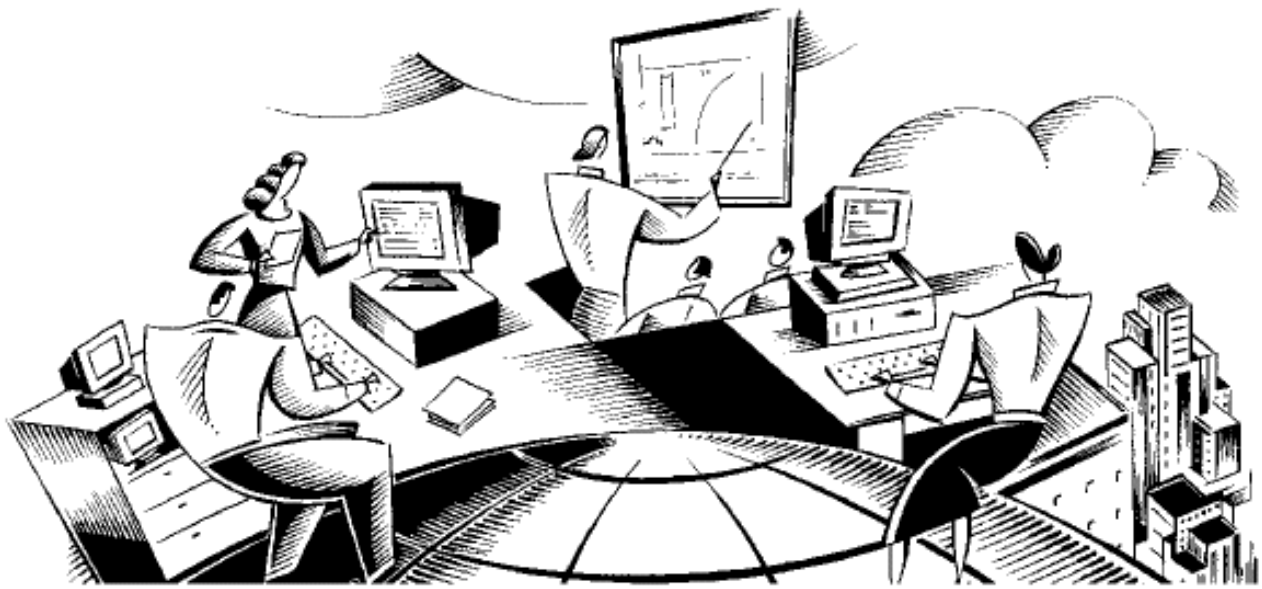
Procedure: Inserting Records into the Database

The general procedure for inserting a record into the database is as follows:

Step	Action
1	Open the application from the Start Center or the Navigation bar **Go To** drop-down menu.
2	Click the **Insert Record** toolbar button. 
3	Enter a value in the key field, and then enter a description for it.
4	Enter a value in each of the other required fields.
5	Click the **Save** button to save the record. 

Work Management Using MXES

Chapter 3: Entering Assets and Asset Detail Records



In This Chapter This chapter contains the following topics:

Chapter Overview

Introduction

Work orders can be written against assets (equipment) or locations. But you might need other information besides the asset and/or location description in order to do the work. For example:

- Will work on this equipment require taking down other assets?
- Are there pending work orders against the asset, or against other assets at the location, that can be done now?
- Will work at this location affect other locations?
- Are there pending work orders against the location itself?

Learning Objectives

When you have completed this chapter, you should be able to:

- describe rotating assets (equipment),
- insert new equipment records,
- create a condition monitoring measurement point for an asset, and
- create a failure hierarchy.

continued on next page

Chapter Overview continued

Definitions

Here are some terms that will be used in this chapter and throughout the course.

Term	Definition
Asset equipment	Assets for which you want to keep a repair history, but will not store in inventory.
Rotating item *Rotating asset* *Rotating equipment*	Assets that are interchangeable, such as motors, pumps, fire extinguishers, or PC monitors. Rotating assets have both a unique asset number and an inventory item number. The item number lets you track assets as a group as they are moved into and out of inventory and other types of locations. Each piece will have the same item number and a different equipment number. For example, a company might have five centrifugal pumps that are similar in that all five are the same make and model. Therefore, they all have the same item number. However, each pump is a unique piece of equipment with its own history of use and repair. Therefore, each pump has its own unique equipment number, which enables you to track maintenance and related costs.
Item	A generic identification of an asset or spare part. IT establishes the attributes of the rotating asset (equipment) associated with it.
Location	A functional identification where an asset can reside.

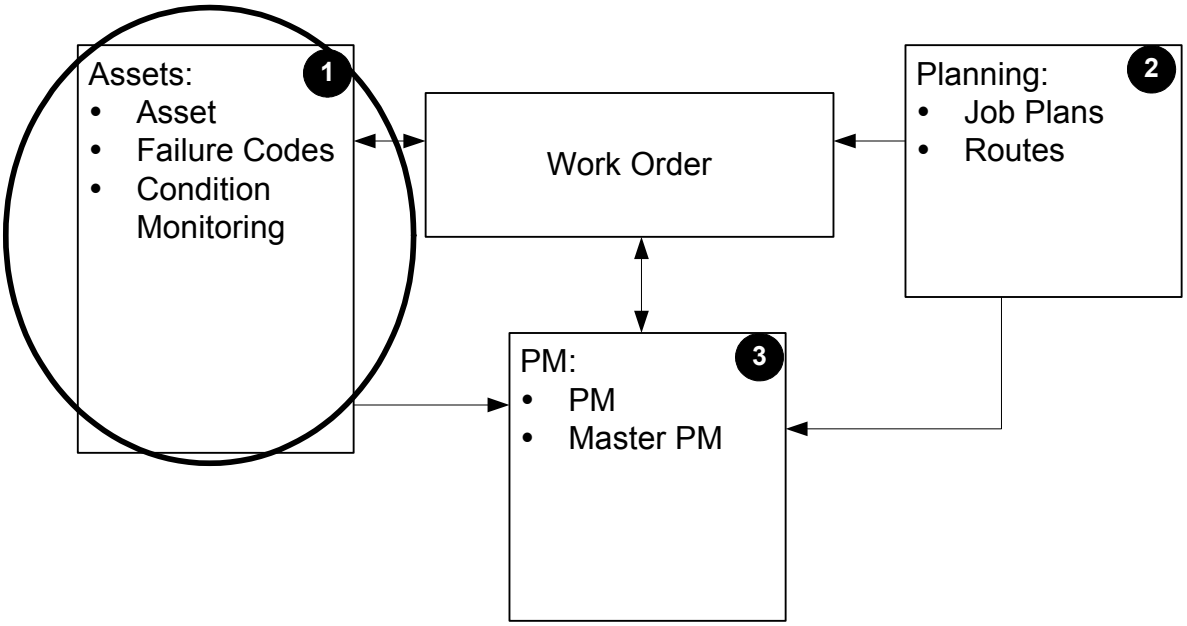
continued on next page

Chapter Overview continued

We Are Here

We will enter records that answer the questions of what is worked on and where by entering asset records using the Assets applications. We will also enter asset-supporting records that can indicate why something has occurred by using the Failure Codes application, and enter records that allow for the recording of condition-monitoring measurement points using the Condition Monitoring application.

Setting Up WO Referencing and Supporting Records



Asset (Equipment) Records

Introduction

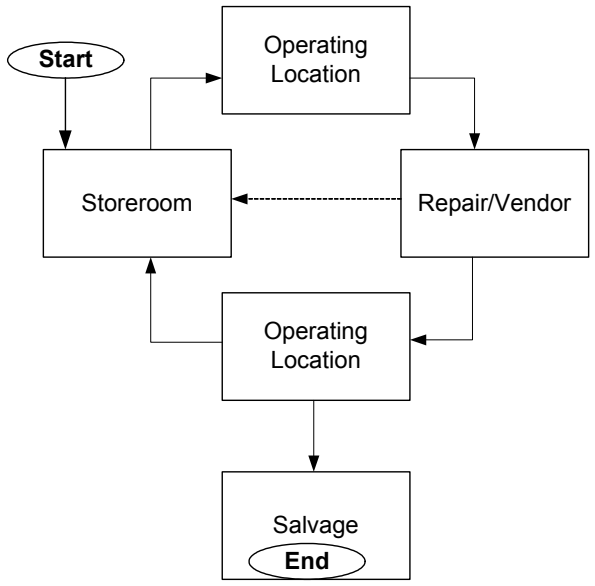
Asset modeling is the process of tracking the cost and maintenance of equipment from purchase to salvage. In this section we will enter several asset records into Maximo and track the cost and maintenance activities against these assets.

Lifecycle of Assets

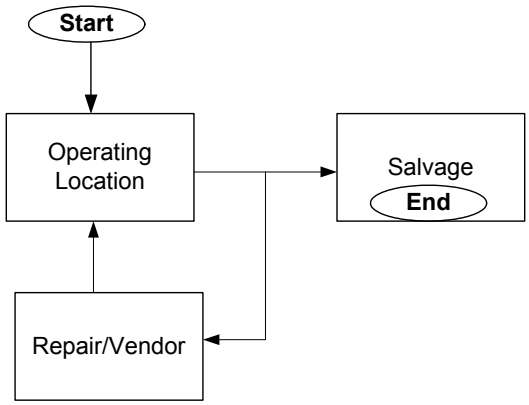
In Maximo, assets can be categorized into two groups: rotating or non-rotating.

- A *rotating* asset might start its lifecycle as a stocked item in a storeroom, then be issued and transferred. Rotating assets can be tracked in inventory.
- A *non-rotating* asset starts its lifecycle at a location. Non-rotating assets do not move into and out of storerooms and are not tracked in inventory.

Rotating Equipment Lifecycle



Non-rotating Equipment Lifecycle



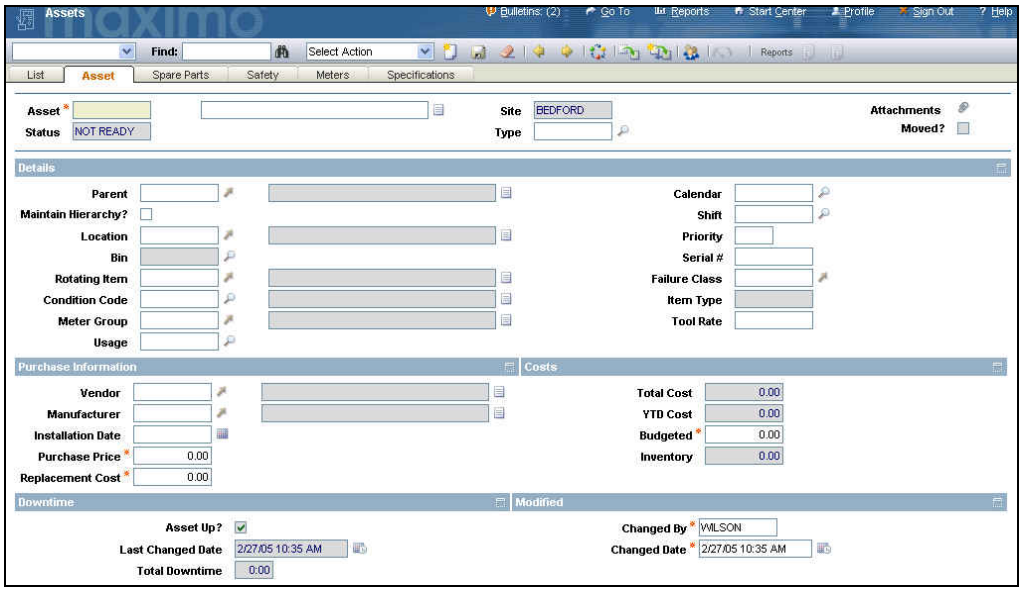
Asset (Equipment) Records continued

Capturing Total Asset Costs

Entering asset records and associating them with their subassemblies and spare parts not only allows the performance of each subassembly and spare part to be monitored on an independent basis, but also allows for all of the asset costs to be captured.

Assets Application

The **Assets** application and its related information are central to maintenance management. The Assets application stores a significant amount of information that is needed to maintain your equipment. Use the Assets application to add new pieces of equipment to the database and define relationships among pieces of equipment.



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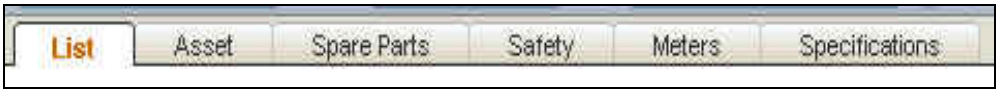
Asset (Equipment) Records continued

Tabs

The Assets application has the following tabs:



The following table describes each of these tabs.

Use this tab…	To…
List	Search for assets
Asset	View, modify, add, or delete the main record for a piece of equipment or a serialized part/component
Spare Parts	Create the asset hierarchy and view the subassemblies and parts of a piece of equipment
Safety	View, add, or delete safety records for an asset
Meters	View or add metering information for an asset
Specifications	Classify and apply the specification template that is associated with the classification you used.

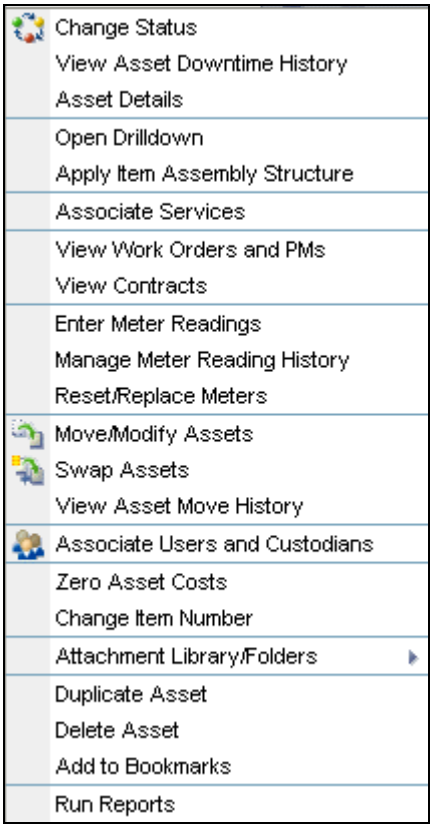
continued on next page

Asset (Equipment) Records continued

Select Action Menu

The **Select Action** menu contains specific actions associated with the **Assets** application. The actions you can perform with this menu include:

- viewing the location and equipment hierarchy (Open Drilldown)
- move equipment, associate equipment to a different rotating item number
- attach an item's assembly structure
- reset meter readings
- view work orders and PMs for the equipment
- associate users and/or custodians to the asset



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Asset (Equipment) Records continued

Select Action Menu Use

Some actions on the Select Action menu will be explained in this chapter and used in exercises in this course, but for a detailed explanation of this menu, see the *Maximo User's Guide*.

Asset Status

The Status field indicates when an asset is:

- **Not Ready**. Default status for new asset records. Asset records can be created before assets have been received, installed, configured, inspected, or otherwise approved for their intended use.
- **Decommissioned**. Asset has been retired from service and moved to scrap or salvage.
- **Operating**. Asset has been received, installed, configured, inspected, or otherwise approved for use or operation.

Additional points on asset status:

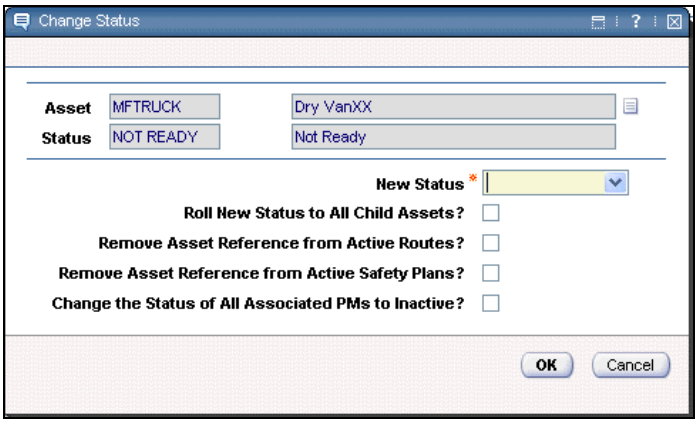
- Initial entry of an asset record into Maximo defaults to a Not Ready status.
- When an asset has a status of Decommissioned, it cannot be viewed from other applications, such as Work Order Tracking, but can be viewed with the Assets application.

continued on next page

Asset (Equipment) Records continued

Status Change Options

When the asset status is changed, there are checkbox options available to help in the management of the asset and its relationship with other applications and, if applicable, with its subassemblies (children). The list below describes the purpose of each option.



Select this option…	To specify that…
Roll New Status to All Child Assets?	All children of the asset whose status you are changing also will have their status changed to the same new status. This option can be selected for any status change.
Remove Asset Reference from Active Routes?	The asset should no longer be referenced on active routes while the asset is in the new status. For example, if you set an asset's status to Decommissioned, you might want the asset removed from inspection routes. This option can be selected only when the status of an asset is Decommissioned.
Remove Asset Reference from Active Safety Plans?	The asset should no longer be referenced on active safety plans while the asset is in the new status. This option can be selected only when the status of an asset is Decommissioned.
Change the Status of All Associated PMs to Inactive?	Any PMs associated with the asset should be set to Inactive while the asset is in the new status. This option can be selected only when the status of an asset is Decommissioned.

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Asset (Equipment) Records continued

Asset Type

If you are using Maximo to track a variety of assets, note that the Asset Type field allows for assets to be categorized. Some examples might include:

- **Production** (e.g., motors, pumps, winches, presses)
- **Facilities** (e.g., plumbing, lighting, fire extinguishers)
- **Fleet** (e.g., forklifts, trucks, buses, trains, aircraft)
- **Technology** (e.g., computers, routers, hubs, servers)

Every Asset Within a Site Must Have a Unique Identifier

If you might want to move an asset from one site to another, the asset's number must be unique to perform the move. If there is already an asset with the same asset number at the site to which you want to move, Maximo will not allow you to move the asset unless you rename the asset identifier. Maximo will prompt you to assign a new asset identifier to the asset you are moving.

continued on next page

Asset (Equipment) Records continued

Meters in Maximo

In Maximo, meters can represent actual physical meters or *virtual* meters—meters that are not physical but require a reading. Meters can be associated to assets and items, which can be used for:

- PM schedule frequencies
- Condition monitoring measurement points
- Item balances

There are three types of meters:

- *Continuous* meters are cumulative and tend to measure consumption or accumulation. They include meters that track such things as miles, hours, engine starts, pieces produced, or fuel consumed.
- *Gauge* meters show a range of values such as fuel levels, temperature, pressure, noise level, or oil level. Gauge meters are recorded via condition monitoring points.
- *Characteristic* meters are observational and have a list of possible values. They are used to track such things as noise level, vibration level, clarity, or color. Characteristic meters are recorded via condition monitoring points.

continued on next page

Asset (Equipment) Records continued

Continuous Meter and Average Calculation Method

If you select a continuous meter, then you need to choose an average calculation method:

- **All** calculates the average of all the readings.
- **Sliding Days** calculates the average of the readings over a specific number of days.
- **Sliding Readings** calculates the average of a specific number of readings.
- **Static** sets the average and never recalculates it.

Note: If you use **Sliding Days** or **Sliding Readings**, enter the number of readings, days, weeks, or months to include in a sliding average meter unit calculation.

Accept Meter Rolldown

When you associate meters to an asset, the system will default to accept a meter reading from an asset. If you do not want the asset to accept meter readings, you can choose NONE.

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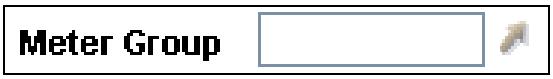
Asset (Equipment) Records continued

Meter Group

When an asset has a meter group associated with it, all the meters that belong to that group are listed on the asset's Meters tab.

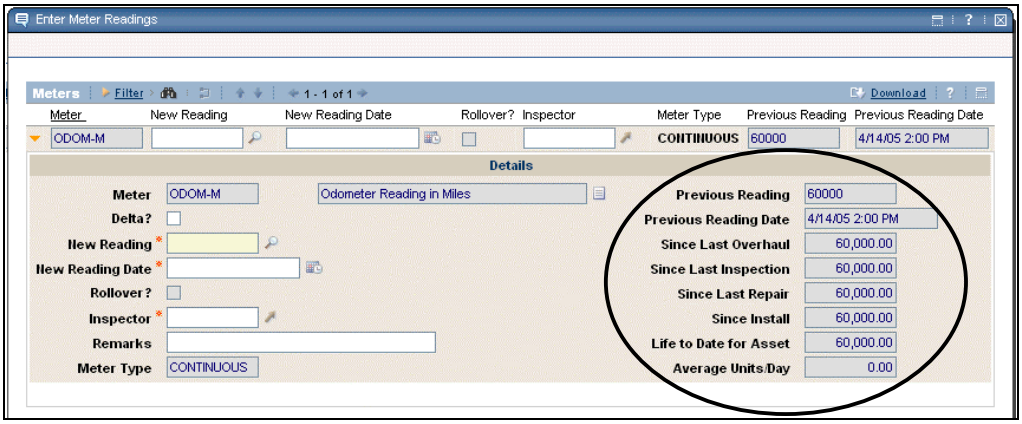


A few things to note:

- If the asset is a rotating asset, and its rotating item has a meter group assigned to it, the meter group associated with the item is copied to the asset record and the Meter Group field is read-only.
- If a rotating asset's item does not have a meter group assigned to it, you can assign a meter group to the asset.
- You also can assign a meter group to a non-rotating asset.

Select Action: Enter Meter Readings

The **Enter Meter Readings** action not only allows you to enter a meter reading, but also allows you to view the details of meter readings from various types of asset transactions.



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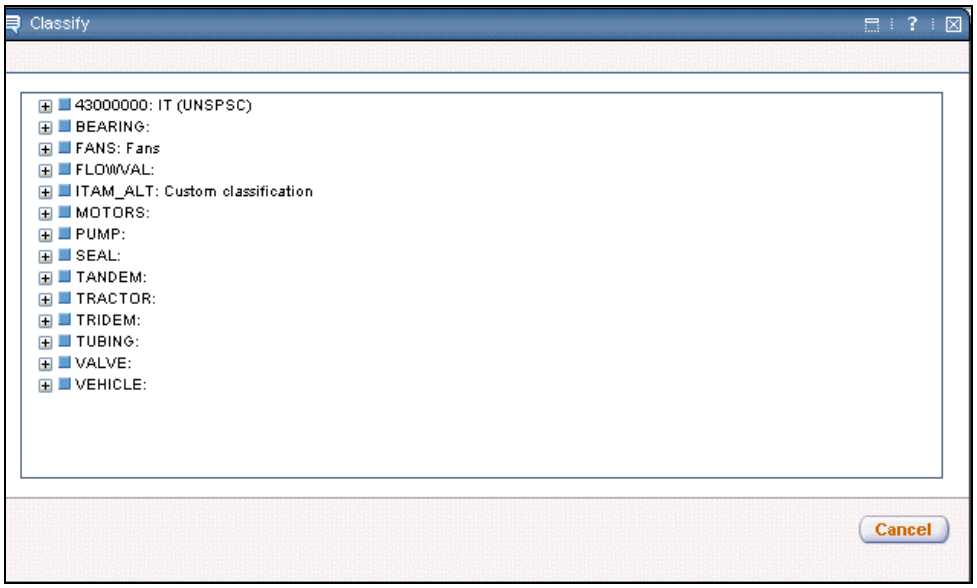
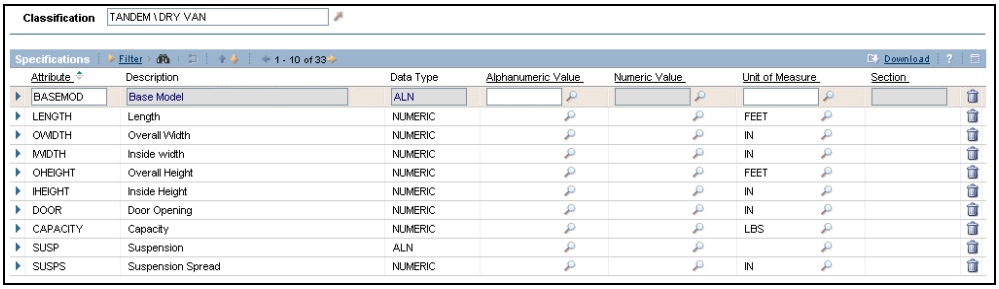
Asset (Equipment) Records continued

Specifications and Classifications

When you define specifications for an asset, you use the classification hierarchy that is comprised of specification templates. These templates contain attributes about an asset, such as its size, speed, material, or capacity, that you can use to define specific information about the asset.



After you have chosen a classification path for an asset, the predefined list of attributes displays in the Specifications section and allows you to input values specific to the tool.

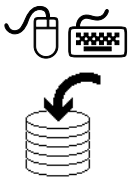


Entering a Non-rotating Asset Record

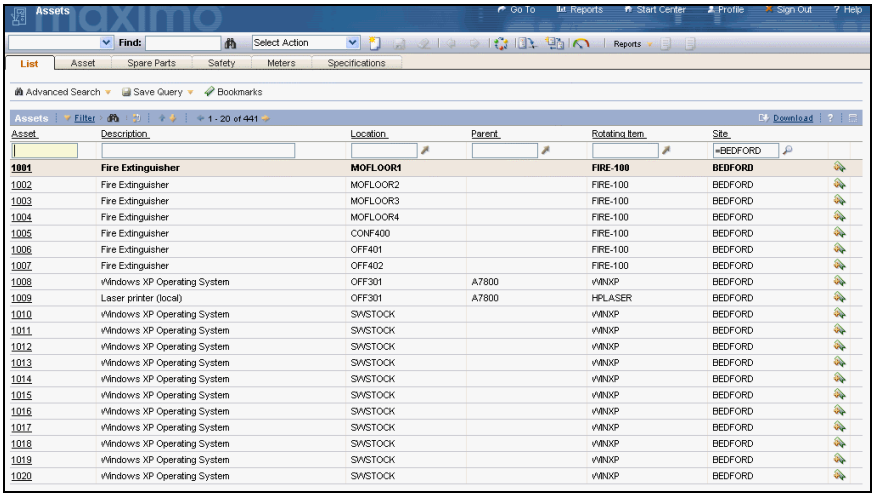
Introduction

As we discussed, an asset is equipment with a unique identifier that is not tracked in inventory. In this section, we will enter a non-rotating asset record into Maximo.

Inserting Asset Records



We will enter a vehicle and its supporting information into Maximo using the **Asset**, **Meters**, and **Specifications** tabs.

Step	Action
1	From the **Go To** menu, click on **Assets** and select the **Assets** application. Result: The Assets application opens. 

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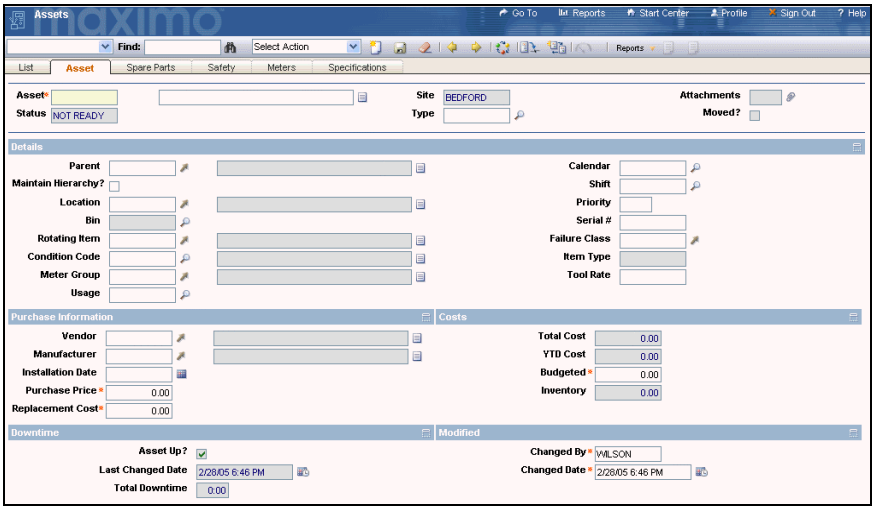
Entering a Non-rotating Asset Record continued

Inserting Asset Records continued

Step	Action
2	Click the **New Asset** toolbar button.  Result: The Asset tab opens. 
3	On the **Asset** tab, enter the following information: **Field** — **Value** **Asset** — 100 *XX* **Description** — [*Leave blank for now*] **Type** — FLEET

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Entering a Non-rotating Asset Record continued

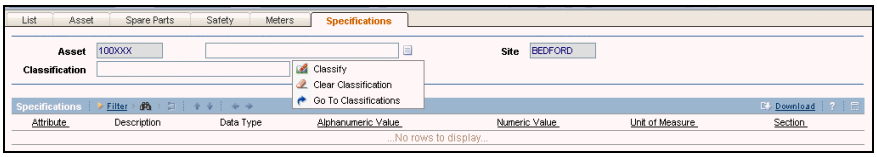
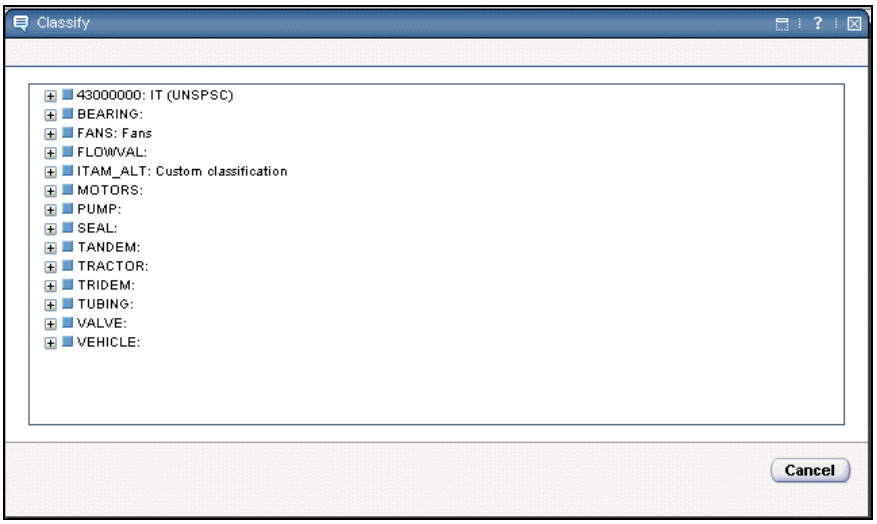
Inserting Asset Records continued

Step	Action
4	Click the **Detail** button in the **Location** field. Search for and select **FLTGAR - Fleet Garage**. Result: The Fleet Garage is identified as the operating location for this vehicle. Note: If no location is indicated in the **Location** field and you save your record, the Location field will become read-only. You can use the Move/Modify or Swap action to move the asset into the location.
5	Use the **Tab** key or your mouse to move between fields and enter the following information: **Field** — **Value** **Serial #** — 017 **Manufacturer** — FTL **Installation Date** — [*Today's Date*] **Purchase Price** — 150000 **Replacement Cost** — 150000
6	Click on the **Meters** tab, then click the **New Row** button.
7	On the **Meters** tab, enter the following data: **Field** — **Value** **Meter Name** — ODOM-M **Last Reading** — 60000 **Avg. Calculation Method** — ALL **Reading Type** — ACTUAL Note: After a record is saved with a meter, the meter reading field becomes read-only. To enter a meter reading after you have saved your record, you need to use the **Enter Meter Readings** action.

continued on next page

Entering a Non-rotating Asset Record continued

Inserting Asset Records continued

Step	Action
8	Click on the **Specifications** tab. In the **Classification** field, click the **Detail Menu** button. Result: Your screen should look similar to the following example. 
9	From the **Detail** menu, select **Classify**. Result: Maximo displays the Classify hierarchy.  Note: Classifications are created in the Administration module. Instructions for how to create a classification hierarchy are covered in the *System Administration for MXES* course.

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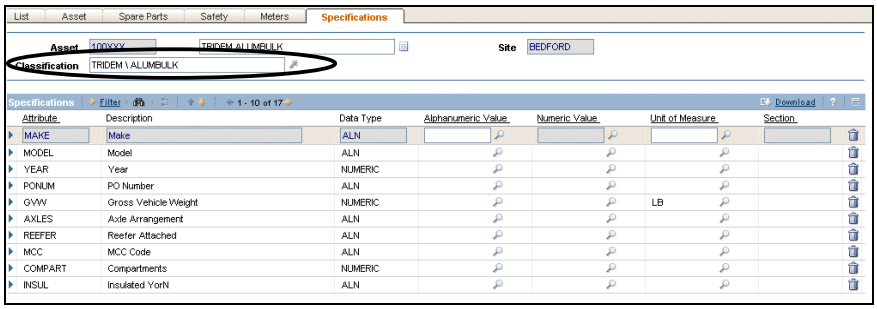
Entering a Non-rotating Asset Record continued

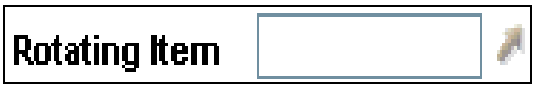
Inserting Asset Records continued

Step	Action
10	Click on the **plus (+) TRIDEM** branch and select **ALUMBULK**.
11	**Save** your record. Result: The Description field defaults to the Classification description.  Note: At this point you could populate the data for this asset's attributes; however, because of time constraints we will not do this.

Entering a Rotating Asset

Introduction

As we discussed earlier, rotating assets are assets that are interchangeable and have both a unique asset number and a rotating item number.



Note: Values for the Rotating Item are established in the Inventory module Item Master application. Inventory setup and management is covered in the *Inventory Management Using MXES* course.

Inserting a Rotating Asset Record

In this exercise we will enter a rotating asset record.

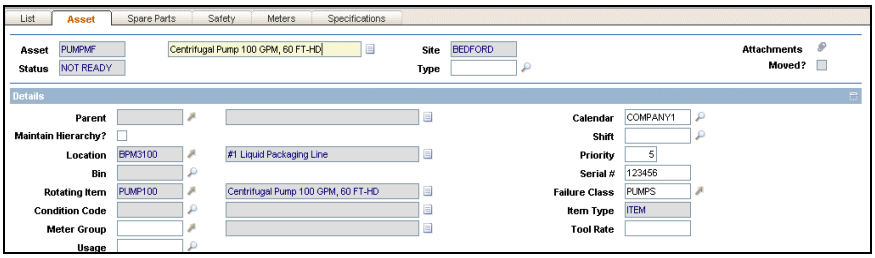
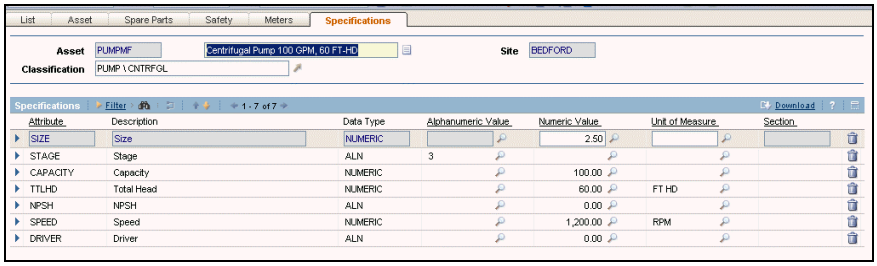
Step	Action
1	Click the **New Asset** toolbar button. 

continued on next page

Entering a Rotating Asset continued

Inserting a Rotating Asset Record

continued

Step	Action
2	Enter the following data: **Field** **Value** **Asset** PUMP*XX* **Description** [*Leave blank for now*] **Rotating Item** PUMP100 Result: Notice that the Description field defaults to the item description that was set up in the Item Master application. 
3	Click on the **Specifications** tab. Result: Maximo displays the specifications for this pump. These specifications are carried over from the rotating item set up in the Item Master application. 

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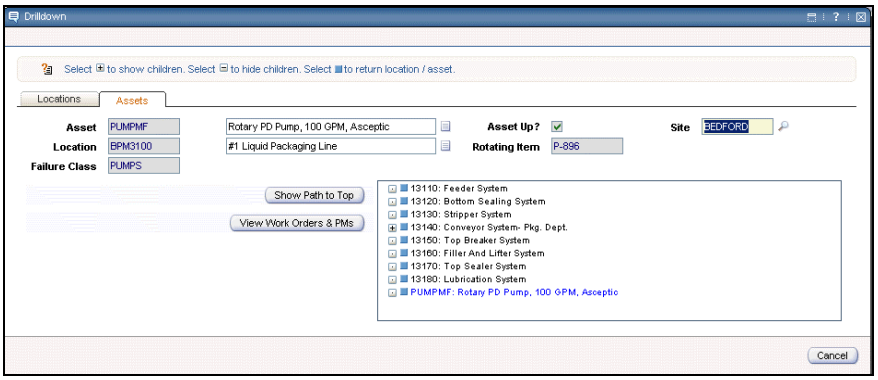
Entering a Rotating Asset continued

Inserting a Rotating Asset Record continued

Step	Action
4	Go back to the **Asset** tab. Enter the following information, then **save** your record: **Field** **Value** **Location** BPM3100 **Failure Class** PUMPS
5	Choose **Open Drilldown** from the **Select Action** menu. Click on the **Assets** tab and then highlight the **PUMPXX** branch. Result: The pump is located at the #1 Liquid Packaging Line and is part of the Assets list. 

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Entering a Rotating Asset continued

Inserting a Rotating Asset Record

continued

Step	Action
6	Click **Cancel** to return to the **Assets** application.
7	Enter the following information: **Field** — **Value** **Calendar** — Company1 **Priority** — 5 **Serial #** — 123 **Vendor** — GST **Installation Date** — [*Use today's date*] **Purchase Price** — 25000 **Replacement Cost** — 25000
8	**Save** the record.

Viewing a Rotating Asset Record in Inventory

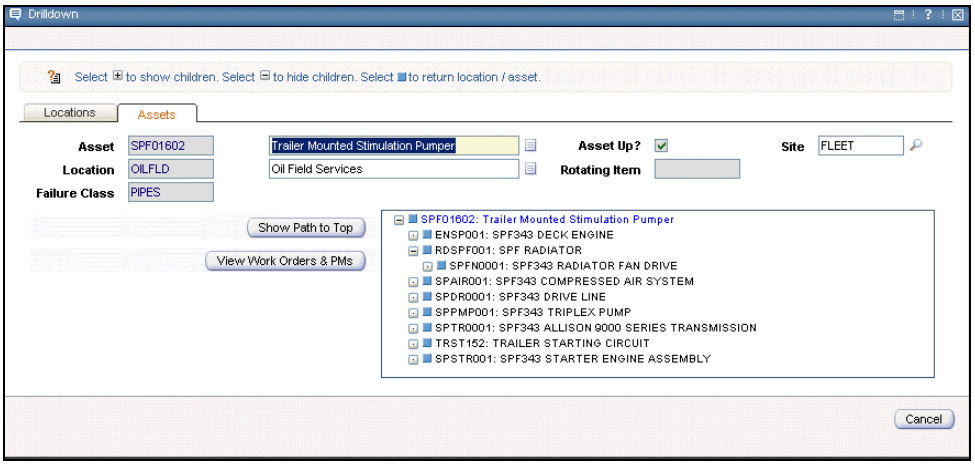
Follow these steps to view the inventory balances and current locations of rotating assets:

1. Open the Inventory application.
2. Search for the rotating asset by its rotating item number.
3. Click on the Rotating Assets tab to view all the rotating assets that are associated to the rotating item and see where they are physically located.

Creating Asset Hierarchies and Assembly Structures

Introduction

An Assets assembly structure is a list of individual items and subassemblies that are used to build asset configurations and asset hierarchies.



Key Definitions

We will use two key terms in this section:

- A *parent* is a level in a hierarchy that has sublevels under it. For example, a pump is comprised of a seal, shaft, impeller, housing, and bearings. The pump is the parent.
- *Children* are the levels in the hierarchy under the parent. In the preceding example, the seal, shaft, impeller, housing, and bearings are the children.

Item Assembly vs. Asset Assembly

An *item assembly structure* (IAS) is a hierarchically arranged list of rotating items, subassemblies, and spare parts that is identified by the top-level item in the structure. An IAS is a generic structure that can be used to build multiple asset assembly structures and their related location systems. When an IAS is associated to an asset, it creates an asset record(s) with associated spare parts in Maximo.

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Creating Asset Hierarchies and Assembly Structures continued

Benefit

Building an asset hierarchy serves the following functions:

- It lets you track maintenance costs. Costs get "rolled up" the hierarchy to the asset responsible for assuming the maintenance cost.
- It builds the asset/location hierarchy, letting you use the Drilldown to visually navigate the hierarchy to locate a specific asset.

Building Asset Hierarchies

In Maximo you can build asset hierarchies by using:

- the Apply Item Assembly Structure (IAS) action;
- the Spare Parts tab to enter asset subassemblies and spare parts individually or in multiples; or
- the Belongs To field to indicate the parent record.

Note: Item assembly structures are created in the Inventory module Item Master application. Inventory setup and management is covered in the *Inventory Management Using MXES* course.

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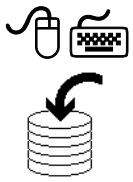
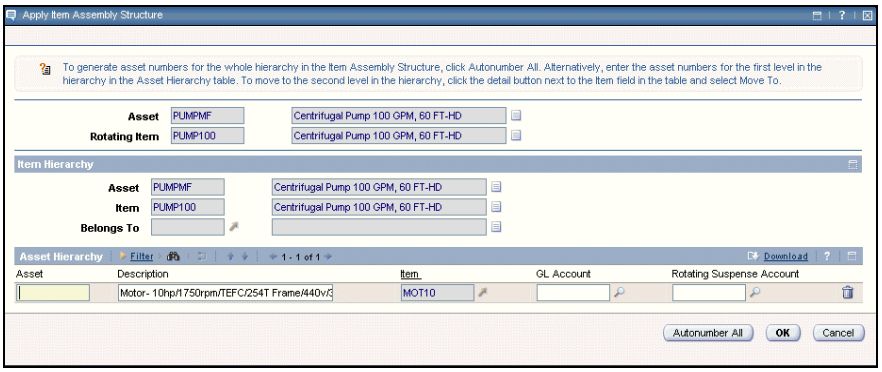
Creating Asset Hierarchies and Assembly Structures continued

Applying IAS



In this exercise we will apply an item assembly structure to the pump.

Step	Action
1	PUMP*XX* should be displayed on the screen. On the **Select Action** menu, select **Apply Item Assembly Structure**. Result: The Apply Item Assembly Structure dialog box opens. 
2	In the **Asset Hierarchy** window, enter the following data: **Field** **Data** **Asset** MOT*XX* **GL Account** 6000-300-000
3	Click **OK**.

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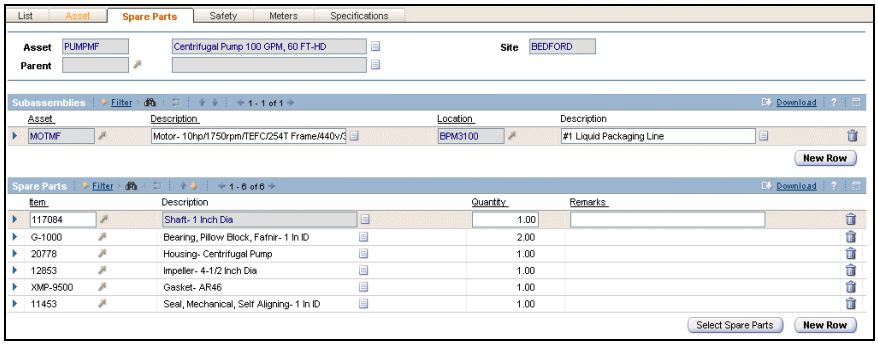
Creating Asset Hierarchies and Assembly Structures continued

Applying IAS continued

Step	Action
4	Click on the **Spare Parts** tab. Result: The Assets subassembly record was created in the system and the asset spare parts items are associated to it. 
5	To view the asset hierarchy, select **Open Drilldown** from the **Select Action** menu. Click on the **Assets** tab, then click on the plus sign (+) on the **PUMP*XX*** branch to open it. Result: Your screen should look similar to the one below. 
6	To close the Drilldown window and return to the **Spare Parts** tab, click **Cancel**.

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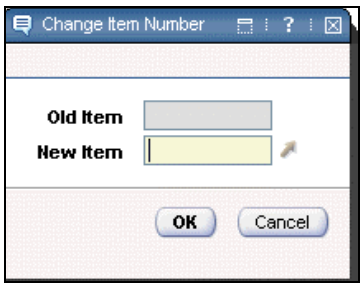
Creating Asset Hierarchies and Assembly Structures continued

Changing the Rotating Item Number

You can change an asset rotating item number by selecting **Change Item Number** from the Select Action menu.



Building an Asset Assembly Structure

For this exercise we will need to create two asset records and then use them to build 100*XX*'s assembly structure. This exercise will demonstrate the **Belongs To** field parent–child relationship.

Step	Action
1	Insert a new asset record for a transmission using the following information: **On the Asset tab** **Field** — **Value** **Asset** — TR100*XX* **Type** — FLEET **Rotating Item** — RTO18 **On the Meters tab** **Field** — **Value** **Meter Name** — ODOM-M **Last Reading** — 60000 **Avg. Calculation Method** — ALL **Reading Type** — ACTUAL Note: Remember to **Save** your record.

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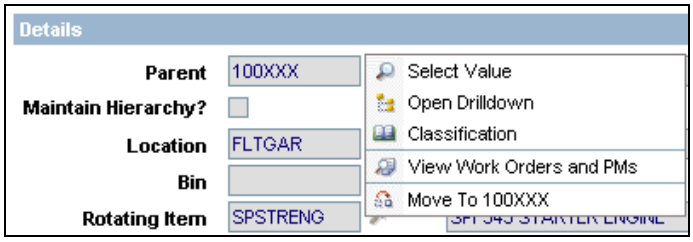
Creating Asset Hierarchies and Assembly Structures continued

Building an Asset Assembly Structure

continued

Step	Action
2	Insert a new asset record for an engine using the following information: **On the Asset tab** **Field** / **Value** **Asset** EN100*XX* **Type** FLEET **Parent** 100*XX* **Rotating Item** SPSTRENG **On the Meters tab** **Field** / **Value** **Meter Name** ODOM-M **Last Reading** 60000 **Avg. Calculation Method** ALL **Reading Type** ACTUAL Note: Remember to **Save** your record.
3	By entering a parent in the **Parent** field, we have started to create 100*XX*'s assembly structure. Click on the **Asset** tab and then, in the **Parent** field, click on the **Details** menu. Result: Your screen should look similar to this example. 

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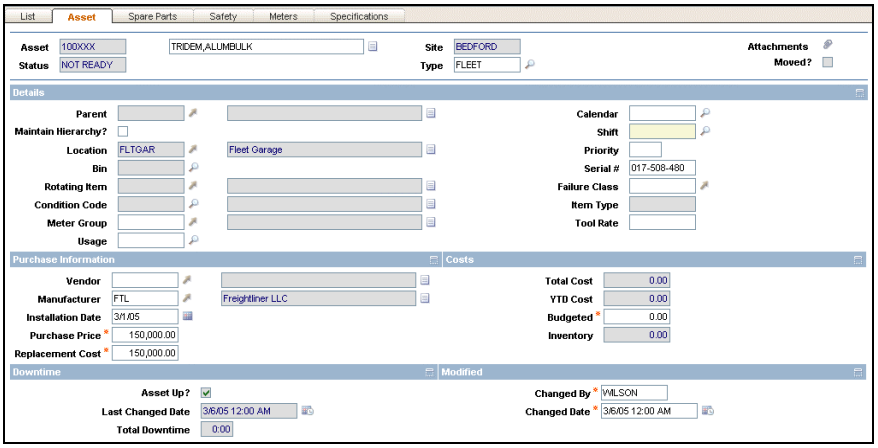
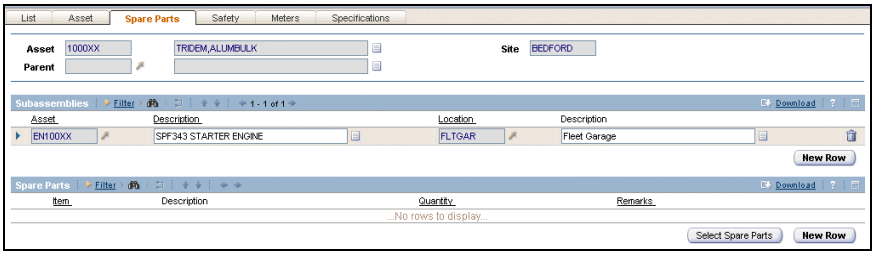
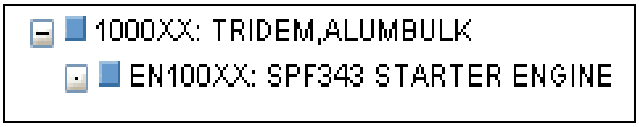
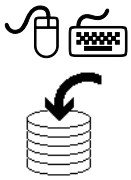
Creating Asset Hierarchies and Assembly Structures continued

Building an Asset Assembly Structure continued

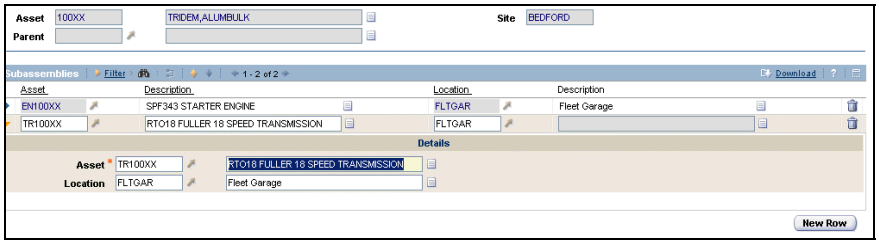
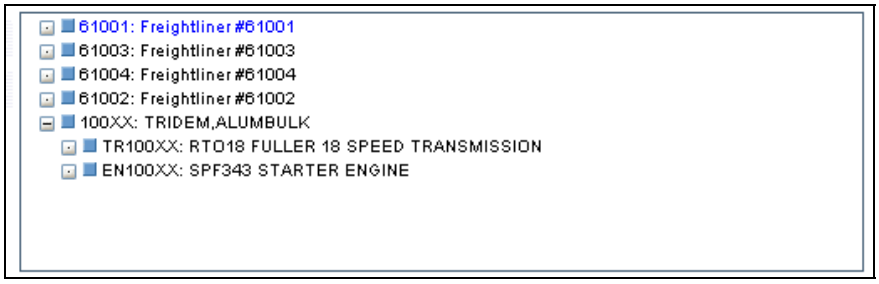
Step	Action
4	Select **Move To 100*XX***. Result: The 100*XX* record, the parent, is moved (populates the Asset tab fields). 
5	Click on the **Spare Parts** tab. Result: Maximo displays the subassembly record (child). 
6	From the **Select Action** menu, choose **Open Drilldown**. Click on the **TRIDEM,ALUMBULK** branch to open it. Result: Your assembly structure should look similar to this: 
7	Click **Cancel** to return to the **Spare Parts** tab.

Creating Asset Hierarchies and Assembly Structures continued

Building an Asset Assembly Structure



This exercise will demonstrate the use of the Spare Parts tab to build the parent-child relationship hierarchy.

Step	Action
1	In the **Subassemblies** table window, click **New Row**. Result: Maximo displays the Details row.
2	Enter TR100*XX* in the **Asset** field.
3	**Save** your record. Result: The transmission is added as a subassembly. 
4	Open the Drilldown to view the hierarchy. Result: Your hierarchy should look similar to the one below 
5	Click **Cancel** to return to the **Assets** application.

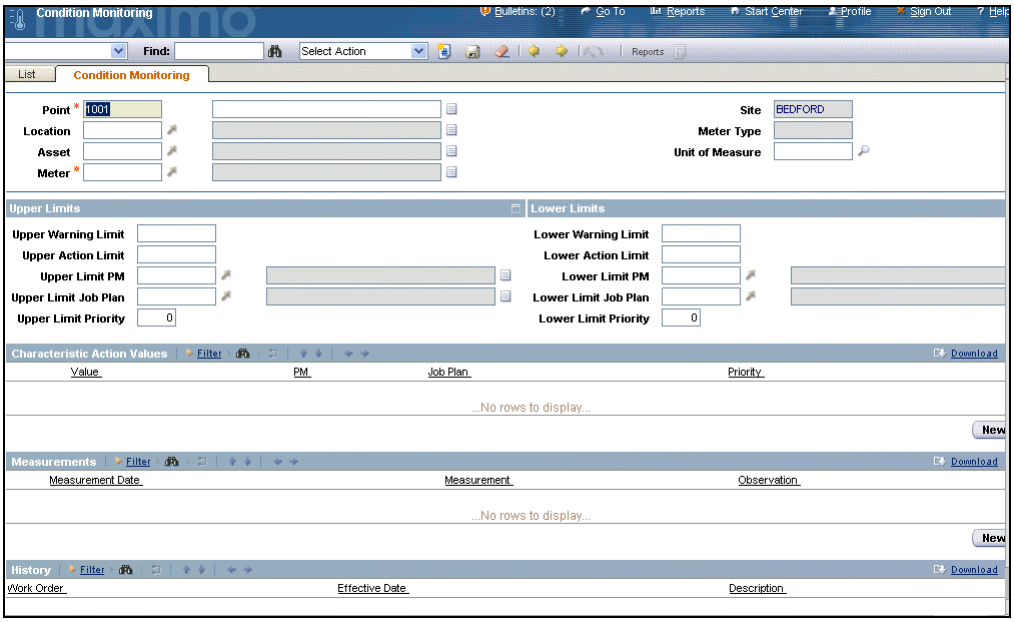
Condition Monitoring Measurement Points

Introduction

If your organization has a predictive maintenance program, condition monitoring points need to be established and connected to the asset. In this section we will discuss how condition monitoring is set up in Maximo.

Condition Monitoring Application

The Condition Monitoring application enables you to track specific asset performance through measurement points.



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Condition Monitoring Measurement Points continued

Upper/Lower Limits

A measurement point has two types of upper/lower limits: *Warning* and *Action*. The following table explains each limit and the action that can take place.

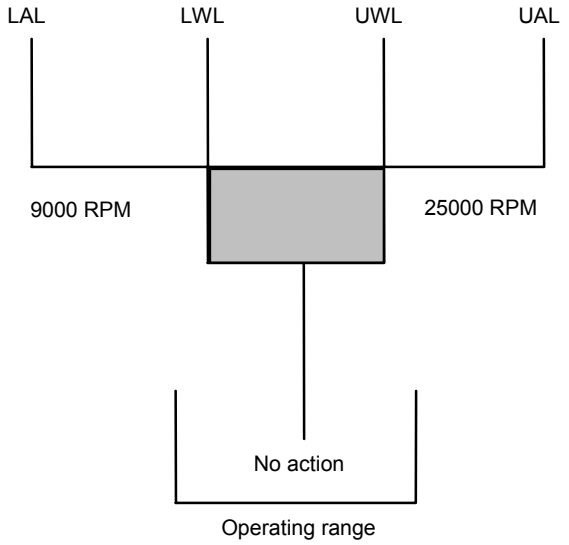
Limit Type	Description
Lower Warning Limit	Indicates a need for closer monitoring.
Lower Action Limit	Indicates a need for corrective action. When the point record is evaluated, if reached, these values will cause a PM or job plan to be generated.
Upper Warning Limit	Indicates a need for closer monitoring.
Upper Action Limit	Indicates a need for corrective action. When the point record is evaluated, if reached, these values will cause a PM or job plan to be generated.

continued on next page

Condition Monitoring Measurement Points continued

Diagram

In this diagram, the Lower Action Limit is set at 9000 RPM, and the Upper Action Limit is set at 25000 RPM. The middle section, between LWL and UWL, represents the operating range within which no special attention or action is needed.



Limit Options

The following table describes the key fields on the Upper Limits table on the Condition Monitoring tab.

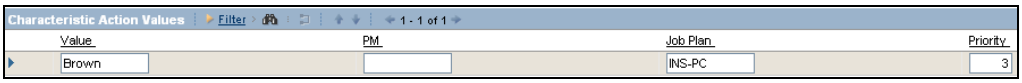
Field	Description
Upper Limit PM	Can choose a PM to be used when the upper limit is exceeded
Upper Limit Job Plan	Can choose a job plan to be used when the upper limit is exceeded
Upper Limit Priority	Will override the priority of the PM or job plan when the upper limit is exceeded
Lower Limit PM	Can choose a PM to be used when the lower limit is exceeded
Lower Limit Job Plan	Can choose a job plan to be used when the lower limit is exceeded
Lower Limit Priority	Will override the priority of the PM or job plan when the lower limit is exceeded

continued on next page

Condition Monitoring Measurement Points continued

Characteristics Measurement

You can use the **Characteristic** table to enter and view observations of characteristic meters that have been associated to the asset, which is done on the Asset application Meter tab. If observations fall outside the measurement value, you can indicate that a PM or job plan work order should be generated.



About Measurement Points

Some details regarding measurement point records are:

- These records define acceptable condition and performance measurements for a *meter* on an asset or location where you take performance or condition measurements.
- You can have an unlimited number of measurement points for an asset. Measurement points are associated with the asset in the Assets application.
- Each measurement point on every asset must be unique.
- You can associate Preventive Maintenance (PM) or job plan records with measurement points so that you can generate work orders when measurements are outside acceptable limits.
- If the PM that is associated with the measurement point record is part of a PM hierarchy, you can generate a corresponding work order hierarchy.
- When you add a job plan to a work order for an asset or location, if the point on the asset or location corresponds to the point name on the job plan, Maximo inserts the point identifier in the Measurement Point field on the work order's plan.

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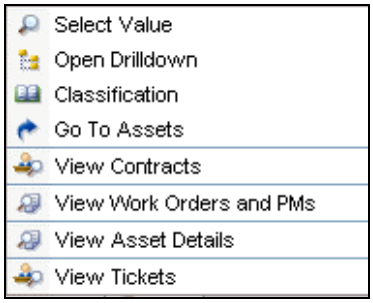
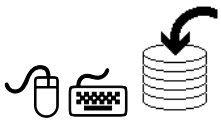
Condition Monitoring Measurement Points continued

Details Button

Remember, right-clicking on an Asset or Location details button can bring up a menu list of options to view specific types of information on the asset or location.



Entering a New Measurement Point



In this exercise we will create an RPM measurement point for the pump.

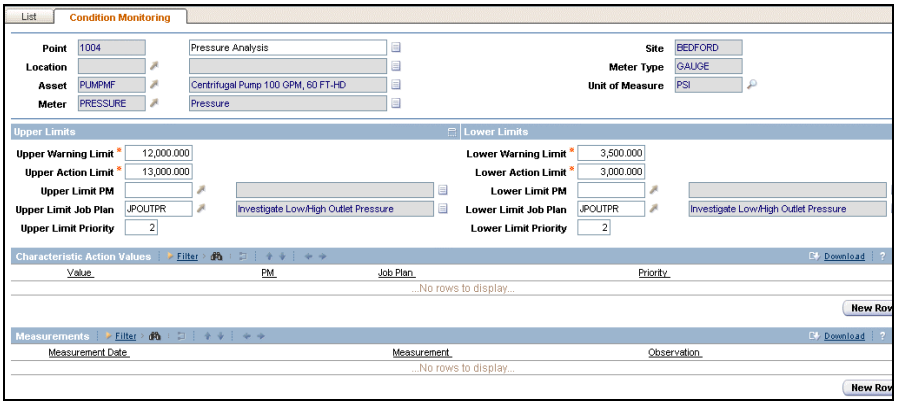
Step	Action
1	From the **Asset** module, open the **Condition Monitoring** application.
2	Insert a new record by clicking the **New Measure Point** icon.  Result: The Condition Monitoring tab opens, with fields ready to accept the information for the new measurement point. Note: In the space below, write down the record number shown in the Point field of your new record. Point: _____

continued on next page

Condition Monitoring Measurement Points continued

Entering a New Measurement Point

continued

Step	Action
3	Enter the following general record data: **Field** — **Value** **Description** — Pressure Analysis **Asset** — PUMP*XX* **Meter** — PRESSURE
4	In the **Upper Limits** frame, enter the following data: **Field** — **Value** **Upper Warning Limit** — 12000 **Upper Action Limit** — 13000 **Upper Limit Job Plan** — JPOUTPR **Lower Warning Limit:** — 3500 **Lower Action Limit** — 3000 **Lower Limit Job Plan** — JPOUTPR
5	**Save** your record. Result: Your screen should look similar to the one below. 

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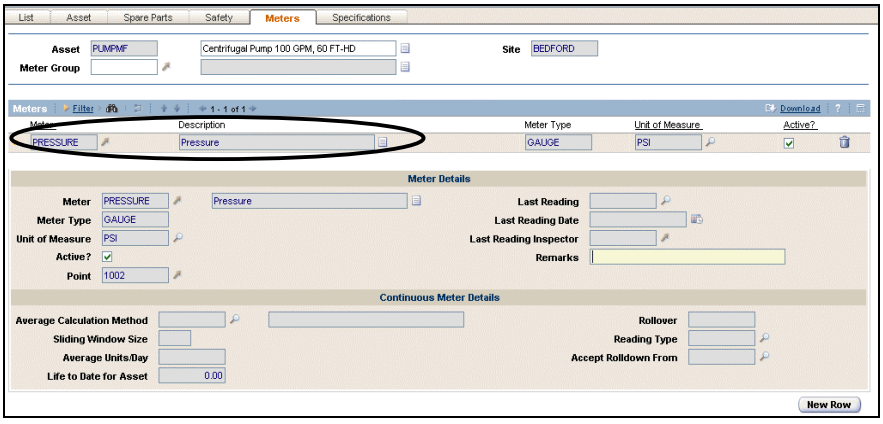
Condition Monitoring Measurement Points continued

Entering a New Measurement Point

Step	Action
6	To view that the measurement point has been added to the pump, on the **Asset** field, use the **Detail** menu and select **Go To Assets**. Click on the **Meters** tab. Result: The Measurement point via a meter is added to the asset. 
7	Click **Return** to go back to the **Condition Monitoring** application.

Deleting a Measurement Point

You cannot delete a measurement point referenced by a work order.

Failure Hierarchies

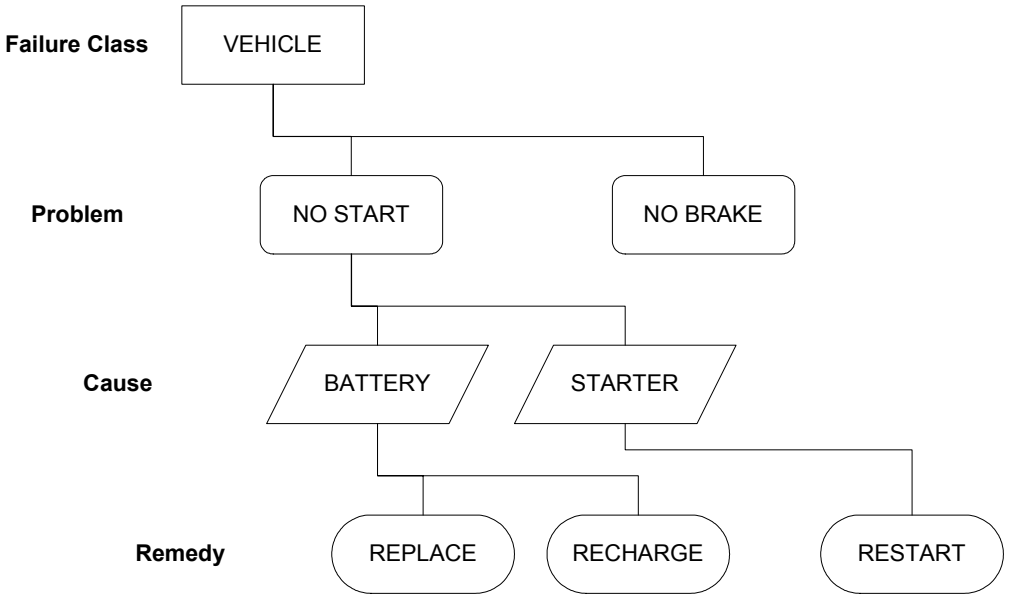
Introduction

Over time, failure reporting accumulates a history of causes of asset failure, and this history can be analyzed to assist in decision-making when it comes to assets and locations. Failure hierarchies are central to failure reporting in Maximo.

Definition

A *failure hierarchy* is a structured list of legitimate failures and solutions you have defined for your site. This allows for the reporting of failures against an asset or locations. A failure hierarchy:

- Identifies all levels of asset problems, causes, and remedies, so that a person can identify what's wrong and what to do about it
- Provides a framework within which someone can report failures, enabling them to record and track the causes of breakdowns



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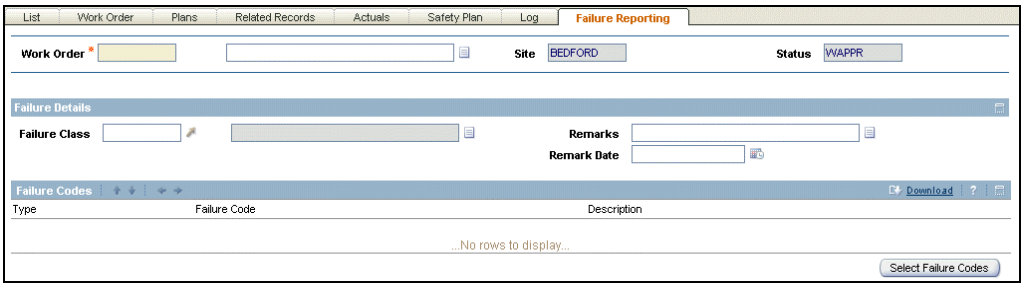
Failure Hierarchies continued

Failure Reporting in Maximo

Failure reporting is done on the **Failure Reporting** tab in the Work Order Tracking or Quick Reporting applications.

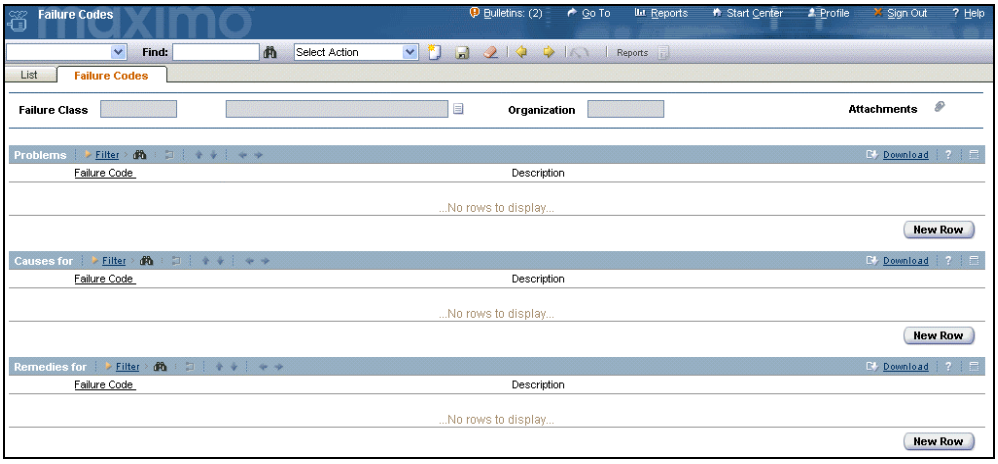


Failure Codes Application

You use the **Failure Codes** application to build and view failure hierarchies and enter their corresponding failure codes. The standard Maximo failure hierarchy consists of four levels:

- Failure Class
- Problem
- Cause
- Remedy

The lower-level items in the list above are "associated" with the higher-level items. Therefore, these levels must be defined in order from the top of the list to the bottom.



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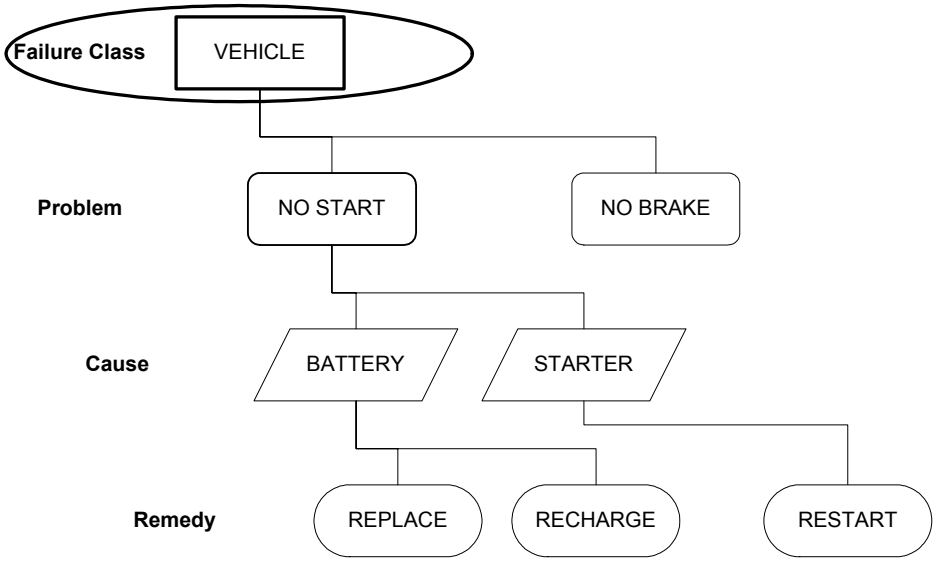
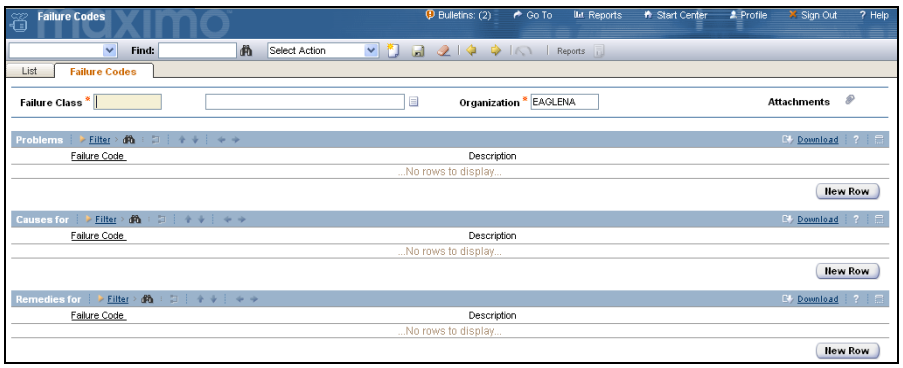
Failure Hierarchies continued

Inserting Failure Class Records

Use the following steps to insert a failure class record into the Maximo database.



Step	Action
1	Open the **Failure Codes** application from the **Asset** module.
2	Click the **New Failure Code** button. Result: Your screen should look like the one below. 

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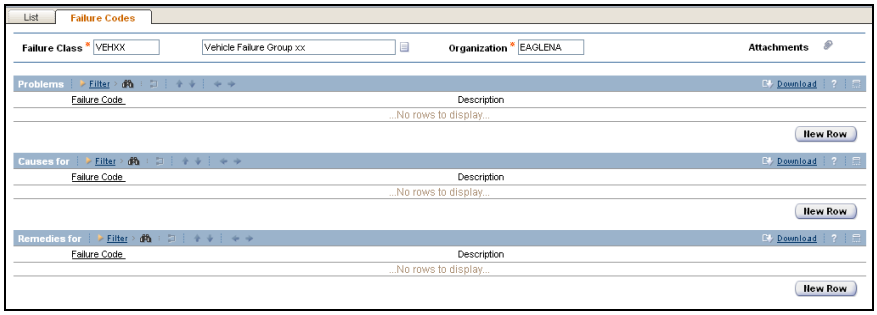
Failure Hierarchies continued

Inserting Failure Class Records continued

Step	Action
3	On the **Failure Codes** tab, enter the following information, and then click the **Save Failure Code** button to save the new failure class record. **Field** **Value** **Failure Class** VEH*XX* **Description** Vehicle Failure Group Result: The failure class is added to the Maximo database. Your screen should look similar to the following graphic. 

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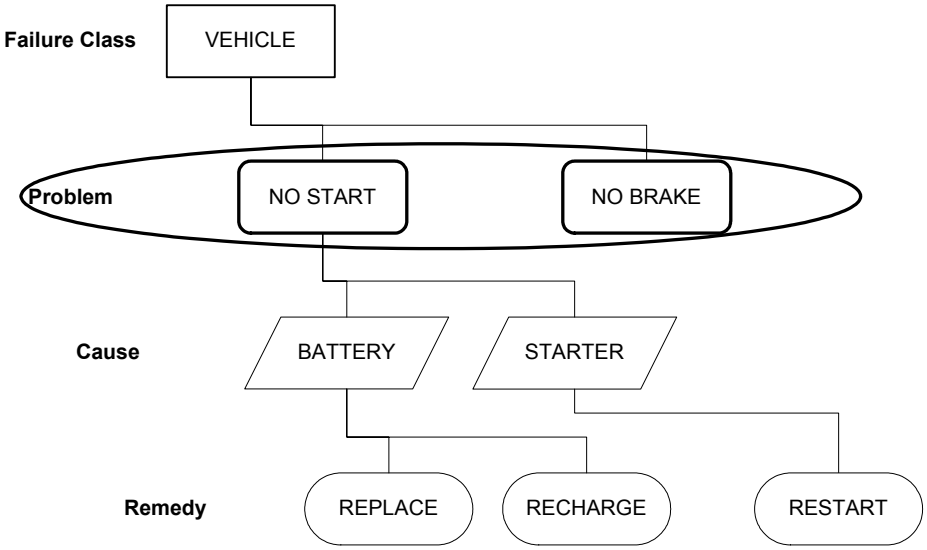
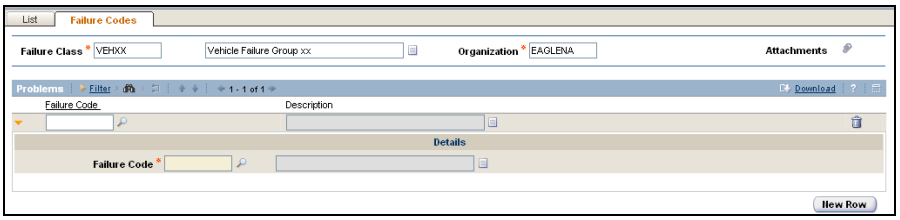
Failure Hierarchies continued

The Problem

We will now build a branch of the VEHICLE failure hierarchy, beginning with a problem for the failure class that we just entered.

For this example, we will indicate that the problem with the vehicle is that it will not start.



Step	Action
1	With the record for VEH*XX* open on the **Failure Codes** tab of the **Failure Codes** application, click the **New Row** button in the first frame (the **Problems** frame). Result: A Problems details row opens. 

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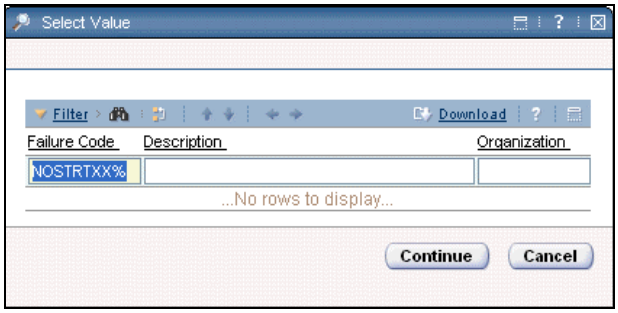
Failure Hierarchies continued

The Problem continued

Step	Action
2	In the **Problems** frame, enter the following information. **Field** **Value** **Failure Code** NOSTRT*XX*
3	**Tab** out of the field. Result: A Select Value dialog box opens. 

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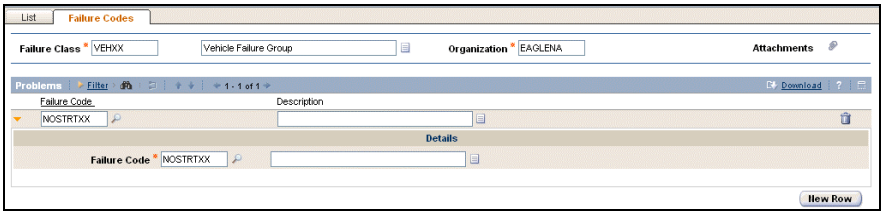
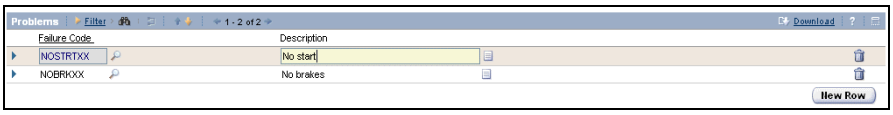
Failure Hierarchies continued

The Problem continued

Step	Action
4	Click the **Continue** button. Result: The problem has been added for the failure class. 
5	Enter No Start in the **Description** field.
6	Repeating steps 1–5, enter the failure code NOBRK*XX* and a description of No brakes.
7	**Save** the record. Result: Your Problem table should look similar to the one below. 

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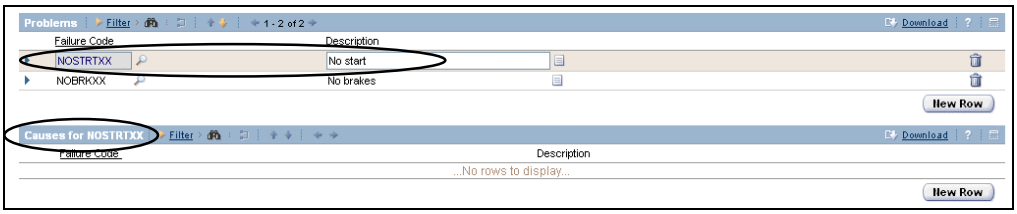
Failure Hierarchies continued

Enter Causes in Maximo

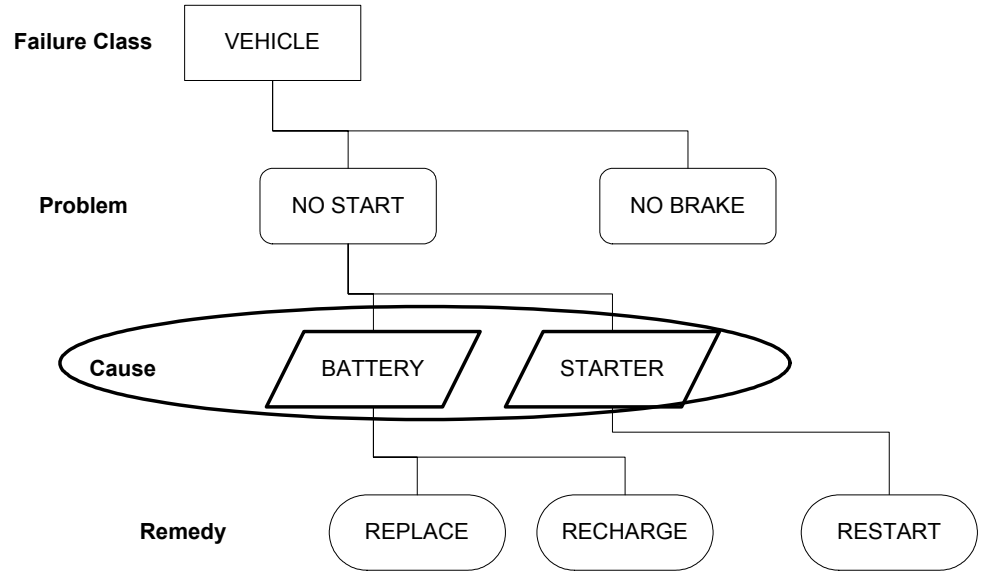
When entering causes for a problem, you need to highlight the appropriate problem row.



Building a Failure Hierarchy: The Cause

Now that we have created codes for problems, we can create codes for the causes of a problem.

For this example, we will indicate two potential causes for the vehicle No Start problem.



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Failure Hierarchies continued

Building a Failure Hierarchy: The Cause

continued

Step	Action
1	Highlight the problem **No Start (NOSTRT*XX*)**. In the **Causes for...** frame, click **New Row**.
2	Enter the following causes: **Field** **Value** **Failure Code** BATY*XX* **Description** Battery Failure **Failure Code** STAR*XX* **Description** Starter Failure Note: Remember, to enter any code not currently in the system, click the Continue button.
3	**Save** the record. Result: The cause codes for the associated problem code, No Start (NOSTRT*XX*), are added to the Maximo database. 

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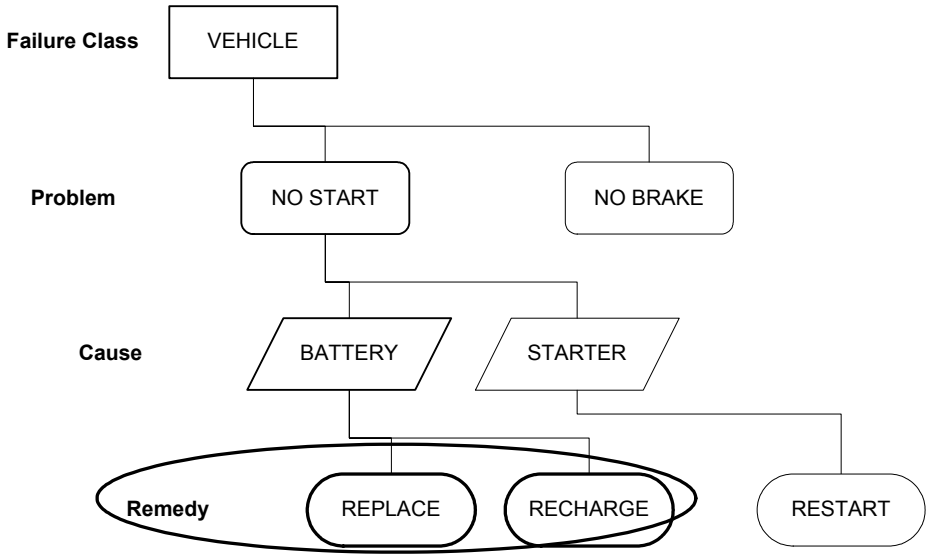
Failure Hierarchies continued

Building a Failure Hierarchy: The Remedy

The final step is to indicate the potential remedies for the cause. In this section, we will add two codes for the remedy level of our hierarchy to indicate the steps to take to correct the identified cause of the problem.



Adding Remedies Exercise

The process of adding remedies is similar to the processes of adding problems and causes. Using your knowledge of the process, add two remedies to the Battery Failure cause. These remedies and their descriptions are listed in the following table.

Failure Code	Description
REPL*XX*	Replace Battery
RECHRG*XX*	Recharge Battery

On completion, your record should look similar to the following:

Asset Transactions

Introduction

Now that we have the asset records with supporting data entered in the database (children, item assembly structures, meters, specifications, failure code), in this section we are going to demonstrate some asset transactions against the asset:

- Status changes
- Moves and swaps
- Updating meter readings

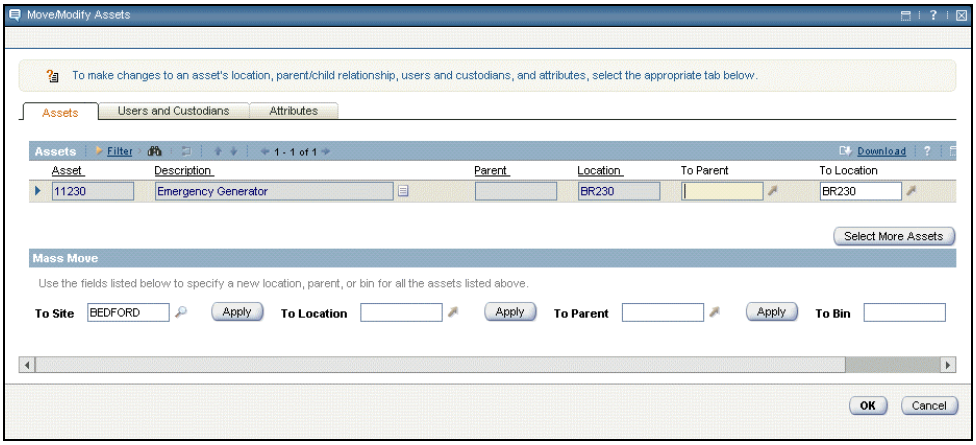
Moves and Swaps

There are two ways to capture asset movement in Maximo:

- Moves
- Swaps

Moves

You use the **Move/Modify Assets** dialog box to move an asset from a non-inventory location to another non-inventory location or a storeroom. You can move assets within your current site, to another site within your organization, or to a site in a different organization. You can also do mass moves, where you move multiple assets at one time by selecting more assets, and then applying these assets in one of the fields indicated in the Mass Move window.



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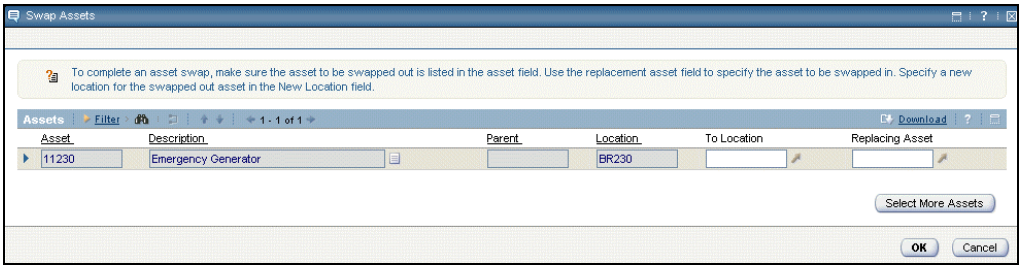
Asset Transactions continued

Swaps

You use the **Swap Assets** action to replace one asset with another, and to specify where to send the asset you swap out. You can swap any number of assets at once by clicking on the Select More Assets button. You cannot use the Swap Assets action to move rotating assets from inventory locations; you must issue or transfer rotating assets using the Inventory applications.



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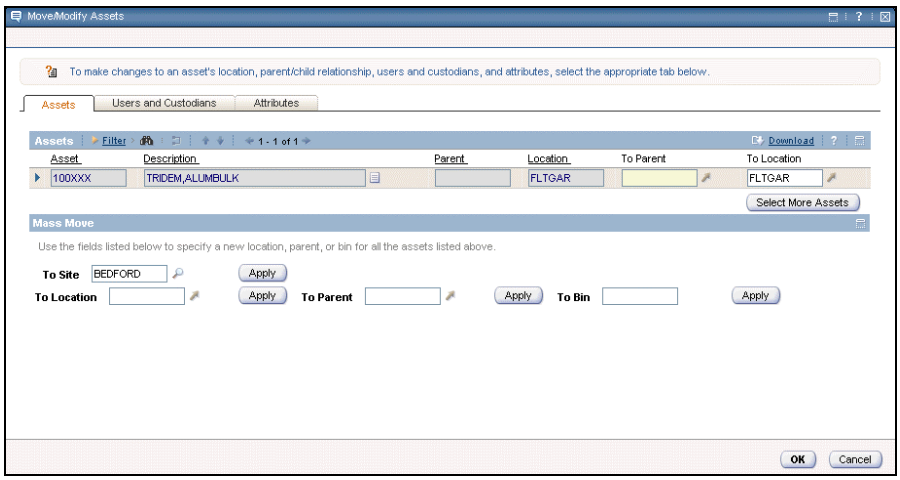
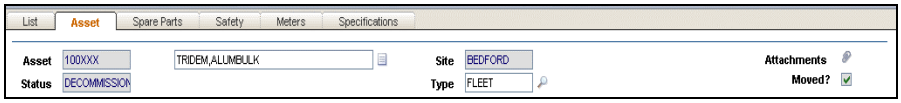
Asset Transactions continued

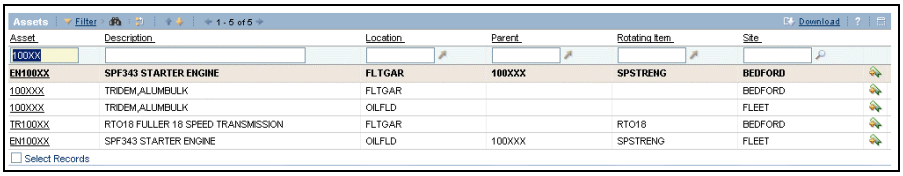
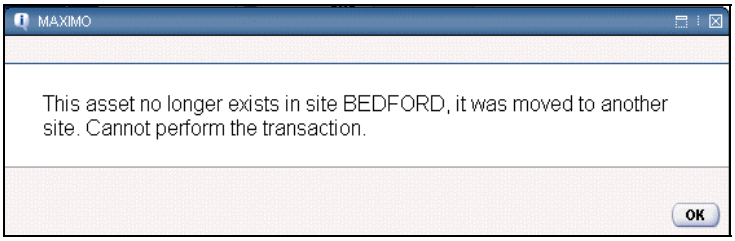
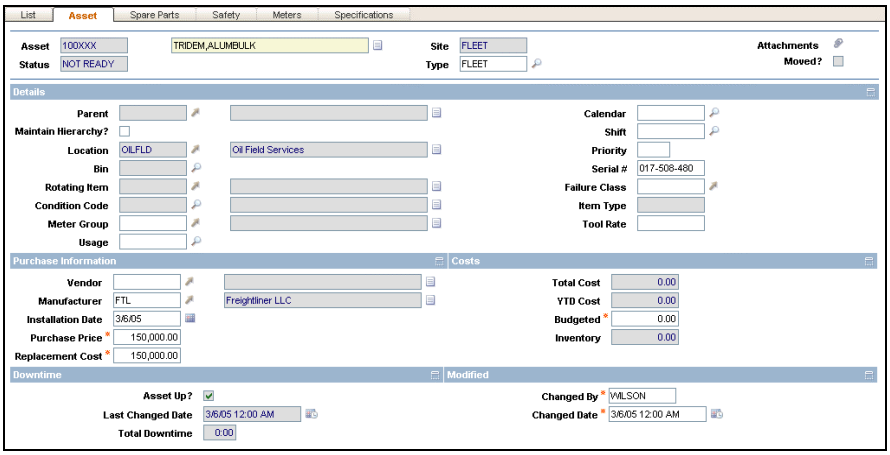
Moving an Asset

This exercise will demonstrate an asset move.

Step	Action
1	Open the **Assets** application and retrieve asset **100*XX***. Result: Asset 100*XX* is displayed on the Asset tab.
2	From the **Select Action** menu, select **Move/Modify Asset**. Result: The Move/Modify Asset window opens. 
3	Enter FLEET in the **To Site** field, and enter OILFLD in the **To Location** field.
4	Click **Apply** and then click **OK**. Result: Your Asset tab screen should look similar to the one below.   Notice that the Asset tab still reflects the asset in the Fleet location, but with a DECOMMISSION status and with the Moved? box checked. When an asset is moved to a new site, its status at the originating location automatically changes to DECOMMISSIONED and this Moved? box is automatically checked.

Asset Transactions continued

Moving an Asset continued

Step	Action
5	Click on the **List** tab. If necessary, clear the **Site** field of BEDFORD and search for **100*XX***. Result: You should have two 100XX and two EN100XX records.  While there are two records of the same asset in the system, the asset record at the Bedford site now acts as a historical record. If you were to execute a transaction against this record, you would receive a message indicating that it had been moved and that transactions using this record could not be performed. 
6	Retrieve record **100*XX***, which is now located at the Fleet site. Result: Your screen should look similar to the one below. 

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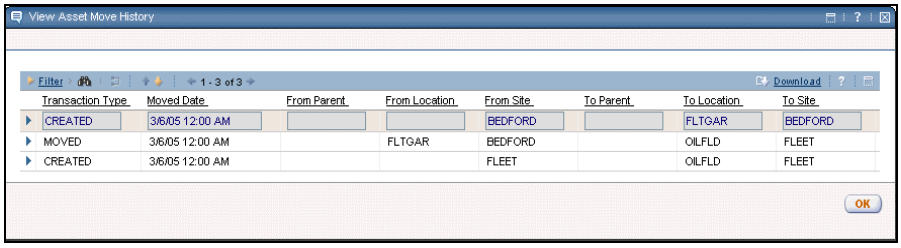
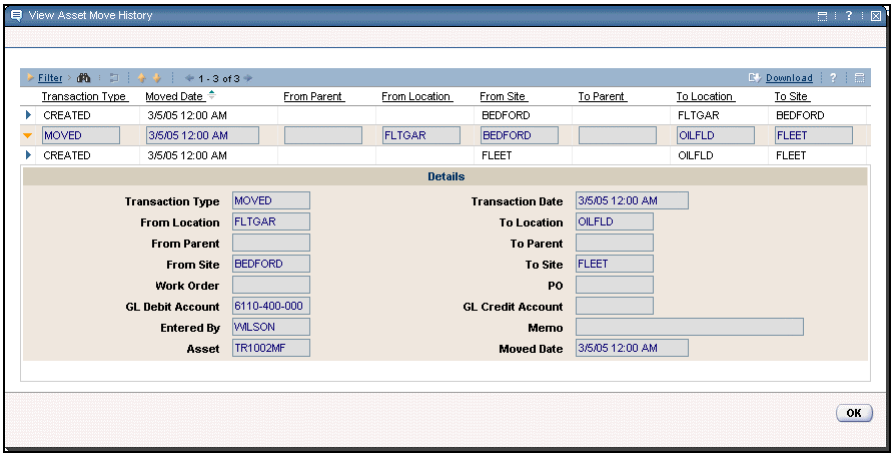
Asset Transactions continued

Moving an Asset continued

Step	Action
7	From the **Select Action** menu, select **View Asset Move History** to view the move history for 100*XX*. Result: Your screen should look similar to the one below. 
8	To view the details of one of the move transactions, click the **MOVED View Detail** button.  Result: The Moved transaction Details window displays the From Location and Site and the To Location and Site. 
9	Click **OK** to close the window.

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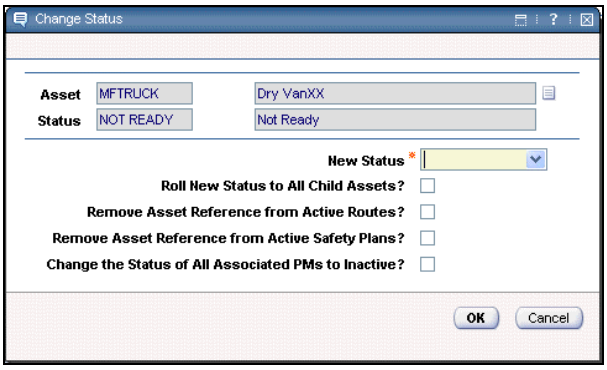
Asset Transactions continued

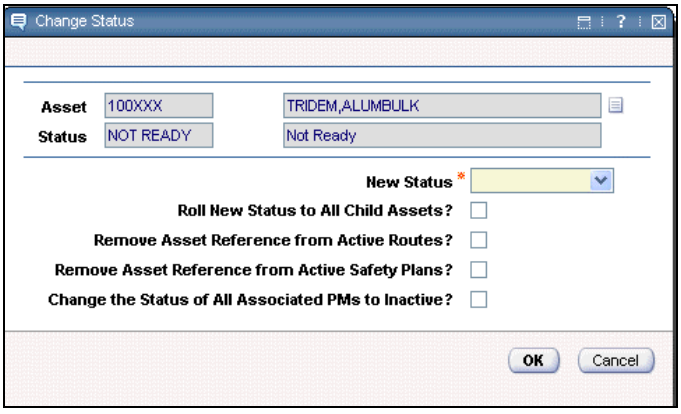
Status Changes and Children

Remember that when you change the status of an asset, there is an option to specify that all children of the asset whose status you are changing will also have their status changed to the same new status.



Status Change

The following exercise will demonstrate parent and children status changes.

Step	Action
1	For asset 100*XX*, click the **Status Change** button.  Result: The Change Status dialog box opens. 

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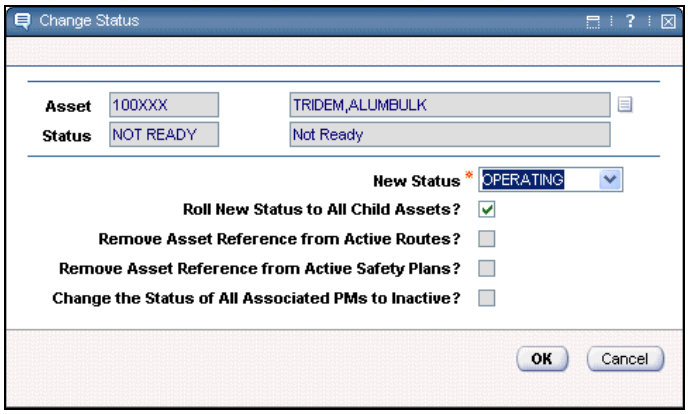
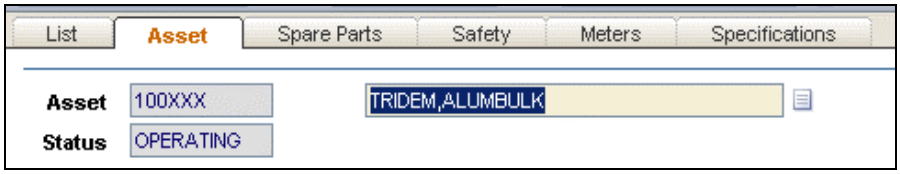
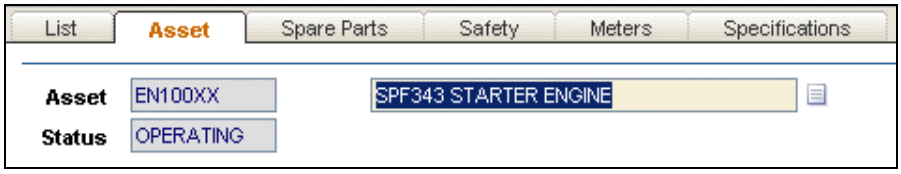
Asset Transactions continued

Status Change continued

Step	Action
2	In the **New Status** field, click the drop-down button and select **OPERATING**.
3	Click the **Roll New Status to All Child Assets?** option. Result: Your screen should look similar to the one below. 
4	Click **OK**. Result: The parent asset status is OPERATING. 
5	To verify that the status of 100XX's child has changed, retrieve one of the child asset (subassembly) records. Result: The Status field should read OPERATING. 

Managing Meter Reading

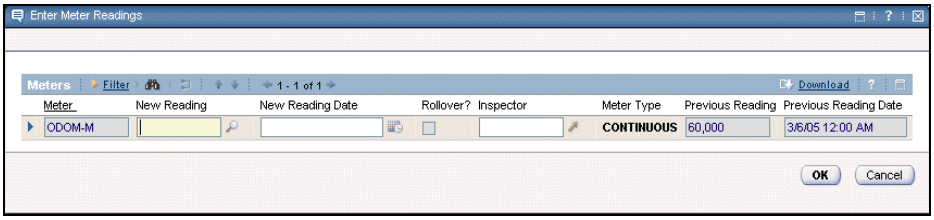
Introduction

When you update a meter's history via the Manage Meter Reading History action, or insert a historical reading via the Enter Meter Readings action, Maximo uses the following rules for updating the data:

- If you enter a modified reading for an asset or location, the change is applied to all delta (change) readings for that meter that are more recent than the date of the modified meter reading. Maximo updates meters in a hierarchy until the first actual reading is reached.
- Maximo updates only meter readings of meters and assets (those assets that were set up to inherit meter readings from parents) that were members of the hierarchy at the time of the original meter reading. Meters and assets added to the hierarchy after the original meter reading remain unchanged.
- When a reading is modified, the system also captures the modified date, user, and a reason for the change.
- A historical reading can be greater than a subsequent reading only if the meter has a rollover point.

Updating a Meter Reading

After a record is saved with a meter, the meter reading field becomes read-only. To enter a meter reading, you need to use the **Enter Meter Reading** action. The following exercise will demonstrate how this action works.

Step	Action
1	If you have not yet done so, retrieve **100*XX***. From the **Select Action** menu, select **Enter Meter Reading**. Result: The Enter Meter Reading dialog box opens. 

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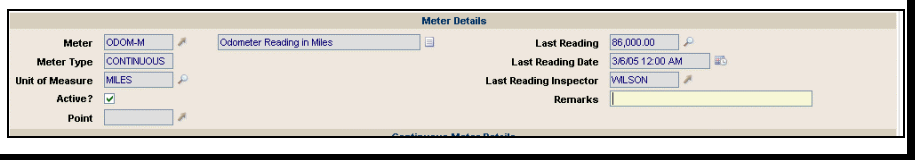
Managing Meter Reading continued

Updating a Meter Reading continued

Step	Action
2	Enter 86,000 in the **New Reading** field.
3	Click **OK**. Result: The meter reading field on the Meter tab should reflect 86,000. 

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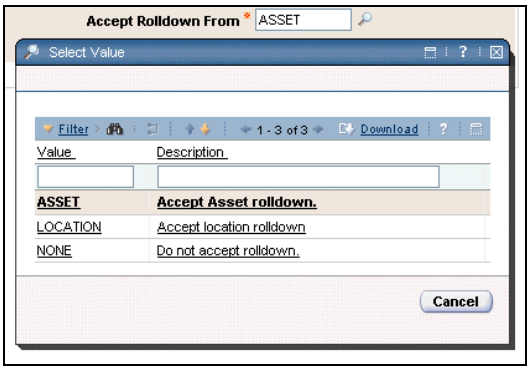
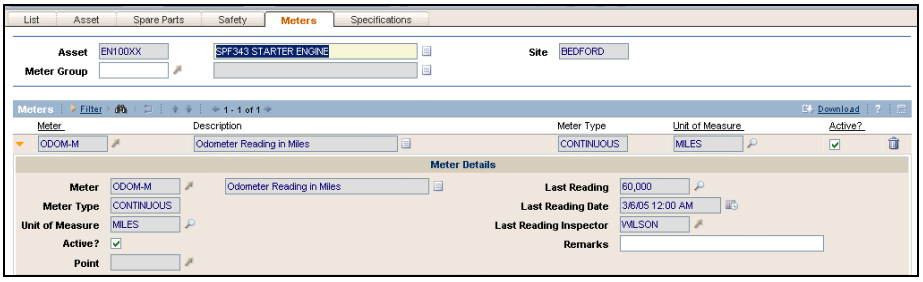
Managing Meter Reading continued

Meter Rolldowns

Recall that when you associate meters to an asset, the system will default to accept a meter reading from an asset unless you change it to NONE; every time this asset's parent has a meter reading entered it will automatically roll down to the child.



Step	Action
1	Search for and retrieve **EN100*XX***.
2	Click on the **Meters** tab.  Result: The meter reading should reflect 86,000.

Chapter Summary

Asset Records

The Assets application allows you to create and build a master record for each piece of equipment and associate subassemblies and spare parts with it. It enables you to keep and update the records of all of your equipment and operating locations. You can add new pieces of equipment to the database and define relationships among pieces of equipment. This allows the performance of each subassembly and spare part to be monitored on an independent basis or as a whole.

Rotating Asset Records

Your company might use interchangeable assets that are moved into and out of service as needed. These assets are often called *rotating assets*.

Rotating assets consist of multiple pieces of interchangeable assets, with each piece having the same item number and a different asset number.

Condition Monitoring Points

The Condition Monitoring application enables you to track specific asset performance through measurement points. Measurement Points, use meter values that have been set up in the Meter application, some details regarding measurement point records are:

- These records define acceptable condition and performance measurements for a *meter* on an asset or location where you take performance or condition measurements.
- You can have an unlimited number of measurement points for an asset. Measurement points are associated with the asset in the Assets application.
- Each measurement point on every asset must be unique.
- You can associate Preventive Maintenance (PM) or job plan records with measurement points so that you can generate work orders when measurements are outside acceptable limits.
- If the PM that is associated with the measurement point record is part of a PM hierarchy, you can generate a corresponding work order hierarchy.

When you add a job plan to a work order for an asset or location, if the point on the asset or location corresponds to the point name on the job plan, Maximo inserts the point identifier in the Measurement Point field on the work order's plan.

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Chapter Summary continued

Failure Hierarchy Records

The Failure Codes application is used to build the failure hierarchy in the Maximo database.

The standard Maximo failure hierarchy consists of four levels:

- Failure Class
- Problem
- Cause
- Remedy

The lower-level items in the list are "associated" with the higher-level items. Therefore, these levels must be defined in order from the top of the list to the bottom.

NOTES:

NOTES:

Work Management Using MXES

Chapter 4: Entering Planning Records

In This Chapter

This chapter contains the following topics:

Chapter Overview

Overview

An essential part of maintenance is setting up and planning work activities. Job plans can be used as building blocks for preventive and predictive maintenance and for work orders. In this chapter, you will learn how to create a job plan in Maximo.

Learning Objectives

After completing this chapter you should be able to:

- Create a job plan, including:
  - Operations
  - Labor
  - Material
  - Tools
  - Services
- Obtain job plan total cost information
- Create an annual job plan
- Create a route
- Associate a route to a job plan

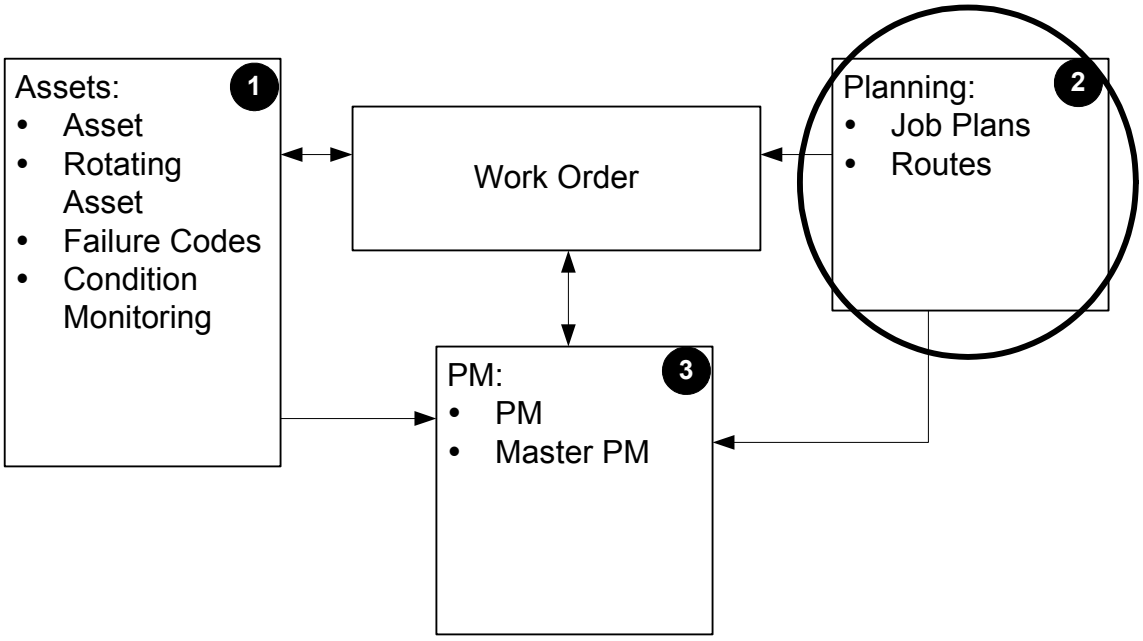
continued on next page

Chapter Overview continued

You Are Here

In this chapter we will enter records that answer the question of how the work gets done. We will do this by entering job plan records using the **Job Plans** application, and we will plan for work stops along routes using the **Routes** application.

Setting Up WO Referencing and Supporting Records



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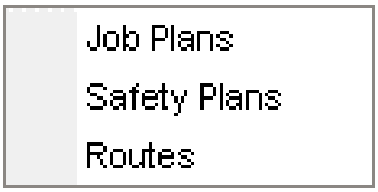
Chapter Overview continued

Planning Module

The Planning module contains three applications:

- Job Plans
- Safety Plans
- Routes



In this chapter we will focus on the Job Plans and Routes applications.

Job Plans

Introduction

A job plan is the heart of a proactive maintenance program, as it represents the accumulated knowledge of the manufacturer, skilled mechanic, and engineer. It indicates what to do, what to use, what to look for, how to do it, and when to do it. In Maximo, job plans are used as templates for work orders that have been associated to a record in the Preventive Maintenance, Condition Monitoring, and Routes applications, or associated to a work order in a waiting for approval (WAPPR) status.

Job Plans

A *job plan* is a detailed description of the work tasks (operations), labor, materials, and tools to be performed for a particular type of job. Use job plans as templates for work order-specific work plans.

Purposes

Use job plans to:

- estimate the operations, materials, labor, and tools required for maintenance tasks before the work is requested, and
- establish a template for maintenance work that is repetitive (for example, major overhaul, monthly preventive maintenance program work).

Doc Palmer says, “One effective planner is as effective as seven technicians.”

Work Plans

A *work plan* describes the labor, materials, tools, and tasks or operations needed to complete a specific work order. An easy way to add a work plan to a work order is to associate a job plan with the work order and modify it as necessary. Changes made to the work plan do not affect the original job plan. By the same token, if a work plan is created in the Work Order Tracking application, you can create a job plan from it.

continued on next page

Job Plans continued

Example of Work Order Job Plan

Below is an example of a work (job) plan on a work order.

Work Order Details // 5010 - 12 Month Service on Shipping Dept #2 Conveyor

Zoom In

WO:	5010	Sched Start:		Sched Finish:	
Site:	BEDFORD	Target Start:	1/1/1999 5:51:00 PM	Target Finish:	1/1/1999 9:51:00 PM
Status:	WAPPR	Actual Start:		Actual Finish:	
Parent:		Report Date:	1/1/1999 8:04:00 AM	Reported By:	Tom Diller
Work Type:	PM	Priority:	5	GL Account:	6500-300-200
Vendor:		Contract:			
Classification:		Failure Class:		Problem Code:	
Lead:		Supervisor:	BOYD	Person Group:	
Owner:		Owner Group:			
Service:		Service Group:			

Job Plan: JP13140 Conveyor Belt 12 Month Service Asset: 12700 Conveyor System #2 Location: SHIPPING Shipping and Receiving Department

Task IDs

Task ID	Description	Status	Measurement Point	Value	Date	Observations
10	Inspect on/off and limit switches.	WAPPR				
20	Clean motor.	WAPPR				
30	Inspect gear reducer unit. Check gear box oil.	WAPPR				
40	Inspect, clean, and lubricate drive chain.	WAPPR				
50	Check conveyor belt & pulleys for proper tension.	WAPPR				
60	Inspect and lubricate roller bearings and wheels.	WAPPR				
70	Operate conveyor to ensure that unit runs quietly.	WAPPR				
80	Change oil in gear reducer. Examine drained oil.	WAPPR				
90	Record amperage and voltage with motor operating.	WAPPR				
100	Replace worn bearings, index plate and bolts.	WAPPR				

Planned Labor

Task ID	Craft	Skill Level	Labor	Vendor	Contract	Qty	Hours	Rate	Line Cost
	MECH	FIRSTCLASS				1	02:00	$0.00	$0.00
	ELECT	FIRSTCLASS				1	02:00	$0.00	$0.00
	MECH	APPRENTICE				1	02:00	$0.00	$0.00
							Total Planned Labor:		$0.00

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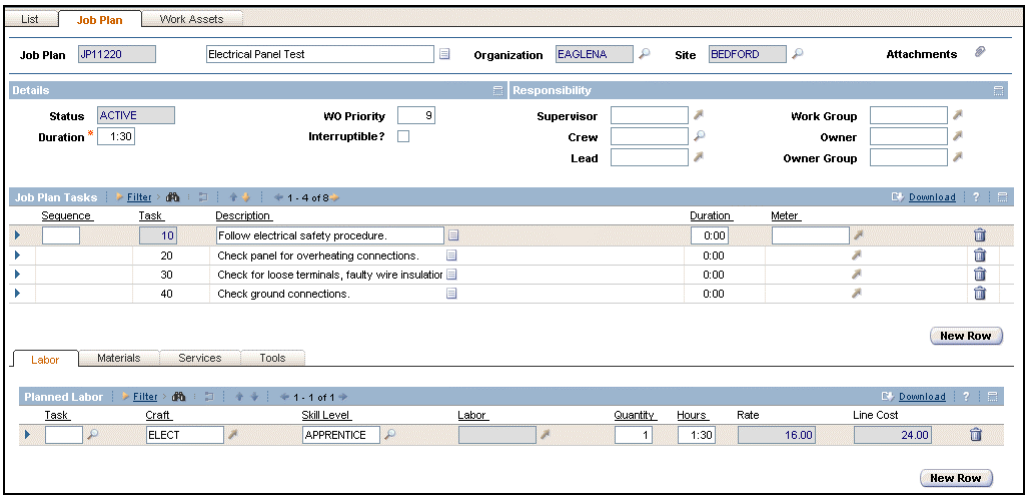
Job Plans continued

Job Plans Application

You use the Job Plans application to create, modify, or delete job plan records.



Tabs

The Job Plans application is comprised of the following three tabs:

Tab	Description
List	Use any combination of fields to find records that match the data in those fields.
Job Plan	Create, modify, or delete a job plan record. Display basic information about the job plan, and specify job plan tasks and resources.
Work Assets	Use this tab to associate assets, locations, or items to the job plan, as well as corresponding safety plans. This tab also allows you to specify whether to create a work order when an item is purchased.

continued on next page

Job Plans continued

Subtabs

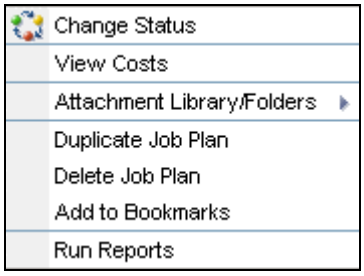
The Job Plan tab is comprised of three subtabs: List, Job Plan, and Work Assets. Each time you insert, delete, or modify quantities or hours in the subtab table window, the cost fields update automatically.

Subtab	Description
Labor	Maintains a list of labor and crafts for the job plan.
Materials	Maintains a materials list for the job plan. When a work order is approved, job plan materials are put on reserve.
Services	When you enter a service item that has a default vendor, Maximo enters the default vendor and the unit cost for the service.
Tools	Maintains a tool list for the job plan.

Job Plan Select Action

The **Select Action** menu contains specific actions associated with the **Job Plans** application. The actions you can perform with this menu include:

- Displaying total labor hours, individual costs for labor, material, services, and tools, and the total cost for all
- Attaching many types of documentation information to a Maximo record, including, images, spreadsheets, and Web pages



Job Plan Fields

Introduction

In this section we will describe some of the key fields and field options available in the Job Plans application.

Organization and Site Overview

Job Plans are at the system or database level, but contain optional **Organization** and **Site** fields that allow you to create job plans at the organization and site levels.

- You can create job plans for the entire system (multisite job plan) by not specifying an organization or site.
- You can create job plans to be used only for a specific site or organization by indicating this information on the job plan.
- Job plan tasks and related resources (craft, materials, tools, services) can be made org/site specific.

  If on a multisite job plan, then resources/tasks that have specific org/sites will not be brought over when used by work orders from another org/site.
- If only an organization is specified, then resources/tasks that have sites specified will not be brought over when used on work orders from another site.
- When you associate a job plan with a work order, Maximo copies only the job plan information that matches the work order's org/site to the work plan.
- A job plan that does not have an organization or site specified for it can be used on any work order or PM record. If the job plan is org/site-specific, then it can be used only on work orders or PMs that have the same site indicated.

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Job Plan Fields continued

Status

Job plans are statusable.

The table below describes each status.

Status	Comments
Draft	• Job plan is being developed or reviewed. • This is the initial status of all newly inserted job plan records. • The draft cannot be seen or used by other applications until it is made active.
Active	• Only job plans of this status are available for use on work orders, PM records, and routes. • Once activated, job plans can only be deactivated, not set back to draft.
Inactive	• Cannot be used by other Maximo applications. • A job plan cannot be made inactive if it is used by other applications. • To inactivate a job plan, it must be taken off other records or those associated records must be inactive or closed.

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Job Plan Fields continued

Inactive Status

A job plan status cannot be changed to inactive if it is used on any one of the following records:

- Work orders
- PMs
- Routes
- Items

Duration Field

The Duration field allows manual input of the total hours for the work order. Hours are not an accumulation of task time.

Setting Up Job Plans

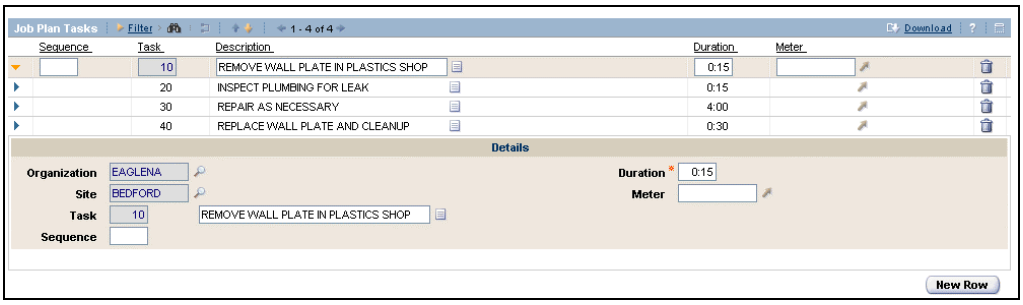
Introduction

There are two main parts to setting up job (or work) plans in Maximo:

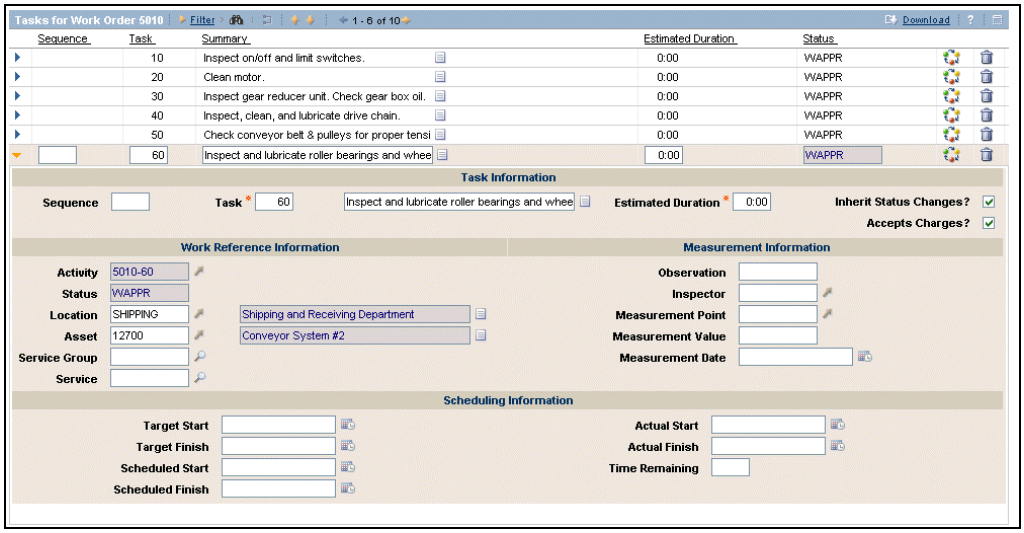
1. Define tasks.
2. Define required resources (labor, materials, tools, services).

Job Plan Tasks in Detail

A job plan is broken down into one or more numbered tasks or procedures called *tasks*. The Job Plan Tasks table window on the Job Plan tab contains a list of numbered tasks along with descriptions of the tasks.



When used on a work order work plan, tasks also can be planned and scheduled individually.



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Setting Up Job Plans continued

Task Sequencing and Numbering

Tasks describe operational steps for a work order and must be unique numbers. The system sorts tasks in numerically ascending order. Sequencing represents the order in which a task must be performed.

Explicit vs Implicit Tasks and Job Plan Setup in Maximo

Implicit tasks are those tasks lists designed for long-term and experienced/ trained maintenance professionals and are more general. For example, an experienced mechanic could understand a task like "lubricate bearing," where a less experienced mechanic might need the task spelled out with the steps of what to do.

Depending on the granularity levels that you want your job plans to reflect—that is, implicit vs. explicit tasks—there are different ways to accomplish this when entering job plans into Maximo. Figure 1 on the next page represents an equipment service schedule and tasks for a cooling water pump, and Figure 2 represents the detailed steps to accomplish one of the tasks: lubricating bearings. In Maximo, you could organize and set up job plans for the cooling water pump by:

- Breaking down Figure 1's Maintenance Tasks into Monthly, Quarterly, and Annual tasks for a total of four job plans:
  - Monthly
  - Quarterly
  - Annually
  - Every 2 years

OR

- Having a separate job plan for each activity—for example, the plan shown in Figure 2—and listing each step in the task.

continued on next page

Setting Up Job Plans continued

Explicit vs Implicit Tasks and Job Plan Setup in Maximo continued

Figure 1

Maintenance Tasks	weekly	monthly	qrtrly	annual	other
Check and lubricate bearings on pump		X	X	X	
Check and lubricate bearings on motor		X	X	X	
Inspect mechanical seals and gland			X	X	
Visually check alignment		X	X	X	
Check for general aging		X	X	X	
Tighten all bolts and check mounts			X	X	
Strip and inspect pump				X	
Replace coupling rubbers				X	
Electrical safety checks connections and contactors				X	
Replace pump bearings					every 2 years

Figure 2

Maintenance Task: Lubricate Bearings	Total Duration: 1:45
Remove pipe plugs from housing	
Clean pipe plugs	
Remove hardened grease from drains	
Replace mechanical seal and gasket	:30
Add grease inlet until small amount of new grease forced out of drain	
Remove excess grease from plugs	
Replace inlet plugs	
Run motor ½ hr before replacing drain plug	:30
Replace drain plugs	

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Setting Up Job Plans continued

Job Plans Organizations and Sites Iterations

Planners can use organizations and sites to build a single job plan that can be used in different ways. For example, you can create a job plan to be used on work orders anywhere in your business, but specify that certain tasks on the plan are available only on work orders for a certain organization or site. You can further specify labor, materials, services, and tools for certain tasks. For example, when Task 10 is used on a work order at Site A, it uses a certain craft. When Task 10 is used on a work order at Site B, it uses a similar, but different, craft.

Labor, Materials, Services, and Tools

Labor, materials, services, and tools can be added at the job plan and task level. If there is an organization or organization and site defined at the job plan level, tasks and task-level labor, materials, services, and tools inherit the defined organization or organization and site.

Examples

The following examples illustrate how Maximo applies a job plan and its components to work orders for various organizations and sites.

Note: The examples describe applying labor to work orders, but Maximo uses the same rules to apply materials, tools, and services to work orders. All work orders require an organization and site.

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Setting Up Job Plans continued

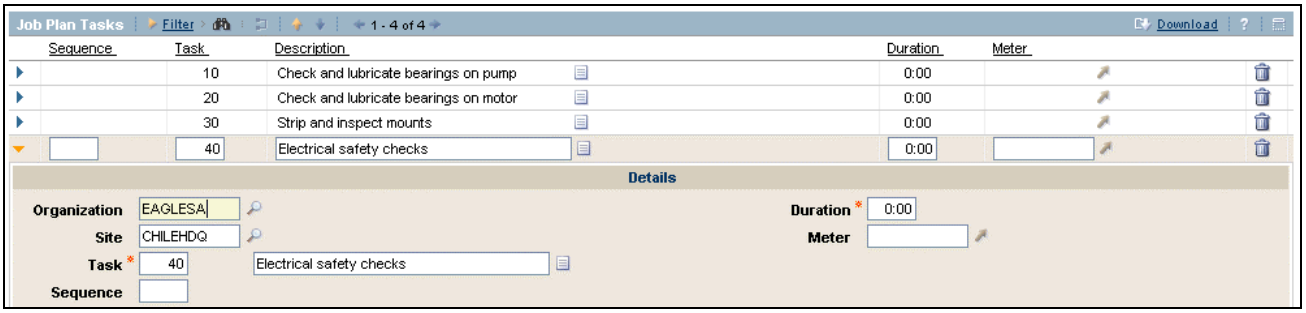
Example: Job Plan Setup

When initially set up, this job plan does not have an organization or site defined at the plan level. It does have an organization or an organization and site defined for certain tasks. Some labor records on the job plan are associated with an organization or organization and site. The following two tables illustrate the job plan tasks and labor.

Note: This is an abbreviated job plan and is for illustrative purposes only.

Job Plan Tasks:

Task Identifier	Task Description	Organization	Site
Task 10	Check and lubricate bearings on pump		
Task 20	Check and lubricate bearings on motor		
Task 30	Inspect mechanical seals and gland		
Task 40	Electrical safety checks	EAGLESA	CHILEHDQ



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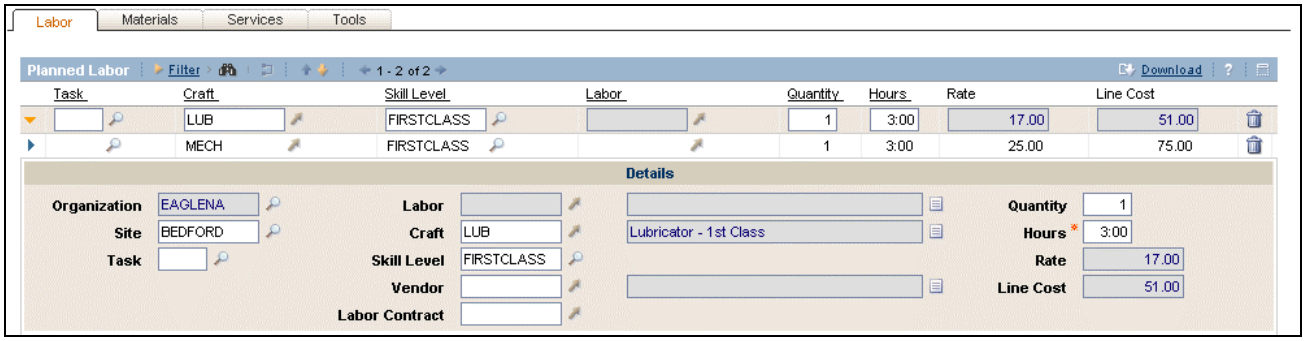
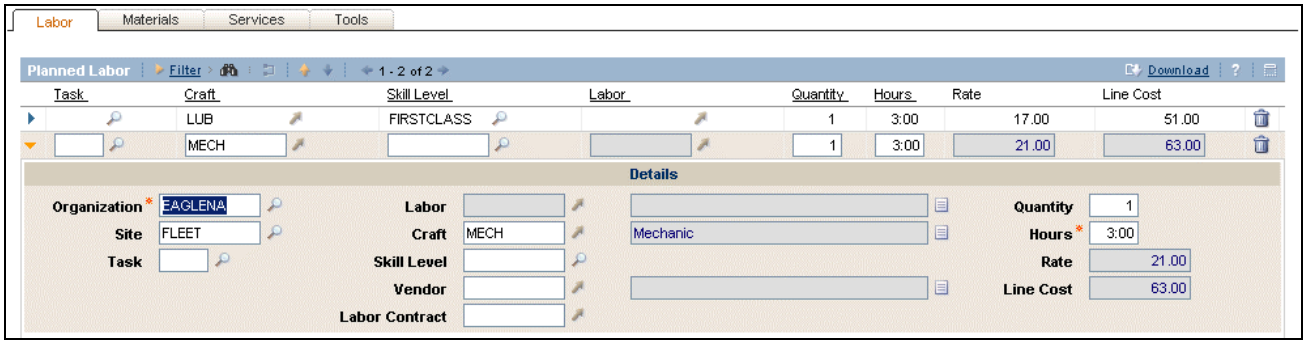
Setting Up Job Plans continued

Labor:

Task Identifier	Craft	Organization	Site
None	LUB FIRST CLASS	EAGLENA	BEDFORD
None	MECHANIC	EAGLENA	FLEET





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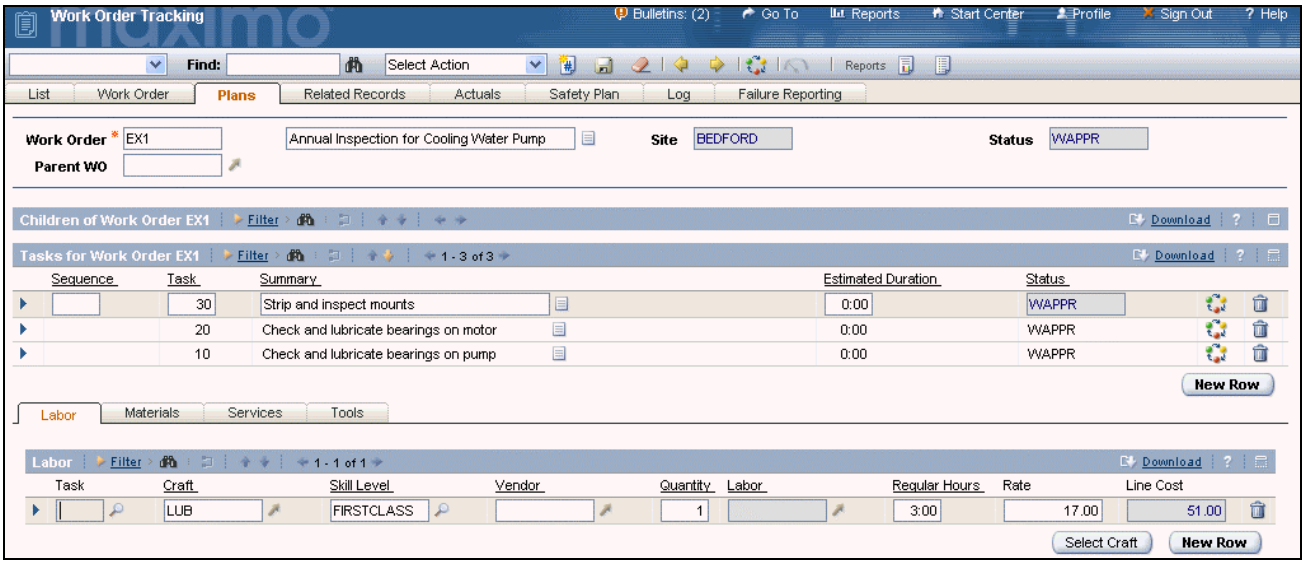
Setting Up Job Plans continued

Example #1: Job Plan Application on Work Orders

When Work Order EX1 was created for the BEDFORD site and the job plan was associated to it, only those tasks and resources (labor) that were non-org/site-specific (no org/site identified) and site-specific (BEDFORD) were copied to the work order's work plan.



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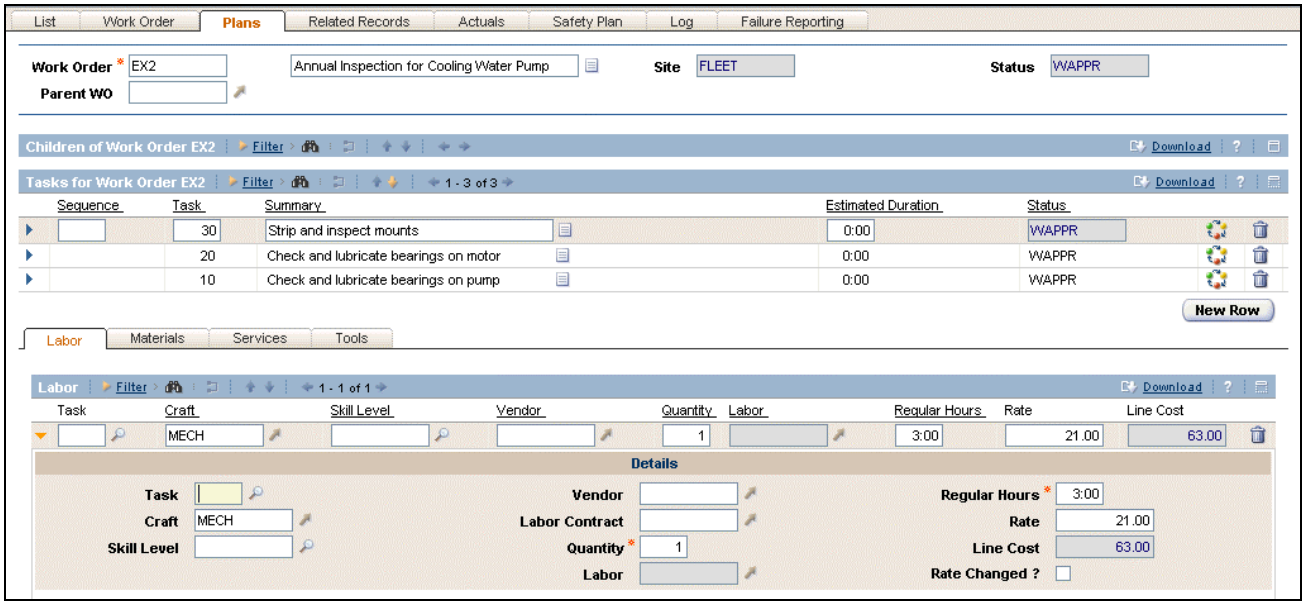
Setting Up Job Plans continued

Example #2: Job Plan Application on Work Orders

When Work Order EX2 was created for the FLEET site and the job plan was associated to it, only those tasks and resources (labor) that were non-org/site specific (no org/site identified) and site-specific (FLEET) were copied to the work order plan.



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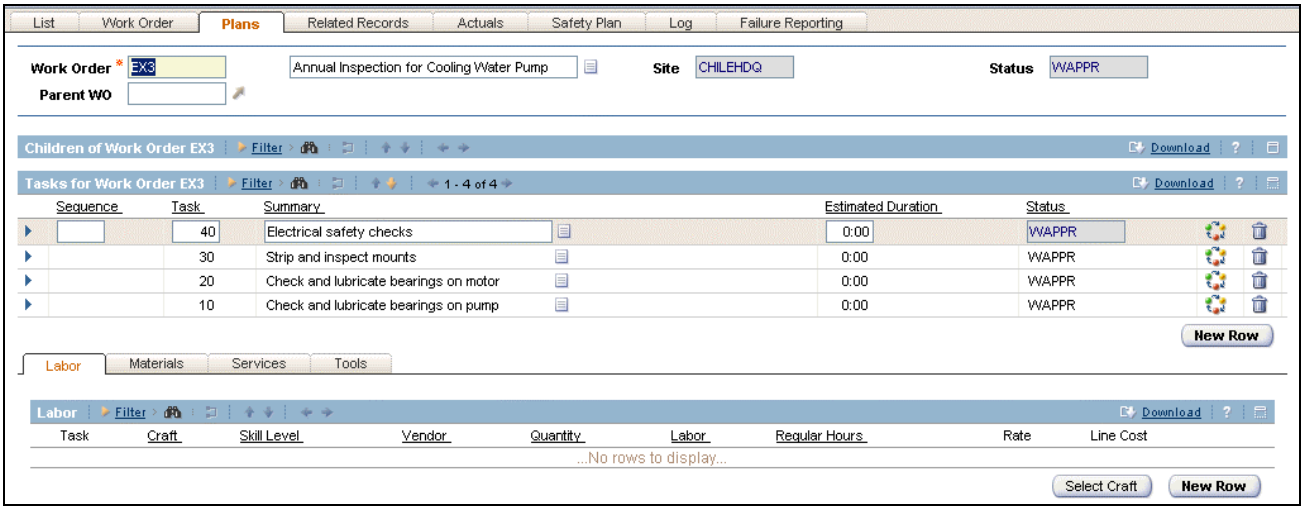
Setting Up Job Plans continued

Example #3: Job Plan Application on Work Orders

When Work Order EX3 was created for the CHILEHD site and the job plan was associated to it, only those tasks and resources (none) that were non-org/site-specific (no org/site identified) and site-specific (CHILEHD) were copied to the work order plan.



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Setting Up Job Plans continued

Meters and Tasks

You can enter a meter name on a job plan task. The meter name is a generic name for a measurement point number that is used to record condition monitoring readings.

Maximo automatically inserts the measurement point number on a task on the Plans tab of a work order record if there is matching meter information for the asset and job plan record used on the work order.

When you use a job plan to build a work plan for an asset on a work order, Maximo searches the database for a three-way match between:

- the meter name on the asset,
- the meter name on the job plan task that is used to build the work plan task, and
- the measurement point number for that meter name.

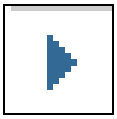
If there is a match, Maximo adds the measurement point number to that work plan task.

Building/ Modifying a Job Plan: Buttons

When you are building or modifying a job plan, use the following buttons:

- To add tasks, labor, materials, services, or tools, click the **New Row** button and add all relevant details

- To modify a row, click the row's **View Details** button and make your modifications on the expanded row



- To delete a row, click the **Mark Row for Deletion** button

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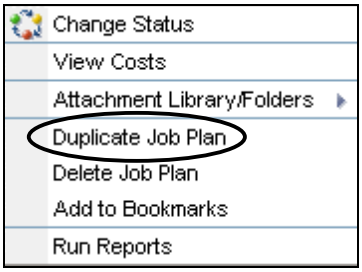
Setting Up Job Plans continued

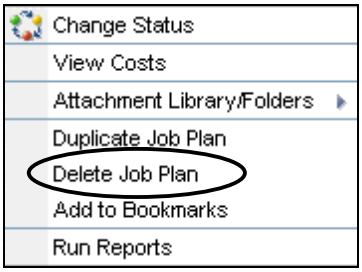
Duplicating a Job Plan

A system-level job plan (no site associated on the job plan record) can be duplicated and associated to a site by using the **Duplicate Job Plan** action.



Deleting a Job Plan

If a job plan record is not listed on any other Maximo record (for example, on a work order), you can delete it by using the **Delete Job Plan** action on the Select Action menu.



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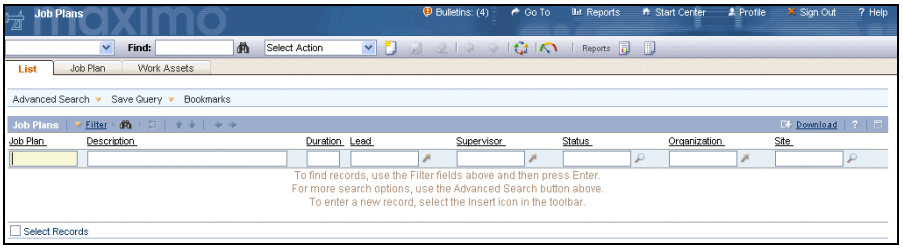
Setting Up Job Plans continued

Creating a Job Plan

Follow these steps to create a job plan.

Step	Action
1	Open the **Job Plans** application from the **Planning** module. Result: The Job Plans application opens. 
2	Click on the **New Job Plan** icon to insert a new job plan. Result: The Job Plan tab opens, ready for data entry.
3	Enter the following information on the Job Plan tab: **Field** — **Value** **Job Plan** — ANPUMP*XX* **Description** — Annual Inspection for Cooling Water Pump **Duration** — 3:00 **Interruptible?** — [*Checked*]

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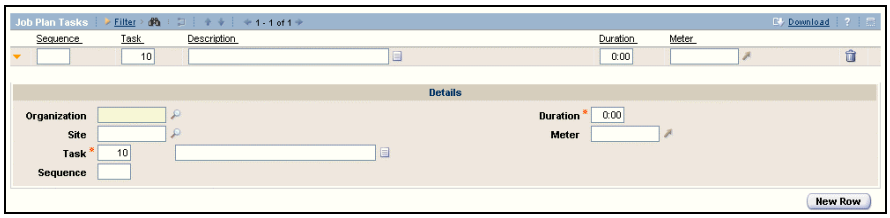
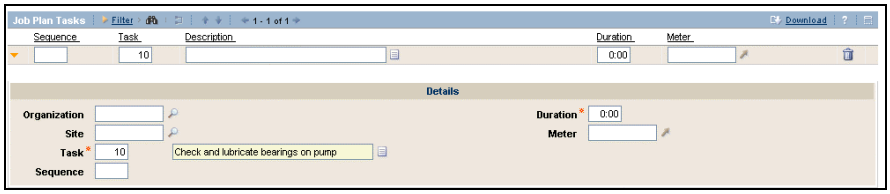
Setting Up Job Plans continued

Creating a Job Plan

continued

Step	Action
4	In the **Job Tasks** frame, click **New Row**. Result: The detail input form opens. 
5	Enter the following information: **Field** **Value** **Task 10** Check and lubricate bearings on pump Result: Your row details should look similar to this example. 

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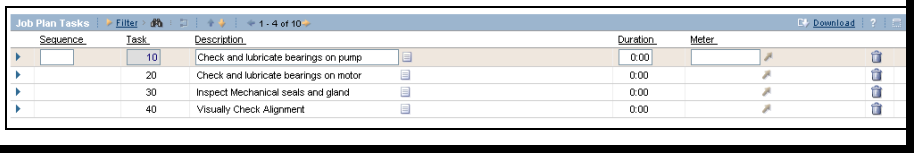
Setting Up Job Plans continued

Creating a Job Plan continued

Step	Action
6	Click **New Row** for each task and add these tasks to the job plan: **Field** — **Value** **Task 20** — Check and lubricate bearings on motor **Task 30** — Inspect mechanical seals and gland **Task 40** — Visually check alignment **Task 50** — Check for general aging **Task 60** — Tighten all bolts and check mounts **Task 70** — Strip and inspect pump **Task 80** — Replace coupling rubbers **Task 90** — Electrical safety checks **Task 100** — Test pump pressure
7	For Task 100, add the PRESSURE meter. Note: Later in the course, we will add a measurement point to a work order and demonstrate condition monitoring work order generation for a measurement falling out of the acceptable condition range.
8	**Save** your record. Result: Your new job plan record is saved. Your screen should look similar to the one below. 

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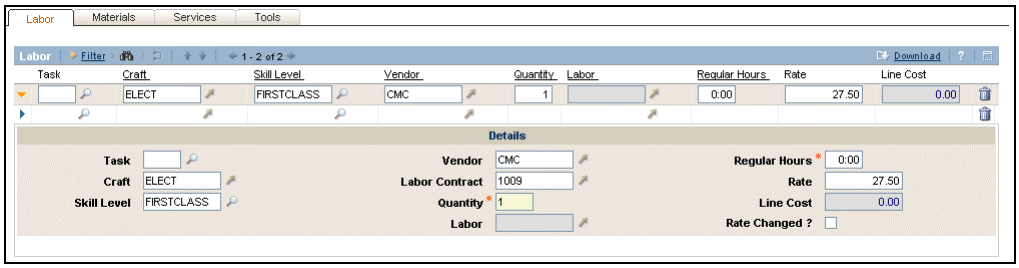
Setting Up Job Plans continued

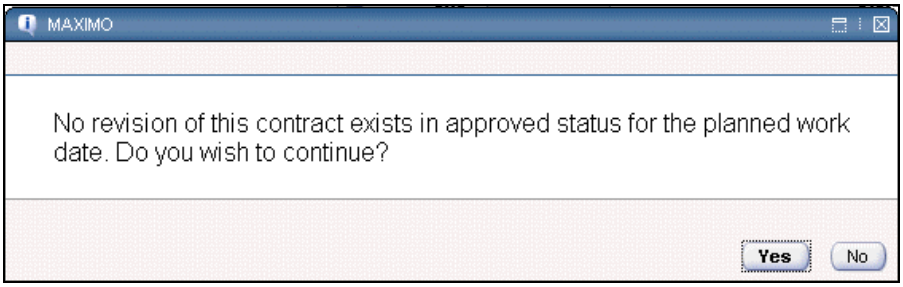
Labor Contracts

If your company has established contracts for outside labor services, you would indicate that on the Labor subtab's **Contract** field. When the actual labor hours are entered (actual labor receipt), an invoice can be created for the time worked.



Labor Contracts on Planned Labor

Approved work orders require approved contracts. An unapproved contract for labor can be defined on the plan prior to the work order's approval. Maximo will display a message informing you of the labor contract's unapproved status and then asking if you want to continue. By clicking Yes, you are indicating that you want an unapproved contract included on the planned labor.



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Setting Up Job Plans continued

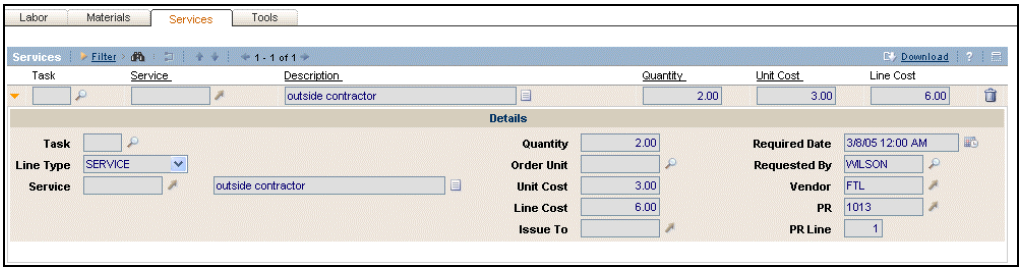
Services

Services are not typically defined as those costs associated with labor contracts, materials, or tools. Services are direct issues.

In Maximo, there are two types of services:

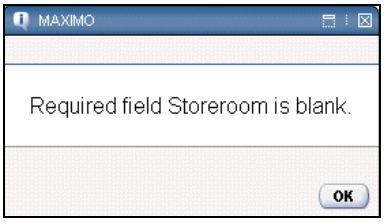
- Standard services, which could be freight, installation, or telephone bills
- Services for outside activities that are not covered under a labor contract, but are ordered through purchasing

When **Services** is indicated on a work order, a PR will be created when a reorder routine is run for that work order's site.



Job Plans and Storerooms

A storeroom entry is not required on a job plan itself. However, if you create a work order that uses this job plan without a storeroom, you will be prompted to enter a storeroom prior to saving the work order.



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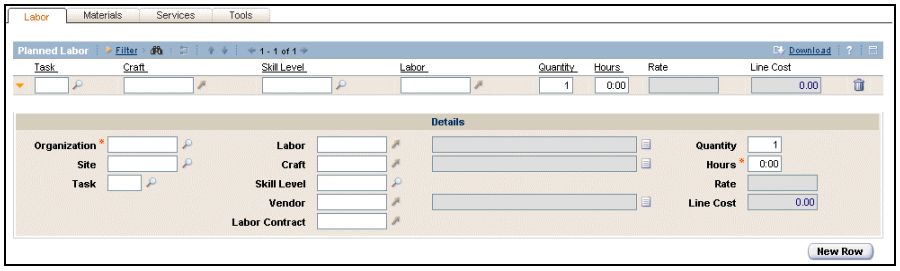
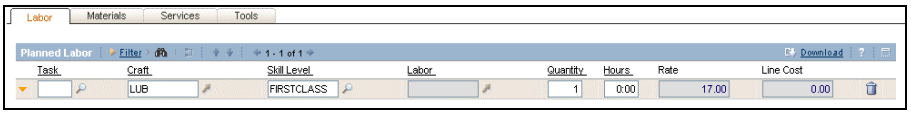
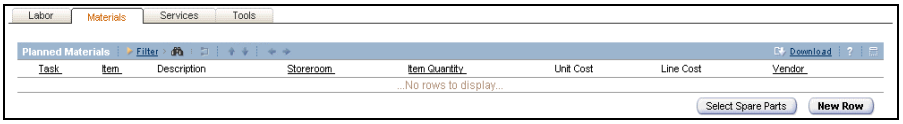
Setting Up Job Plans continued

Adding Resources

Follow these steps to add resources to a job plan.

Step	Action
1	Click **New Row** on the **Labor** subtab. Result: The detail input form opens. 
2	Using the **Detail** menu button in the **Craft** field, select **LUB First Class**. Result: A lubricator first class is assigned to the job plan. 
3	Enter 3 in the **Hours** field.
4	Click on the **Materials** subtab. Result: The Materials subtab opens. 

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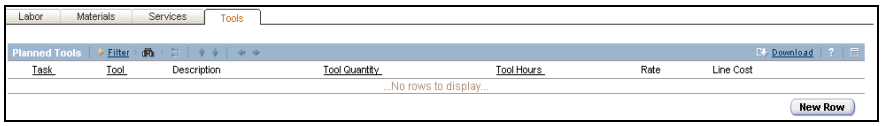
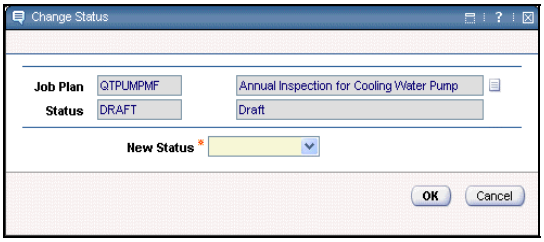
Setting Up Job Plans continued

Adding Resources continued

Step	Action
5	Click **New Row** and enter the following data: **Item** **Quantity** 900810 1 Z-LG1 1
6	Click on the **Tools** subtab of the **Job Plan**. Result: The Tools subtab opens. 
7	Click **New Row** and enter the following data: **Field** **Value** **Tool** Grease **Quantity** 1 **Tool Hours** 1:00
8	Click the **Change Status** button.  Result: The Change Status dialog box opens. 
9	Change the **New Status** to Active and then click **OK**. Result: This job plan is now available for system-level use. Note: If we had specified an org/site, it would be available only to the indicated site.

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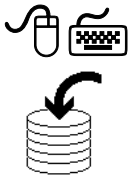
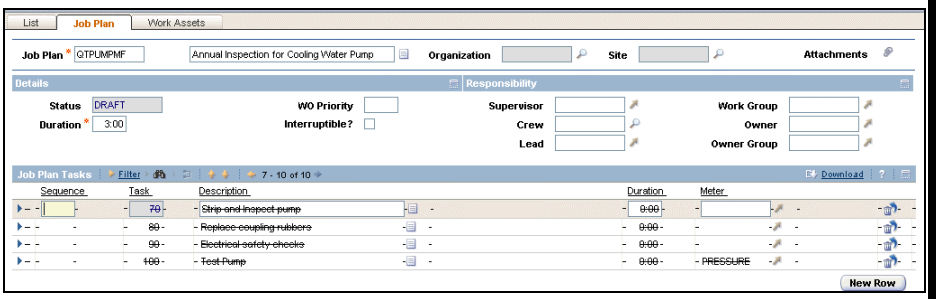
Setting Up Job Plans continued

Duplicating a New Job Plan Record



In this exercise, we will duplicate job plan records to save data entry time.

Step	Action
1	From the **Select Action** menu, select **Duplicate Job Plan**.
2	Enter QTPUMP*XX* in the **Job Plan** field, and in the **Description** field replace **Annual** with Quarterly. Enter 2:00 in the **Duration** field.
3	In the **Job Task** window, delete tasks **70, 80, 90,** and **100** by clicking the **Delete** button.  Result: Your screen should look like the one below. 
4	Change the **Craft** hours to 2.
5	Change the **Status** to Active.

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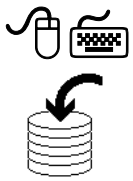
Setting Up Job Plans continued

Creating a Monthly Job Plan



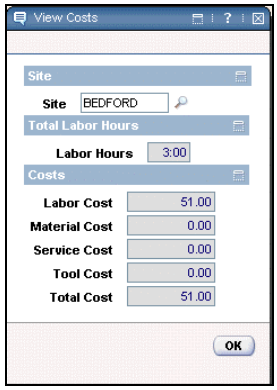
Complete the following tasks:

- Duplicate the Quarterly Job Plan.
- Enter the identifier MOPUMP*XX* in the Job Plan field.
- In the description, replace Quarterly with Monthly.
- Change the duration to 1:15.
- Delete the following tasks: 30, 50, 60.
- Change the Craft hours to 1:15.

Note: Remember to save the record.

View Job Plan Totals

Search for and retrieve the **Annual Job Plan**. Select **View Totals** from the **Select Action** menu to view the total costs for the job plan.



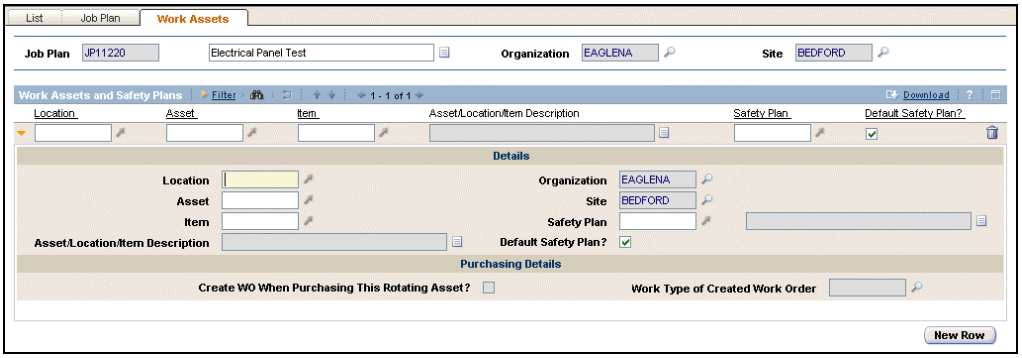
When you have finished viewing the totals, click **OK** to close the **View Totals** page.

Job Plan Work Assets

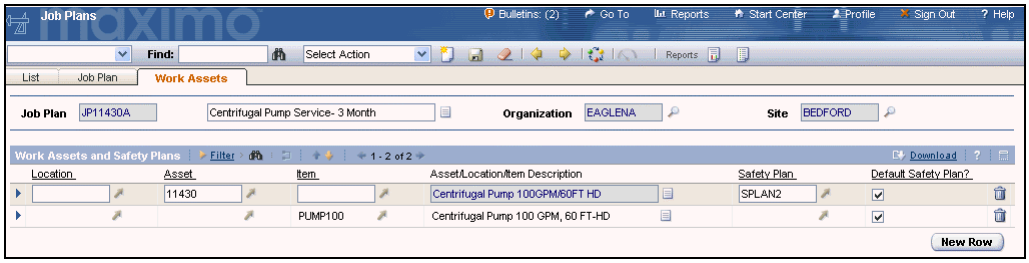
Introduction

The Work Assets tab can be used to:

- Associate one or more work assets (assets, locations, and items) to a job plan
- Associate safety plans with the work asset so that Maximo can copy the default safety plan or other associated plans to the work order when generating a work order from the job plan
- Specify that Maximo create a single work order when any quantity of that item is specified on an *approved* purchase order



If there is an organization or an organization and site at the job plan level, every work asset row you add inherits this information. You cannot modify the information on the row.



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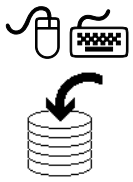
Job Plan Work Assets continued

Work Assets



In this exercise we will add a new work asset and change its status to Active.

Step	Action
1	For the **MOPUMP*XX*** job plan, click on the **Work Assets** tab. Insert a **New Row** and enter the following information: **Field** **Value** **Asset** 11210 **Safety Plan** SPLAN2
2	Change the status to **Active**.
3	**Save** the record.

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Job Plan Work Assets continued

Duplicating Job Plan Records #1

Complete the following tasks:

- Search for and retrieve job plan INS1002.
- Duplicate the job plan.
- Enter EXINP*XX* in the Job Plan field.
- On the Work Assets tab, enter the following information:

Field	Value
Item	FIRE-100
Create WO When Purchasing…?	[*Checked*]
Work Type of Created WO	PM

- Change the status to Active.

Duplicating Job Plan Records #2

Complete the following tasks:

- Search for and retrieve job plan JP12300.
- Duplicate the job plan.
- Enter JP12300 *XX* in the Job Plan field.
- Change the description to read: Electric Cart Tune Up and Brake Service.
- Insert Task 45 - Replace Brake Shoes.
- Add item: 39224 - Brake Shoes
- Indicate that item 39224 comes from the Bedford Central storeroom.
- Change the Status to Active.

Routes

Introduction

In Maximo a *route* is a list of related work assets. The list of work assets can be related by location, such as all pumps and motors in a room, or by type of equipment, such as all fire extinguishers located throughout the site. Routes simplify building hierarchies of work orders for inspections.

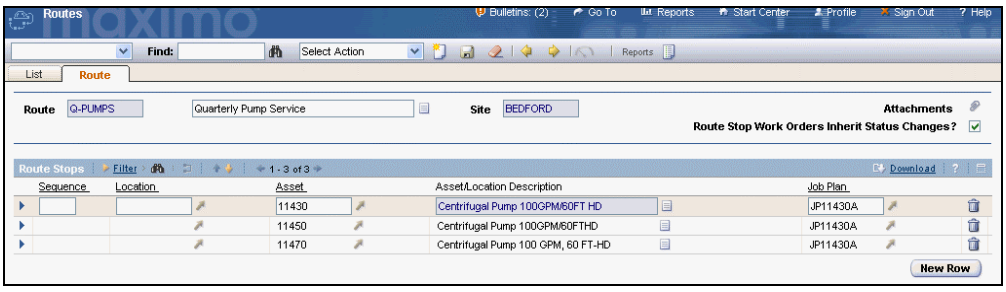
Work Order Connection

You can apply the route to a PM or work order and generate child work orders for each work asset listed as a stop on the route.

Routes Application

You can create a route in the Routes application of the Plans module. You can create a route that lists all assets of the same type, or all assets in a certain location, or both.

- You can specify a job plan for some or all route stops. Maximo copies these job plans to work orders generated for the route stop.
- You can insert a value in the Seq field that identifies the sequence number of the route stop. Maximo copies sequence numbers on route stops to the child work orders.
- If a safety plan is required when you use this job plan on the selected work asset, Maximo also copies that information to the work order.
- You can associate a job plan with each asset and location stop in the route. The job plan is copied to the child work orders that have been generated for each work asset. If a default safety plan is associated with the job plan when used on the selected work asset, that information is also copied to the work order.



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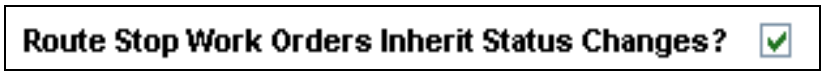
Routes continued

Route Stop Work Orders Inherit Change Status

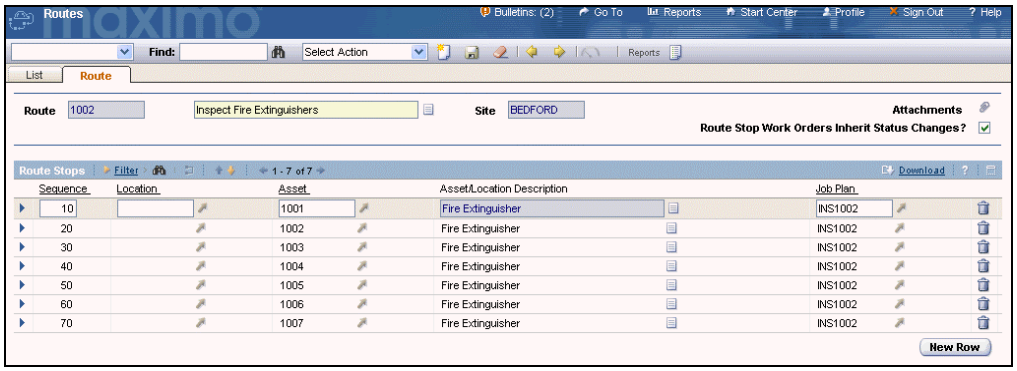
If you want the status of all child work orders to update simultaneously, check this box:



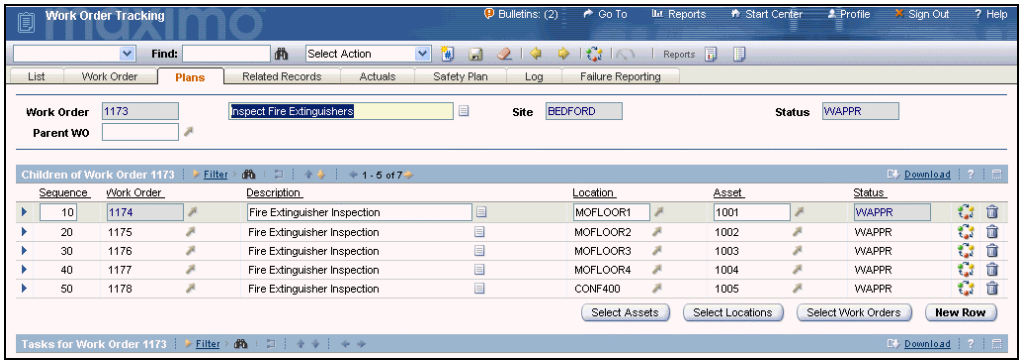
Work Order Example

The example below shows a route record for multiple assets, fire extinguishers, that is sequenced and has job plans associated to each asset.

Note: Each asset or location can have its own job plan.



The example below shows the work order record when a route has been applied to a work order. The result is that sequenced child work order records have been created for each asset associated with this route.



Note

For this section we will not be creating a route. We will use a route record, 1002, already entered into the system in the preceding chapter.

Chapter Summary

Job Plans

A *job plan* is a detailed description of the work tasks (operations), labor, materials, and tools to be performed for a particular type of job. Use job plans as templates for work order-specific work plans.

Use job plans to:

- estimate the operations, materials, labor, and tools required for maintenance tasks before the work is requested, and
- establish a template for maintenance work that is repetitive (for example, major overhaul, monthly preventive maintenance program work).

Work Plans

A *work plan* describes the labor, materials, tools, and tasks or operations needed to complete a specific work order. An easy way to add a work plan to a work order is to associate a job plan with the work order and modify it as necessary. Changes made to the work plan do not affect the original job plan. By the same token, if a work plan is created in the Work Order Tracking application, you can create a job plan from it.

Routes

In Maximo a *route* is a list of related work assets. The list of work assets can be related by location, such as all pumps and motors in a room, or by type of equipment, such as all fire extinguishers located throughout the site. Routes simplify building hierarchies of work orders for inspections.

Work Order Connection

You can apply the route to a PM or work order and generate child work orders for each work asset listed as a stop on the route.

continued on next page

Chapter Summary continued

Routes Application

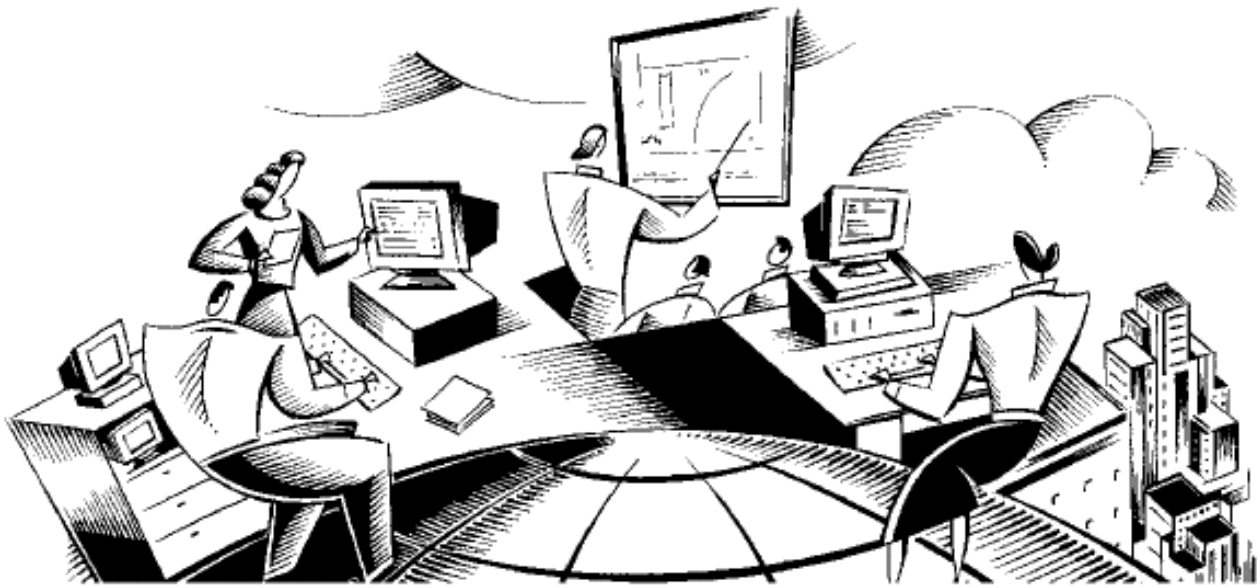
You can create a route in the Routes application of the Plans module. You can create a route that lists all assets of the same type, or all assets in a certain location, or both.

- You can specify a job plan for some or all route stops. Maximo copies these job plans to work orders generated for the route stop.
- You can insert a value in the Seq field that identifies the sequence number of the route stop. Maximo copies sequence numbers on route stops to the child work orders.
- If a safety plan is required when you use this job plan on the selected work asset, Maximo also copies that information to the work order.
- You can associate a job plan with each asset and location stop in the route. The job plan is copied to the child work orders that have been generated for each work asset. If a default safety plan is associated with the job plan when used on the selected work asset, that information is also copied to the work order.

NOTES:

Work Management Using MXES

Chapter 5: Entering Scheduled Maintenance Records



In This Chapter This chapter contains the following topics:

Chapter Overview

Overview

The main purpose of preventive maintenance is to maintain equipment on a regular basis so that unplanned downtime is minimized.

Learning Objectives

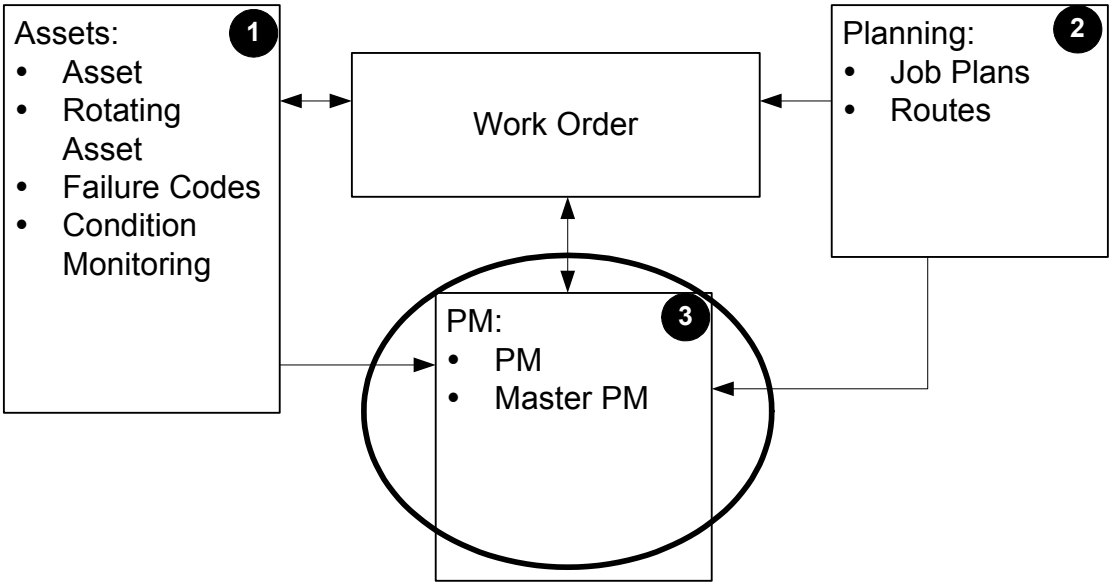
After completing this chapter, you should be able to:

- create time- and meter-based PM records,
- create a PM with a route,
- create a simple preventive maintenance master and associated PMs,
- create a preventive master with multiple job plans,
- create associated PM records, and
- create a PM hierarchy by applying a route.

You Are Here

We will enter records that specify when, what, and how often work needs to be done by using the **Preventive Maintenance** (PM) and **Master PM** applications.

Setting Up WO Referencing and Supporting Records



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Chapter Overview continued

Preventive Maintenance Module

The Preventive Maintenance module contains two applications:

- Preventive Maintenance
- Master PM

Definitions

Here are the definitions of some terms used in this chapter:

- A *PM hierarchy* is a group of PM (preventive maintenance) records with "parent-child" relationships.
- A *Master PM* record is a template used to create *associated* preventive maintenance records.

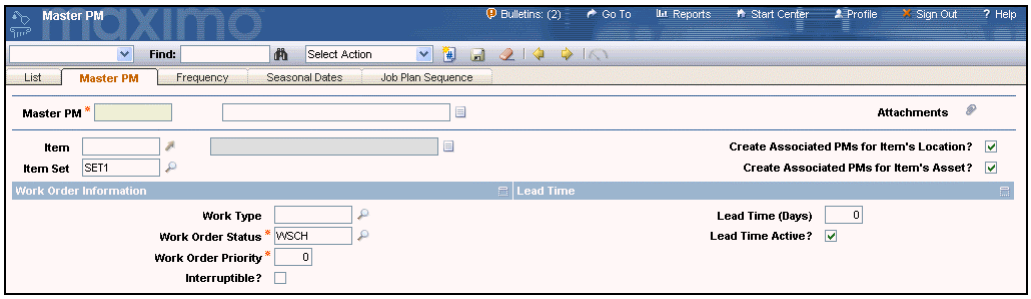
Master PM and Preventive Maintenance Applications Overview

Introduction

This section provides an overview of the Maximo PM functionality that pertains to setting up PM schedules and job plan sequencing in the Master PM and Preventive Maintenance applications.

Master PM Records

A *Master PM* record is a template used to create other PM records, which are known as *associated* PMs and are defined at the system, or database, level in Multisite. You use the Master PM application to create a master PM template and *associated* PM records.



Master PM Tabs

The Master PM application contains five tabs:

Use this tab…	To…
List	Search for master PM records in Maximo.
Master PM	Create and view master PM records.
Frequency	Schedule frequency criteria for work order generation. Frequency criteria can include time- or meter-based scheduling information.
Seasonal Dates	Specify a PM's active days, months, or seasons.
Job Plan Sequence	Assign multiple job plans to PM records. You can set up a standard sequence for maintenance service schedules (e.g., weekly, monthly, or quarterly job plans).

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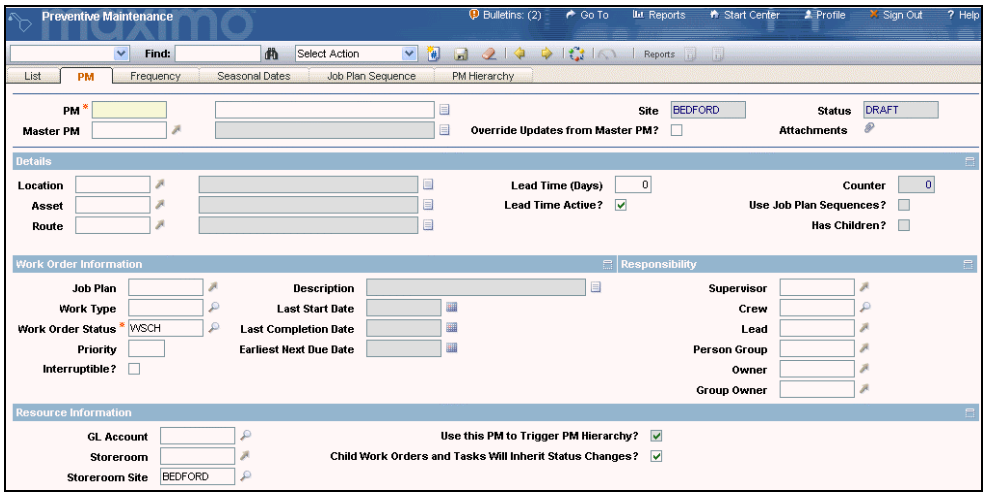
Master PM and Preventive Maintenance Applications Overview continued

Preventive Maintenance (PM) Records

A *Preventive Maintenance (PM)* record specifies work to be performed regularly based on elapsed time or on meter readings. PM records are templates that contain job plans, routes, and scheduling information. PM records are defined at the site level You create PM records for a specific asset or location, at a specific site. PM records can only be used to generate PM work orders at their specified site. You use the Preventive Maintenance application to create PM records.



PM Tabs

The Preventive Maintenance application contains six tabs:

Use this tab…	To…
List	Search for PM records in Maximo.
PM	Create and view PM records.
Frequency	Schedule frequency criteria for work order generation. Frequency criteria can include time- or meter-based scheduling information.
Seasonal Dates	Specify a PM's active days, months, or seasons.
Job Plan Sequence	Assign multiple job plans to PM records. You can set up a standard sequence for maintenance service schedules (e.g., weekly, monthly, or quarterly job plans).
PM Hierarchy	Build PMs to generate scheduled work order hierarchies.

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Master PM and Preventive Maintenance Applications Overview continued

Orgs and Sites

While both the Master PM application and the Preventive Maintenance application can be used to define and set up PM records, Master PM records are not org/site specific and therefore can be used universally, whereas Preventive Maintenance records can be org/site specific.

Associated PMs

Master PM records are templates used to **create** *associated* PMs. Associated PMs have scheduling information that can be inserted or updated by the master PM that generated it. Associated PMs are **stored** in the Preventive Maintenance application.

Shared Tabs

Because Master PM records create associated PM records, which are stored in the PM application, both applications share common tabs:

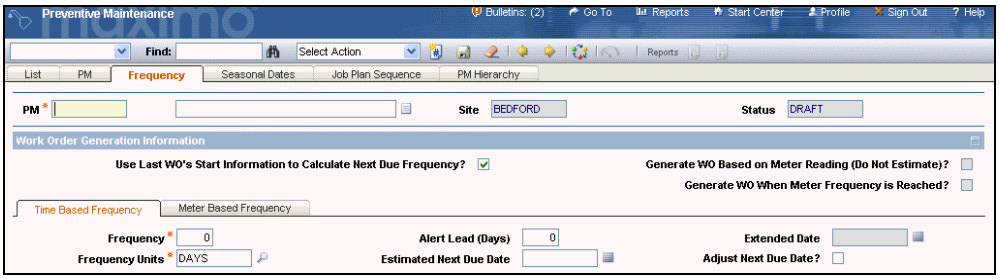
- Frequency
- Seasonal Dates
- Job Plan Sequence

Frequency Setup

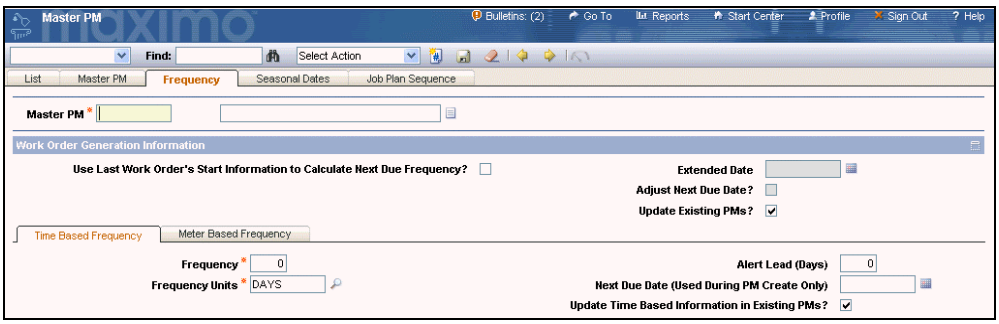
Introduction

A PM's frequency schedule determines how often you generate work orders from the PM record, not the Master PM record (remember, Master PM is a template used to create and update associated PM records). On the **Frequency** tab found in both the Master PM and Preventive Maintenance applications, you indicate the parameters for work order generation that are to be used on the PM records. The Work Order generation table contains fields that are used for the generation and scheduling of PM work orders.

- The Frequency tab in the **Preventive Maintenance** application (more detail on this application will be given later on in this chapter) looks like the following example:



- The Frequency tab in the **Master PM** application (more detail on this application will be given later on in this chapter) looks like the following example:



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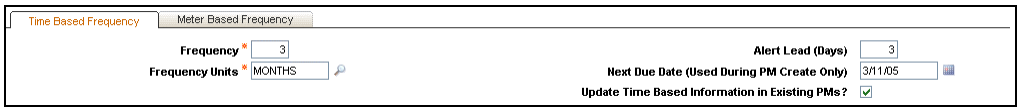
Frequency Setup continued

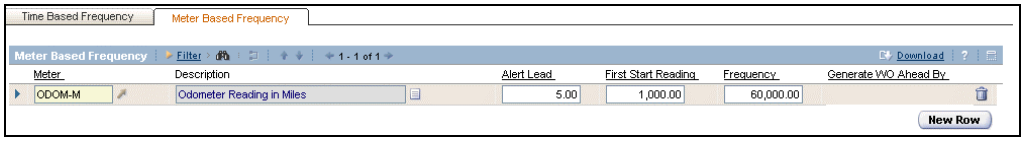
Frequency Criteria Options

You use the Frequency tab to create a PM schedule to generate work orders (only using the Preventive Maintenance application) based on the following criteria:

- Elapsed time between work orders



- Meter readings on assets or locations



- A combination of elapsed time between work orders and changes to meter readings; for example, every 6 months or 30,000 miles, whichever comes first.

continued on next page

Frequency Setup continued

Field Formulas and Calculations

The following diagram shows the fields and formulas that are used for date and meter calculations.

For Meter-based Frequency:

Meter Reading + Frequency

Next Meter Reading - Current Asset Meter Reading - Generate WO Ahead By

$$\text{Today's Date} + \left(\frac{\text{Next Meter Reading - Generate WO Ahead by - Current Asset Meter Reading}}{\text{Average Unit per Day}} \right)$$

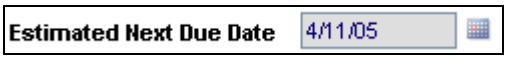
For Time-based Frequency:

continued on next page

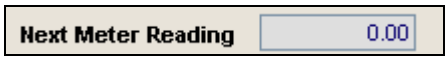
Frequency Setup continued

Work Order Generation Determination Overview

The **Use Last Work Order's Start** check box is used to indicate what criteria the system should use to calculate the anticipated PM work order generation, which for time-based frequency affects the **Estimated Next Due Date** calculation



and for meter-based frequency affects the **Next Meter Reading** calculation



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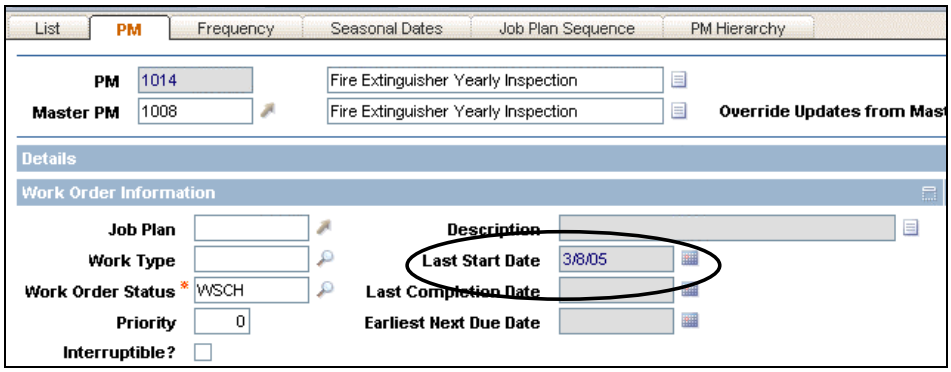
Frequency Setup continued

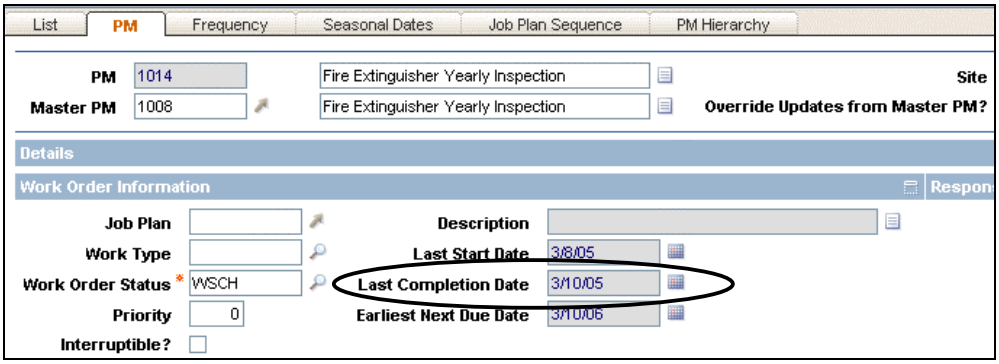
Work Order Generation Determination Overview

You need to decide where you want the frequency calculation to begin from: the Last Start Date or the Last Completion Date:

- The **Last Start Date** field on the PM application is a *fixed* schedule. Selecting the check box will indicate to use this date:



- The **Last Completion Date** field on the PM application is a *floating* schedule. *Not* selecting the check box will indicate to use this date:



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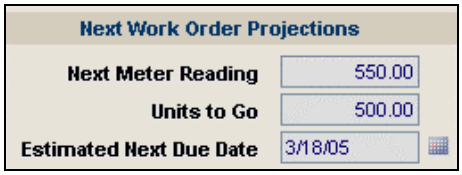
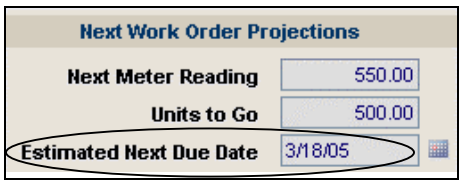
Frequency Setup continued

Meter Based: Work Order Projections

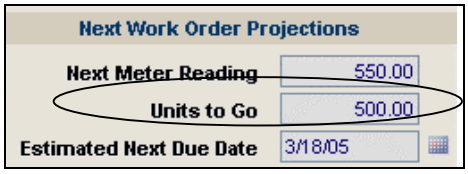
The fields in the **New Work Order Projections** window are used depending on whether you want your work order generation to be based on a date or on an actual meter reading.



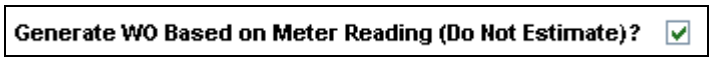
- For work order generation off a date, as indicated above, Maximo will use the date in the **Estimated Next Due Date** field.



- For work order generation off meter readings, Maximo will use the data in the **Units to Go** field.



To generate a work order off an actual meter reading, select the **Generate WO Based on Meter Reading (Do Not Estimate)?** option.



Auto-Generate Work Order

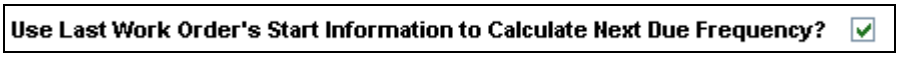
The **Generate WO When Meter Frequency Is Reached?** option allows you to generate work orders based on the moment at which a meter reading is entered and meets the frequency criteria.

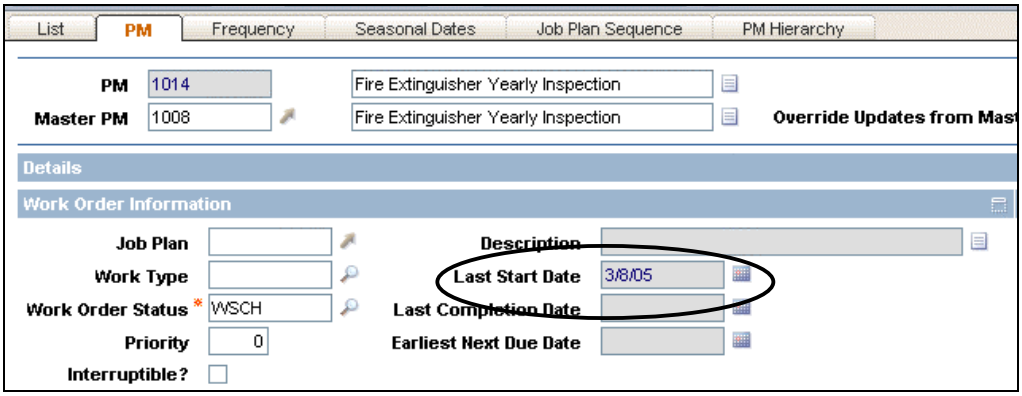
continued on next page

Frequency Setup continued

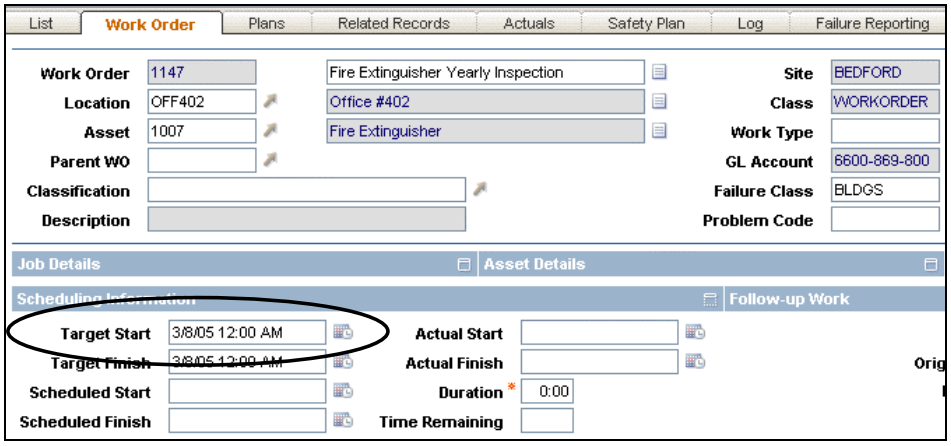
Fixed Schedules and Work Order Generation

On a *fixed* schedule, you plan work based on the target start date of the previous work, which is incremented by the frequency specified. Remember to select the **Use Last Work Order's Start Information to Calculate Next Due Frequency?** option to base work order generation for the associated PM record on the **Last Start Date** field on the PM record.





This is calculated by the **Target Start** date on the work order generated for the PM record and the frequency criteria specified when setting up the PM frequency.



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Frequency Setup continued

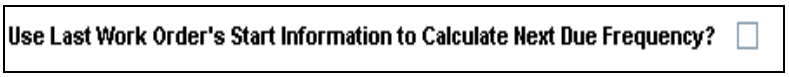
Last Start: Time-Based	For time-based PMs, the generation criteria are based on elapsed time since the target start date of previous work.
Last Start: Meter-Based	For meter-based PMs, the generation criteria are based on metered equipment usage since the target start date of previous work.

continued on next page

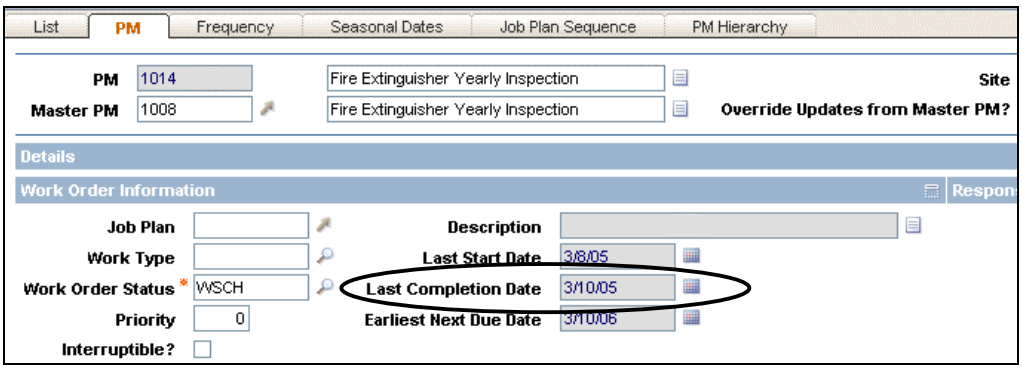
Frequency Setup continued

Floating Schedule and Work Order Generation

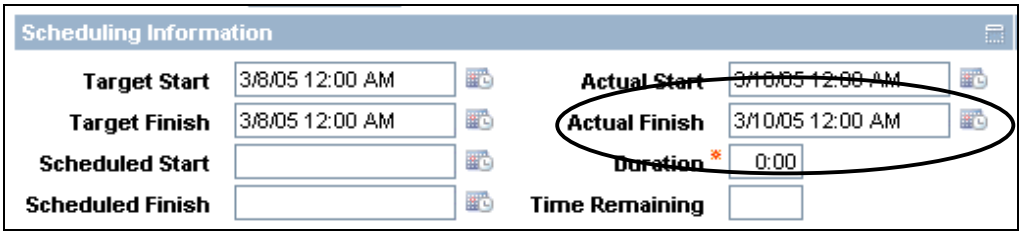
On a *floating* schedule, you plan work based on the closure of the previous work. You cannot generate a new work order until the current one is completed (the COMPLETE status). If you do *not* select **Use Last Work Order's Start Information to Calculate Next Due Frequency?**



then work order generation for the associated PM record is based on the **Last Completion Date** field on the PM record.



This data is taken from the **Actual Finish** date on the previous work order record. It is system-generated when the work order status is changed to COMPLETE and the frequency criteria specified when setting up the PM frequency.



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Frequency Setup continued

Last Completion Date: Time-Based	For time-based PMs, the generation criteria are based on elapsed time since the Actual Finish date of previous work.
Last Completion Date: Meter-Based	For meter-based PMs, the generation criteria are based on metered equipment usage since the Actual Finish date of previous work.

Seasonal Date Setup

Introduction

A *seasonal* PM is a PM (or master PM) record that you can activate and deactivate to accommodate work you do only during certain seasons. This section will focus on setting up seasonal dates in the Master PM application.

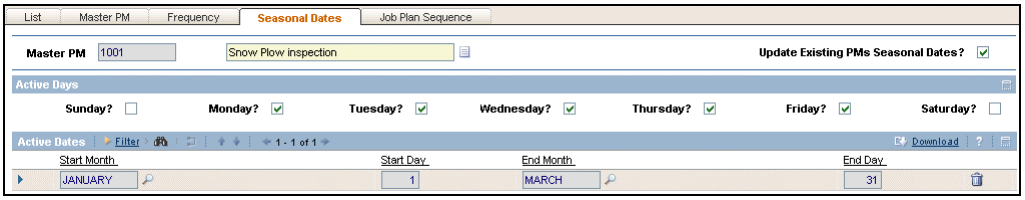
Note: Maximo considers seasonal dates only for PMs that are time-based. Meter-based frequencies are not affected by seasonal dates.

Seasonal PMs

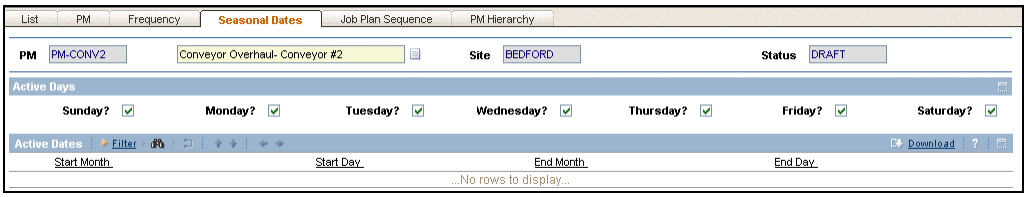
You use the Seasonal Dates tab to create a PM schedule to generate work orders (only using the Preventive Maintenance application) during a specified period of time each year, as well as specifying the days of the week on which work order generation can occur. In essence, with seasonal PMs you can:

- have multiple active seasons for a single PM, and
- indicate on which days of the week a PM will be active (that is, generate work orders).

The Seasonal Dates tab in the **Master PM** application looks like the following example:



The Seasonal Dates tab in the **Preventive Maintenance** application looks like the following example:



More details on these applications will be provided later in this chapter.

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Seasonal Date Setup continued

Active Days

Day check boxes that are not selected will have work orders generated on the next available active day, that is, days that are selected.

For example, if your company is closed on Saturdays and Sundays and the days have not been activated, work orders that become due on those days will be scheduled for Monday instead.

Job Plan Sequencing

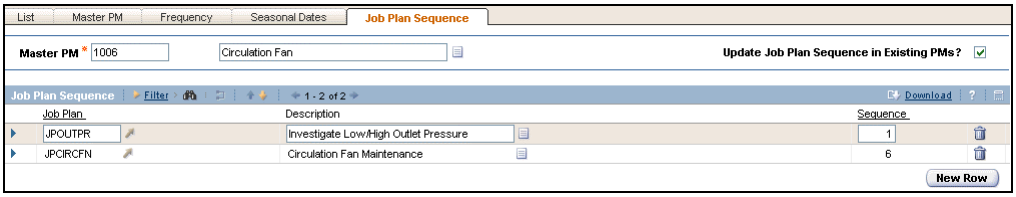
Introduction

In both the Master PM and Preventive Maintenance applications you can set up job plans to be sequenced.

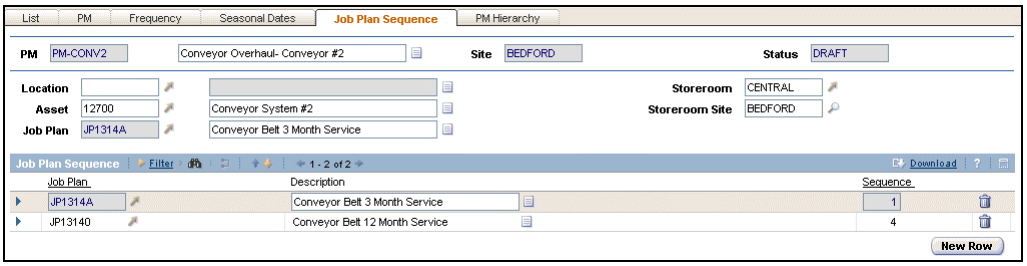
Sequencing Job Plans

Maximo allows you to create and use "sequenced" preventive maintenance records. This lets you schedule different levels of maintenance work at specified intervals. For example, you can assign weekly, monthly, and quarterly job plans for work on an asset. By assigning a sequence number to each job plan, you specify which job plan Maximo selects each time a work order is generated from that PM record. You use the Job Plan Sequencing tab to set up and define job sequencing.

- The Sequencing tab in the **Master PM** application looks like the following example:



- The Sequencing tab in the **Preventive Maintenance** application looks like the following example:



More details on these applications will be provided later in this chapter.

Note

Job plans that have a site specified for the record cannot be associated with a master PM because they are site-specific.

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Seasonal Date Setup continued

Example

Let's say our trucks will receive the LOF maintenance every 6 months, but once a year we want to also change the air filter and perform a safety inspection. We would duplicate the job plan record for the LOF; add the operations, labor, and materials requirements for the additional work; and then add the new job plan to the Sequence tab of the Preventive Maintenance record, with a sequence of "2."

Automatically, at every other generation of this PM, Maximo would attach the second job plan to the work order.

How Maximo Selects a Sequenced Job Plan

When you generate a work order from a PM, Maximo first increments the value in the Counter field by one, then selects the job plan. Maximo selects the job plan with the *highest* sequence number that divides evenly into the value in the Counter field. If no sequence number meets this criterion, Maximo uses the primary job plan (sequence number 1).

The value in the **Sequence** field means that this job plan would be used on every *n*th work order generated from the PM, where *n* is the sequence number.

Example

Using the example above, you would create a job plan sequence on the **Job Plan Sequence** tab as follows:

Job Plan	Job Plan Description	Seq	Meaning
INS-TURB	Inspect Turbine	1	This is the default or primary job plan It is used unless the sequence calls for a different plan. This job plan is used when the value in the **Counter** field is divisible only by 1.
INS-TURBCOMP	Inspect Turbine Component	4	This job plan is used when 4 is the highest number that divides evenly into the value of the **Counter** field.
INS-TURBFEED	Inspect Turbine and Feeder System	12	This job plan is used when 12 is the highest number that divides evenly into the value of the **Counter** field.

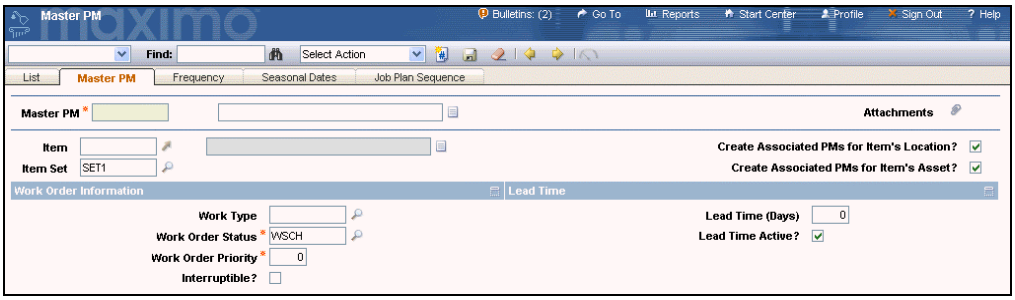
Creating Master PM Records

Introduction

As introduced in the beginning this section, the Master PM application is used to define and create associated PM records. This section focuses on the creation of master PM records using the Master PM application, as well as the creation and management of associated PM records.

Flashback: Master PM Application

The **Master PM** application allows you to set the criteria that the master PM will define for its associated PMs. You also use this application to view and modify scheduling information, and to update associated PMs with changes made to the master PM's scheduling information. Master PM records are created for generic preventive maintenance records, either for general maintenance or for rotating items.



Select Action Menu

With the Master PM Select Action menu, you can:

- Create and manage associate PM records
- Associate an attachment file to the Master PM record and subsequent associated PM records

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Creating Master PM Records continued

Associated PMs Setup

If you are creating and setting up a master PM record for associated PM records, you need to use the following fields:

- Create Associated PMs for Item's Location?

- Create Associated PMs for Item's Asset?

If either or both of these boxes are selected, then PM records will be created for those rotating items that are asset records or are associated to a location.

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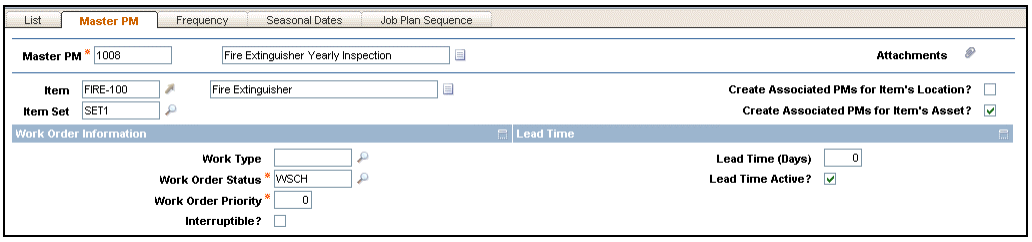
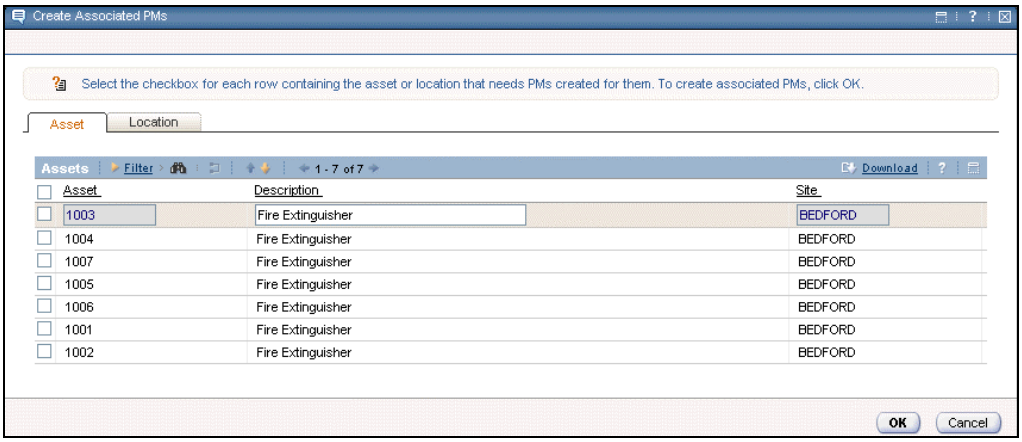
Creating Master PM Records continued

Example

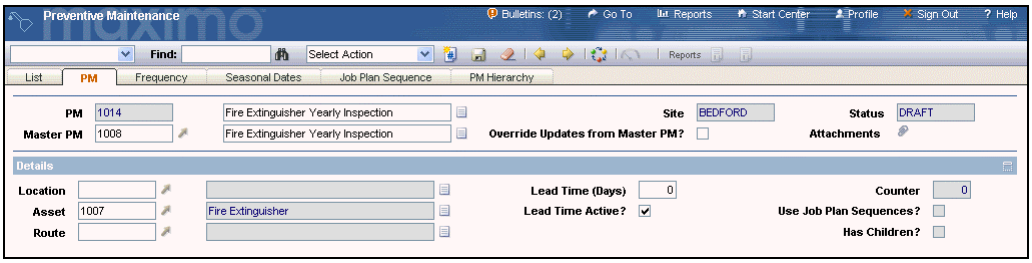
In the following example, the **Create Associated PMs for Item's Asset?** option is selected.



Therefore, only associated PM records for the rotating item's assets will be created.



An associated PM record generated from a master PM record (1008) for one of the assets (1007) looks like the following example in the PM application:



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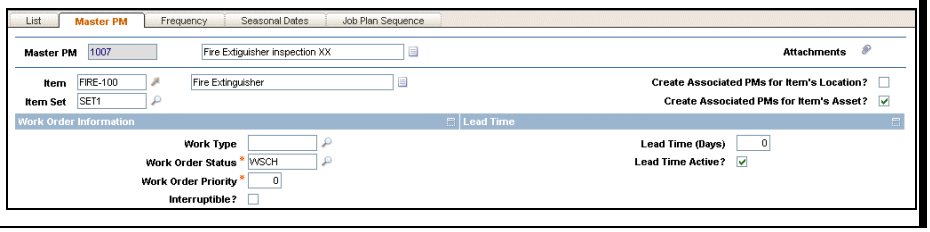
Creating Master PM Records continued

Deleting Master PM Records

If a master PM record does not have any associated PMs, you can delete it by selecting **Delete Master PM** from the Select Action menu.

Create a Master PM Record

In this exercise, we are going to create a time-based master PM record.

Step	Action
1	Go to the **Master PM** application.
2	Click the **New Master PM** button. Record your Master PM number: _____
3	In the **Description** field, enter Fire Extinguisher Inspection *XX* (where *XX* is some self-identifying record).
4	Enter FIRE-100 in the **Rotating Item** field.
5	Clear the **Create Associated PMs for Item's Location?** check box. Result: Your record should look similar to the one below. 

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Creating Master PM Records continued

Create a Master PM Record continued

Step	Action
6	In the **Work Order Priority** field, enter 5 and then select the **Interruptible?** check box.
7	In the **Lead Time (Days)** field, enter 7.
8	**Save** your record and click on the **Frequency** tab. Result: The Frequency tab opens.
9	On the **Time Based Frequency** subtab, enter the following information **Field** — **Value** **Frequency** — 1 **Frequency Units** — Years **Next Due Date** — *[Use today's date]*
10	**Save** your record.

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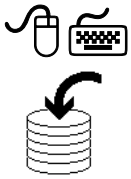
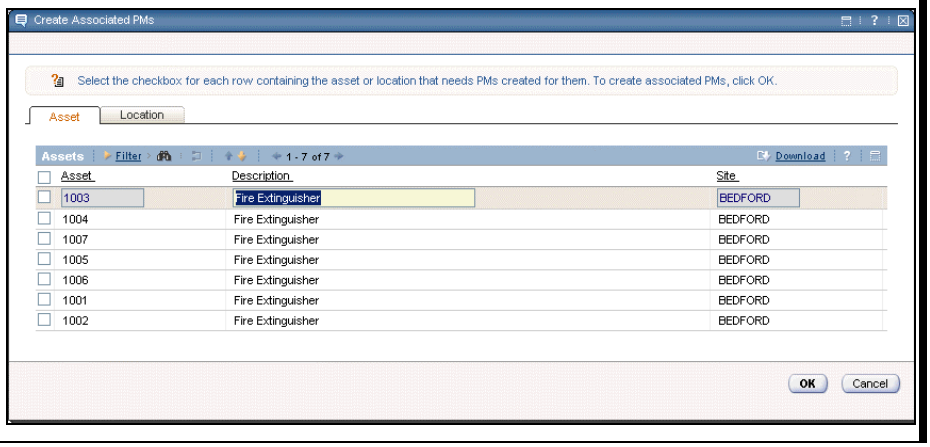
Creating Master PM Records continued

Creating an Associated PM Record



In this exercise, we are going to create associated PM records.

Step	Action
1	From the **Select Action** menu, choose **Create Associate PMs**. Result: The Create Associated PMs dialog box opens.



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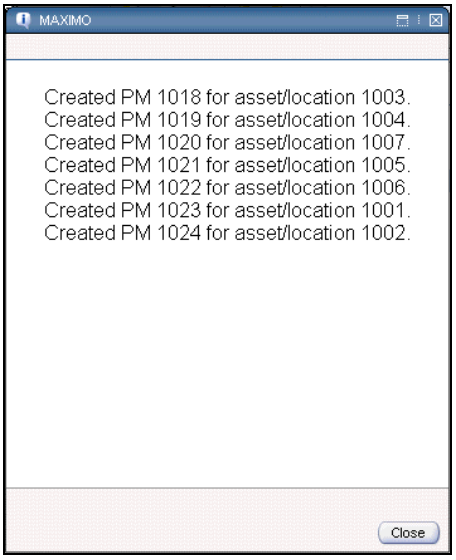
Creating Master PM Records continued

Creating an Associated PM Record continued

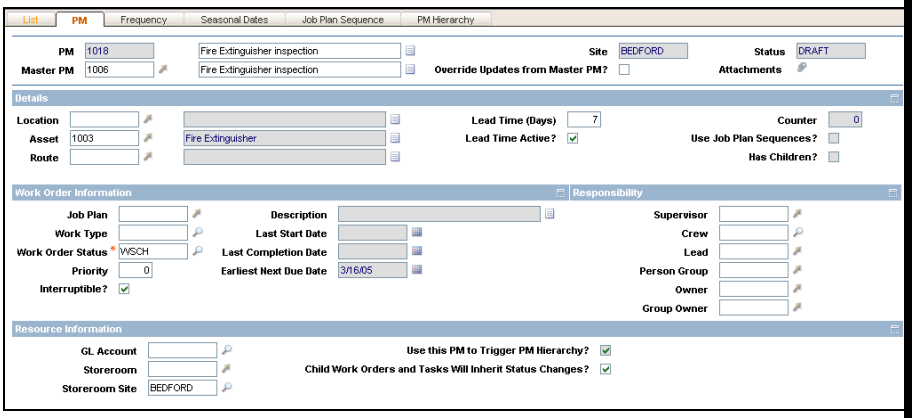
Step	Action
2	Select each asset and then click **OK**. Result: Maximo displays a message. 
3	Record your PM record number for each asset: 1003_____ 1004_____ 1007_____ 1005_____ 1006_____ 1001_____ 1002_____
4	Click **Close**. Result: You are brought back to the Master PM application.

continued on next page

Creating Master PM Records continued

Creating an Associated PM Record

continued

Step	Action
5	Go to the **PM** application and retrieve one of the associated PM records. Result: Your record should look similar to the example below.  Notice that all the information that we indicated in the master PM record is reflected on this record: • The Master PM record is referenced in the Master PM field. • Work Order Status is WSCH. • Estimated New Due Date is for today. If you were to go to all the associated PM records, they would contain the same information.

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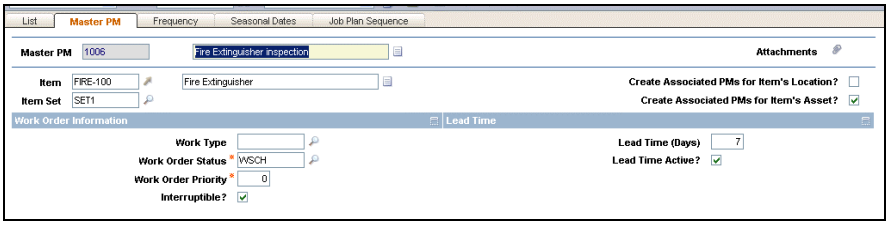
Creating Master PM Records continued

Creating an Associated PM Record

continued

Step	Action
6	In the **Master PM** field, click the **Details** button and select **Go to Master PM**. Result: You are brought back to the Master PM record. 

Updating Associated PM Records

In this exercise, we are going to update the associated PM records.

Step	Action
1	Update the following fields using the this data: **Field** — **Value** **Frequency** — 18 **Frequency Units** — Months

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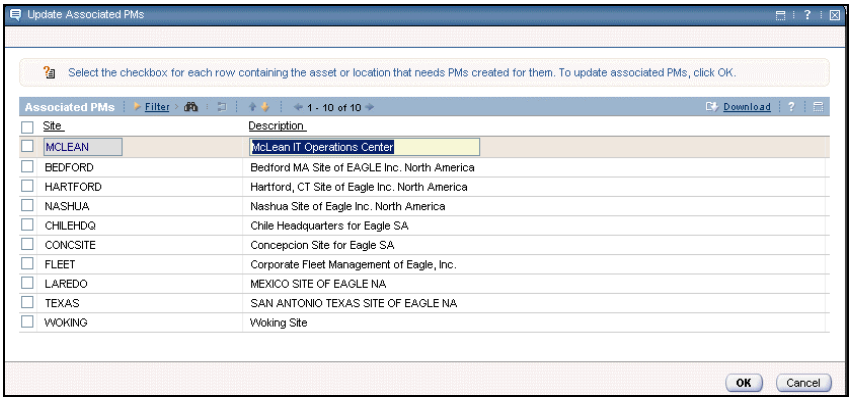
Creating Master PM Records continued

Updating Associated PM Records

continued

Step	Action
2	**Save** your record and select **Update Associate PMs** from the **Select Action** menu. Result: The Updated Associated PMs dialog box opens. 
3	Select **BEDFORD** and then click **OK**. Result: Updates to the associated PM records are made.

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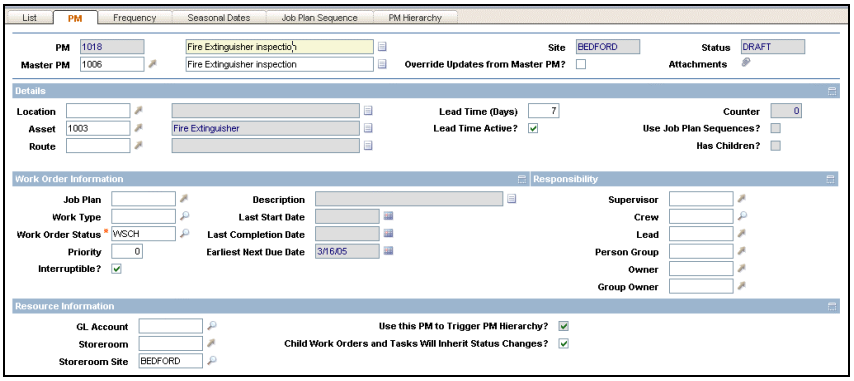
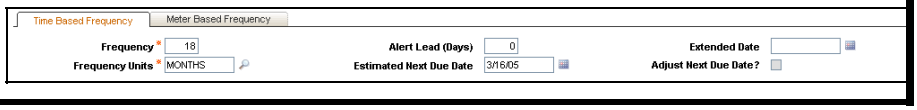
Creating Master PM Records continued

Updating Associated PM Records

continued

Step	Action
4	In the upper right-hand corner, click **Return**. Result: You are brought back to the Preventive Maintenance application. 
5	Click on the **Frequency** tab. Result: The frequency has been changed to 18 months. Note: You might have to refresh your screen to see the changes. 

Creating Master PM and Associated PM Records with Multiple Job Plans

Introduction

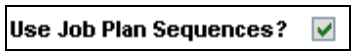
When you create a master PM record or PM record that uses more than one job plan, you must specify a sequence. Sequencing enables you to perform planned job plans that occur at different intervals according to the schedule specified.

Definition

A *job plan sequence* is a progression of multiple job plans associated with a preventive maintenance master. Each job plan must be assigned a sequence number, which Maximo uses to determine which job plan will be used on the work order generated from the master PM.

Preventive Maintenance Application Sequencing Fields

For an associated PM record or a preventive maintenance record that has multiple job plans associated to it, the Preventive Maintenance application offers the following useful options:

Option	Description
	Specifies whether the PM uses job plan sequences. If the check box is selected, the PM generates different work orders each time, based on a job plan sequence. If the check box is selected, the PM generates identical work orders every time.
	Indicates the number of work orders generated from the PM since the First Start Date. The counter is set to zero when you insert a new PM record, and increases each time you generate a top-level work order from the PM. If you are using a job plan sequence, the job plan is selected after the counter increments.
	Identifies the job plan associated with the PM. This will change according to the job plan in the sequence.

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Creating Master PM and Associated PM Records with Multiple Job Plans
continued

Entering Job Plan Sequences

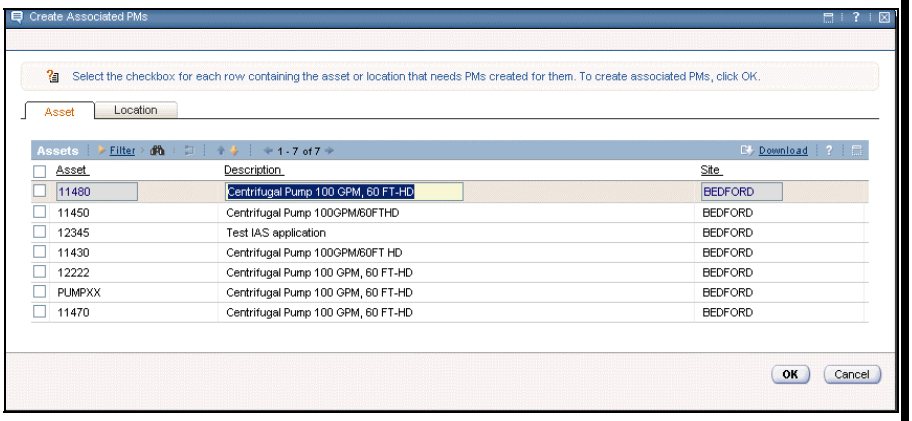
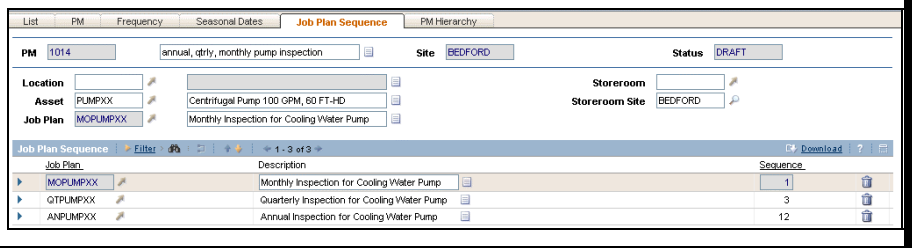
For this exercise, we will create a time-based master PM record for the rotating item PUMP100 and use the job plans that we created earlier.

Step	Action
1	Open the **Master PM** application and insert a new master PM record, PU100*XX*, with the description Annual, qtrly, monthly pump inspection.
2	Enter the following data: **Field** — **Value** **Item** — PUMP100 **WO Priority** — 5 **Interruptible?** — No [*leave clear*] **Create Associated PMs for Item's Location?** — No [*clear*] **Time Frequency** — 1 **Frequency Units** — Months **Use Last WO's Start Information…?** — No [*leave clear*]

continued on next page

Creating Master PM and Associated PM Records with Multiple Job Plans
continued

Entering Job Plan Sequences continued

Step	Action
3	Create an associated PM record only for **PUMP*XX*** by checking the **Asset** field for PUMP*XX*.  Record your PM record #:_____
4	Go to the **Preventive Maintenance** application and retrieve the **PUMP*XX*** record. Result: Notice the job plan is MOPUMP*XX* and the counter is 0. The counter number will increment when a work order is generated.
5	Click on the **Job Plan Sequence** tab. Result: Your screen should look similar to the one below. 

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Creating Master PM and Associated PM Records with Multiple Job Plans
continued

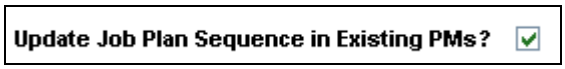
Entering Job Plan Sequences continued

Step	Action
	This means that MOPUMP*XX* will occur every month, QTRPUMP*XX* every third month, and ANPUMP*XX* every twelfth month. Another way to look at it is:

Job Plan	Seq	Month
MOPUMPXX	1	Jan
MOPUMPXX	1	Feb
QTRPUMPXX	3	March
MOPUMPXX	1	April
MOPUMPXX	1	May
QTRPUMPXX	3	June
MOPUMPXX	1	July
MOPUMPXX	1	Aug
QTRPUMPXX	3	Sept
MOPUMPXX	1	Oct
MOPUMPXX	1	Nov
ANPUMPXX	12	Dec

Updating Job Plan Sequencing

The **Update Job Plan Sequence in Existing PMs?** field indicates whether or not the associated PM job plan sequences are to be updated when the master PM is updated. Selecting this check box will update the associated PM job plan sequences. Leaving it blank will update the associated PM to all other changes made to the master PM record.



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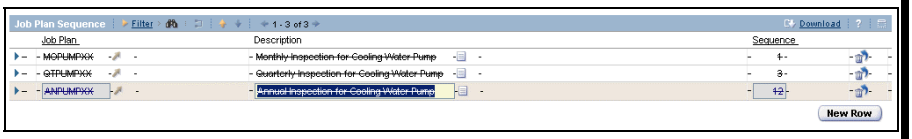
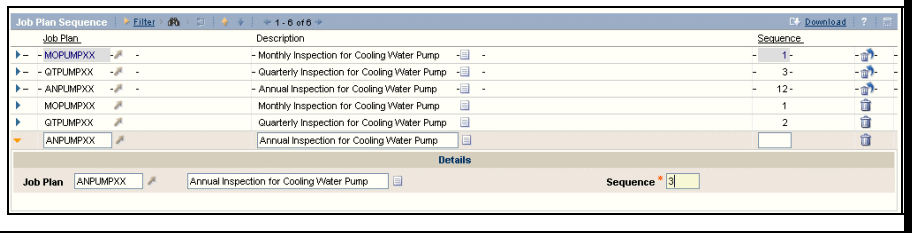
Creating Master PM and Associated PM Records with Multiple Job Plans
continued

Updating a Master PM

For future course exercises and demonstration purposes, we need to update the PU100*XX* Master PM record so that a work order can be generated for each job plan without having to generate 12 work orders to have a work order with the Annual Inspection (ANPUMP*XX*) job plan.

Step	Action
1	In the upper right-hand corner of the window, click **Return**.
2	Click on the **Job Sequence** tab and click the **Delete** button to delete all the job plans: MOPUMP*XX* QTRPUMP*XX* ANPUMP*XX* Result: Your Sequencing tab should look similar to the one below. 
3	Click **New Row** to enter the job plans with the following sequence: **Job Plan** — **Seq** MOPUMP*XX* — 1 QTRPUMP*XX* — 2 ANPUMP*XX* — 3 Result: Your Sequencing tab should look similar to the one below. 

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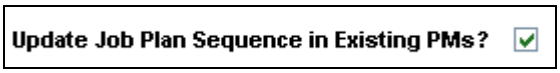
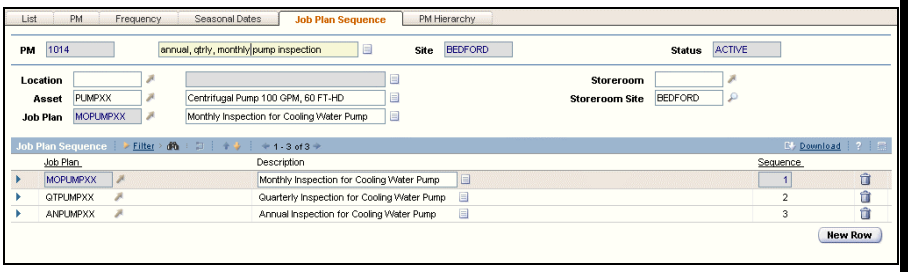
Creating Master PM and Associated PM Records with Multiple Job Plans
continued

Updating a Master PM continued

Step	Action
4	Select **Update Job Plan Sequence in Existing PMs?** 
5	**Save** your record and **update** the associated PM records for the **BEDFORD** site.
6	Go to the Preventive Maintenance record and retrieve the **PUMP*XX*** record.
7	Click on the **Job Plan Sequence** tab. Result: Your PM record has been updated with the new job plan sequencing. 
8	Do *not* exit this application.

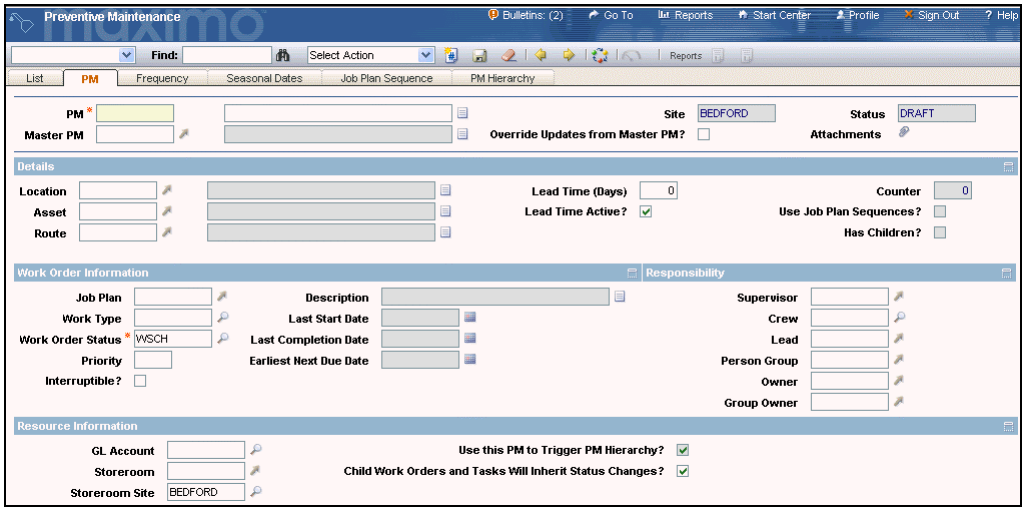
PM Records

Introduction

This section focuses on the setup and creation of PM records using the Preventive Maintenance application.

Flashback: Preventive Maintenance Application

Use the Preventive Maintenance application to create, modify, or delete scheduled maintenance work records.



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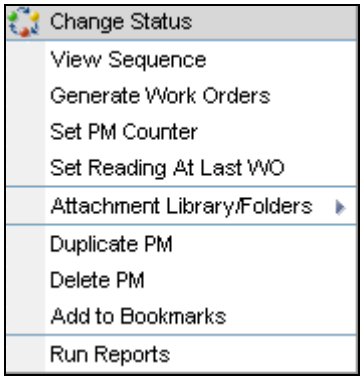
PM Records continued

Select Action Menu

With the Preventive Maintenance application Select Action menu, you can:

- Change the PM status
- View job plan sequencing
- Manually generate work orders
- Enter a meter reading for the last work order completed
- Associate an attachment file to the PM record



Status

There are three status types available to manage PM records:

- DRAFT: This is the default status when you create a new PM record. Work orders cannot be generated from PMs with a DRAFT status. Usually PMs with this status are in the process of being created or modified.
- ACTIVE: A PM record must have an ACTIVE status in order to generate work orders. You can still modify a PM that is in the ACTIVE status.
- INACTIVE: PM records that have an INACTIVE status do not generate work orders. Usually PMs with this status have been discontinued, either temporarily or permanently. You can change the PM's status back to ACTIVE.

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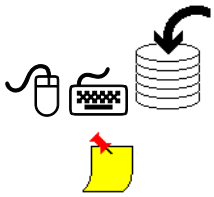
PM Records continued

Deleting PM Records

You cannot delete a PM that is:

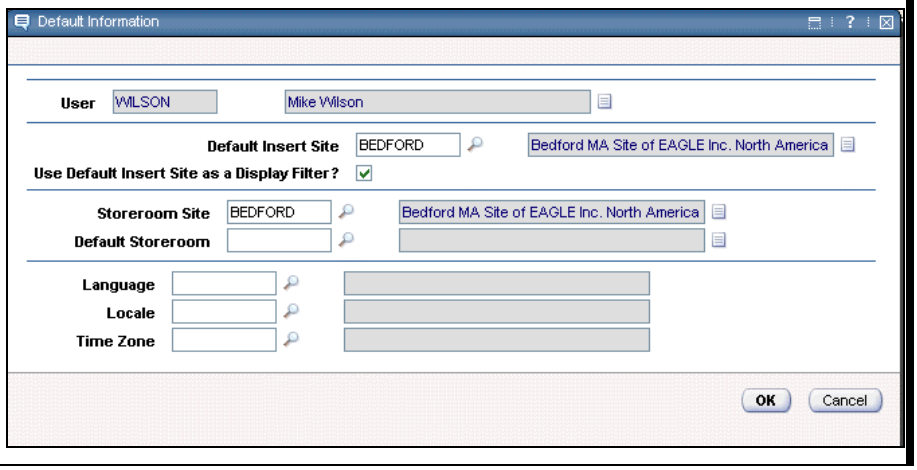
- part of a PM hierarchy—you must detach the PM from the hierarchy before deleting it
- used on an open work order
- referenced by a measurement point on an asset

Creating a PM Record



In this exercise we will create a meter-based frequency preventive maintenance record that is not created as an associated PM record from the Master PM application.

Note: Earlier in the course, you moved asset 100*XX* to the Fleet site. This means that your profile will have to be changed to default to the Fleet site when inserting records.

Step	Action
1	In the right-hand corner of the **PM** application, click the **Profile** link and select **Default Information**. Result: The Default Information dialog box opens. 

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PM Records continued

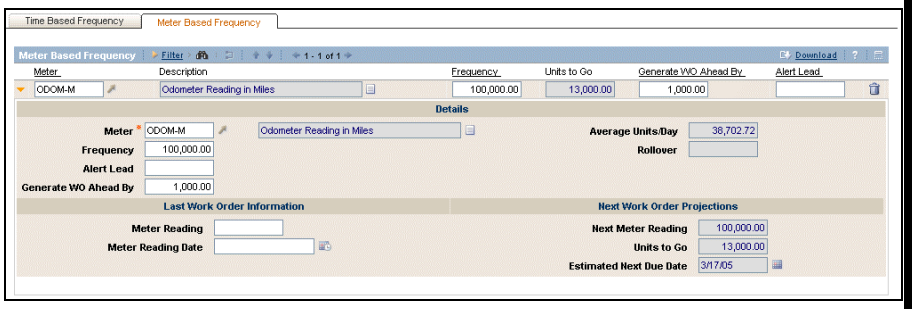
Creating a PM Record continued

Step	Action
2	In the **Default Insert Site** field, enter FLEET and then click **OK**. Result: From this point forward, the default site when inserting records will be the Fleet site.
3	Insert a new PM record and enter the following information onto the **PM** tab: **Field** — **Value** **PM** — 100PM*XX* **Description** — 100,000 mile inspection **Asset** — 100XX **Job Plan** — PMBULKTR **Work Type** — PM **Work Order Status** — WSCH
4	Click on the **Frequency** tab and, in the **Work Order Generation Information** section, clear the **Use Last WO's Start Information...?** check box. Result: Your Work Order Generation table window should look like this example: 

continued on next page

PM Records continued

Creating a PM Record continued

Step	Action
5	Click on the **Meter Based Frequency** subtab, insert a new row, and enter the following information: **Field** — **Value** **Meter** — ODOM-M **Frequency** — 100000 **Generate WO Ahead By** — 1000 Result: Your Meter Based Frequency subtab should look like this example:  Notice that **Units to Go** is 13,000. This is because the formula is: Next Meter Reading – Current Asset Meter – Generate WO Ahead By 100,000 – 86,000 – 1000 = 13,000 Notice that **Estimated Next Due Date** is populated with a date. This is because the formula is: Today's Date + ((Next Meter Reading – Current Asset Meter – Generate WO Ahead By)/Average Units/Day) 3/16/05 + ((100,000 – 86,000 – 1000)/38,702 = 3/17/05

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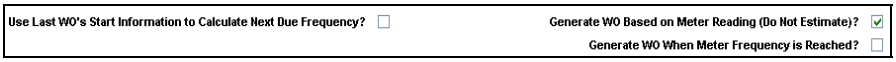
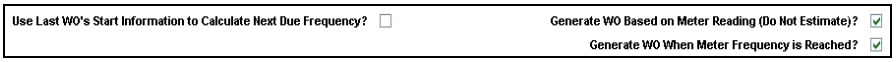
PM Records continued

Creating a PM Record continued

Step	Action
6	Because we want to use the Actual Meter Reading instead of the Estimated Date, select the **Generate WO Based on Meter Reading (Do Not Estimate)?** option. Result: Your Work Order Generation table window should look like this example: 
7	Because we want the system to automatically generate a work order when the meter reading frequency is reached, select the **Generate WO When Meter frequency is Reached?** option. Result: Your Work Order Generation table window should look like this example: 
8	Change the Status to **Active**.
9	Do *not* exit the application.

PM Hierarchies and Routes

Introduction

You can group PM records into hierarchies that reflect a logical grouping of assets. A PM hierarchy is a group of PMs with parent-child relationships. Use a PM hierarchy to schedule a group of work orders for an asset or location hierarchy.

Creating a PM Hierarchy

In Maximo you create a PM hierarchy by inserting previously created PM records on the PM Hierarchy tab.

Work Order Genaration

If any PM in the hierarchy is due, it triggers the generation of work orders for the entire hierarchy.

Sequencing

You can add a **sequence number** to each PM in a PM hierarchy. Maximo copies the sequence number to the work orders you generate from the PM to give workers an indication of the order in which they should perform the work assignments. However, there is no validation on this number; duplicates and null values are allowed.

PM Hierarchy Parameters

Some of the parameters for managing or creating a PM hierarchy are as follows:

- A child PM record cannot be added to a PM record if it is already part of another PM hierarchy.
- When you duplicate a PM record that is part of a hierarchy, you duplicate the current record only; you do not duplicate the hierarchy.
- You cannot delete a PM record that is part of a hierarchy. PM records that have a parent or child PMs must be removed from their hierarchies before you can delete them.

Use This PM to Trigger PM Hierarchy?

Select the **Use This PM to Trigger PM Hierarchy?** check box if you want Maximo to generate work orders for the entire hierarchy when this PM becomes due.

If you want Maximo to generate a work order *for only this PM when it becomes due, and not the other PMs in the hierarchy*, clear the check box.

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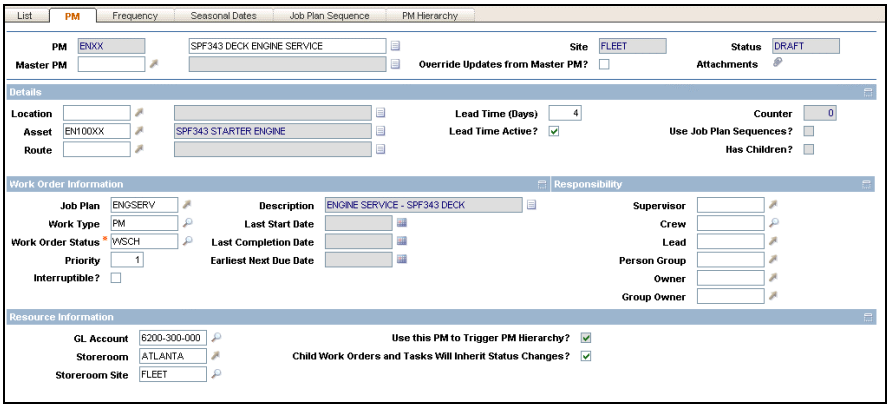
PM Hierarchies and Routes continued

Duplicating a PM Record

Because children PM records can belong to only one parent, in this exercise we are going to duplicate PM records already in the system and use those to create our PM hierarchies.

Step	Action
1	Retrieve PM record **ENSPOO1**.
2	From the **Select Action** menu, choose **Duplicate PM**.
3	On the **PM** tab, enter the following information: **Field** **Value** **PM** EN*XX* **Asset** EN100*XX* **Work Status** WSCH
4	**Save** your record. Result: Your PM tab should look like the one below. 

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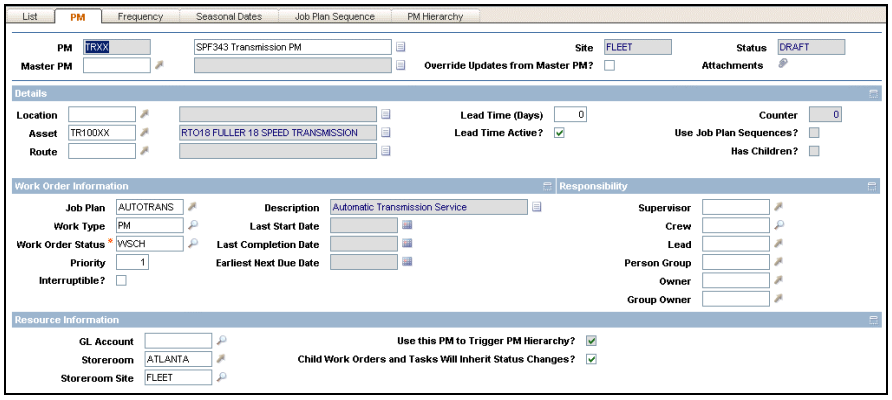
PM Hierarchies and Routes continued

Duplicating a PM Record

continued

Step	Action
5	On the **PM** tab, duplicate the PM record **SPTR0001** and enter the following information: **Field** — **Value** **PM** — TR*XX* **Asset** — TR100*XX* **Work Type** — PM **Work Status** — WSCH
6	**Save** your record. Result: Your PM tab should look like this example: 

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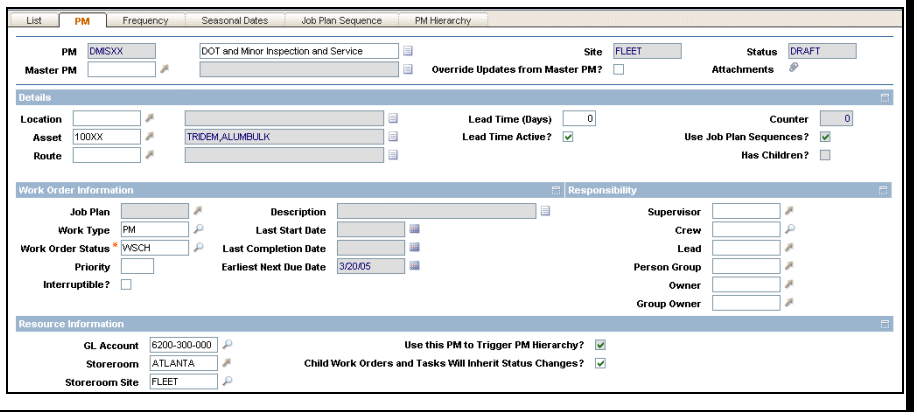
PM Hierarchies and Routes continued

Creating a PM Hierarchy

In this exercise we are going to use the PM records that we just created and create a PM record with a hierarchy.

Step	Action
1	Insert a new PM record and enter the following information onto the **PM** tab: **Field** — **Value** **PM** — DMIS*XX* **Description** — DOT and Minor Inspection and Service **Asset** — 100*XX* **Work Type** — PM **GL Account** — 6200-300-000 **Storeroom** — ATLANTA Result: Your PM tab should look like the one below. 

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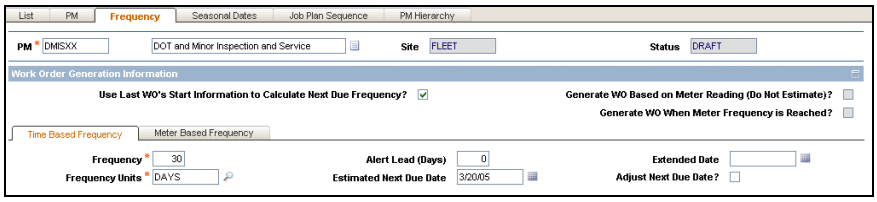
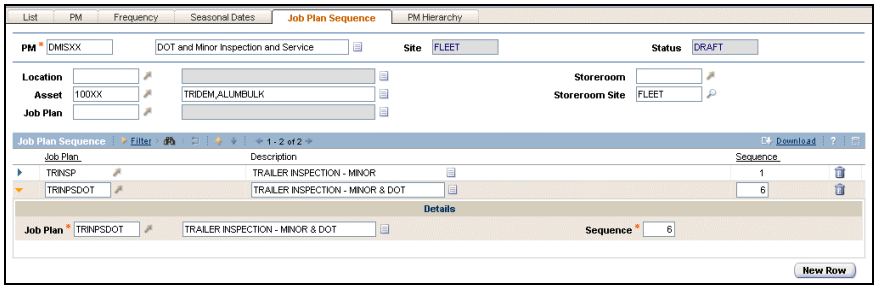
PM Hierarchies and Routes continued

Creating a PM Hierarchy continued

Step	Action
2	On the **Time Based Frequency** subtab, insert a new row and enter the following information: **Field** — **Value** **Frequency** — 30 **Frequency Units** — Days **Estimated Next Due Date** — [*Use Today's Date*] Result: Your Frequency tab should look like the one below. 
3	On the **Job Plan Sequence** tab, insert two sequenced job plans: **Job Plan** — **Sequence** TRINSP — 1 TRINPSDOT — 6 Result: Your Frequency tab should look like the one below. 

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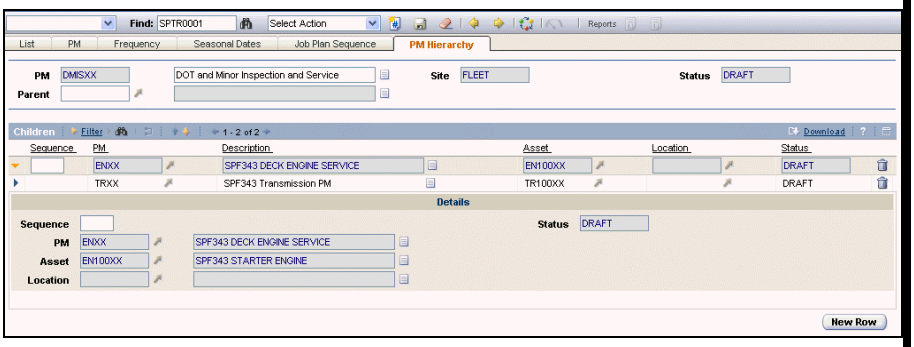
PM Hierarchies and Routes continued

Creating a PM Hierarchy continued

Step	Action
4	On the **PM Hierarchy** tab, click **New Row** and insert two PM children: **PM** EN*XX* TR*XX* Result: Your PM Hierarchy tab should look like the one below. 
5	Because engine work and transmission work must be sequenced, enter the following sequence data: **PM** **Sequence** EN*XX* 1 TR*XX* 2

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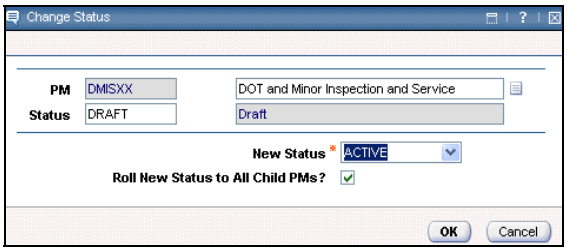
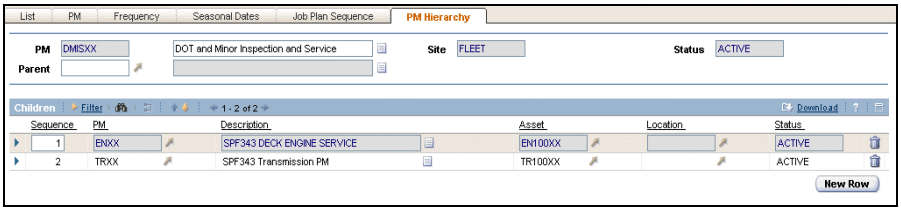
PM Hierarchies and Routes continued

Creating a PM Hierarchy continued

Step	Action
6	Change the status to **Active** and select the **Roll New Status to All Child PMs?** option. Result: Your Change Status dialog box should look like this one: 
7	Click **OK** and then click the **PM Hierarchy** tab. Result: The parent and its children are in an ACTIVE status. 

Routes and Hierarchies

Introduction

As we discussed, a route provides a way to create a logical progression of PMs that are similar in function, even if they are for different types of assets (allowing you to group the work orders under a single parent).

Some examples are:

- Fire extinguishers (location-based: best path)
- Remote site (different equipment: same time)

When you associate a route to a PM record, and a work order is generated from it, a parent work order with children is created. The child work orders represent the work for a particular location or asset.

PM and Route Parameters

Some of the parameters used in managing PM work orders with an attached route are as follows:

- Sequence numbers – If there are sequence numbers on the route's assets, they are applied to the generated work orders. Duplicate sequence numbers are allowed.
- Job plans – The job plan for the asset's work order comes from the job plan for the asset at that route's stop. If there is no job plan for the route stop's asset, the plan comes from the PM record. Job plan tasks generate tasks on the associated work order.
- Safety plans – If there is a default safety plan for this job plan when it is used with an asset, the safety plan is copied to the new work order.

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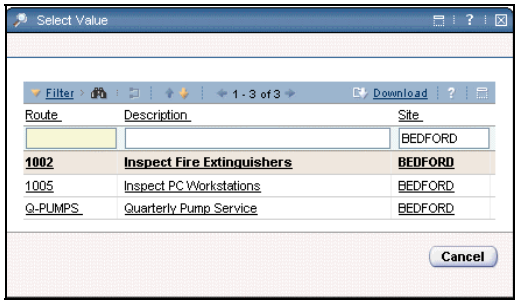
Routes and Hierarchies continued

Creating a PM with a Route

Follow these steps to create a PM with a route to service fire extinguishers on a yearly basis.

Note: Because these assets are located at the Bedford site, and the job plans are already created in the system, the PM records that we create will have to be for the Bedford site. This means you have to change your profile information to reflect the default as BEDFORD.

Step	Action
1	Insert a new PM with the following information: **Field** **Value** **PM** YREXT*XX* **Description** Yearly Fire Extinguisher inspection
2	Click the **Route** field **Detail** button and choose **Select Value**. Result: The Select Value screen displays a list of available routes from which to choose. 
3	Click on **Inspect Fire Extinguishers**. Result: You are returned to the PM tab, which now displays the previous information plus the new route information. Note: The description for Route – Inspect Fire Extinguishers will display in the work order description when generated.

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Routes and Hierarchies continued

Creating a PM with a Route

continued

Step	Action
4	Enter the following additional information: **Field** **Value** **Job Plan** INS1002 **Work Type** PM
5	On the **Frequency** tab, clear the **Use Last WO…?** check box and enter the following information: **Field** **Value** **Frequency** 1 **Frequency Units** Year **Estimated Next Due Date** [*Today's date*]
6	On the **Seasonal Dates** tab, clear **Saturday** and **Sunday**. Result: This will prevent work orders from being generated over the weekend.
7	Change the status to **Active**.

Chapter Summary

Master PMs

A master PM is a template for associated PMs, which are equipment and location PMs that share a rotating item.

A master PM does not generate work orders like a regular PM. Instead, it controls certain aspects of the associated PMs.

PMs

PMs are templates that Maximo uses to generate PM work orders. You define them in the Preventive Maintenance application.

PMs use job plans to specify what operations, materials, and tools are needed on the PM work order.

PMs with Routes

A PM with a route can generate work orders for a list of equipment or locations with the same PM schedule.

NOTES:

Work Management Using MXES

Unit 3: Work Management Overview

In This Unit

This unit contains the following chapters:

Chapter	Title
6	Work Order Generation
7	Planning
8	Scheduling Work Assignments
9	Dispatching and Executing Work Assignments
10	Completing Work

Unit Introduction

Introduction

In this unit, our focus will be on learning how to use Maximo for work management: specifically, for work order generation and processing.

Learning Objectives

While each chapter has its own unique objectives, when you have completed all of the chapters in this unit, you should be able to:

- Create and process the following types of work orders:
  - PM
  - Predictive maintenance
  - Corrective maintenance
  - Emergency maintenance
- Create and process a project-based work hierarchy
- Define the different types of work orders available with Maximo
- Describe the different statuses available with Maximo

Definitions

The following definitions and concepts are used throughout this unit:

- *Proactive* work is work that heads off problems before they occur. Some defining characteristics are:
  - Work is done to prevent an asset, especially critical assets, from failing
  - Any PM job
  - Work orders initiated by condition (predictive) monitoring when the need is not otherwise readily apparent
  - Project work to upgrade an asset
- *Reactive* work is work where a failure has occurred and an operations group is reacting to the situation. Some defining characteristics are:
  - An asset is actually broken down or fails to operate properly
  - The highest-level priority jobs are defined as urgent

The Work Order Process

Introduction

When routine work, service work, or repair work are required for assets, there are several ways in which a work order can be generated, and several phases and statuses that work orders can go through in a lifecycle process. This section will look at the different work order generation methods and the work order lifecycle.

Ticket vs. Work Order

In Maximo, a *ticket* record is used to record a customer request or issue, while a *work order* record records the details of the work performed to resolve the issue.

Work Situation Occurrences

There are many different situations that generate work for a maintenance department, such as a broken light fixture or a boiler failure. How you set up and track work in Maximo depends on the source of work and your site processes. Generally, but not exclusively, there are four work situation occurrences:

- Work that is requested, planned, scheduled, assigned, performed, and recorded
- Work that is planned, scheduled, assigned, performed, and recorded
- Repetitive work that is planned ahead of time to occur at scheduled intervals, assigned, performed, and recorded
- Work that is performed and then recorded, with no formal request having been made

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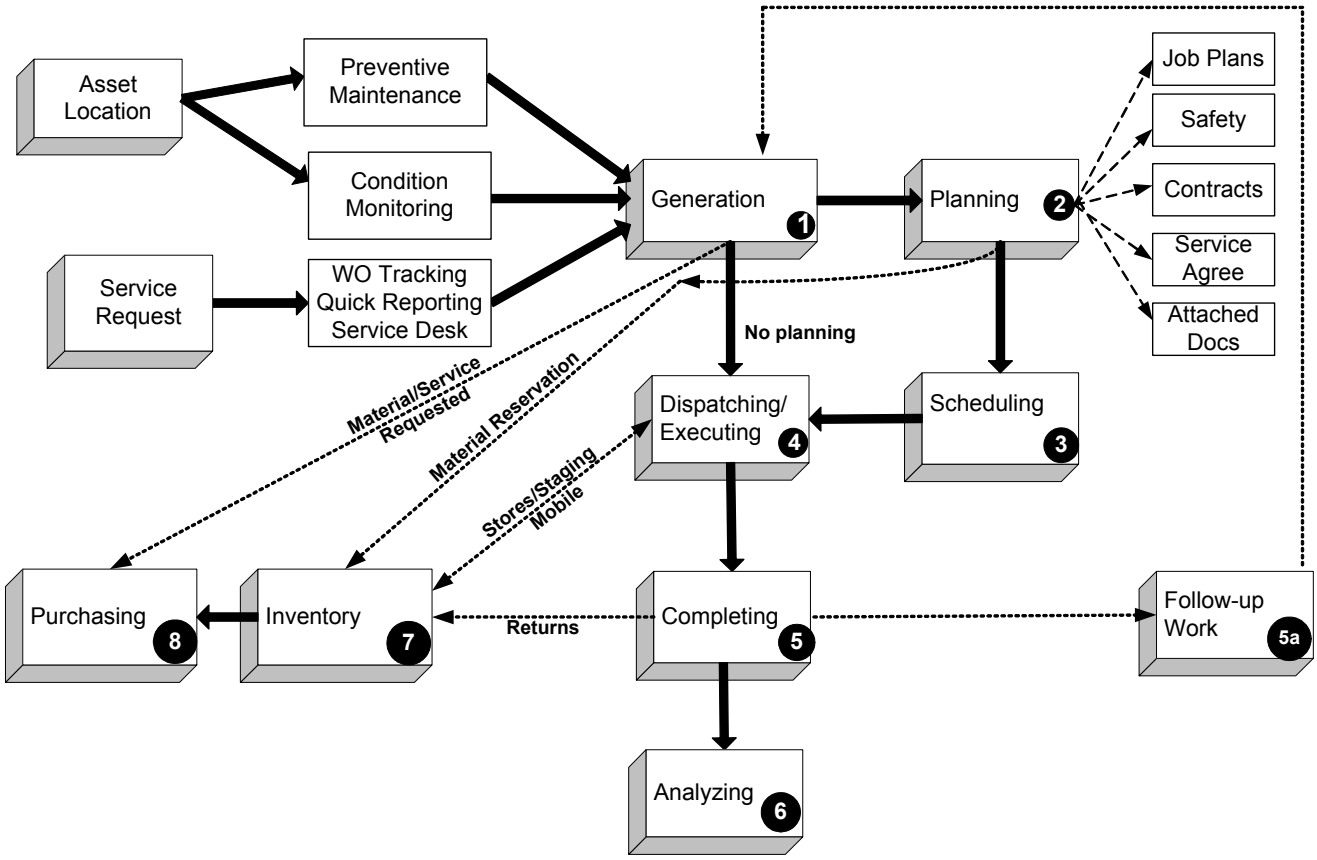
Unit Introduction continued

Work Order Lifecycle Process

As we have seen, the following diagram shows how some of the Maximo applications can work together when acting on the database. Throughout this unit we will refer to this diagram to indicate where we are in the process.



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Unit Introduction continued

Stage	Description
1	For equipment or location, you can create and generate work orders, sometimes with associated job plans, safety plans, and contracts, in the following ways: • A PM becomes due and is generated automatically by the system or by a cron task, or manually by using the PM application. • A condition measurement falls outside the limits and is generated automatically by a cron task or manually by using the CM application. • A problem is reported and can be manually (user) entered in the Work Order Tracking, Service Request, or Quick Reporting applications. • (5a) If necessary, a follow-up work order is generated from an originating work order.
2	Depending on the work order, job plans, related service contracts, and safety information is associated or added to the work order. When a job plan or work plan is used with a work order, and the work order is approved, planned materials are put on inventory reserve. Depending on the work situation, services and materials requisitioning is done by the maintenance organization or through inventory reorder.
3	Scheduling data drawn from the Scheduling Information table window in the Work Order Tracking application is used by a project scheduling application, such as Maximo Project Manager or Assignment Manager. Based on priority, backlog is ranked, with the highest-priority work being done first. Work assignments are then scheduled using the Assignment Manager application.
4	After work and labor assignments are scheduled, work is dispatched to staff using the Assignment Manager application. Work orders are then printed and dispatched to the staff. Staff picks up materials from the storeroom, warehouse, or staging, or (if an open storeroom) materials are drawn by the staff. If a storeroom issues materials, they can be issued using the issues and transfers application. The physical work begins.
5	Physical work is finished for part of or all of the work order. Actual Material, Labor, and Tool usage is entered against the work order using either the Quick Reporting or Work Order Tracking application. Unused materials are returned to inventory and actual work order costs are calculated. After a certain amount of time, the work order is closed, which represents that all the physical work and all the required electronic data for the work order is entered.
5a	If necessary, a follow-up work order is generated from an originating work order.
6	Use the data in the system to generate daily, weekly, and monthly reports and analysis summaries.
7	Manage your inventory and reconcile item balances using the Inventory module.
8	Manage the purchasing processes using the Purchasing module.

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Unit Introduction continued

Work Order Generation

There are two ways to generate work orders in Maximo: manually or automatically.

Manual Method

You can generate a work order *manually* in the following ways:

- In the Service Requests, Quick Reporting, and Work Order Tracking applications, you can manually insert a work order record by using the **Insert Record** icon on the Toolbar.

- In the Preventive Maintenance or Condition Monitoring applications, you can use the **Generate Work Order** action.

Automatic Method

With the automatic method, work order generation is based on the frequency data in the Preventive Maintenance application or the action limit measurement points or characteristic value in the Condition Monitoring application being met.

You can generate a work order *automatically* in the following ways:

- By activating the **Preventive Maintenance** cron task (PMWoGenCronTask) in the Cron Task Setup application in the Configuration module.
- By indicating that Maximo should create a work order at the moment a meter reading is taken and meets the frequency. You can do this by selecting the **Generate WO When Meter Frequency Is Reached?** option in the Preventive Maintenance application.
- By activating the **Condition Monitoring** cron task (MeasurePointWoGenCronTask) in the Cron Task Setup application in the Configuration module.

Work Management Applications in Maximo

Introduction

Because this unit focuses on work orders, this section provides an overview of the applications that are used to process a work order through a lifecycle. Chapters in this unit will provide more in-depth information, as well as hands-on exercises to carry out the functionality and actions found in each application.

Work Order Applications

Applications in Maximo that can be used to create and manage work orders are:

- Create Service Request
- Service Requests
- Work Order Tracking
- Quick Reporting
- Assignment Manager
- Labor Reporting
- Preventive Maintenance
- Condition Monitoring

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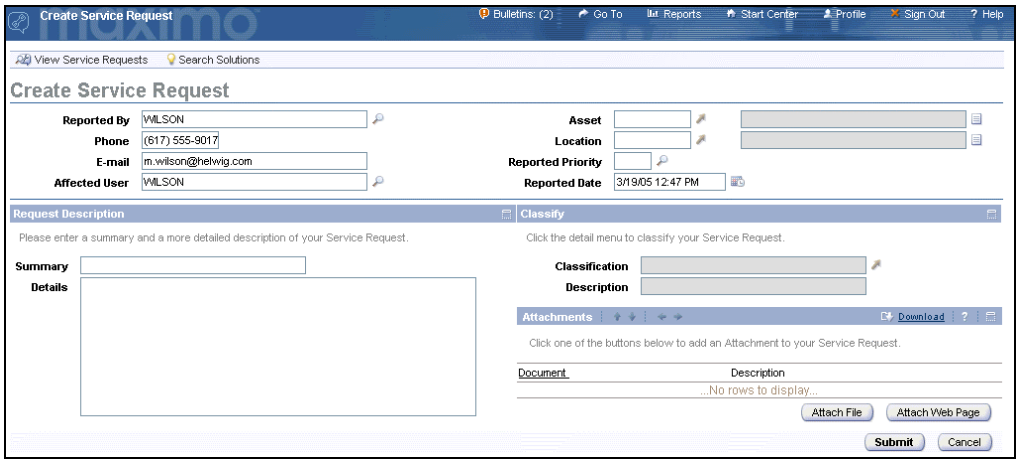
Work Management Applications in Maximo continued

Create Service Request

The **Create Service Request** application is a single-point quick entry application used to create a service ticket for a reported problem and then route it to a service/help desk agent. Depending on the issue that is reported, it can be used in other applications. Maximo distinguishes these records by the value in the Class column in the database. By default, when Maximo creates a work order record, it enters a value in the Class field to indicate if the record is an activity, change, release, or work order record. Maximo uses the Class field as a filter to determine which records from the WORKORDER table to display for each of the work order applications.



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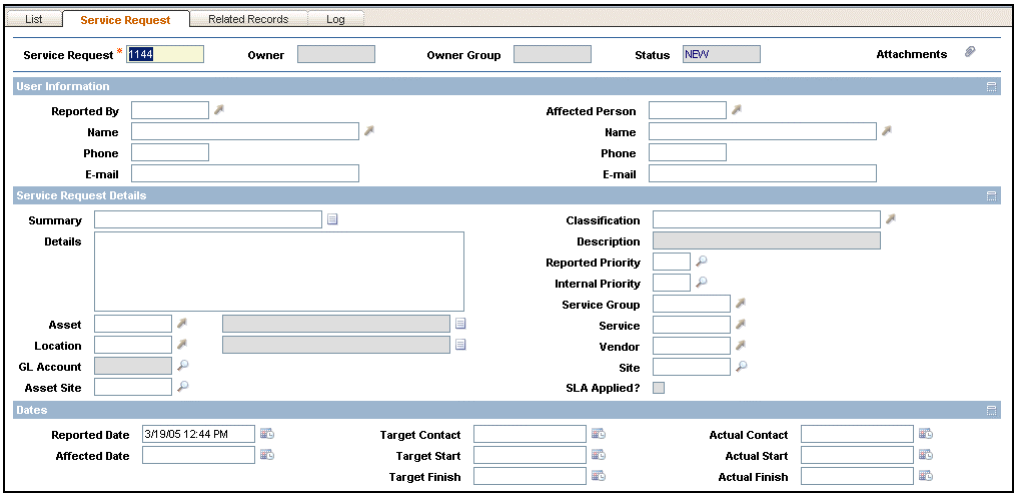
Work Management Applications in Maximo continued

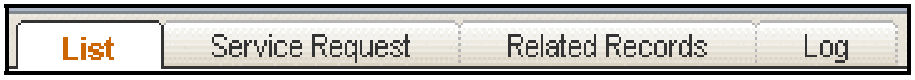
Service Requests

Use the **Service Requests** application to create, view, and resolve service requests from customers or requesters. The agent views these requests in the Service Requests application and either resolves them or delegates them to another party for resolution. The Service Requests application is used to create a service ticket, from which a work order can be generated.



Service Requests Tabs

The Service Requests application is comprised of four tabs:



Use this tab…	To…
List	Search for work order records.
Service Request	Create, modify, view, and delete identifying information for the service request.
Related Records	View, add, and delete related work orders and tickets.
Log	View and create work log and communication entries about the current record.

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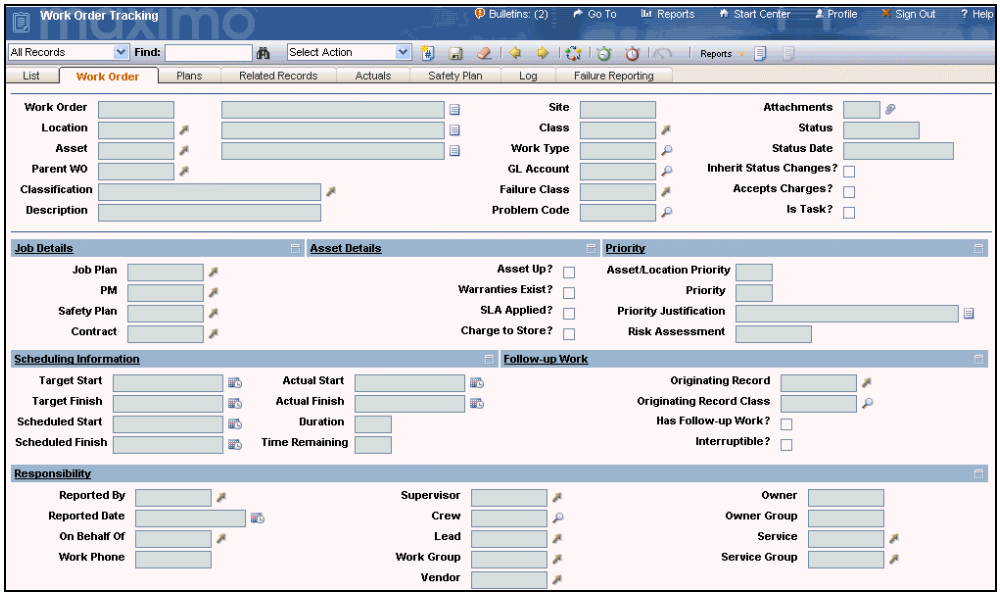
Work Management Applications in Maximo continued

Work Order Tracking

While work orders can be entered into the system using the **Work Order Tracking** application, its primary function is to manage work orders through the lifecycle. It is intended for maintenance supervisors, planners, and schedulers to plan, review, and approve work orders.

You can use the Work Order Tracking application to perform every function related to processing work orders. These tasks include creating, approving, and initiating work orders; checking their status history; and closing or reworking them when appropriate.



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Work Management Applications in Maximo continued

Work Order Tracking Tabs

The Work Order Tracking application is comprised of eight tabs:

Use this tab…	To…
List	Search for work order records.
Work Order	Create, view, and modify work orders; view PM and scheduling information; see which job plan and safety plan are applied; view the originating work order for a follow-up work order; identify the failure hierarchy for the asset or location.
Plans	Enter, view, and modify job tasks and labor, material, services, and tool requirements for the work plan.
Related Records	View, add, and delete related work orders and tickets.
Actuals	Enter, view, or modify actual work order start and finish times; labor hours and costs; material quantities, locations, and costs; and tool quantities, hours, and costs.
Safety Plan	Enter, view, or modify safety information on the work order.
Log	View and create work log and communication entries about the current record.
Failure Reporting	Report asset and location failures to help identify breakdown patterns or trends.

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Work Management Applications in Maximo continued

Quick Reporting

You can use the Maximo **Quick Reporting** application to create or report on open work orders or small jobs. You can enter actual labor and material usage information, or report events, such as equipment failures or downtime, that do not involve maintenance department work.

Quick Reporting lets personnel report on open work orders or on small jobs that might not have had a preexisting work order. The Quick Reporting application contains a portion of the fields available in Work Order Tracking, simplifying the creation of work orders. You can quickly enter actual labor, materials, or tool usage, or report events, such as equipment failures or downtime, in which no maintenance department work is involved.

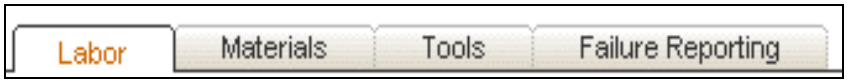
Tabs

The Quick Reporting application is comprised of two tabs.

Use this tab…	To…
List	Search for work order records.
Quick Reporting	Insert and modify information about assets, tasks, labor and material usage, tool information, and failure reporting.

Subtabs

The **Quick Reporting** tab contains four subtabs:



Use this subtab…	To…
Labor	Report labor hours against a work order.
Materials	Report materials used on a work order.
Tools	Report tool usage on a work order.
Failure Reporting	Record and view equipment and location problems, causes, and remedies.

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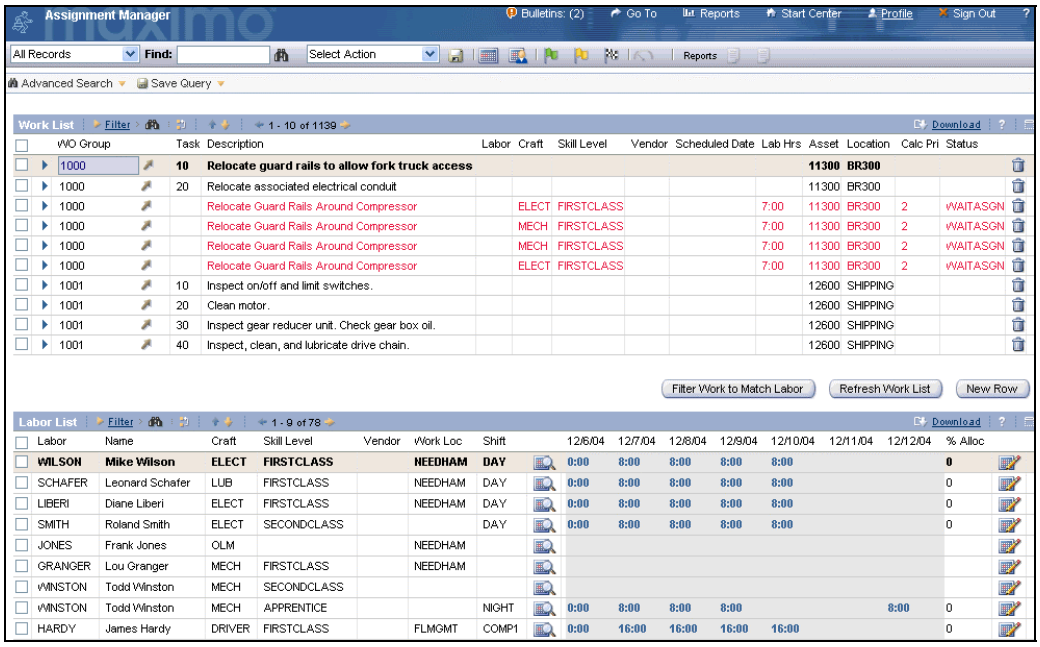
Work Management Applications in Maximo continued

Assignment Manager

You use the **Assignment Manager** application to dispatch labor and schedule work in the same place. Using this application, you can view work order assignments and their craft requirements, dispatch labor according to work priority, or view labor and schedule work according to labor availability.



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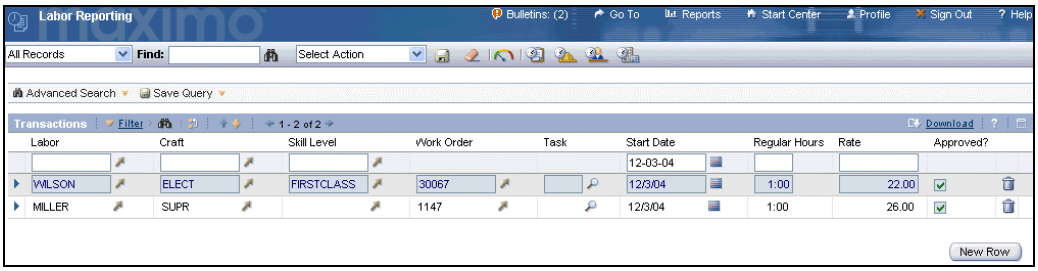
Work Management Applications in Maximo continued

Labor Reporting

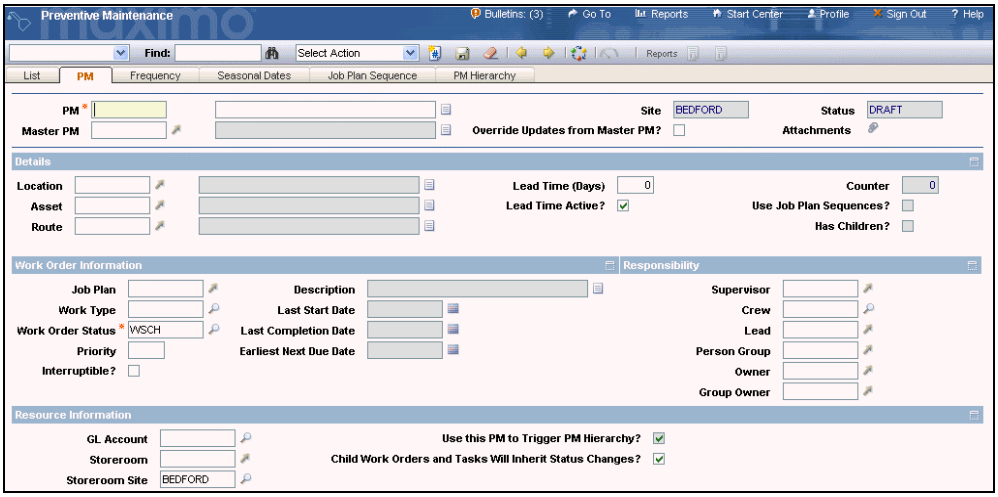
You use the **Labor Reporting** application to report the type and total number of hours of work performed by external contractors or internal employees. You can enter labor information by work order, labor ("timecard" reporting), ticket, or contract/vendor.



Work Order Applications in Maximo: Revisiting PM and Condition Monitoring

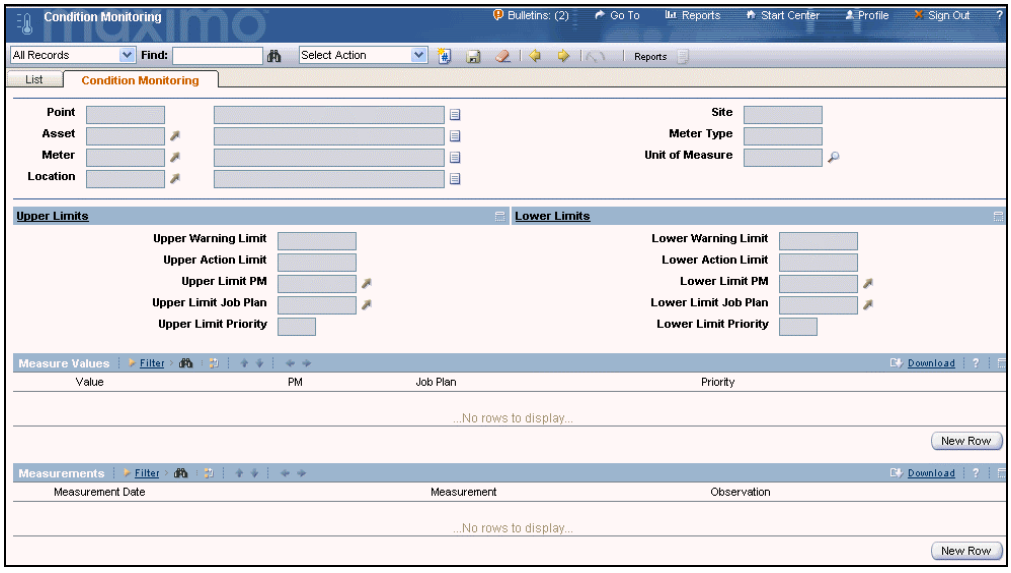
PM Records

As we discussed earlier in the course, PM records are templates that contain job plan and scheduling information for your work assets. You copy this information to work orders you generate from the PM application.



Condition Monitoring

As we learned earlier, the **Condition Monitoring** application is used to set up measurement points and to generate work orders.



Work Order Details

Introduction

This section provides an overview of the following topics:

- Types of work orders
- Work order status
- Work order status cycle

Work Order Class

The work order Class field indicates the class type of the work order. Class fields provide another way to retrieve and report on work.

Depending on what application is used and where work orders are created, Maximo will automatically default a class. Specific to work management, the following classes may be applicable:

- WORKORDER is the default class when a work order is created using the following applications:
  - Work Order Tracking
  - Quick Reporting
  - Preventive Maintenance
- ACTIVITY is the default class when a task is added to the work plan on the work order.

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Work Order Details continued

Work Types

In Maximo, maintenance activities can be specified as different work types. Maintenance work types could be any of the following:

- *Corrective (CM)*: repair work that can be planned and scheduled.
- *Emergency (EM)*: unplanned, unscheduled breakdown maintenance. EM also means Reactive Maintenance.
- *Preventive (PM)*: scheduled work (fully planned), which is based on either time or meter.
- *Capital Project (CP)*: fully planned scheduled project work.
- *Event (EV)*: an unscheduled event that stops work (production) but does not necessarily require a maintenance crew to fix.

In Maximo, the work order type is accounted for in the **Work Type** field.

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Work Order Details continued

Work Order Status

Every work order has a status value that indicates its position in the work order processing cycle. Work orders can be created with different statuses, depending on which application is used to create or generate them.

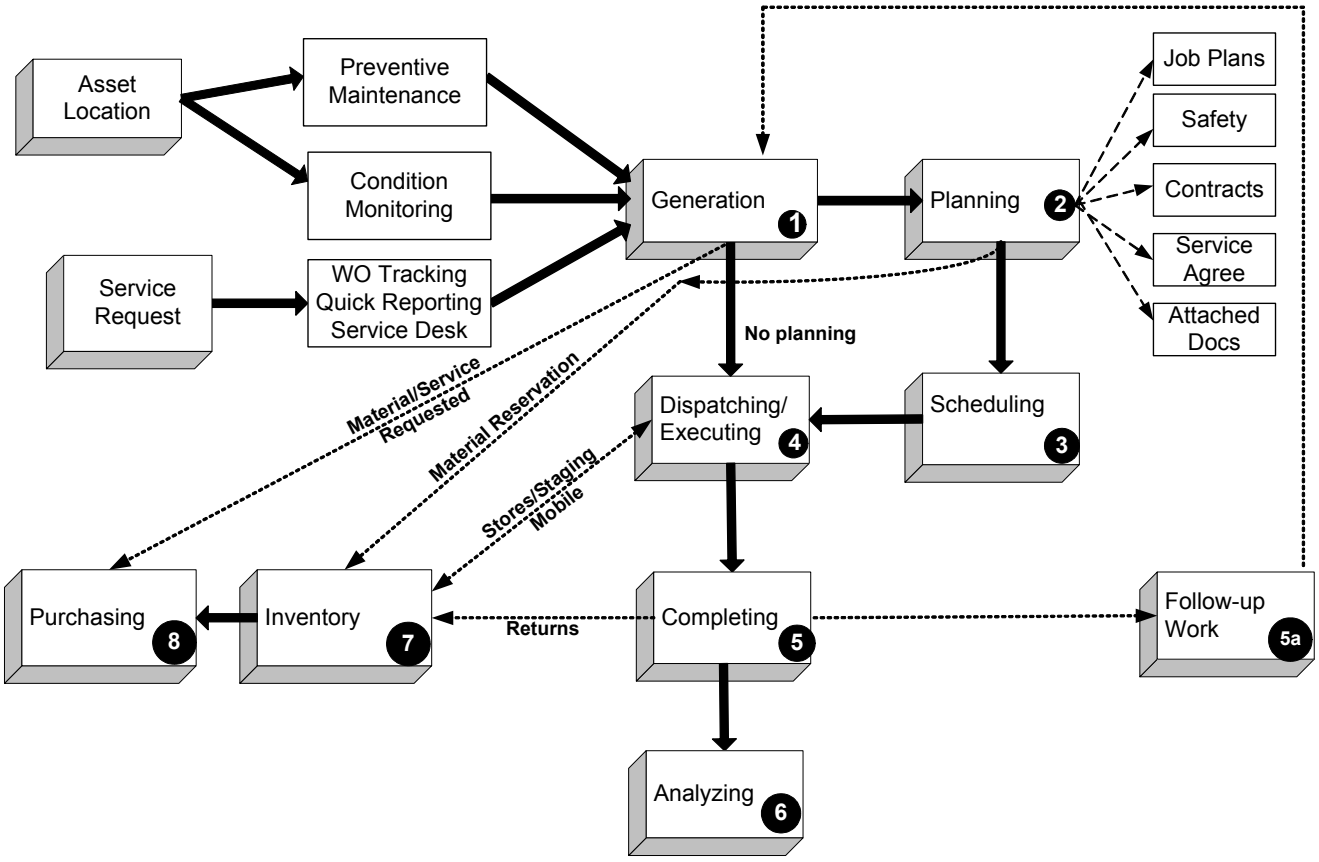
The following table describes each status:

Status	Description
Waiting for Approval (WAPPR)	Default status for records you create in the Work Order Tracking, Changes, Releases, and Activities applications.
Waiting for Material (WMATL)	Indicates that you cannot initiate the work order because you do not have needed material.
Waiting to Be Scheduled (WSCH)	Default status for work orders you generate from Preventive Maintenance and Condition Monitoring records.
Waiting for Plant Conditions (WPCOND)	Requires a particular plant condition in order to be worked on.
Approved (APPR)	Indicates the work plan has been approved and the work can begin. You can report actuals against approved work orders. Maximo reserves the work plan items in inventory and records cost and rate data.
In progress (INPRG)	Default for work orders created in Quick Reporting. Indicates work had physically begun.
Canceled (CAN)	Indicates the work will not be performed. If the work order has already been initiated or actuals have already been reported, you cannot change its status to CAN. If the selected work order had been approved, Maximo removes item reservations from Inventory for the work order, and makes the work order a history record.
Complete (COMP)	Physical work is finished.
Closed (CLOSE)	All electronic data is entered. Status finalizes the work order. When you close a work order, Maximo removes inventory reservations for items that were not used on the work order, and makes the work order a history record.

Work Order Details continued

Applications Working Together

As we have seen, the following diagram shows the various stages and outlines how some of the Maximo applications can work together when acting on the database.



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Work Order Details continued

Stage	Status	Description
1	WAPPR WSCH INPRG APPR	For equipment or location, you can create and generate work orders, sometimes with associated job plans, safety plans, and contracts in the following ways: • A PM becomes due and is automatically generated by the system cron task or using the PM application itself. • A condition measurement falls outside the limits and is automatically generated by the system cron task or using the CM application itself. • A problem is reported and can be manually (user) entered in the Work Order Tracking, Service Request, or Quick Reporting applications. • (5a) If necessary, a follow-up work order is generated from an originating work order.
2	APPR WSCH	Depending on the work order: job plans, related service contracts and safety information is associated or added to the work order. When a job plan or work plan is used with a work order, and the work order is approved, planned materials are put on inventory reserve inventory. Depending on the work situation, services and materials requisitioning is done by the maintenance organization or through inventory reorder.
3	APPR	Scheduling data drawn from the Scheduling Information table window in the Work Order Tracking application is used by a project scheduling application, such as Maximo Project Manager or Assignment Manager. Based on priority, backlog is ranked, the highest-priority work being done first, and work assignments are scheduled.
4	INPRG	After work and labor assignments are scheduled, work is dispatched to staff using the Assignment Manager application. Work orders are then printed and dispatched to the staff. Staff picks up materials from the storeroom, warehouse, or staging, or (if an open storeroom) materials are drawn by the staff. If a storeroom issues materials, they can be use the Issues and Transfers application. The physical work begins.
5	COMP CLOSE	Physical work is finished for part of or the whole work order. Actual Material, Labor, and Tool usage is entered against the work order using either the Quick Reporting or Work Order Tracking application. Unused materials are returned to inventory and actual work order costs are calculated. After a certain amount of time, the work order is closed, which represents that all the physical work and all the required electronic data for the work order is entered.
5a	WAPPR	If necessary, a follow-up work order is generated from an originating work order.
6		Use the system data to generate daily, weekly, and monthly reports and analysis summaries.
7		Manage your inventory and reconcile item balances using the Maximo Inventory module.
8		Manage the purchasing processes using the Maximo Purchasing module.

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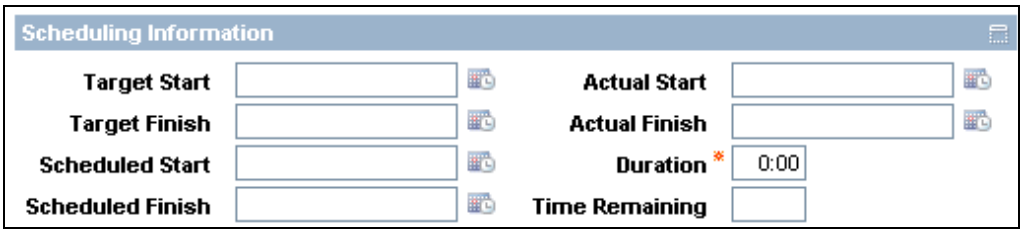
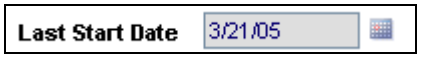
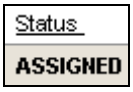
Work Order Details continued

Status Changes Affecting WO Scheduling

When status changes on a work order occur, dates and times are populated in the Scheduling Information fields.



The following table indicates what date fields correlate to the work order status.

Field	Description	Comments
Target Start	Assign dates for when the work order should be done	Date is pulled from the Preventive Maintenance application, **Last Start Date** field. 
Target Finish	Target Start incremented by the Duration hours	Duration hours come from the Work Order application **Duration** field. Time is either manually entered or comes from the current job plan Duration. 
Scheduled Start	Assign dates for when the work can get done	Can be a manual input, or date comes from the Assignment Manager application, when labor is assigned (Status = ASSIGNED) to the work order with a scheduled work date. 
Scheduled Finish	Scheduled Start incremented by the Duration hours	Duration hours come from the Work Order application **Duration** field. Time is either manually entered or comes from the current job plan Duration. 

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Work Order Details continued

Status Changes Affecting WO Scheduling continued

Field	Description	Comments
Actual Start	Post actual dates that the work was started	Dates come from the Work Order In Progress status (INPRG). When the first work assignment against a work order in Assignment Manager is started (Status = STARTED), the work order status in the Work Order Tracking application will change to INPRG. 
Actual Finish	Post actual dates that the work was completed or closed	Dates come from the Work Order Complete (COMP) or Close (CLOSE) status. When the last work assignment against a work order in Assignment Manager is completed (Status = COMPLETE), the work order status in the Work Order Tracking application will change to COMP  or CLOSE (depends on how Assignment Manager is set up). 

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Work Order Details continued

Fields The following table describes some additional fields.

Field	Description
Inherit Status Changes? ☑	Specifies whether the work order's status will change when its parent work order's status changes. If the check box is selected (the default), the work order's status will change when the parent work order's status changes. If the check box is cleared, the work order's status will not change when the parent work order's status changes.
Accepts Charges? ☑	Specifies whether the work order accepts charges. If the check box is selected (the default), the work order accepts charges. If the check box is cleared, the work order does not accept charges, and you cannot enter charges on the work order.
Is Task? ☐	Specifies whether the work order is a task. If the check box is selected, the work order is a task. If the check box is cleared, the work order is not a task. Task work orders are the tasks identified on the Plans tab.

Work Management Using MXES

Chapter 6: Work Order Generation

In This Chapter This chapter contains the following topics:

Chapter Overview

Introduction

When you create a work order in Maximo, you initiate the maintenance process and create a historical record of work being performed. As discussed earlier in the course, Maximo has several applications that can be used to generate work orders: Preventive Maintenance, Condition Monitoring, Service Requests, Quick Reporting, and Work Order Tracking. This section focuses on generating work orders using the different applications.

Learning Objectives

After completing this chapter, you should be able to initiate:

- a time-based PM work order using the Preventive Maintenance application;
- a meter-based PM work order from an asset reading;
- a work order using the Condition Monitoring application;
- a waiting for approval (WAPPR) work order from a service ticket using the Service Requests application; and
- an in-progress (INPRG) work order using the Quick Reporting application.

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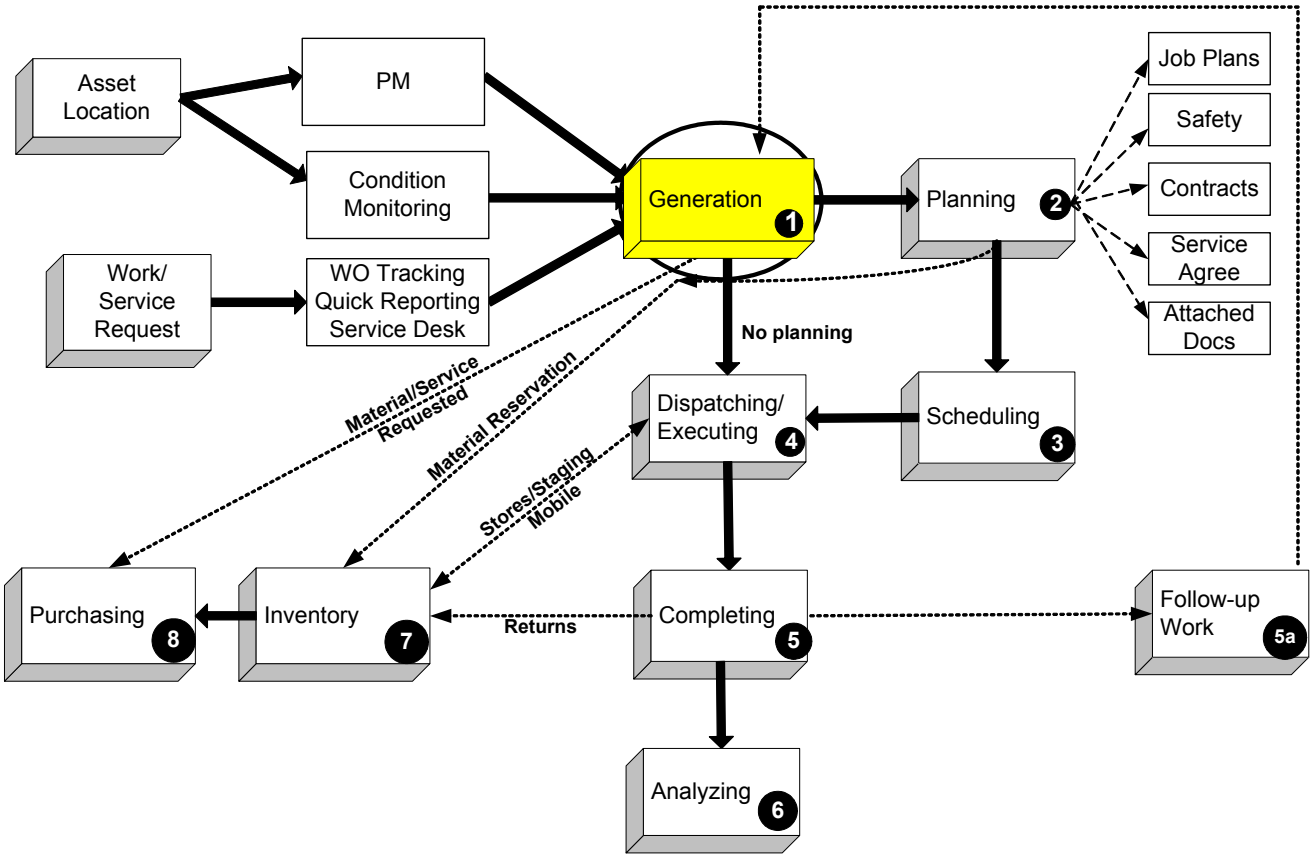
Chapter Overview continued

You Are Here

For assets or location, you can create and generate work orders, sometimes with associated job plans, safety plans, and contracts, in the following ways:

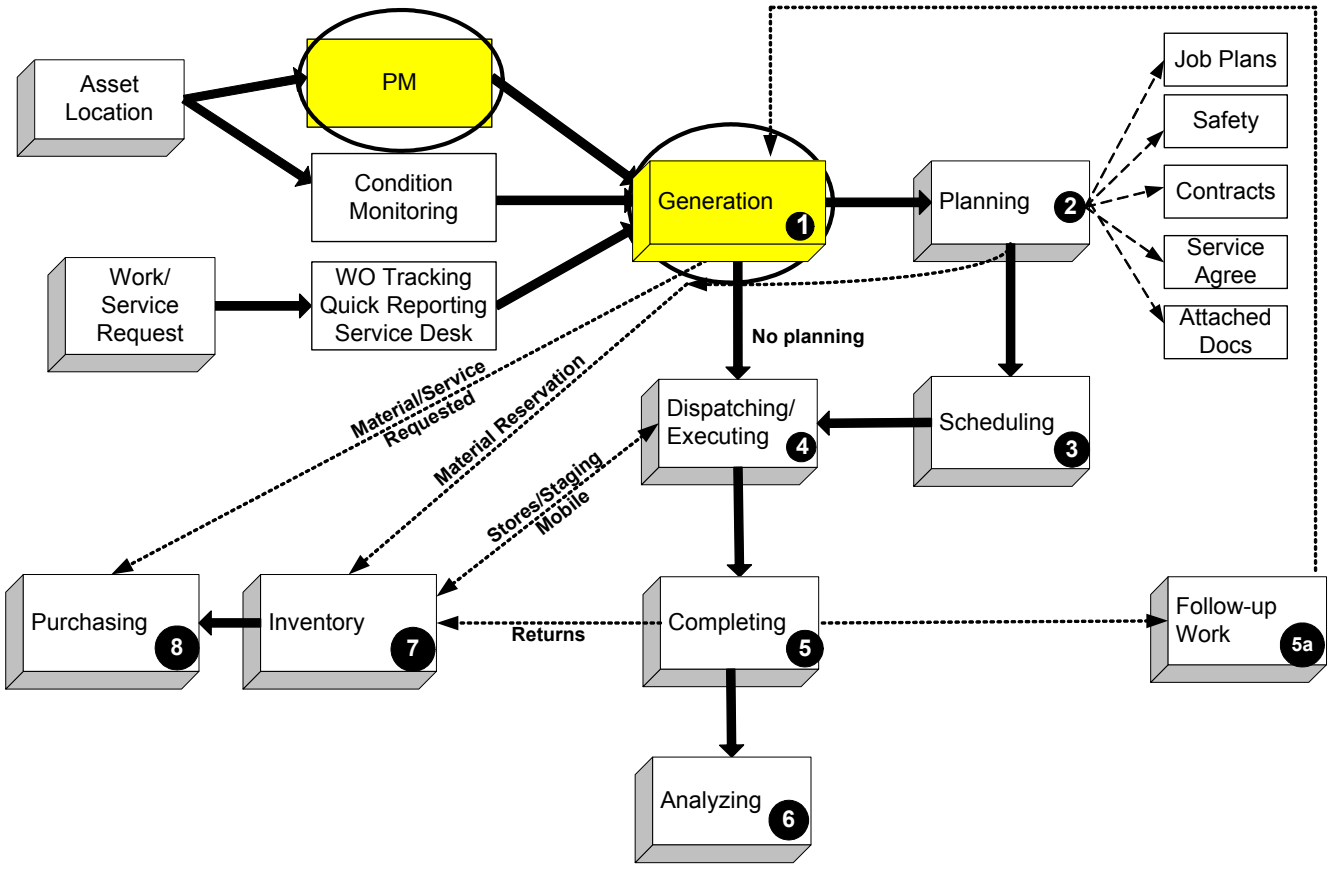
- A PM becomes due and is automatically generated by the system cron task or using the PM application itself.
- A condition measurement falls outside the limits and is automatically generated by the system cron task or using the CM application itself.
- A problem is reported and can be manually (user) entered in the Work Order Tracking, Service Requests, or Quick Reporting applications.
- (5a) If necessary, a follow up work order is generated from an originating work order.



Generating PM Work Orders

Introduction

In this section, based on frequency information that we entered using the Preventive Maintenance application, we will focus on PM work orders that are automatically generated by the system and manually initiated by a user.



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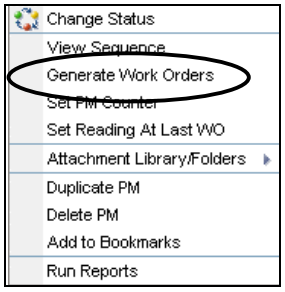
Generating PM Work Orders continued

PM Work Order Generation Methods

You can generate work orders from PM data set up in the Preventive Maintenance application in four different ways:

- Manually by selecting the **Generate Work Orders** action.



- Automatically:
  - The PM cron task (PMWoGenCronTask) triggers a work order because the frequencies have been reached.
  - The system generates a work order because an entered asset meter reading has reached the meter frequency.
  - The Condition Monitoring cron task (MeasurePointWoGenCronTask) triggers a work order because the Measurement Actions frequencies or Characteristic Values have been reached, thereby triggering a PM.

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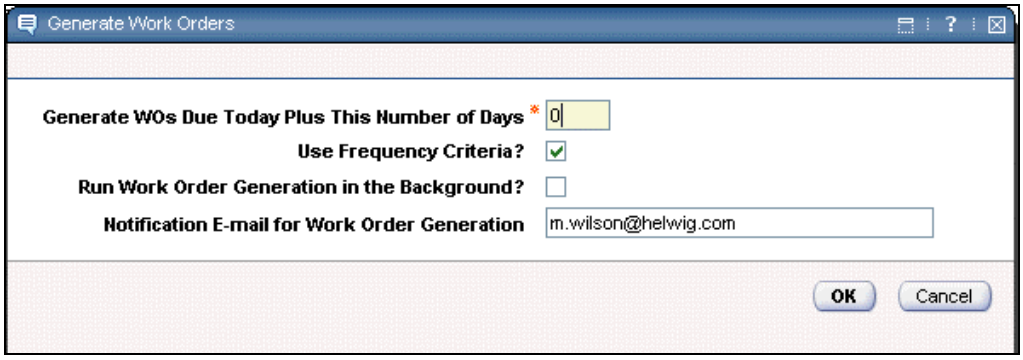
Generating PM Work Orders continued

Generate Work Orders Select Action



Field	Description
Generate WOs Due Today Plus…	The number of days the work orders should be generated.
Use Frequency Criteria?	Specifies whether frequency criteria should be used while generating the work orders. If this box is selected (the default), Maximo evaluates the frequency criteria for the selected set of records to determine which PMs are due to generate work orders. If a PM is part of a hierarchy, it may trigger work order generation from the entire PM hierarchy. Clear this check box to generate work orders for the selected set's top-level PMs regardless of their due dates. If a top-level PM is part of a hierarchy, it might trigger work order generation from the entire hierarchy.
Run Work Order Generation…?	Specifies whether to display the work order creation dialog box. If selected, no message will display. If left blank, a work order generation dialog box will display a listing of the work orders generated.

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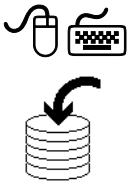
Generating PM Work Orders continued

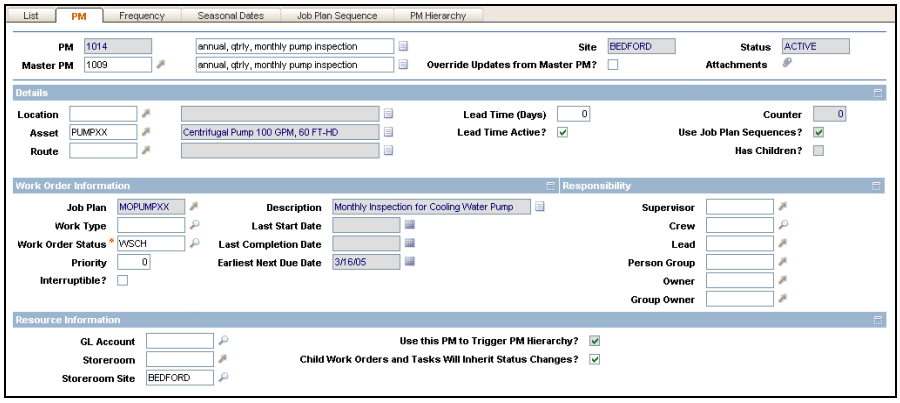
Counter

The **Counter** field is read-only. This field counts the number of work orders generated from the PM since the First Start Date. The counter is set to zero when you insert a new PM record, and increases each time you generate a top-level work order from the PM. If you are using a job plan sequence, the job plan is selected *after* the counter increments.

Generating a Time-based Work Order for a PM



To generate a PM work order using the PM we created in Chapter 5, use the following steps.

Step	Action
1	Open the **Preventive Maintenance** application, then search for and retrieve your associated PM record for **PUMP*XX***. Result: The PM tab displays your PM. 

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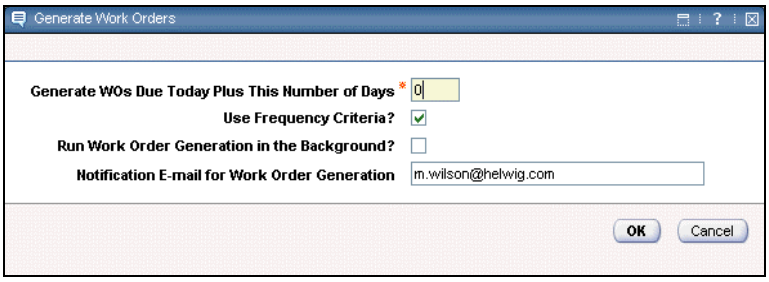
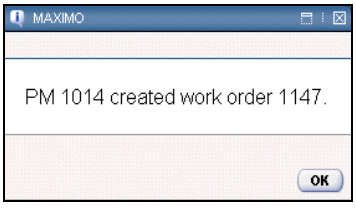
Generating PM Work Orders continued

Generating a Time-based Work Order for a PM

continued

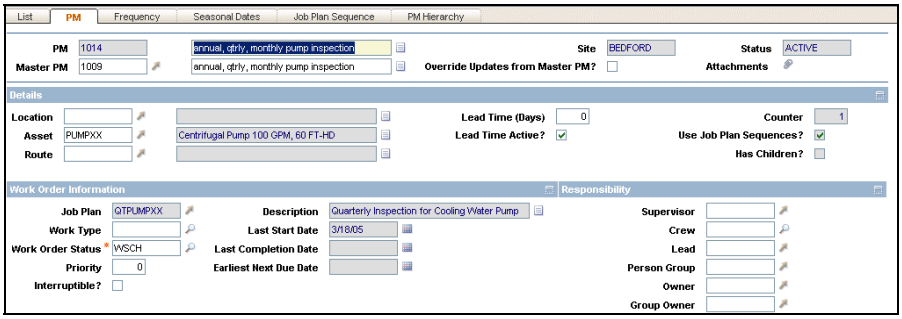
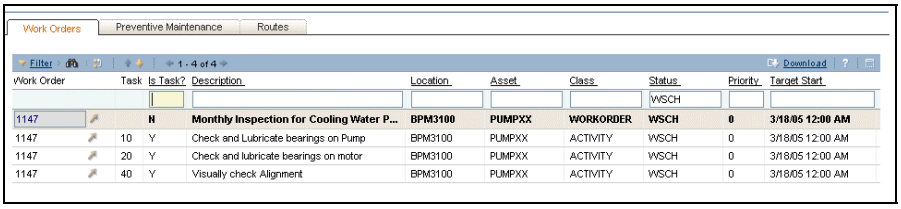
Step	Action
2	From the **Select Action** menu, select **Generate Work Orders**. Result: The Generate Work Orders dialog box opens. 
3	Clear the **Use Frequency Criteria?** check box and click **OK** to generate a work order for this PM. Result: Maximo begins processing your request.  When finished, Maximo displays a message box.  Record your work order number: _____. Note: If you are in a hosted environment, each participant will generate a different work order (for the same piece of equipment). Please **take special note** of *your* work order number.

continued on next page

Generating PM Work Orders continued

Generating a Time-based Work Order for a PM

continued

Step	Action
4	Click **OK** and **save** your record. Result: Your PM counter is incremented to 1 and the next job plan in sequence is the Quarterly Inspection. 
5	To verify that the last work order is using the Monthly Inspection job plan, click the PUMP*XX* **Details** button and select **View Work Orders and PMs**. Result: Your Work Order tab should look similar to the one below. 

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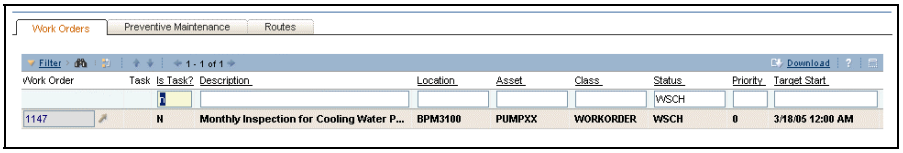
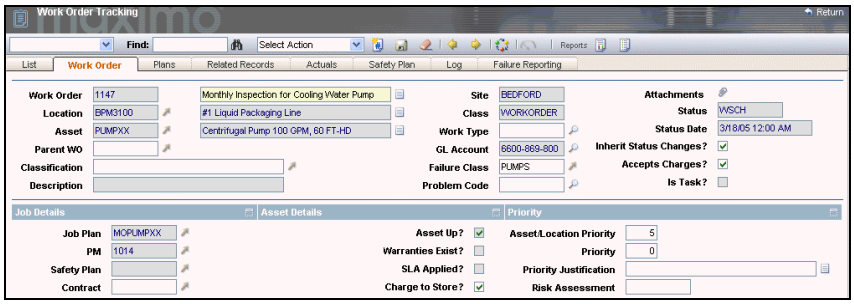
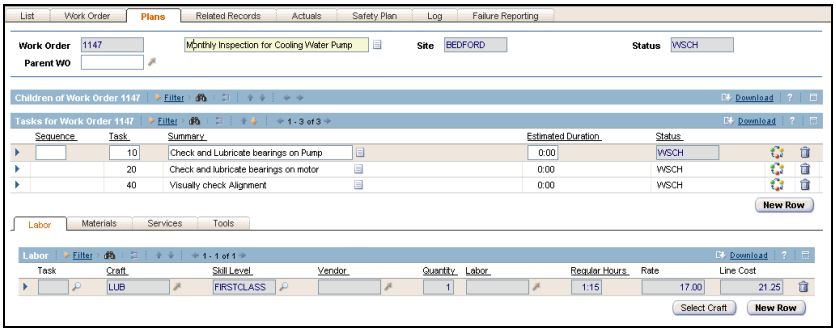
Generating PM Work Orders continued

Generating a Time-based Work Order for a PM

continued

Step	Action
6	Refine your search by entering N in the **Is Task?** field, then press **Enter**. Result: Your Work Order tab should look similar to the one below. 
7	Click the Work Order **Details** button and select **Go To Work Order Tracking**. Result: You are brought to the Work Order Tracking application. Note: Notice that the job plan for this work order is MOPUMP*XX*. 
8	Click on the **Plans** tab. Result: Maximo displays the job plan for monthly inspection. 

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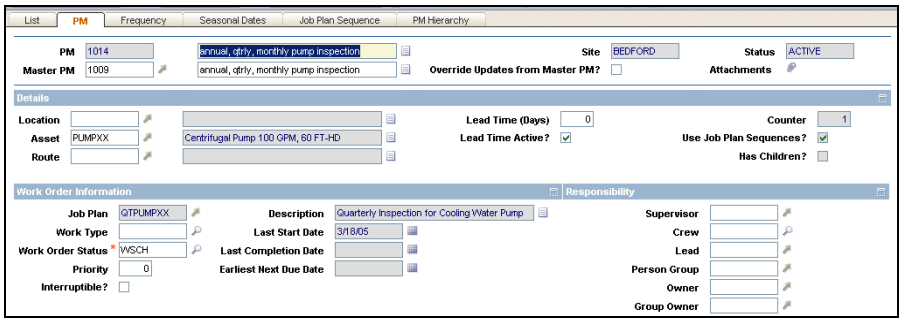
Generating PM Work Orders continued

Generating a Time-based Work Order for a PM

continued

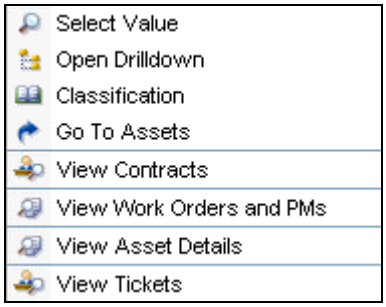
Step	Action
9	Return to the **Preventive Maintenance** application. Result: Notice that the next job plan in sequence is QTPUMP*XX*. 
10	To demonstrate job plan sequencing and to get an adequate number of work orders to use for scheduling and assigning later in the course, generate two more work orders from your PM record. Note: Do not use the frequency criteria. Record your first work order number: _____ Record your second work order number: _____

continued on next page

Generating PM Work Orders continued

Viewing the PM Work Order

After a PM work order is generated for the asset, you can view all work orders and PMs against it, as well as material reservations for the work order itself, using different methods. View the work order using the following steps:

Step	Action
1	Click the **Asset** field **Details** button. Result: The Details menu opens. 

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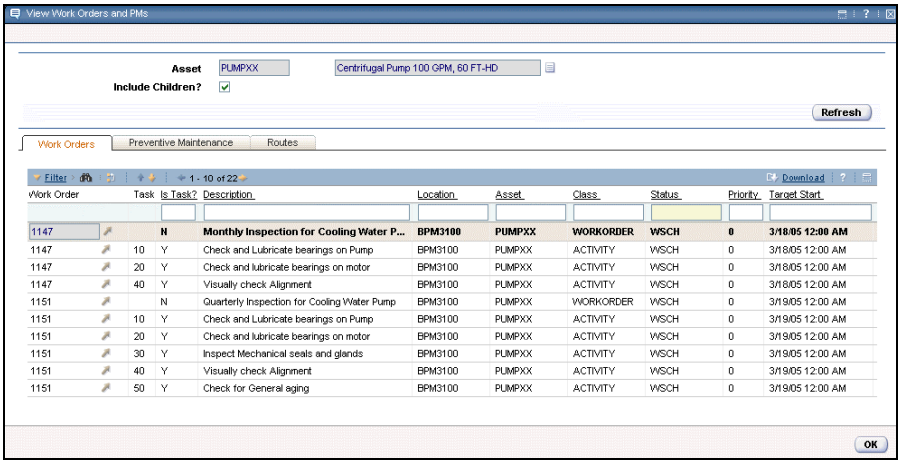
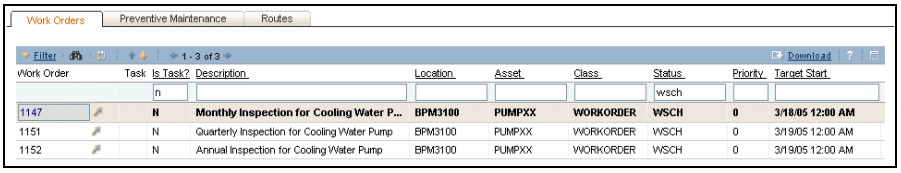
Generating PM Work Orders continued

Viewing the PM Work Order continued

Step	Action
2	Select **View Work Orders and PMs**. Result: The View Work Orders and PMs screen displays the Work Orders tab. This tab lists all work orders and tasks (activity) in various statuses that are written against the asset. 
3	Refine your search to show only the top-level work orders (not the tasks) in a WSCH status. Result: Your result set should look like the one below. Notice that each work order follows the 1-2-3 job plan sequence. 

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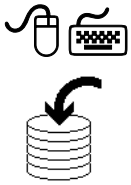
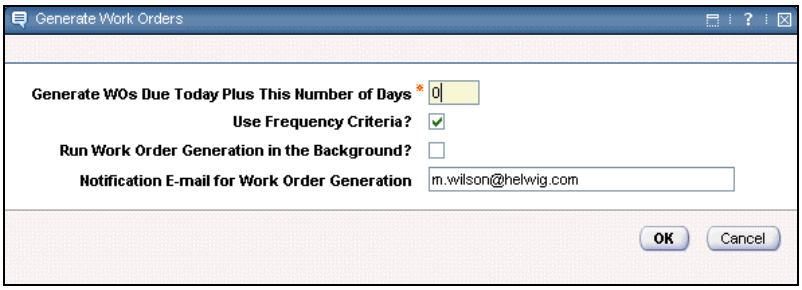
Generating PM Work Orders continued

Generating a Time-based Work Order for a PM



To generate a PM work order using the PM we created in Chapter 5, use the following steps.

Step	Action
1	Search for and retrieve PM record **DMIS*XX***. Result: The PM tab displays your PM. Hint: Remember, your default site might not be the site at which a record is located. You might have to clear the Site field or specify the correct site. (In this case, the record is in the Fleet site.)
2	From the **Select Action** menu, select **Generate Work Orders**. Result: The Generate Work Orders dialog box opens. 

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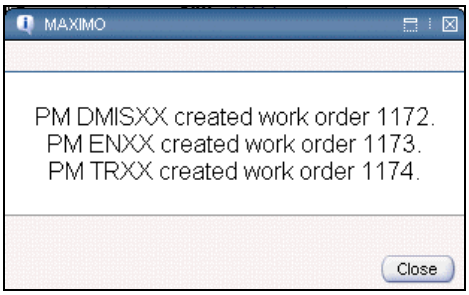
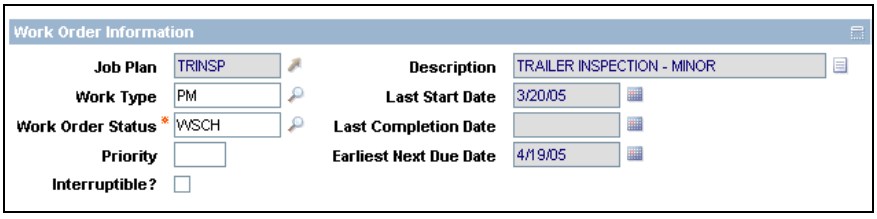
Generating PM Work Orders continued

Generating a Time-based Work Order for a PM

continued

Step	Action
3	Clear the **Use Frequency Criteria?** check box and click **OK** to generate a work order for this PM. Result: Maximo creates a parent work order and its children work orders.  Record your work order number for DMIS*XX*: _____ Record your work order number for EN*XX*: _____ Record your work order number for TR*XX*: _____ Note: If you are in a hosted environment, each participant will generate a different work order (for the same asset). Please **take special note** of *your* work order number.
4	Click **Close**. Result: The Work Order Information table should look similar to the one below. 

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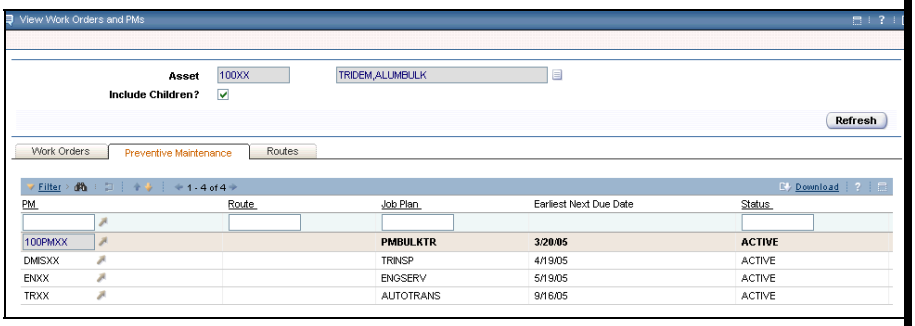
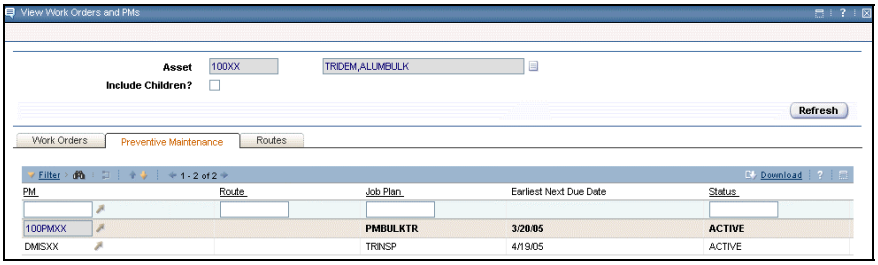
Generating PM Work Orders continued

Generating a Time-based Work Order for a PM

continued

Step	Action
5	For this asset and its children, view the all the PMs associated to it. Result: Your View window should look similar to the one below. 
6	Refine your search to *not* include the children. Result: Your View window should look similar to the one below. 

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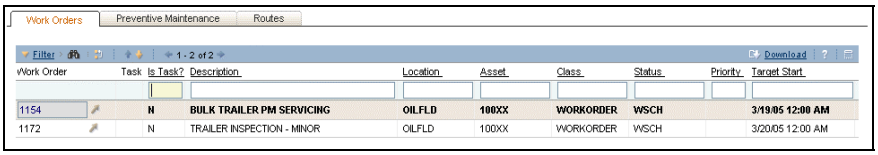
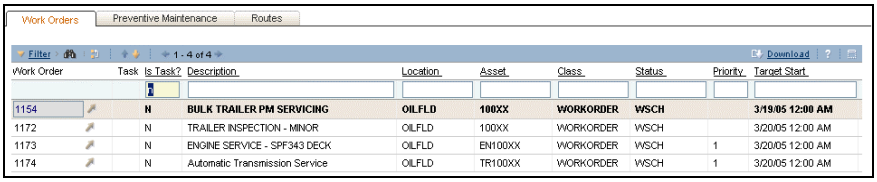
Generating PM Work Orders continued

Generating a Time-based Work Order for a PM

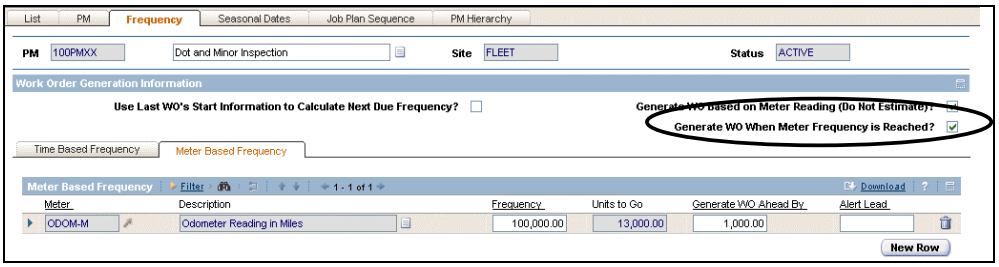
continued

Step	Action
7	View the work orders against this asset. Result: Your View window should look similar to the one below. 
8	Include work orders belonging to children of this asset. Do *not* include the task. Result: Your View window should look similar to the one below. 

Generating a Work Order from an Asset Meter Reading

Introduction

In this section, Maximo will automatically generate a meter-based PM work order record based on an asset meter reading. This will occur because when we set up our PM record for TRIDEM,ALUMBULK (asset 100*XX*), we selected the **Generate WO When Meter Frequency Is Reached?** option.



Flashback: Meter Types

As we discussed earlier, there are three different types of meters that can be associated to an asset record:

- **Continuous** meters are used where the readings increase continuously; for example, odometers. These meters might be used to track miles, hours, engine starts, pieces produced, fuel consumed, and other continuous readings. This type of meter can be used only when setting up meter-based PM frequencies.
- **Gauge** meters are used where the readings may fluctuate; for example, thermometers or pressure gauges. These meters might be used to track temperature, pressure, noise levels, oil levels, and other readings that fluctuate. This type of meter can be used only when setting up condition monitoring measurement points.
- **Characteristic** meters are used where an observed state is being tracked; for example, a color change. These meters might be used to track brick/refractory color (yellow, orange, white) or oil color (clear, turbid, dark). This type of meter can be used only when setting up condition monitoring measurement points.

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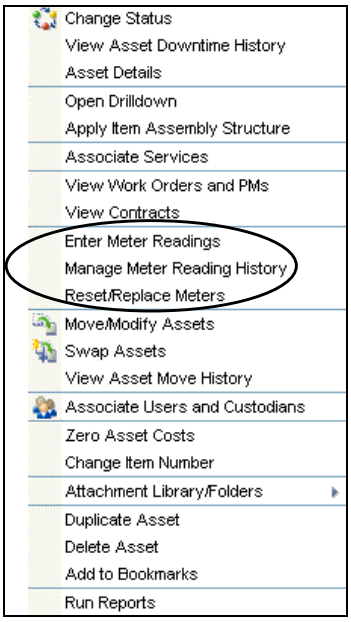
Generating a Work Order from an Asset Meter Reading continued

Select Action Menu: Assets and Meters

On the Asset Select Action menu, you have three choices to manage the asset's meter(s):



- Use the **Enter Meter Readings** action to record meter readings for an asset. This action is also available in the Work Order Tracking and Quick Reporting applications.
- Use the **Manage Meter Reading History** action to view or update historical meter readings.
- Use the **Reset/Replace Meters** action to reset a meter's readings (for example, when you replace a continuous meter).

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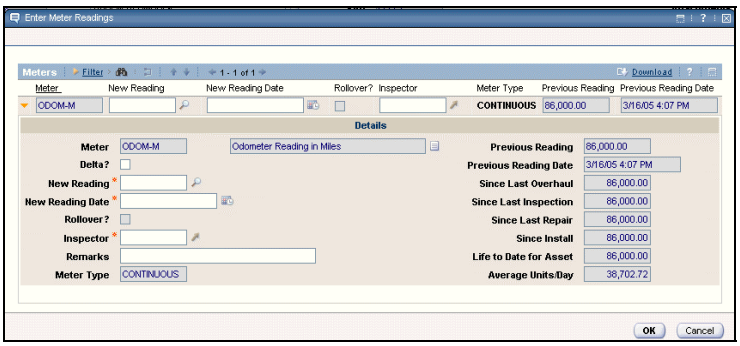
Generating a Work Order from an Asset Meter Reading continued

Enter Meter Readings Details

With the meter reading details action, you can view the meter reading details on an asset's meter(s).



The following table describes the meter reading fields.

Field	Description
Since Last Overhaul 86,000.00	Difference between the current meter reading and the meter reading when the last work order of type OVERHAUL was opened or closed as determined by application setup.
Since Last Inspection 86,000.00	Difference between the current meter reading and the meter reading when the last work order of type INSPECTION was opened or closed as determined by application setup.
Since Last Repair 86,000.00	Difference between current meter reading and the meter reading when the last work order was opened or closed as determined by the PM setup.
Since Install 86,000.00	Difference between the current meter reading and the meter reading when this asset meter's asset was moved into its current configuration.
Life to Date for Asset 86,000.00	Total of all meter readings since the meter was manufactured. Reset only on replacement of physical meter.

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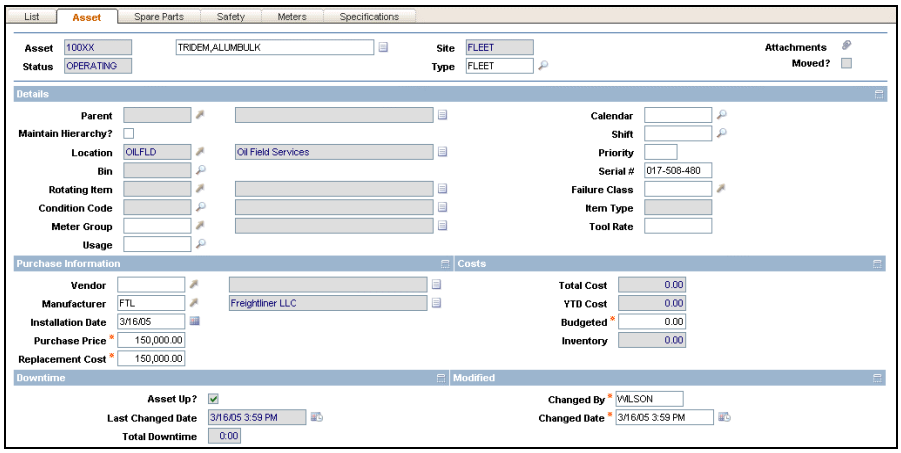
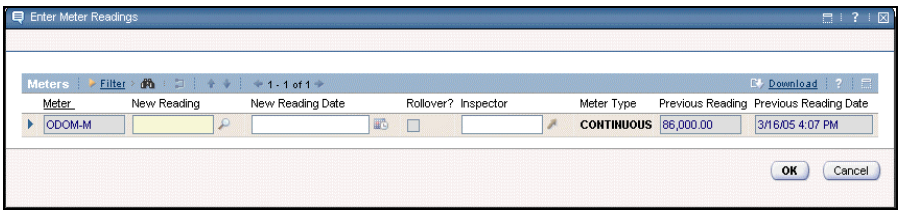
Generating a Work Order from an Asset Meter Reading continued

Enter an Asset Meter Reading

Follow these steps to enter an asset meter reading.

Step	Action
1	Open the **Assets** application and retrieve the TRIDEM,ALUMBULK (**100*XX***) asset record, which is located at the FLEET site. Result: Maximo displays your asset record. 
2	From the **Select Action** menu, select **Enter Meter Readings**. Result: The Enter Meter Reading dialog box opens. 

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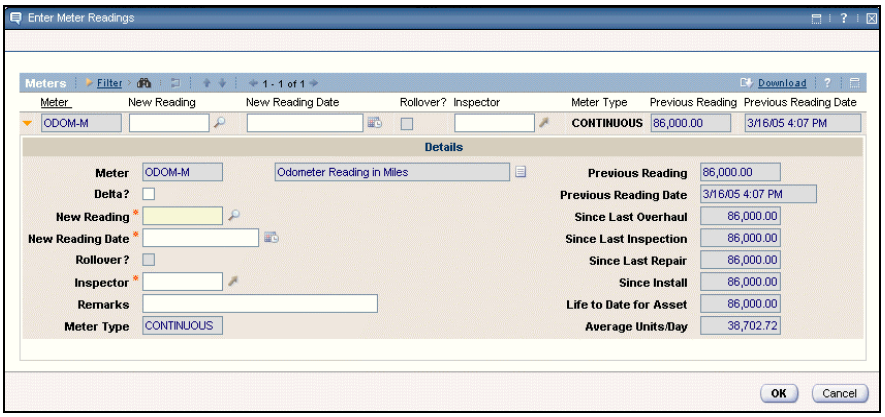
Generating a Work Order from an Asset Meter Reading continued

Enter an Asset Meter Reading

continued

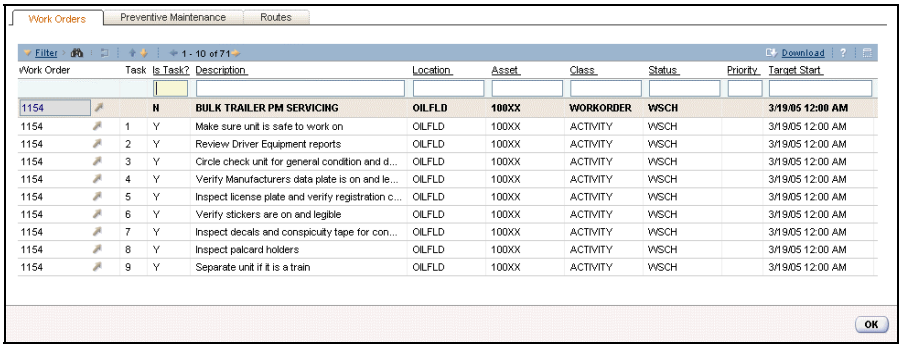
Step	Action
3	Before entering the meter reading, let's look at the meter details of the asset. On the **Meter** column, click the **View Details** button.  Result: The ODOM-M meter row is expanded, displaying current meter readings. 
4	Enter 101,000 in the **New Reading** field.
5	Click **OK**.

continued on next page

Generating a Work Order from an Asset Meter Reading continued

Enter an Asset Meter Reading continued

Step	Action
6	From the **Select Action** menu, select **View Work Orders and PMs**. Result: The Work Order tab lists the system-generated work order and its task activities.



Work Order	Task	Is Task?	Description	Location	Asset	Class	Status	Priority	Target Start
1154		N	BULK TRAILER PM SERVICING	OILFLD	100XX	WORKORDER	WSCH		3/19/05 12:00 AM
1154	1	Y	Make sure unit is safe to work on	OILFLD	100XX	ACTIVITY	WSCH		3/19/05 12:00 AM
1154	2	Y	Review Driver Equipment reports	OILFLD	100XX	ACTIVITY	WSCH		3/19/05 12:00 AM
1154	3	Y	Circle check unit for general condition and d...	OILFLD	100XX	ACTIVITY	WSCH		3/19/05 12:00 AM
1154	4	Y	Verify Manufacturers data plate is on and le...	OILFLD	100XX	ACTIVITY	WSCH		3/19/05 12:00 AM
1154	5	Y	Inspect license plate and verify registration c...	OILFLD	100XX	ACTIVITY	WSCH		3/19/05 12:00 AM
1154	6	Y	Verify stickers are on and legible	OILFLD	100XX	ACTIVITY	WSCH		3/19/05 12:00 AM
1154	7	Y	Inspect decals and conspicuity tape for con...	OILFLD	100XX	ACTIVITY	WSCH		3/19/05 12:00 AM
1154	8	Y	Inspect palcard holders	OILFLD	100XX	ACTIVITY	WSCH		3/19/05 12:00 AM
1154	9	Y	Separate unit if it is a train	OILFLD	100XX	ACTIVITY	WSCH		3/19/05 12:00 AM

Remember, in Maximo you can save your search lists to an Excel spreadsheet by clicking **Download**.

	A	B	C	D	E	F	G	H	I	J
1	Work Order	Task	Is Task	Description	Location	Asset	Class	Status	Priority	Target Start
2	1154		N	BULK TRAILER PM SERVICING	OILFLD	100XX	WORKORDER	WSCH		3/19/2005 0:00
3	1154	1	Y	Make sure unit is safe to work on	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
4	1154	2	Y	Review Driver Equipment reports	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
5	1154	3	Y	Circle check unit for general condition and damage	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
6	1154	4	Y	Verify Manufacturers data plate is on and legible	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
7	1154	5	Y	Inspect license plate and verify registration copy	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
8	1154	6	Y	Verify stickers are on and legible	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
9	1154	7	Y	Inspect decals and conspicuity tape for condition	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
10	1154	8	Y	Inspect palcard holders	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
11	1154	9	Y	Separate unit if it is a train	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
12	1154	10	Y	Measure brake thickness through dustshield	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
13	1154	11	Y	Inspect brake drums for cracks	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
14	1154	12	Y	Inspect condition of brake hoses, springs, plugs	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
15	1154	13	Y	Inspect auto slacks for wear at camshaft splines	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
16	1154	14	Y	Apply 80 lbs and release brakes, check for op.	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
17	1154	15	Y	With 80 lbs are app. Inspect for leaks at gladhand	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00
18	1154	16	Y	Inspect subgrame and cross members for cracks	OILFLD	100XX	ACTIVITY	WSCH		3/19/2005 0:00

Generating a Work Order from Condition Monitoring Readings

Introduction

In this section we will generate a work order action based on condition monitoring measure point readings that fall outside of the Warning or Action limits for the PUMP*XX* asset.

Actual Measurement Readings

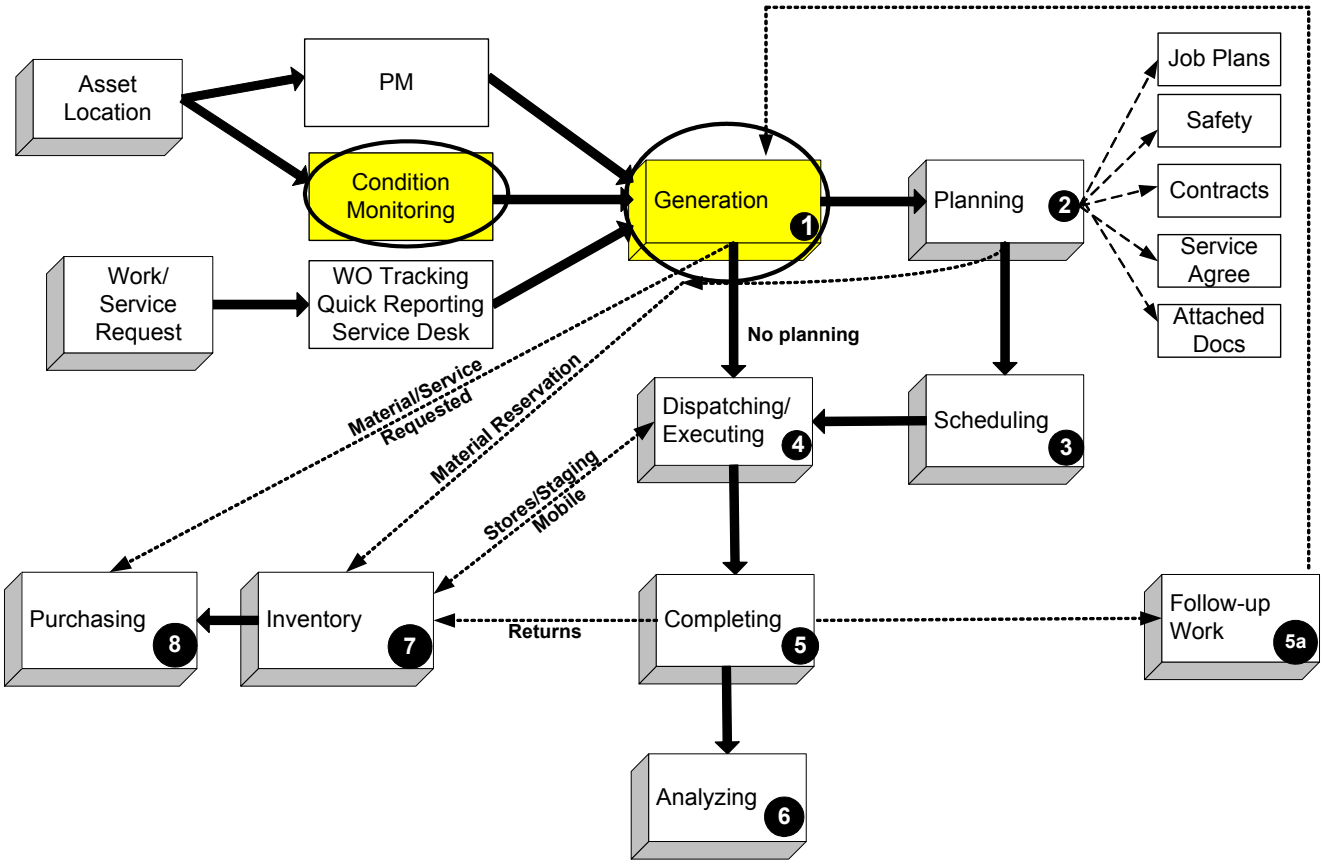
Most organizations will have control systems that feed real-time measurement data into Maximo and automatically trigger work order generation based on upper- and lower-limit readings. You would set up the condition monitoring cron task, MeasurePointWoGenCronTask, to allow for this automatic generation.

For classroom and demonstration purposes we will be entering measurements and generating work orders manually.

continued on next page

Generating a Work Order from Condition Monitoring Readings continued

You Are Here A work order is generated when condition measurement points are reached.



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Generating a Work Order from Condition Monitoring Readings continued

Flashback: Meters as Measurement Points

As we have learned, there are only two types of meters that can be associated to an asset's measurement point:

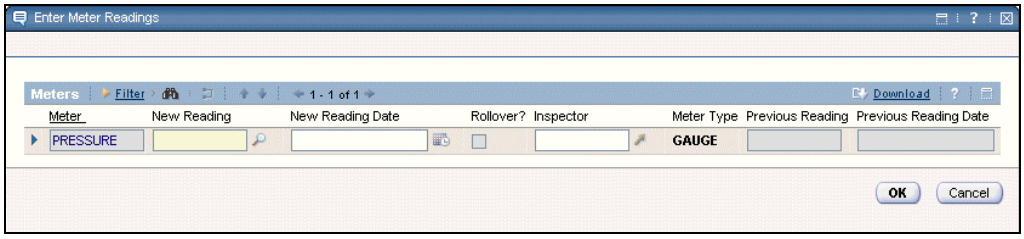
- Gauge
- Characteristic

These are the only types of meter readings that can trigger work order generation.

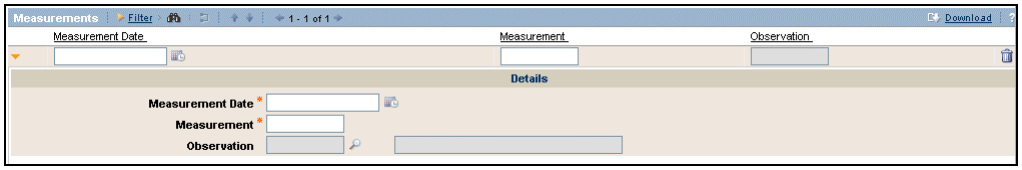
Measurement Readings

In Maximo there are three ways to capture condition monitoring measurement point or characteristic value readings:

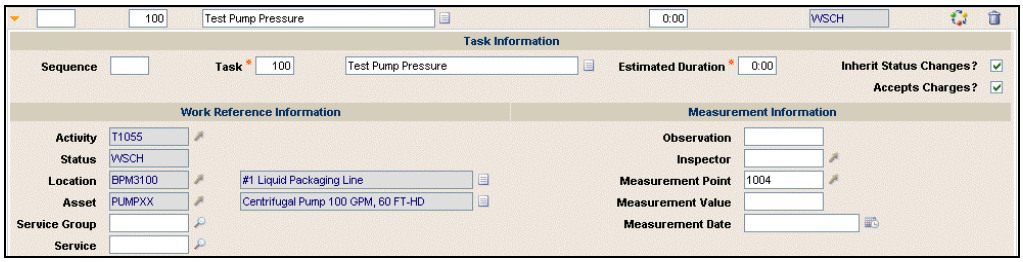
- As discussed earlier, on the asset using the **Enter Meter Readings** select action



- In the Measurements table window in the Condition Monitoring application



- In a Job Task row on the Actuals tab in the Work Order Tracking application



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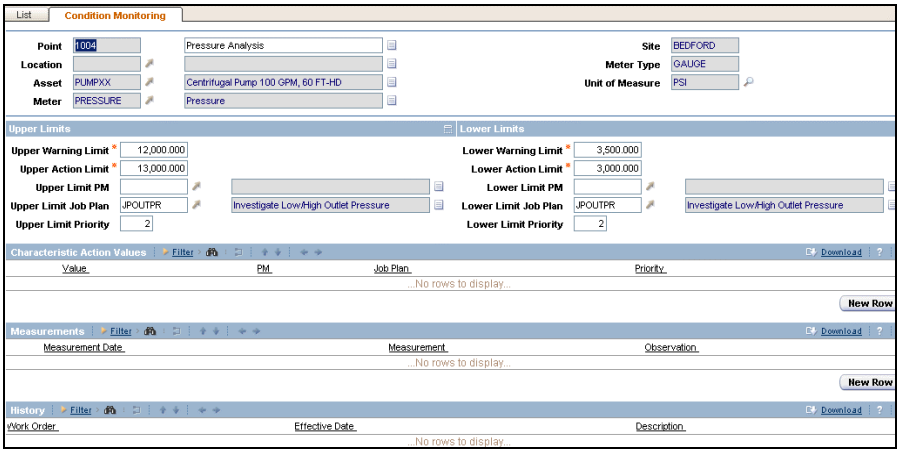
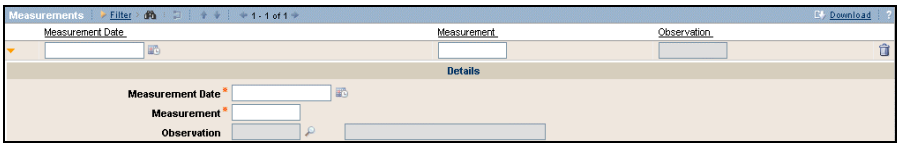
Generating a Work Order from Condition Monitoring Readings continued

Entering Measurements

For this exercise we will enter measurement readings using the Condition Monitoring application, and then manually generate a work order.

Step	Action
1	Open the **Condition Monitoring** application, then search for and retrieve the Condition Monitoring Pressure Analysis record that you created for **PUMP*XX***. Result: Maximo displays the Pressure Analysis record. Hint: Remember, your default site might not be the site at which a record is located. You might have to clear the Site field or specify the correct site. (In this case, the record is in the Bedford site.) 
2	In the **Measurements** frame, click **New Row**. Result: A detail input form opens, ready to accept your new measurement information. 

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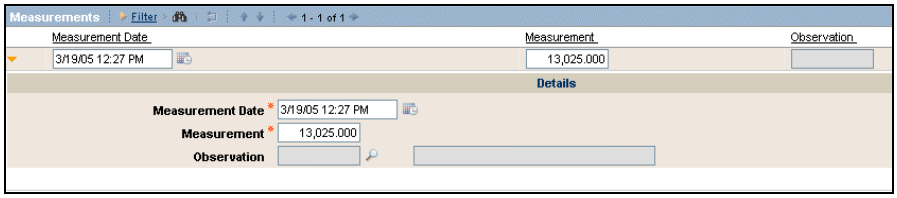
Generating a Work Order from Condition Monitoring Readings continued

Entering Measurements

continued

Step	Action
3	Enter the following information in the designated fields of the input form, and then **Tab** out of the **Measurement** field. **Field** — **Value** **Date** — [*Today's Date*] (Note: Use the **Select Date** button.) **Measurement** — 13025 Result: The new measurement appears on a line in the Measurements frame. 

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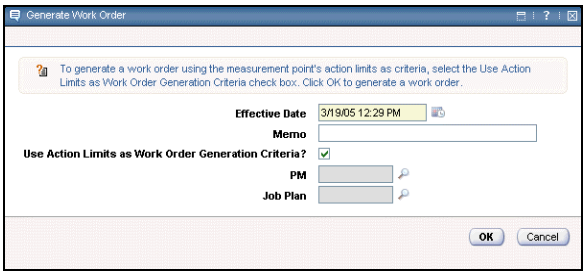
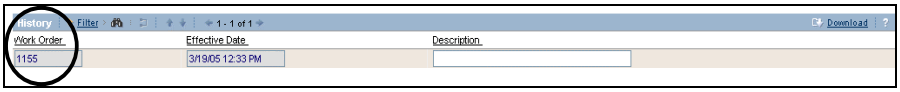
Generating a Work Order from Condition Monitoring Readings continued

Entering Measurements continued

Step	Action
4	**Save** the record, then select **Generate Work Order** from the **Select Action** menu. Result: The Generate Work Order dialog box opens. 
5	Accept the defaults in the **Generate Work Order** dialog box and click **OK**. Result: The work order is generated. Maximo automatically generates a work order number, which is displayed in the History frame window.  Write your work order number here: _____

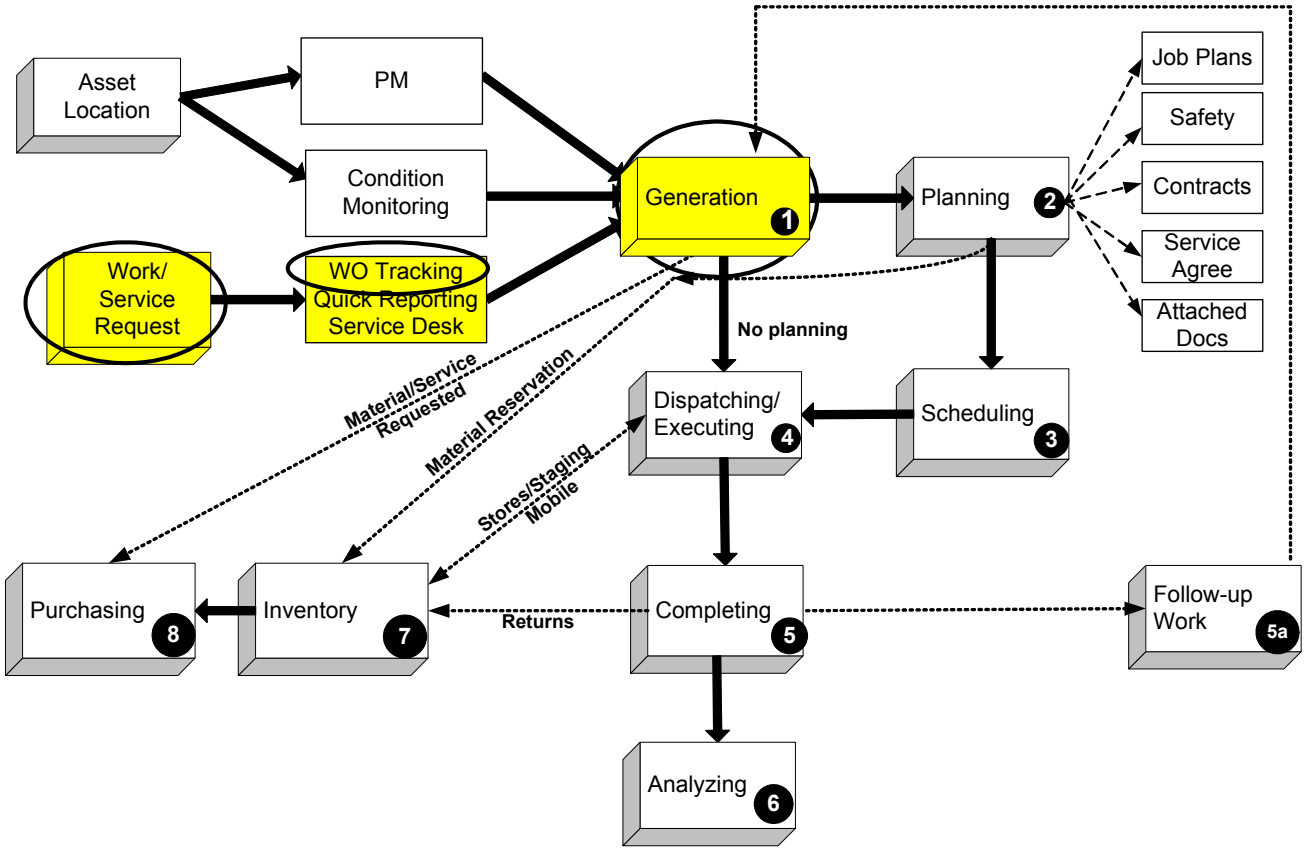
Requesting Work and Services

Introduction

In this section we will walk through the process of creating a service ticket using the **Create Service Request** application, and the generation of a work order from it using the **Service Requests** application.

You Are Here

A problem is reported via the **Create Service Request** application, which creates a ticket. A work order is then generated using the **Service Requests** application.



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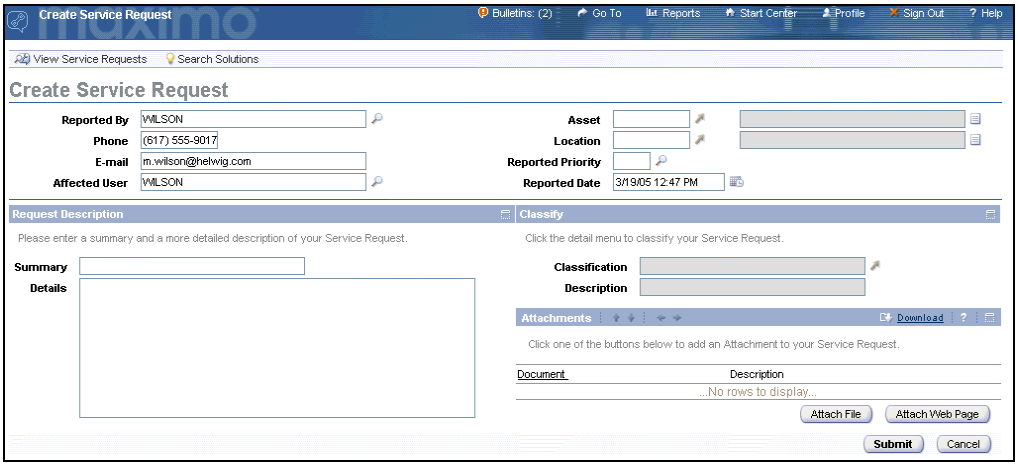
Requesting Work and Services continued

Flashback: Tickets, Classes, and the Work Order Relationship

The **Create Service Request** application is a single-point quick entry application used to create a service ticket for a reported problem and then route it to a service/help desk agent. Depending on the issue that is reported, it can be used in other applications. Maximo distinguishes these records by the value in the Class column in the database. By default, when Maximo creates a work order record, it enters a value in the Class field to indicate if the record is an activity, change, release, or work order record. Maximo uses the Class field as a filter to determine which records from the WORKORDER table to display for each of the work order applications.



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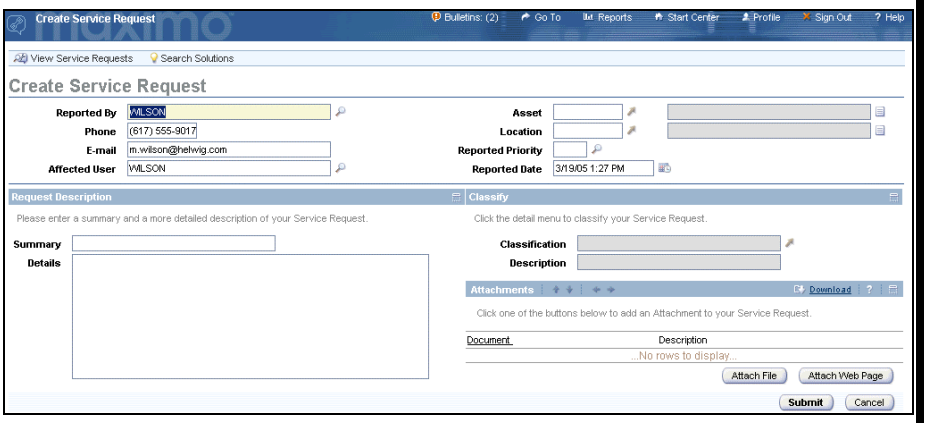
Requesting Work and Services continued

Creating a Service Ticket

In this exercise we will use the Create Service Request application to enter a request for service.

Step	Action
1	Open the **Create Service Request** application from the **Self Service** module. Result: The Create Service Request application opens. 
2	Enter CONF100 in the **Location** field. (Note: If you use the **Detail** menu to select this value, be sure to change the **Filter By** setting to **Public**.) Enter a **Reported Priority** of 4.
3	Enter Water leaking through window sill in the **Summary** field.

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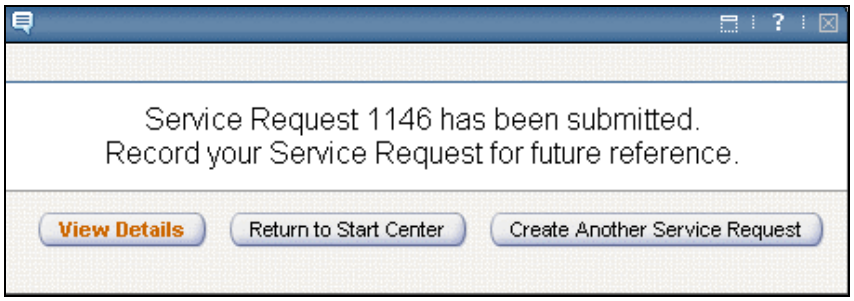
Requesting Work and Services continued

Creating a Service Ticket continued

Step	Action
4	Click **Submit**.  Result: The service request is submitted.  Write your request # here: _____.

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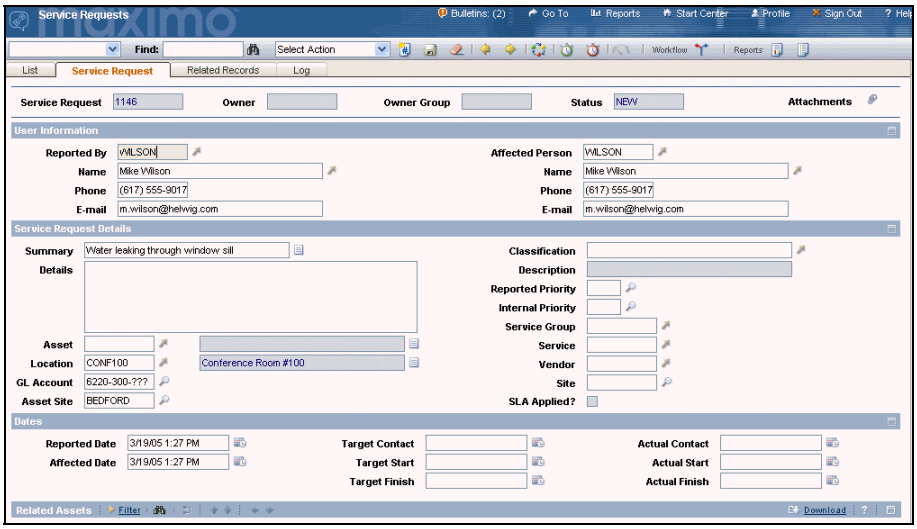
Requesting Work and Services continued

Flashback: Service Requests Application

Use the **Service Requests** application to create, view, and resolve service requests from customers or requesters. The agent views these requests in the Service Requests application and either resolves them or delegates them to another party for resolution.



Work Order Generation

When you create a work order from a service request, you create a relationship between the two records. Creating such a relationship usually is for *informational purposes* only, with no inheritance of status or other type of linkage. This means that changing the work order status will not change the status of the ticket. However, Maximo can be configured to allow the work order to update the status of the ticket.

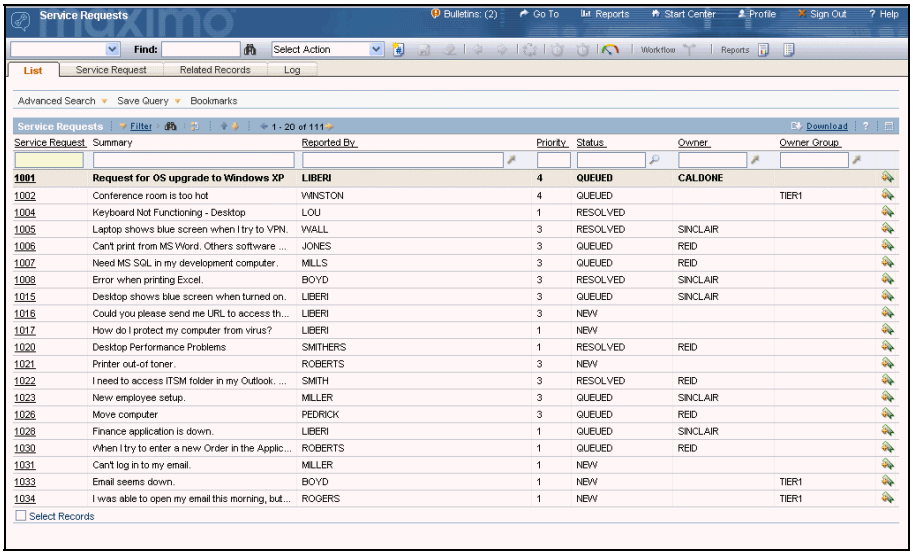
continued on next page

Requesting Work and Services continued

Generating a Work Order from a Ticket

In this exercise we are now the service agent who is going to generate a work order from the service request entered into Maximo.

Step	Action
1	Open the **Service Requests** application from the **Work Order**s module. Result: The Service Requests application opens.



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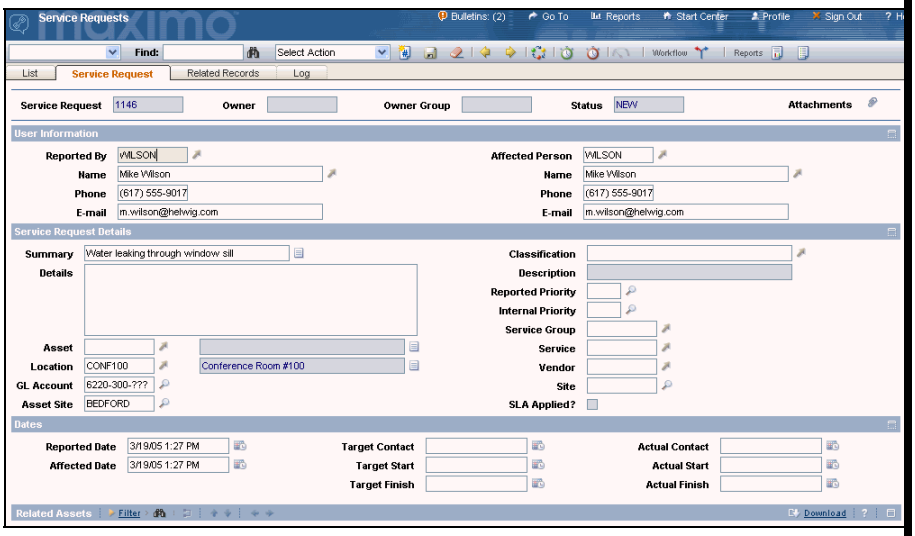
Requesting Work and Services continued

Generating a Work Order from a Ticket continued

Step	Action
2	Search for and retrieve the ticket you created in the previous exercise. Result: Your record populates the Service Request tab. Remember, this application can also be used to create tickets. 
3	From the **Select Action** menu, choose **Create** and then **Work Orders**. Result: A message appears at the top of the screen indicating that a work order has been created.

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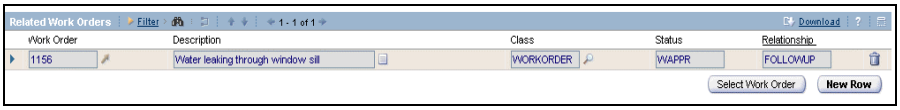
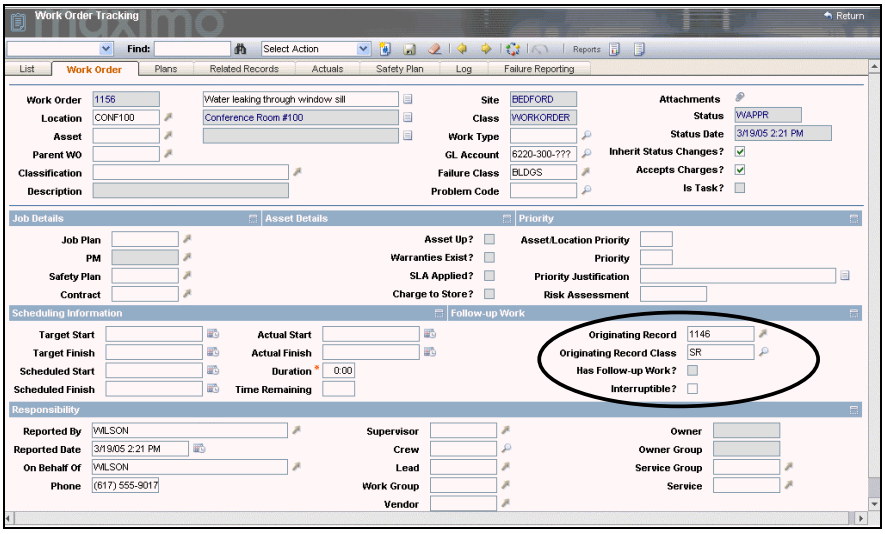
Requesting Work and Services continued

Generating a Work Order from a Ticket continued

Step	Action
4	Click on the **Related Records** tab. Result: Your work order record populates the Related Work Orders table window.  As indicated earlier, when you create a work order from a service request, you create a relationship between the two records. Creating such a relationship usually is for *informational purposes* only, with no inheritance of status or other type of linkage.
5	To view this record in the Work Order Tracking application, select **Go to Work Order Tracking** on the work order **Detail** menu. Result: You are brought to the Work Order Tracking application. Notice that the Originating Record and Class field are populated with data that shows that this work order originated from a service request ticket. 

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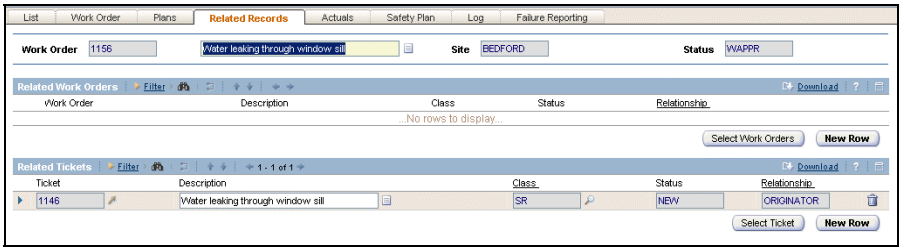
Requesting Work and Services continued

Generating a Work Order from a Ticket continued

Step	Action
6	Click on the **Related Records** tab. Result: In this case, the single ticket record displays as a related record. Again, while it has a status of NEW, this is for informational purposes only, as there is no relationship between the work order status and the ticket status. Changing the work order status will not change the status of the ticket. 

Generating a Work Order Record Using Quick Reporting

Introduction

As we have learned from the previous section, there are several different ways to generate a work order using Maximo. You can have:

- the system generate work orders based on condition criteria;
- the system generate work orders based on scheduling criteria; or
- a help/service desk environment where agents create work orders from tickets.

In this section we will look at two additional applications with which users can manually generate work orders:

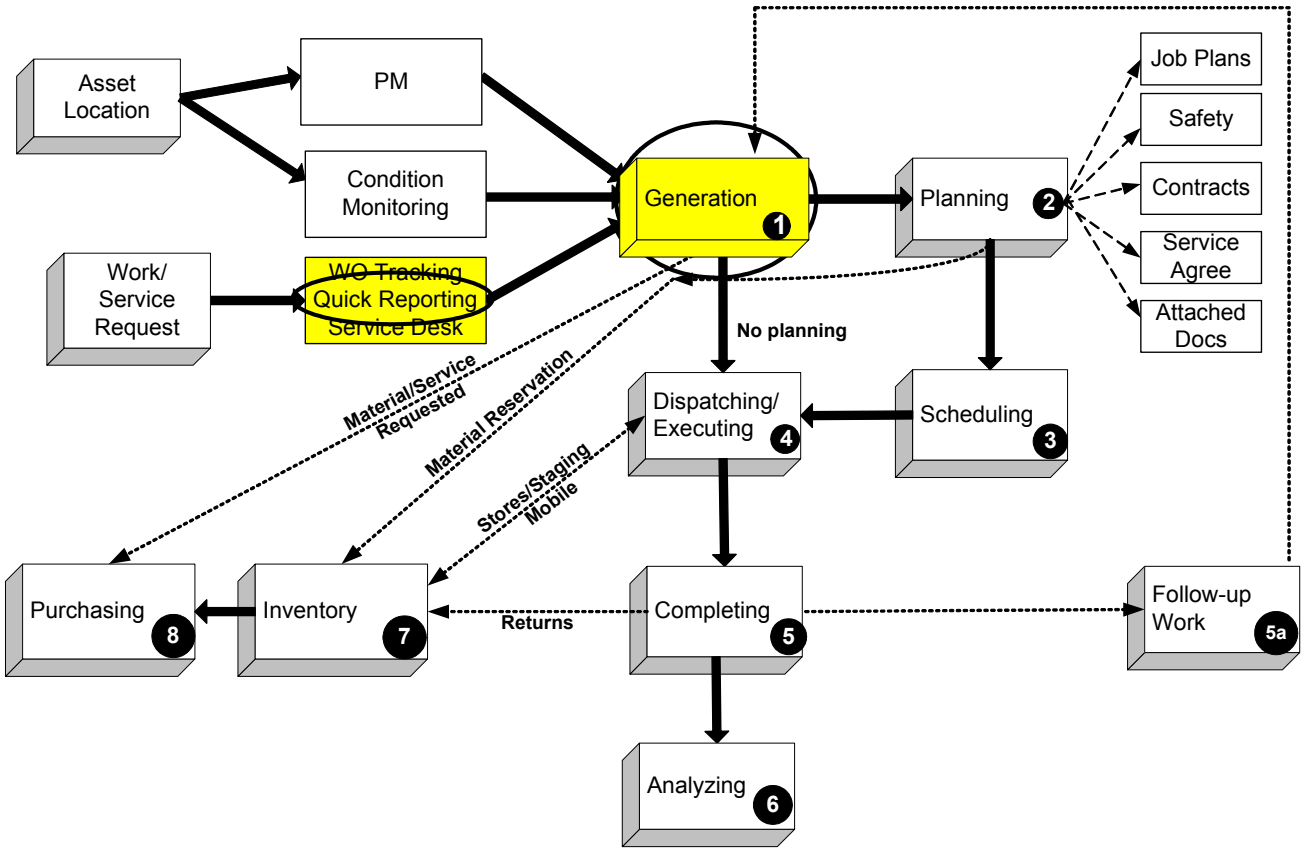
- Quick Reporting
- Work Order Tracking

continued on next page

Generating a Work Order Record Using Quick Reporting continued

You Are Here

A problem is reported and is manually (user) entered into the Quick Reporting application.



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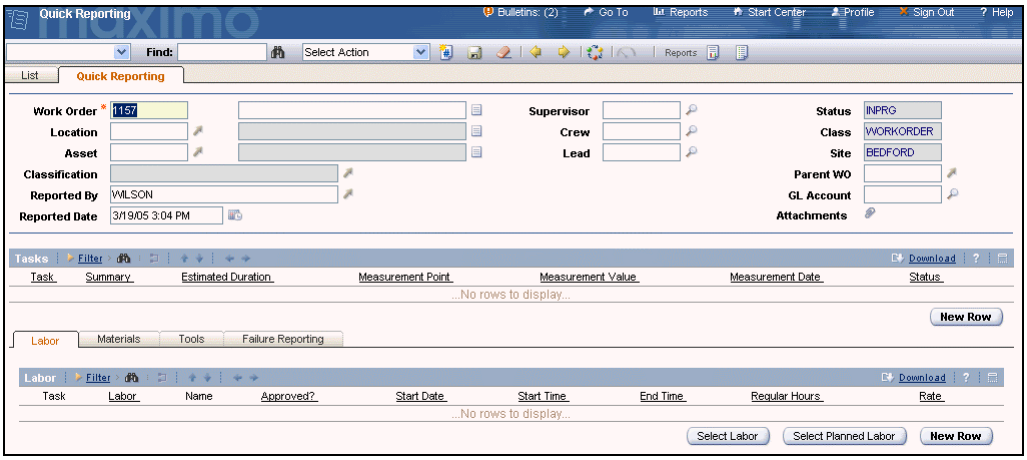
Generating a Work Order Record Using Quick Reporting continued

Flashback: Quick Reporting Application

The **Quick Reporting** application provides another way to process a work order. It is designed to let you report work done on small jobs that can be completed without planning. Use Quick Reporting to create work orders for an emergency or for jobs that have happened after the fact, or to report actuals and failures on any open work orders. A work order entered through the Quick Reporting application will have an INPRG (in progress) status.



Example

These are some examples of how the Quick Reporting application could be used:

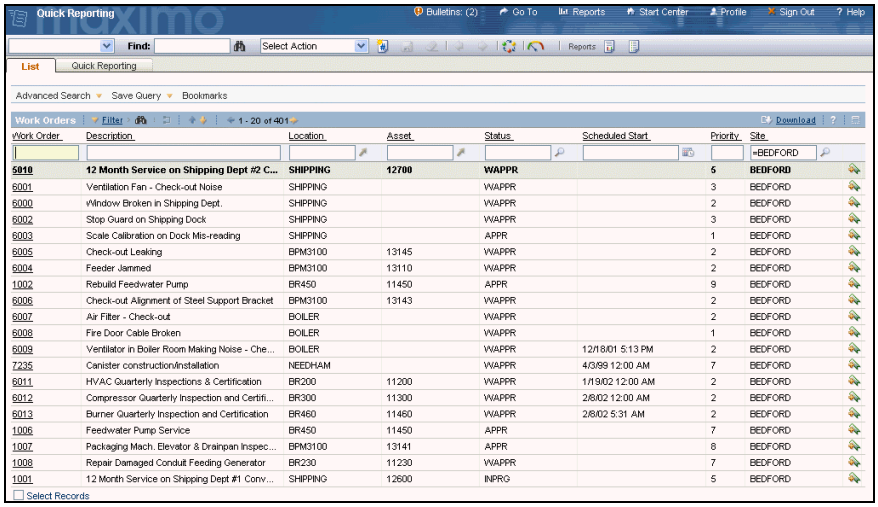
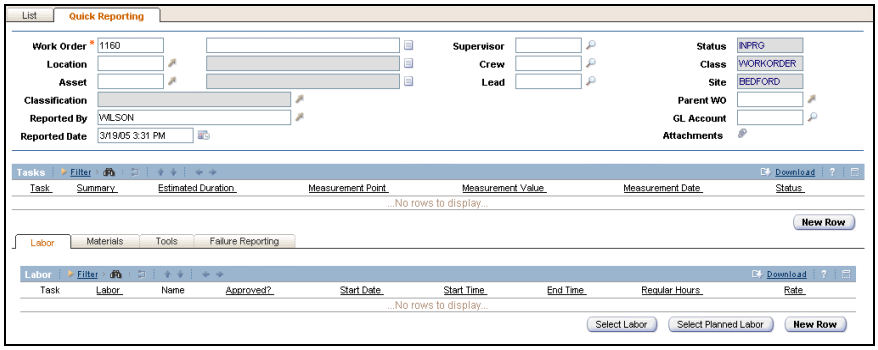
- Shop floor maintenance personnel report time, materials, and meter readings used on an open work order.
- A machine operator clears a chute and reports a problem code, a cause code, and downtime.
- Shop floor personnel report time, materials, failure codes, and downtime when adjusting a limit switch or changing a light bulb.
- An emergency call comes into dispatch or the emergency help desk and a work order is generated to indicate that the situation is being addressed.

continued on next page

Generating a Work Order Record Using Quick Reporting continued

Inserting a Work Order Record

Follow these steps to enter an emergency work order (EM) into the system using the **Quick Reporting** application.

Step	Action
1	Open the **Quick Reporting** application. Result: The application opens to the List tab. 
2	Click **New Work Order**. Result: Maximo creates a new work order with the INPRG status. 

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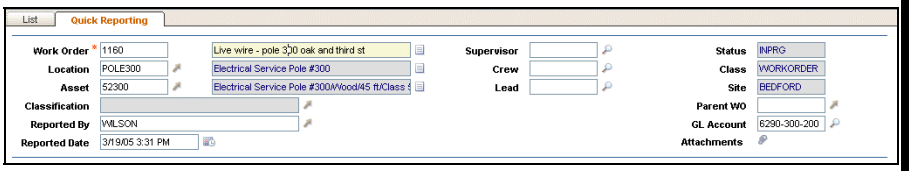
Generating a Work Order Record Using Quick Reporting continued

Inserting a Work Order Record continued

Step	Action
3	Enter Live wire - pole 300 - oak and third st in the **Description** field. Enter POLE300 in the **Location** field. Result: Your work order record should look similar to the one below. 
4	**Save** the record. Record your work order number: _____

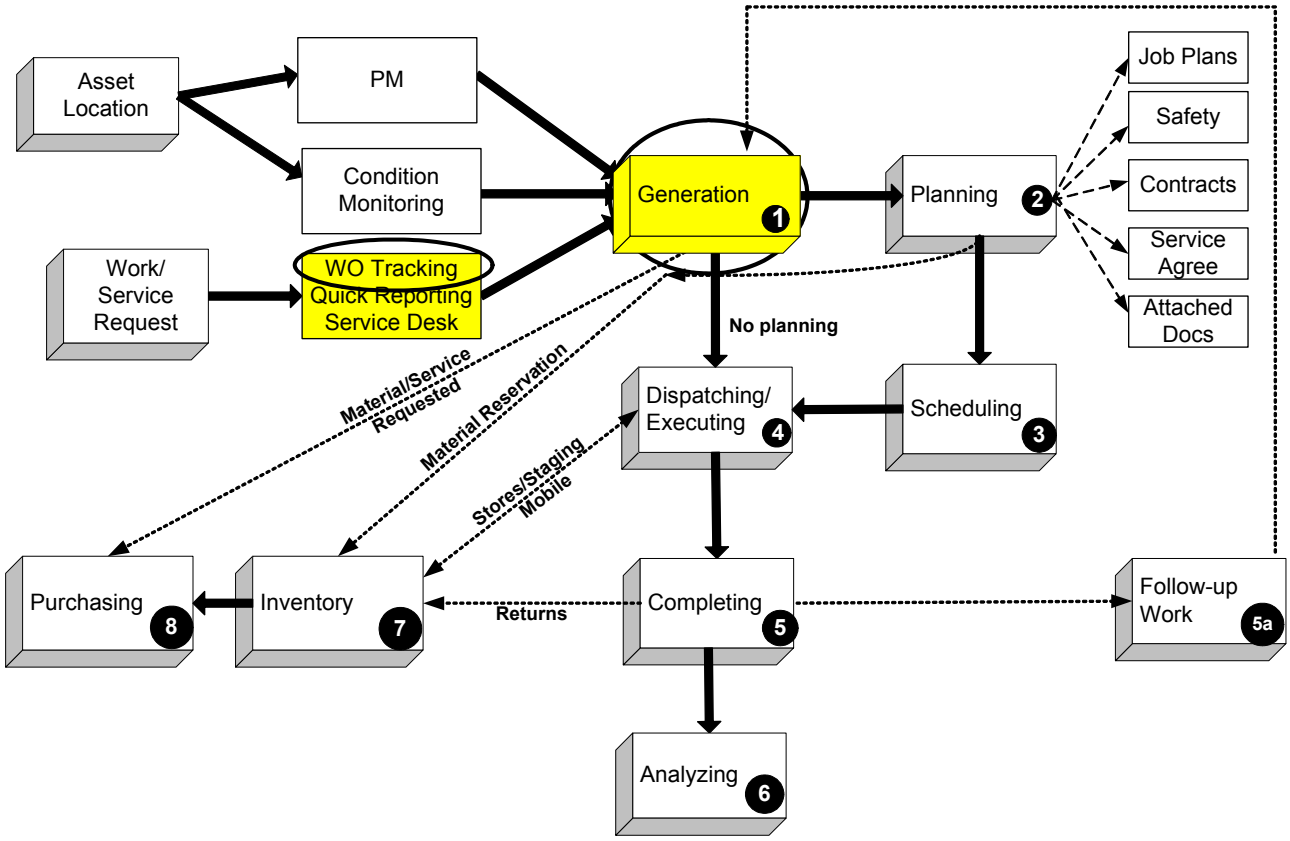
Generating a Work Order Using Work Order Tracking

Introduction

One last way to generate a work order is by using the Work Order Tracking application.

You Are Here

A problem is reported and is manually (user) entered into the Work Order Tracking application.



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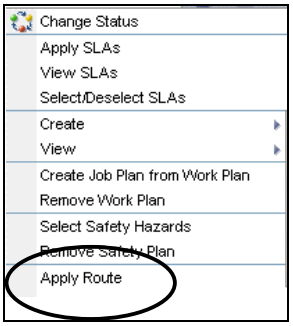
Generating a Work Order Using Work Order Tracking continued

Applying Routes to a Work Order

You can apply a route to a work order by using the **Apply Route** action.



When you apply a route, the original work order is the parent and the route stops are child work orders, which can have job plan tasks associated with them.

Inserting a Work Order Record

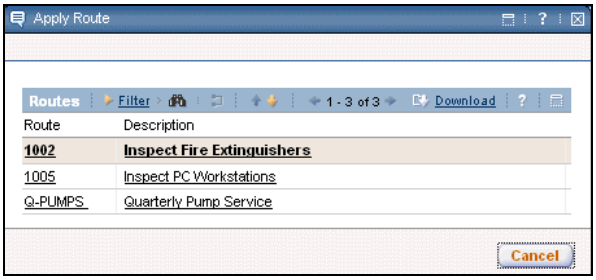
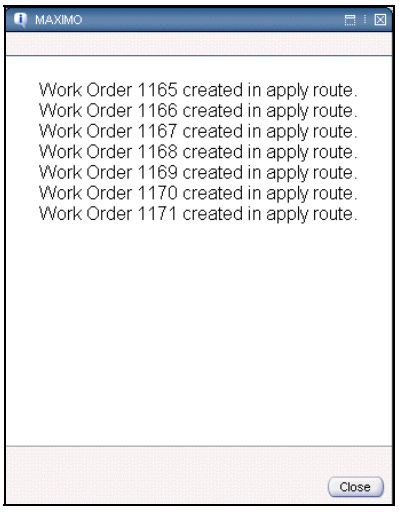
In this exercise we will create a work order record and apply a route.

Step	Action
1	Go to the **Work Order** application.
2	Insert a **New Work Order**. Record your work order number:_____
3	In the **Description** field, enter *XX (*to identify your record) Manufacturer Bulletin: Fire Extinguisher Gauge. Inspect for corrosion.

continued on next page

Generating a Work Order Using Work Order Tracking continued

Inserting a Work Order Record continued

Step	Action
4	From the **Select Action** menu, select **Apply Route**. Result: The Apply Route window opens. 
5	Select **Route 1002 – Inspect Fire Extinguishers**. Result: Maximo displays a message similar to this example: 

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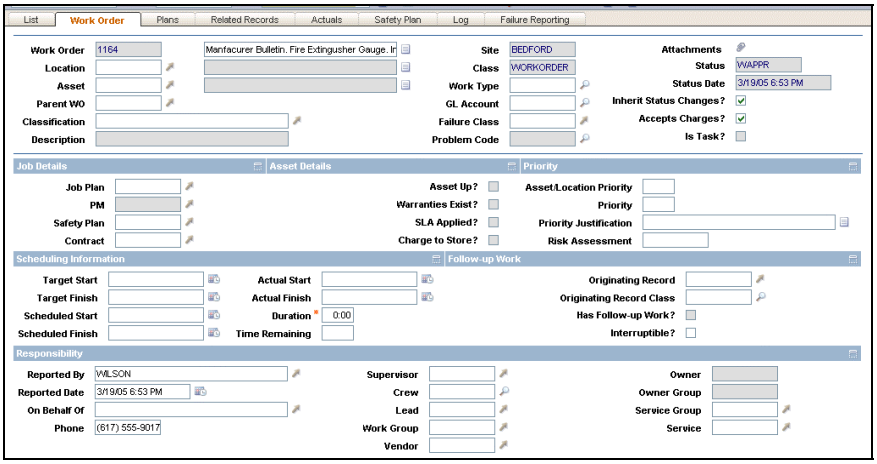
Generating a Work Order Using Work Order Tracking continued

Inserting a Work Order Record continued

Step	Action
6	Record your work order numbers: Work Order #:_____ Work Order #:_____ Work Order #:_____ Work Order #:_____ Work Order #:_____ Work Order #:_____ Work Order #:_____
7	Click **Close**. Result: You are brought back to the top-level (parent) work order. 
8	Click on the **Plans** tab. Result: Children work orders have been created. 

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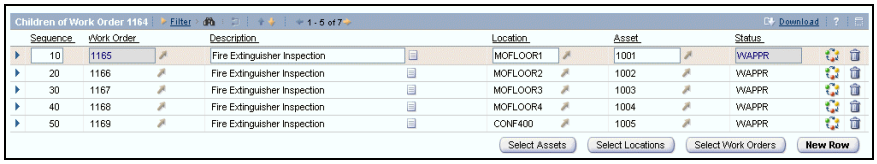
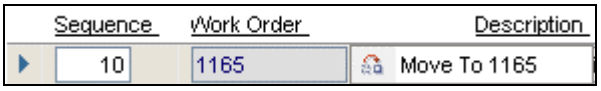
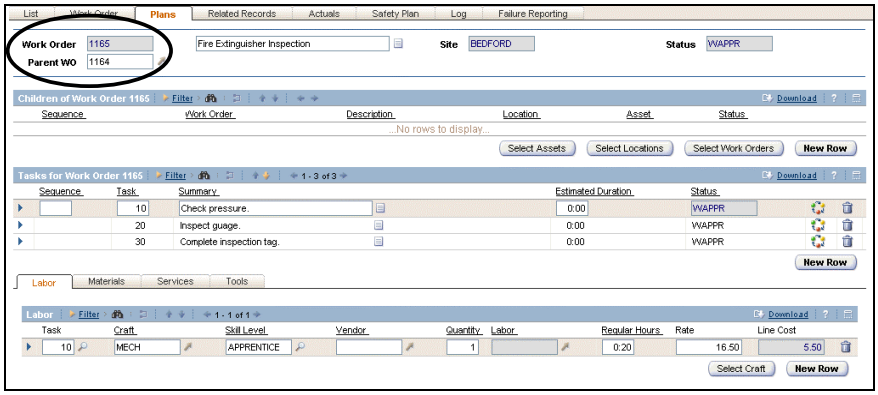
Generating a Work Order Using Work Order Tracking continued

Inserting a Work Order Record continued

Step	Action
9	To display the work order's children, click the **Show Table** button on this table's bar.  Result: Your screen should look similar to the one below. 
10	When we created this route, we had associated a job plan to each asset. To view the work plan for one of the assets, click on the first (Sequence 10) work order's **Detail** menu. Result: Your Work Order field should look like similar to the one below. 
11	Select **Move To**. Result: Your work order is moved to the Work Order key field and the parent work order populates the Parent WO field. Notice that the job plan was carried over to the work plan. 

Chapter Summary

Generating Work Orders

For assets or locations, you can create and generate work orders, sometimes with associated job plans, safety plans, and contracts, in the following ways:

- A PM becomes due and is automatically generated by the system cron task or using the PM application itself.
- A condition measurement falls outside the limits and is automatically generated by the system cron task or using the CM application itself.
- A problem is reported and can be manually (user) entered in the Work Order Tracking, Service Requests, or Quick Reporting applications.
- If necessary, a follow-up work order is generated from an originating work order.

NOTES:

NOTES:

Work Management Using MXES

Chapter 7: Planning

In This Chapter

This chapter contains the following topics:

Chapter Overview

Introduction

Planning activities in Maximo can range from defining work plans for a work order to the organization and management of work orders in a "work package."

Learning Objectives

After completing this chapter you should be able to:

- modify a work plan,
- create a job plan from a work plan,
- describe the parameters when deleting a work plan,
- view work order details,
- check material reservations, and
- modify a work order hierarchy.

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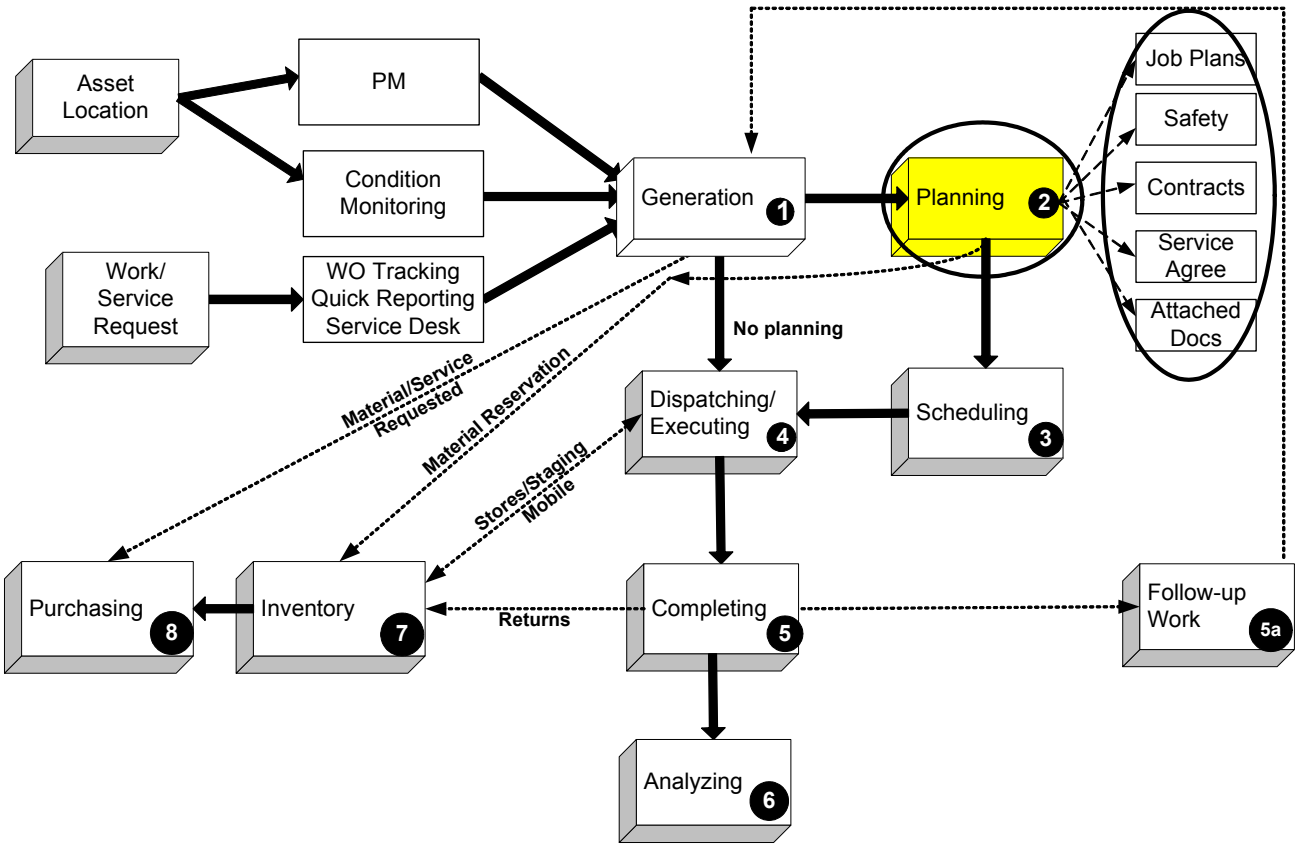
Chapter Overview continued

You Are Here

Depending on the work order, job activities and related service contracts and safety information can be associated to the work order. When a job plan or work plan is used with a work order and the work order is then approved, the planned materials are put on inventory reserve. Planning can also include the organization and management of work orders themselves into "work packages."



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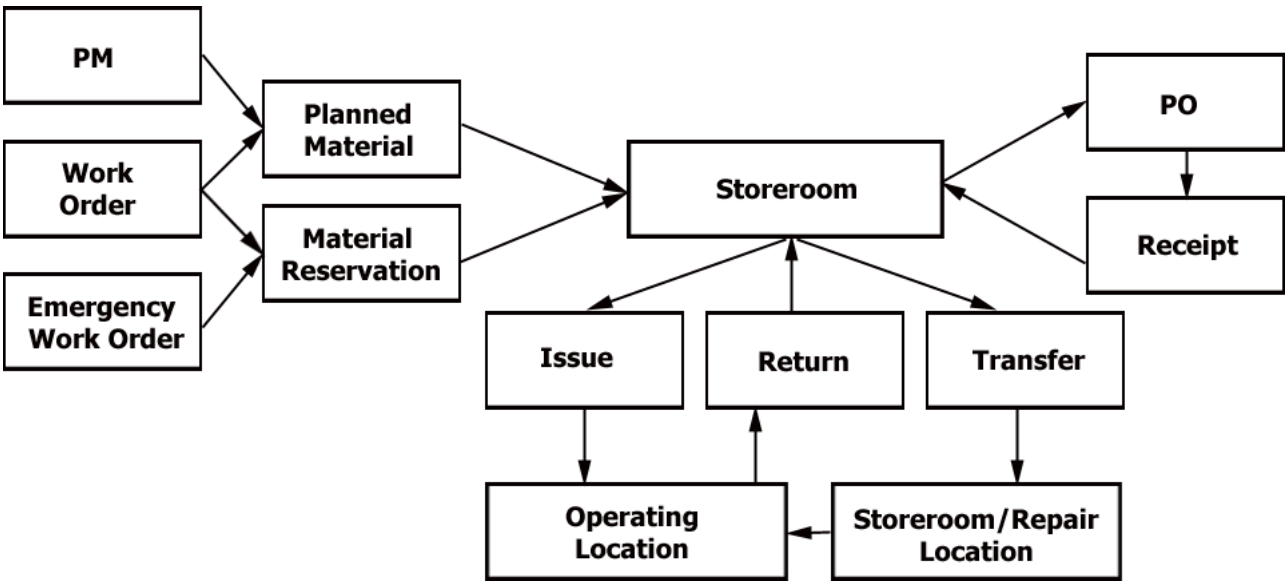
Chapter Overview continued

Materials and Services on Work Orders

An important part of Maximo work orders is the planning and usage of materials and services. The diagram below illustrates the typical business flow between inventory and other processes in Maximo.

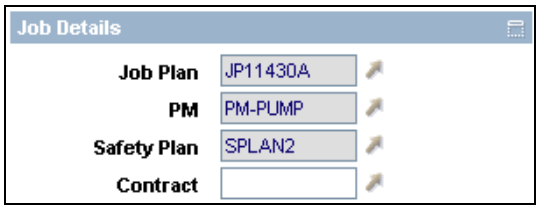


Planning Using Work Order Tracking

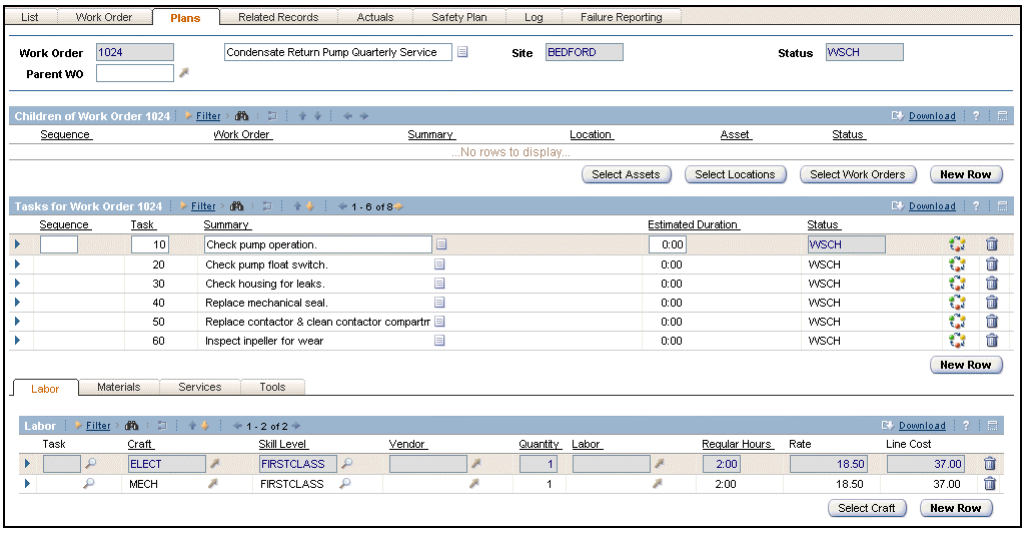
Introduction

In Maximo, for planning activities you use the Work Order Tracking application in the following ways:

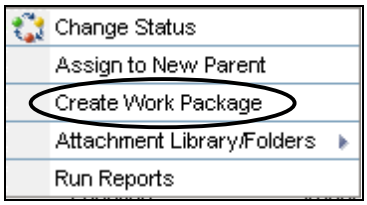
- Use the **Job Details** window to associate a job plan, safety plan, and contract to a work order.



- Use the **Plans** tab to build work hierarchies, plan tasks, and associate needed resources for a work order.



- Use the **List** tab **Create Work Package** action to create a work package of selected work orders.



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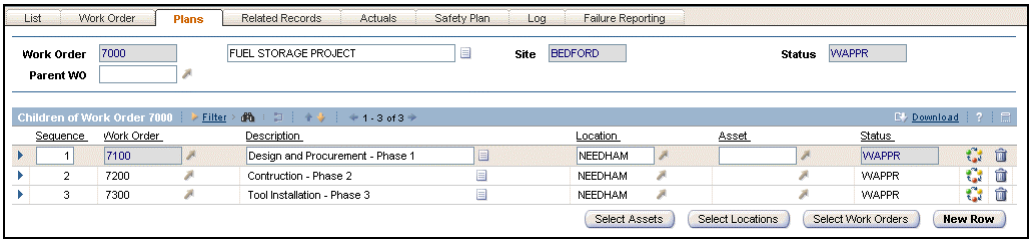
Planning Using Work Order Tracking continued

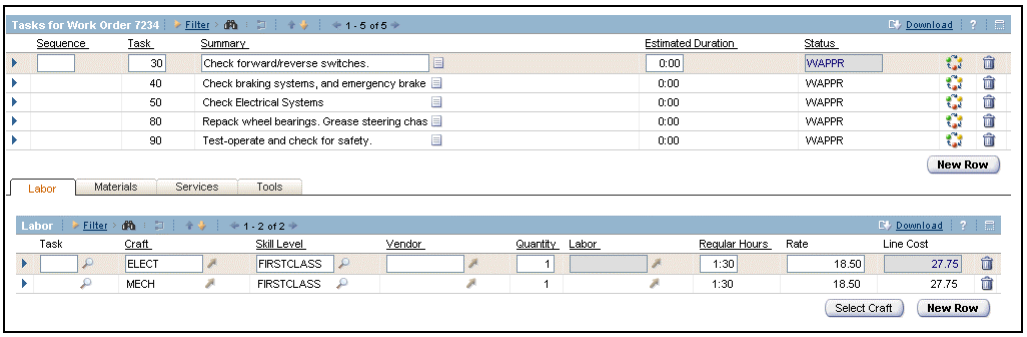
Plans Tab

The **Plans** tab is the main screen to build or modify work plan information.

On the Children Work Order table, you can associate children work orders to the work order. This table displays the following information about the child work order: Sequence Number, Work Order Number, Description, Location, Asset, and Status.



The Work Order Tasks window is where Maximo displays operational tasks. Information is carried over from a job plan or directly entered into this table window. This table window displays Sequence, Task ID, Description, Duration, and Status information.



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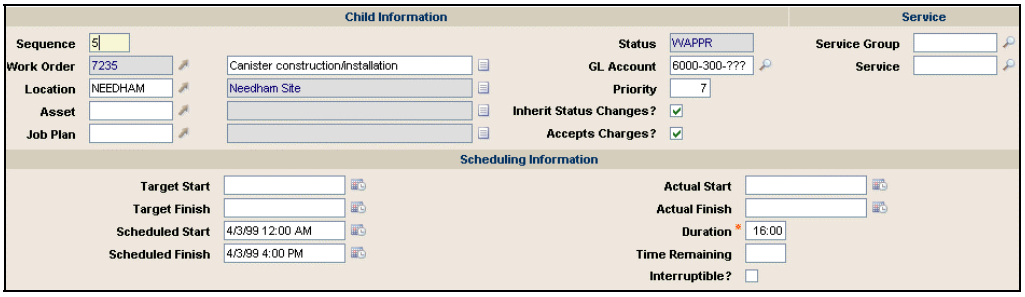
Planning Using Work Order Tracking continued

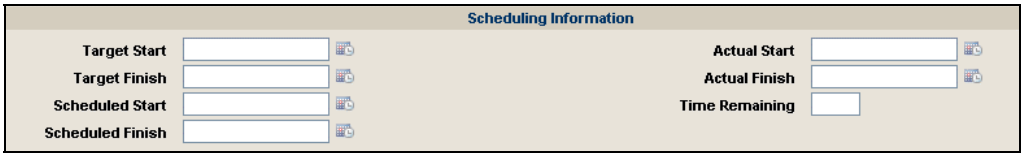
Statusable Children and Tasks

Both the children and tasks have a Change Status button and a Details button.

This allows children work orders to be planned and scheduled to a greater level of detail and autonomy.



It also allows tasks to be scheduled independently of the work order.



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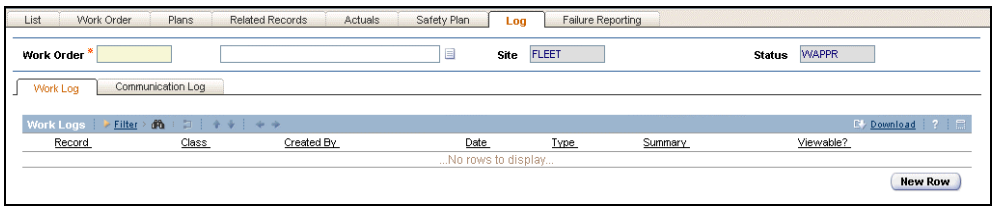
Planning Using Work Order Tracking continued

Log Tab

The Log tab is used to document and view information about work that has taken place or will take place on the current work order.



The Log tab has two subtabs: Work Log and Communication Log.

You can use the **Work Log** tab to add work log entries for the current record, and to view work log entries for all originating and follow-up records for the current record. There are three work log types:

- CLIENTNOTE
- UPDATE
- WORK

You can use the **Communication Log** tab to view inbound and outbound communications for the current record, and to view any attachments that are associated with a communication. The Communication Log is read-only.

Select Action - Viewing Work Order Details

Use the **View** selection action to view different aspects of the work order.

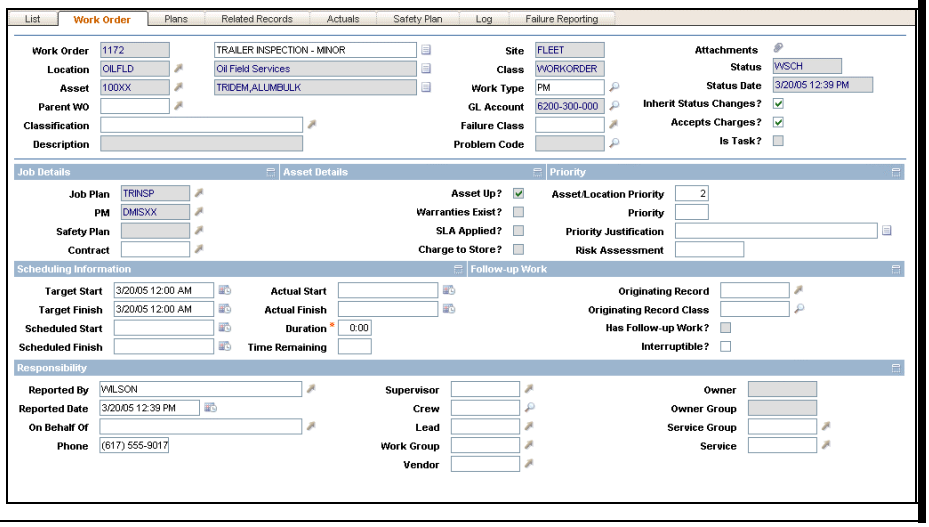
continued on next page

Planning Using Work Order Tracking continued

View Work Order Details

In this exercise, we are going to view some details on a work order.

Step	Action
1	Open the **Work Order Tracking** application, then search for and retrieve the PM work order that you created for PM **DMIS*XX*** located at the **FLEET** site. Result: Your work order tab should look similar to the one below.



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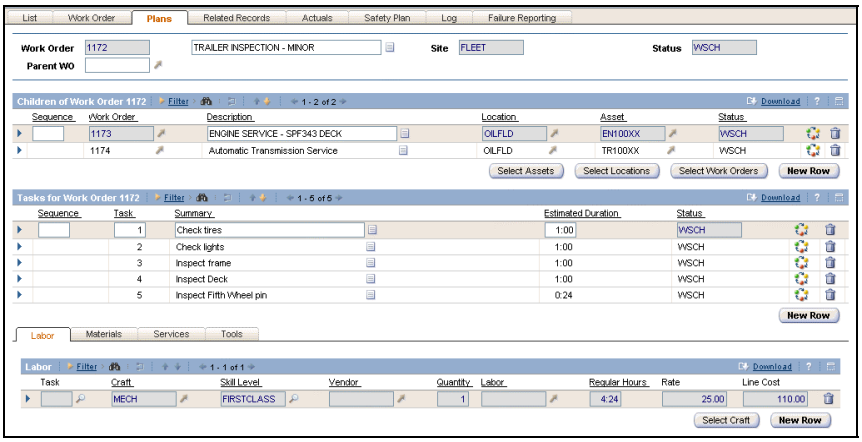
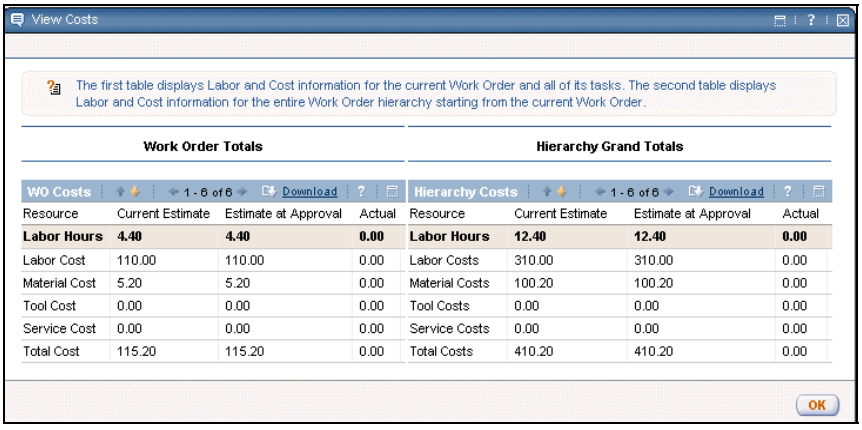
Planning Using Work Order Tracking continued

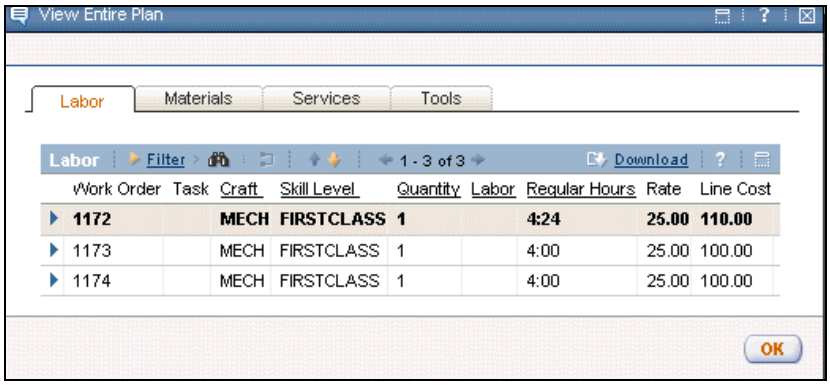
View Work Order Details continued

Step	Action
2	Click on the **Plans** tab. Result: Notice the PM Hierarchy and Job Plan in sequence was carried over. Note: You might have to un-hide the children table. 
3	From the **Select Action** menu, select **View**, and then select **Cost**. Result: The View Costs window opens.  The **Work Order Totals** table represents costs for the current work order. The **Hierarchy Grand Totals** table represents costs for the entire work order hierarchy.

continued on next page

Planning Using Work Order Tracking continued

View Work Order Details continued

Step	Action
4	Click **OK**.
5	From the **Select Action** menu, choose **View**, and then select **Entire Plan**. Result: The View Entire Plan window opens.  The **View Entire Plan** window displays all resource-related information for the parent work order and its children.
6	Click **OK** to return to the **Plans** tab. *Do not exit.*

Work Plans

Introduction

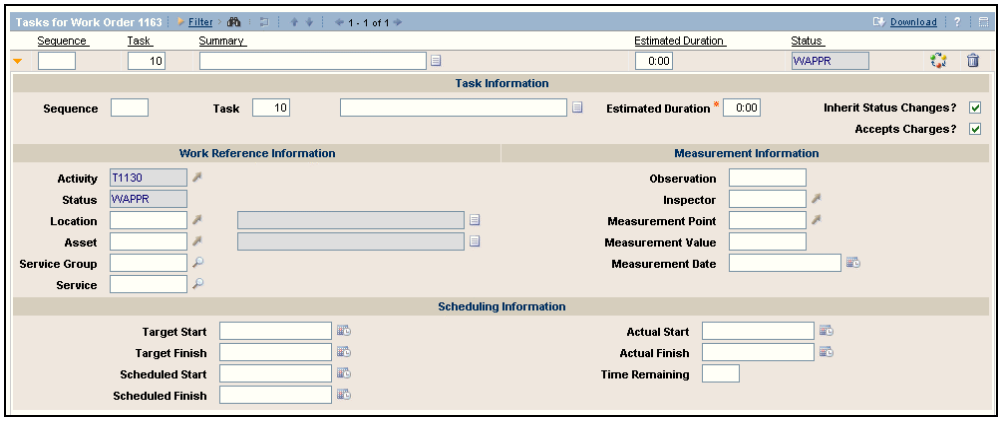
In this section we will explore work plans and how they are used with work orders.

Work Plans

A work plan describes the labor, materials, services, tools, and tasks needed to complete a specific work order. You can create work plans using the **Plans** tab in the Work Order Tracking application. In Maximo, there are two ways to create a work plan:

- Associate a previously defined job plan that was created in the Job Plans application. Maximo adds a copy of the job plan, now called a *work* plan, to the **Plans** tab of the work order. You can then modify data to that work plan's requirements. Changes you make to the work plan do not affect the original job plan.

- Enter work plan data in the table windows of the **Plans** tab of a work order.



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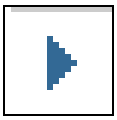
Work Plans continued

Flashback: Building/ Modifying a Work Plan

Just like creating a job plan, while the work order is in the WAPPR status, you can build a work plan or make modifications to it.

- To add tasks, labor, materials, services, or tools, click **New Row** and add all relevant details.

- To modify a row, click the row's **View Details** button and make your modifications on the expanded row.



- To delete a row, click **Mark Row for Deletion**.

Material Reservations

When users plan and use materials on work orders, several things can occur:

- Planned materials on a work order are reserved in inventory when the work order is approved.
- Material balances are decreased when materials are issued to a work order.
- Material balances increase when issued materials are returned.
- Materials that are out of inventory stock or that are a direct issue will change a work order status to Waiting on Material (WMATL) and will generate a purchase order when storeroom reordering is initiated for a site.

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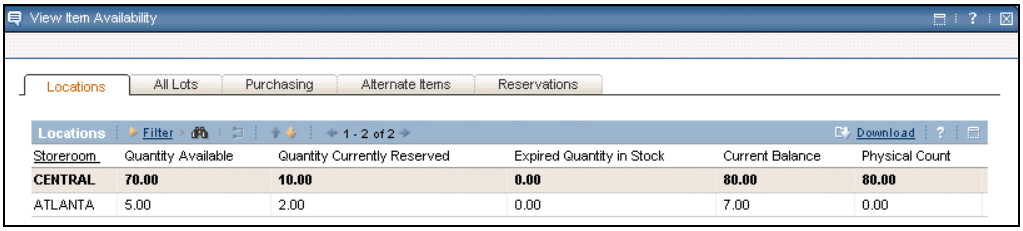
Work Plans continued

Viewing Material Availability and Reservations

To manage your materials planning activities, the Materials Detail button has a **View Item Availability** option.



The following table describes the **View Item Availability** tabs:

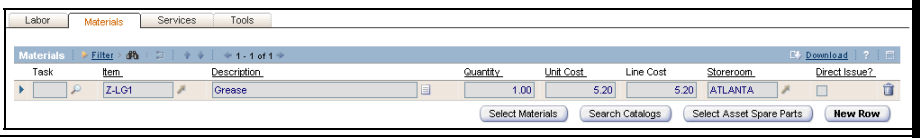
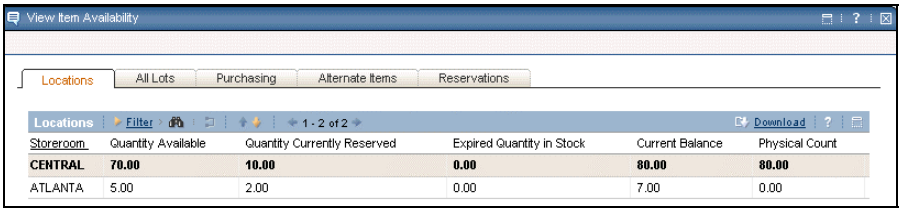
Use this tab…	To view…
Locations	All the storerooms that carry this item
All Lots	The lots and bins in which these items are located
Purchasing	What purchase orders, purchase requisitions, and purchase contracts have been written against this item
Alternate Items	What items are alternates for the one selected
Reservations	What outstanding work orders have this item reserved, and the storeroom the reservation is against

continued on next page

Work Plans continued

Viewing Material Reservations

In this exercise, we will view material reservations for the Trailer Minor inspection.

Step	Action
1	Click the **Materials** subtab. Result: Your Materials subtab should look like the one below. 
2	Click the Z-LG1 **View Details** button and select **View Item Availability**. Result: The View Item Availability window opens.  What is the current balance in the Atlanta storeroom? _____ Are there any outstanding purchase orders? _____
3	Click **OK** to return to the **Plans** tab.

continued on next page

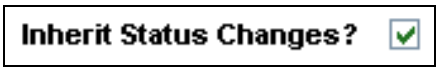
Work Plans continued

Modifying Work Order and Work Plans

As we learned earlier, work plans can be added, deleted, or modified only while in the Waiting on Approval status (WAPPR). If a work plan needs modifications after a status change, you have to "un-approve" the work order, then approve it again.

Children Inherting a Parent Status Change

Select **Inherit Status Changes?** to indicate that you want the work order status to accept a parent status change.



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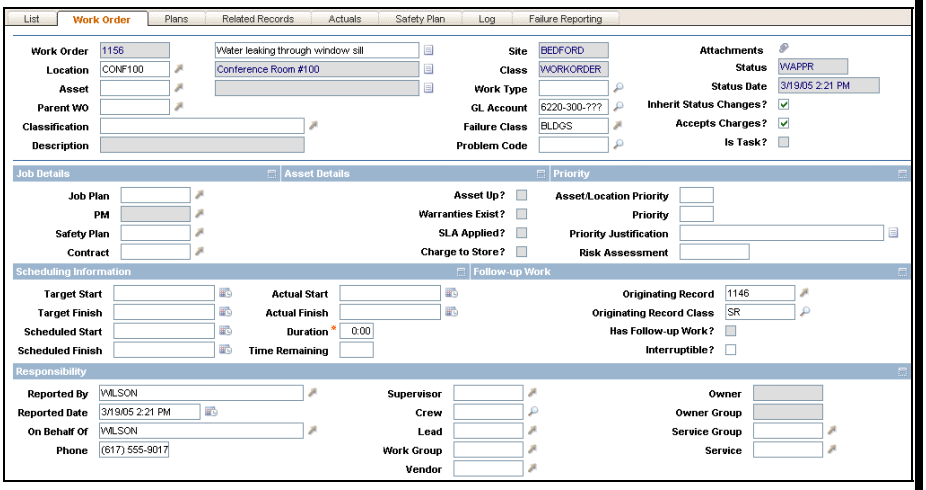
Work Plans continued

Adding a Work Plan #1

In this exercise, we will add a craft requirement to a work plan.

Step	Action
1	Search for and retrieve your **Water leaking through window sill** work order record (at the Bedford site). Result: Your record should look similar to the one below. 
2	On the **Work Order** tab, enter the following information: **Field** — **Value** **Work Type** — CM **GL Account** — 6220-300-000 **Priority** — 3

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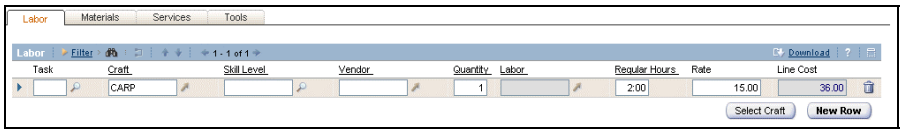
Work Plans continued

Adding a Work Plan #1 continued

Step	Action
3	On the **Plans** tab **Labor** subtab, click **New Row**. Enter CARP in the **Craft** column field, and enter 2 in the **Regular Hours** field.
4	**Save** your record. Result: Your Labor subtab should look like the one below. 

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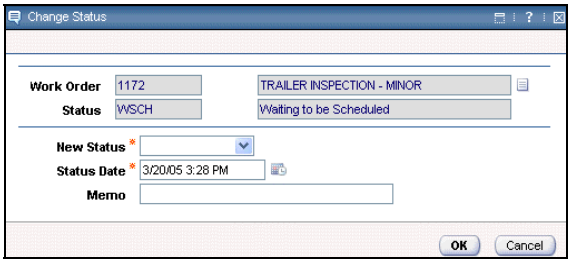
Work Plans continued

Modifying a Work Plan #2

In this exercise, we are going to un-approve an approved work order, modify the material requirement, and create a work log entry.

Step	Action
1	Search for and retrieve your **TRAILER INSPECTION – MINOR** work order with the WSCH status (at the Fleet site). With your record displayed on the **Work Order** tab, click **Change Status**.  Result: The Change Status dialog box opens. 
2	Change the status to **Waiting on Approval**. Result: The parent and children work order statuses are changed to WAPPR.
3	On the **Work Order** tab, enter 4 in the **Duration** field.

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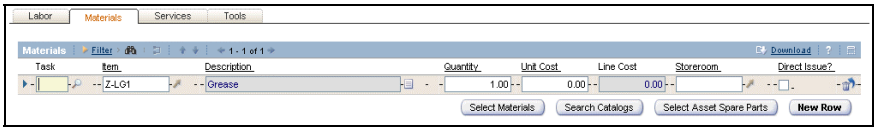
Work Plans continued

Modifying a Work Plan #2 continued

Step	Action
4	Change the labor hours to 4 on the **Labor** subtab of the **Plans** tab.
5	Click the **Delete** button to delete **ZLG-1 – grease** on the **Materials** subtab of the **Plans** tab.  Result: Your Materials subtab should look like the one below. 
6	Click on the **Work Log** subtab of the **Log** tab and insert a new row by clicking the **New Row** button.
7	Enter WSCH Work Status Change in the **Summary** field, and enter Materials not needed, have in mechanics bay in the **Detail** area.
8	Change the status back to **Approve (APPR)**.

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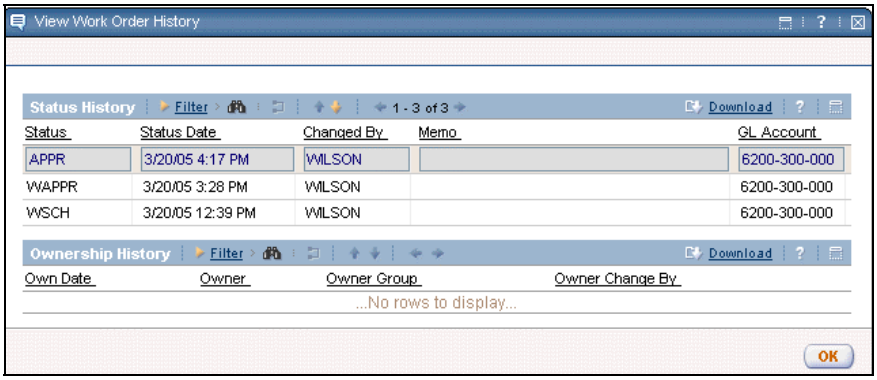
Work Plans continued

Modifying a Work Plan #2 continued

Step	Action
9	To view the status history of this work order, choose **View** from the **Select Action** menu, and then select **Work Order History**. Result: The View Work Order History window displays the status history of the work order. 
10	Click **OK**.

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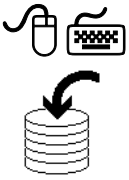
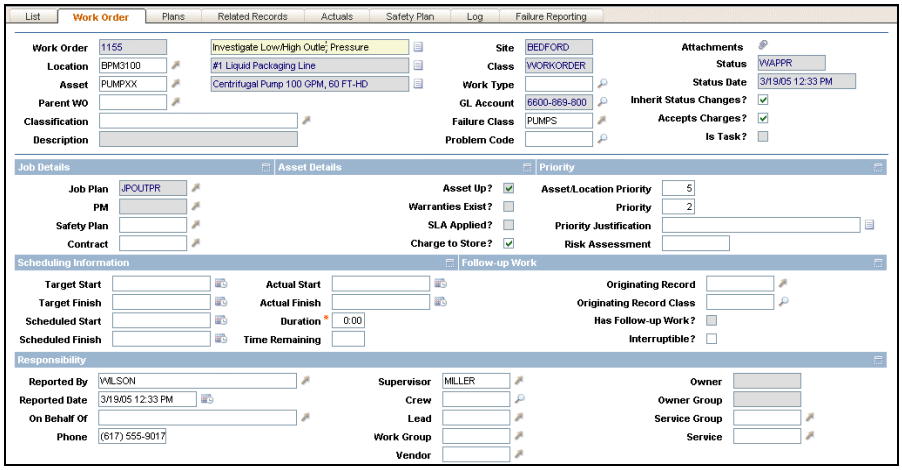
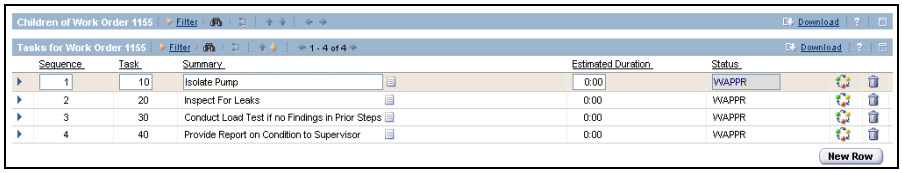
Work Plans continued

Modify a Work Plan #3



In this exercise, we are going to view a work order with an associated job plan and then modify the work plan by adding a measurement point to a task.

Step	Action
1	Search for and retrieve your **Investigate Low/High Outlet Pressure** work order (at the Bedford site). Result: Your Work Order tab should look similar to the one below. 
2	Click on the **Plans** tab. Result: Your Plans tab should look similar to the one below. 

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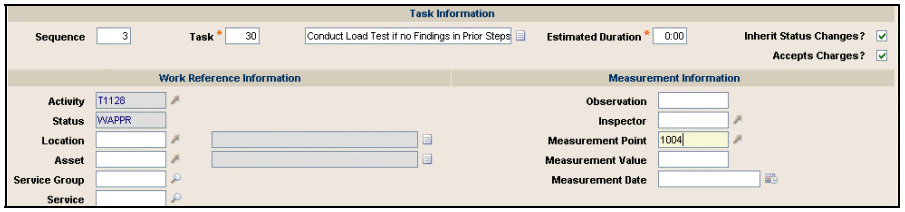
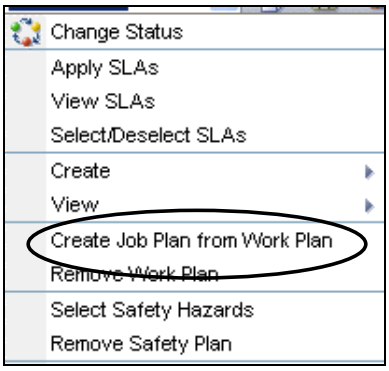
Work Plans continued

Modify a Work Plan #3 continued

Step	Action
3	For **Task 30**, in the **Measurement Point** field, use the **Details Menu** button and select Pressure Analysis. Result: Your row should look similar to the one below. 
4	**Save** your work order.

Creating a Job Plan from a Work Plan

Whether you create a plan "from scratch" or modify an associated job plan, you can create a job plan from the work plan using the **Create Job Plan from Work Plan** action.



Because the work order is created for a specific site, the job plan created will be specific to the work order site.

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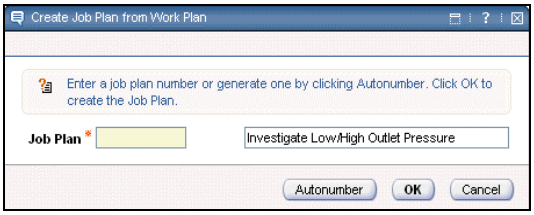
Work Plans continued

Removing a Work Plan and Deleting Children Sequences #4

In this exercise we are going to create a job plan from the work plan that we just modified by adding a measure point.

Step	Action
1	With the work order open to **Investigate Low/High Water Pressure**, select **Create Job Plan from Work Plan** from the **Select Action** menu. Result: The Create Job Plan from Work Plan dialog box opens. 
2	Enter LHM*XX* in the **Job Plan** field, with the description Low/High Outlet measure.
3	Click **OK**. Result: A message in the header bar indicates that the job plan has been created.

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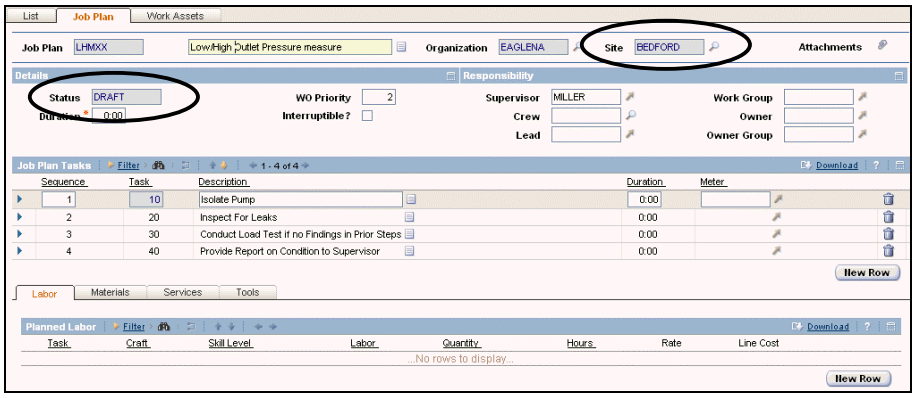
Work Plans continued

Removing a Work Plan and Deleting Children Sequences #4

continued

Step	Action
4	To verify its creation, go to the **Job Plans** application and retrieve your job plan. Result: Your job plan should look similar to the one below. Note: Job plans created from the work plan will be specific to the site indicated on the work order and will be in a DRAFT status. 

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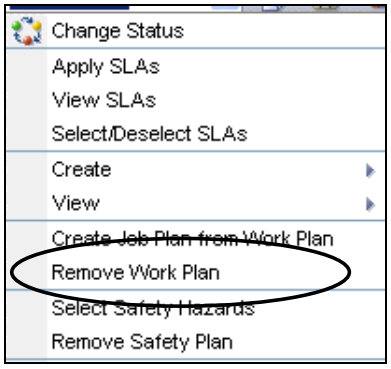
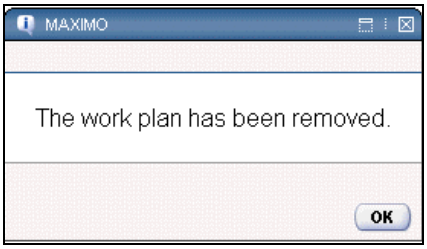
Work Plans continued

Removing Work Plans

While a work order is in a Waiting for Approval (WAPPR) status, the work plan can be deleted using the **Remove Work Plan** select action.



When a work plan has been removed successfully from a work order, Maximo will display the following message:



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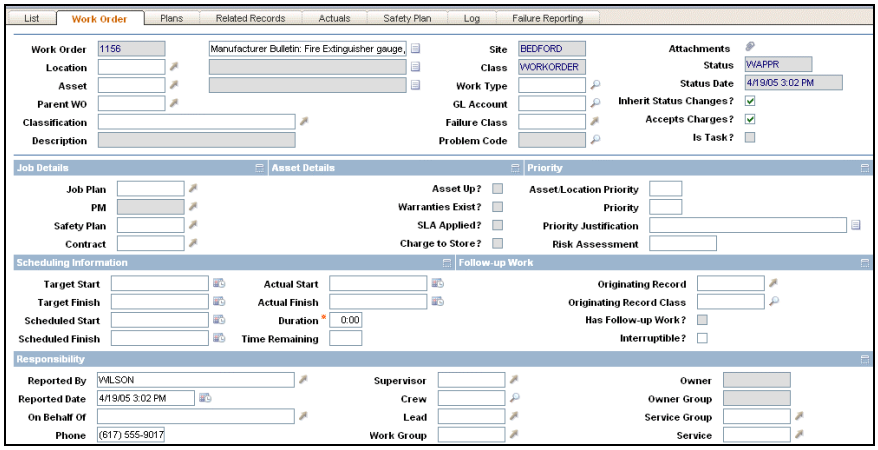
Work Plans continued

Removing a Work Plan and Deleting Children Sequences #5

In this exercise we are going to deleting a work plan, then delete the sequencing of the children work order.

Step	Action
1	Search for and retrieve your **Manufacturer Bulletin: Fire Extinguisher Gauge Fire Inspection** work order. Result: Your Work Order tab should look similar to the one below. 
2	On the **Work Order** tab, enter the following information: **Field** — **Value** **Work Type** — EV **GL Account** — 6220-300-000 **Priority** — 1

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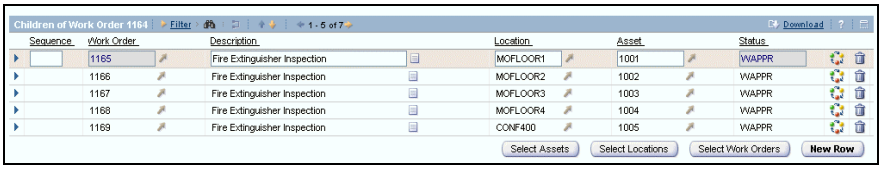
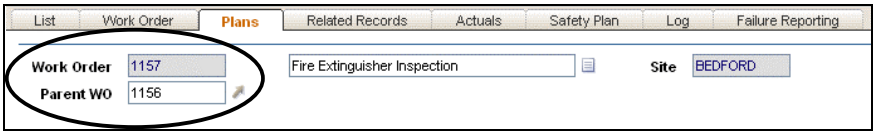
Work Plans continued

Removing a Work Plan and Deleting Children Sequences #5

continued

Step	Action
3	Click on the **Plans** tab and "show" the Children Work Order table. Delete all the sequences (10–70) on the children work orders. (To delete a sequence, highlight the sequence number and press **Delete**.) Result: Your Children table should look like the one below. 
4	**Save** your record.
5	On the first child work order, click the **Details** button and **Move To** this work order. Result: The child work order record is moved to the top level.  Notice that there is a work plan associated to this work order. This is because when the route record was created there was a job plan associated to the record.

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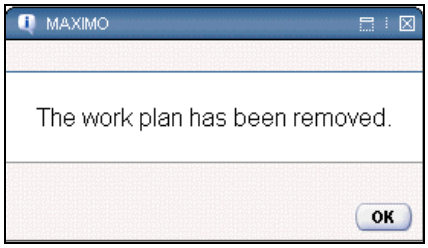
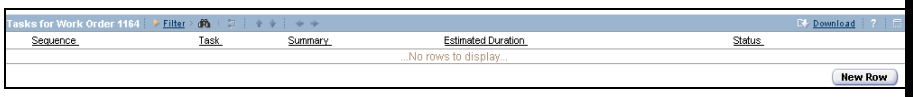
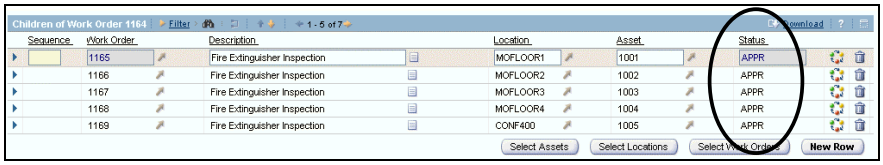
Work Plans continued

Removing a Work Plan and Deleting Children Sequences #5

continued

Step	Action
6	Select **Remove Work Plan** from the **Select Action** menu. Result: A Maximo message indicates that the work plan has been removed. 
7	Click **OK**. Result: You are brought back to the Plans tab. Notice the work plan information is no longer part of the work order. 
8	Click on the **Parent Work Order** field, and **Move To** the parent record.
9	Change the status to **APPR**. Result: The parent and its children are changed to the APPR status. 

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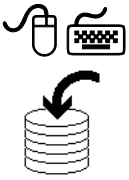
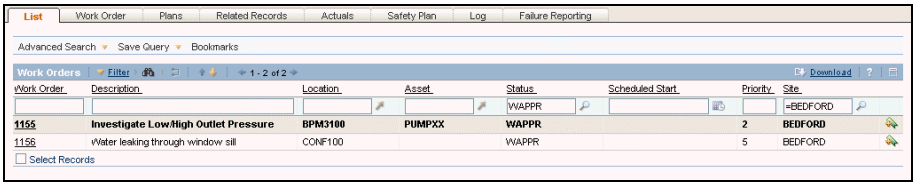
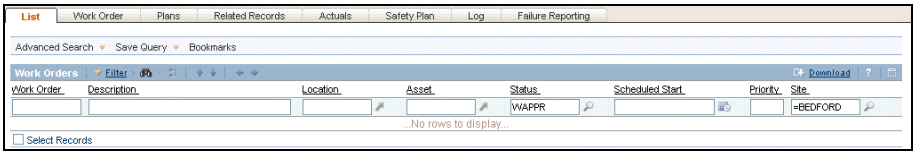
Work Plans continued

Work Plans List Approving #6



In this exercise, we will approve a list of work orders as group, instead of individually.

Step	Action
1	*Follow these steps if you are in a local computer environment* (if you are in a hosted environment, go to step 4): Click on the **List** tab and use **Advanced Search** to search for work orders that meet the following criteria: • A **Reported Date** range from 3 days ago to today's date • A WAPPR status • The WORKORDER **Class** Result: You should have retrieved the Water Leaking… and Investigate Low/High Outlet Pressure work orders. 
2	From the **Select Action** menu, change the status to **APPR**. Result: In the toolbar header, you will see a message that says the status change was successful and your result set list will be empty. 
3	Search for and retrieve your records and verify that their status and, if applicable, the status of the children is APPR.

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Work Plans continued

Work Plans List Approving #6 continued

Step	Action
4	*For a hosted environment:* Click on the **List** tab and use **Advanced Search** to search for work orders that meet the following criteria: • A **Reported Date** range from 3 days ago to today's date • A WAPPR status • The WORKORDER **Class** Result: You should have retrieved the *entire* class' Water Leaking... and Investigate Low/High Outlet Pressure work orders.
5	Click to select the **Select Records** check box.  Result: The Select Records column opens.
6	Click on your **Water Leaking…** and **Investigate Low/High Outlet Pressure** work orders and then change the status to **APPR**.
7	Search for and retrieve your records and verify that their status and, if applicable, the status of the children is APPR.

Work Hierarchies

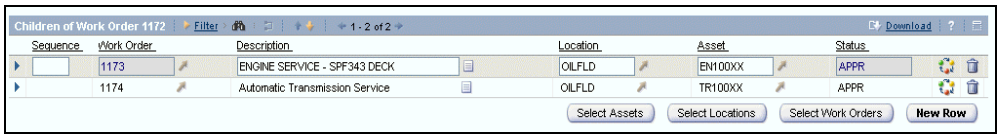
Introduction

As we discussed earlier, you can create a work order hierarchy in the following ways:

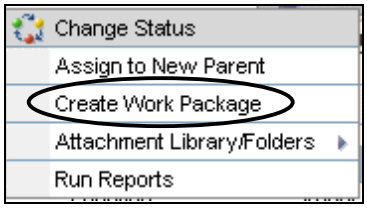
- From a PM record that has a PM hierarchy
- From a PM record with an associated route
- By using the Apply Route select action

You can also create work order hierarchies by:

- Inserting work orders in the Children table



- Using the Create Work Package select action



- Promoting a task to a child work order, by selecting an activity class work order from the work order list when clicking on the Select Work Orders button

Promotion of Task and Work Packages

If you promote a task to a child work order, the class of the work order will stay ACTIVITY and not change to WORKORDER. Also, if you select an activity class work order when creating a work order, the task will become a child work order but also will not change its class type—it will stay ACTIVITY.

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Work Hierarchies continued

Children WO Status

Unlike a work plan's tasks and resources, children work orders can be added to a work order with an Approved status. However an approved child work order cannot be deleted from an approved parent work order.

Building a Work Order Hierarchy on a Work Order

In this exercise we are going to build a work order hierarchy for a location that needs to be rebuilt after an electrical fire.

Step	Action
1	Change your profile so that **BEDFORD** is your default insert site.
2	Insert a new work order record. Write down your record number here: _____
3	Enter Restore Conference Room 100 in the **Description** field.
4	Enter the following information: **Field** — **Value** **Location** — CONF100 **Work Type** — CP **GL Account** — 6220-300-000 **Duration** — 52
5	Click on the **Plans** tab and expand the **Child Work Order** table.

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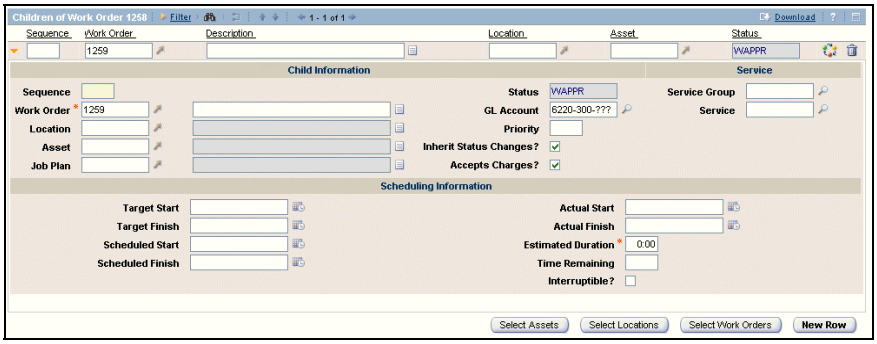
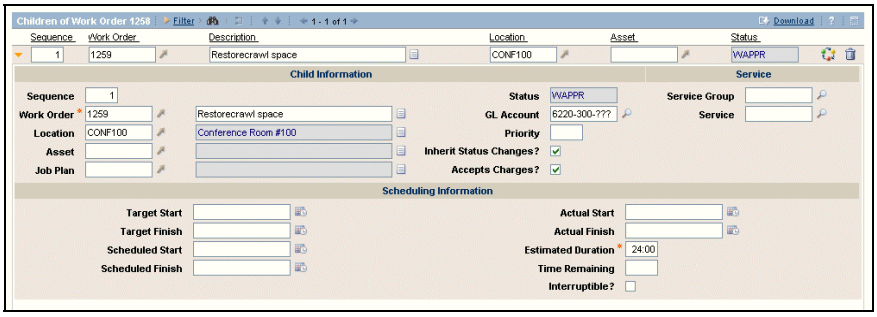
Work Hierarchies continued

Building a Work Order Hierarchy on a Work Order

continued

Step	Action
6	Click **New Row**. Result: Your screen should look like the one below. 
7	Enter Rebuild crawl space in the **Description** field.
8	Enter the following information: **Field** **Value** **Sequence** 1 **Location** CONF100 **Duration** 24 Result: Your screen should look like the one below. 

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Work Hierarchies continued

Building a Work Order Hierarchy on a Work Order continued

Step	Action
9	Click **New Row**, then enter the following information: **Field** — **Value** **Description** — Replace circulating fan **Sequence** — 2 **Location** — CONF100 **Duration** — 8
10	Click **New Row** again, then enter the following information: **Field** — **Value** **Description** — Replace the damaged ceiling tiles **Sequence** — 3 **Location** — CONF100 **Duration** — 8
11	Click **New Row** again, then enter the following information: **Field** — **Value** **Description** — Paint the walls and ceiling **Sequence** — 4 **Location** — CONF100 **Duration** — 8

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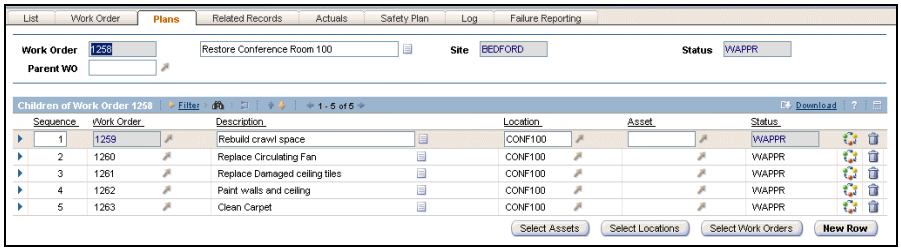
Work Hierarchies continued

Building a Work Order Hierarchy on a Work Order

continued

Step	Action
12	Click **New Row** again, then enter the following information: **Field** — **Value** **Description** — Clean the carpet **Sequence** — 5 **Location** — CONF100 **Duration** — 4
13	**Save** your work order. Result: Your screen should look like the one below. 

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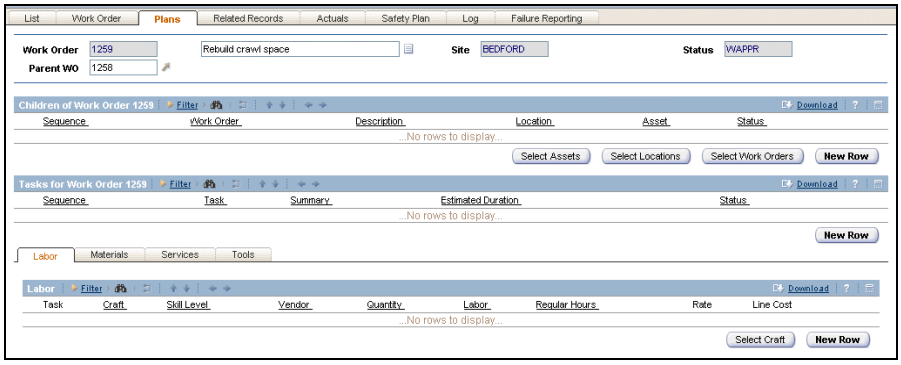
Work Hierarchies continued

Flashback: WMTL Status

Materials that are out of inventory stock or that are a direct issue will change a work order status to Waiting on Material (WMATL) and will generate a purchase requisition/order when storeroom reordering is initiated for a site.

Building a Work Plan

In this exercise we are going to build a work plan for the child work order: Rebuild crawl space.

Step	Action
1	Click on the **Rebuild crawl space Details** button and select **Move To**. Result: Your child record is moved to the Work Order field. 
2	Enter 6220-300-200 in the **GL Account** field on the **Work Order** tab.

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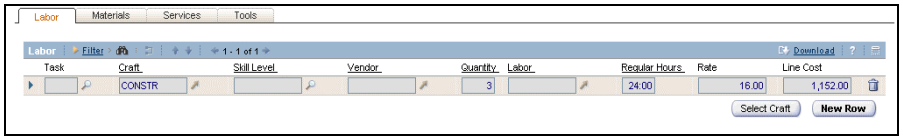
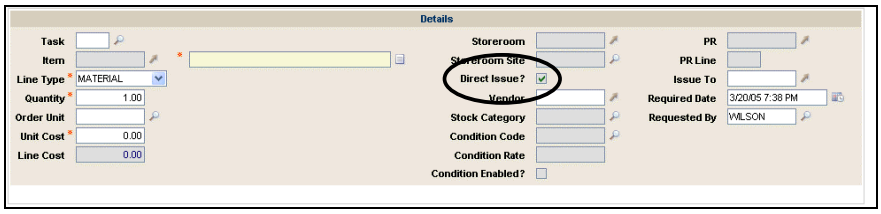
Work Hierarchies continued

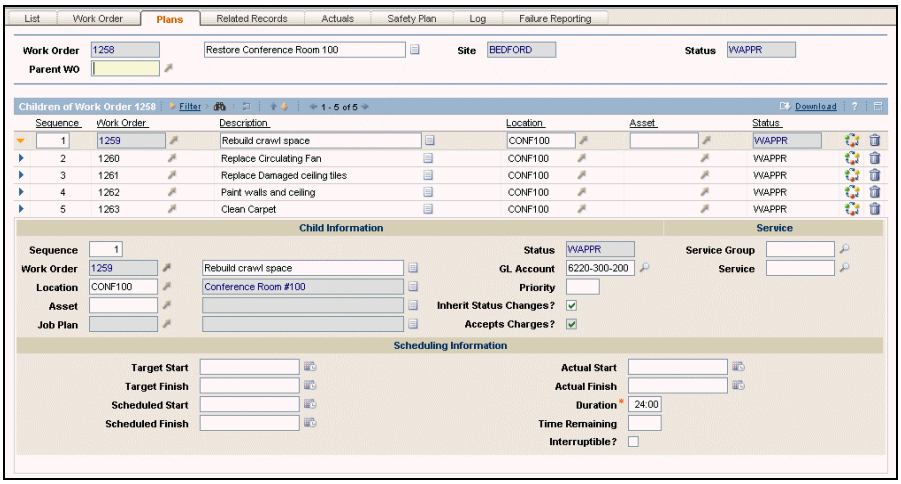
Building a Work Plan continued

Step	Action
3	On the **Labor** subtab of the **Plans** tab, insert a new row and enter the following information: **Field** — **Value** **Craft** — CONSTR **Quantity** — 3 Result: The Regular Hours field is defaulted with the work order's Duration hours. 
4	Click on the **Materials** subtab and insert a new row.
5	Enter MATERIAL in the **Line Type** field. Result: By selecting the MATERIAL line type, we have indicated that this is a direct purchase for the work order. 
6	Enter the following additional information: **Field** — **Value** **Description** — Dry Wall **Quantity** — 100 **Order Unit** — EACH **Unit Cost** — 10.00 **Vendor** — Helwig

continued on next page

Work Hierarchies continued

Building a Work Plan continued

Step	Action
7	**Save** your work order.
8	View the cost of this work order. What is the current estimated cost for labor?_____ What is the current estimated cost for material?_____
9	Move to the **Parent** work order. Result: Your screen should look like the one below. 

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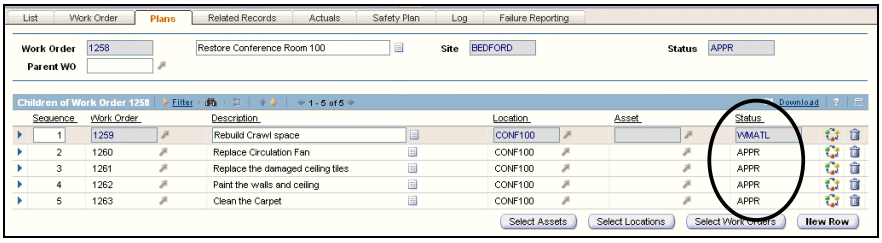
Work Hierarchies continued

Building a Work Plan continued

Step	Action
10	Change the status to **Approve**. Result: The first child work order in the sequence changed to WMATL because we entered a direct issued material, which will create a PO when the Site reorder routine is initiated.



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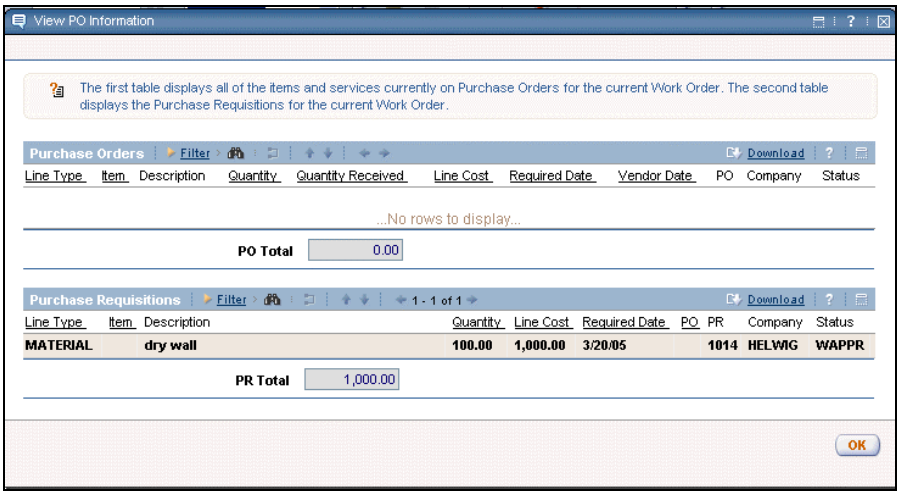
Work Hierarchies continued

Building a Work Plan continued

Step	Action
11	If the reorder routine was run for the BEDFORD site, you could view the Dry Wall work order PO information by promoting the work order to the top level and selecting the **View PO Information** action. Result: Your window would look similar to the one below.  What is another way you could tell if a PR/PO has been generated against this work order?_____

Chapter Summary

Plans Tab

The **Plans** tab is the main screen you use to build or modify work plan information.

On the Children Work Order table, you can associate children work orders to the work order. This table displays the following information about the child work order: Sequence Number, Work Order Number, Description, Location, Asset, and Status.

The Work Order Tasks window is where Maximo displays operational tasks. Information is carried over from a job plan or directly entered onto this table window. This table window displays the following information: Sequence, Task ID, Description, Duration, and Status.

Statusable Children and Tasks

Both the child and tasks have a Change Status button and a Detail button.

This allows children work orders to be planned and scheduled to a greater level of detail and autonomy.

It allows tasks to be scheduled independently of the work order.

Work Log Tab

The Log tab is used to document and view information about work that has taken place or will take place on the current work order.

The Log tab has two subtabs: Work Log and Communication Log.

You can use the **Work Log** tab to add work log entries for the current record, and to view work log entries for all originating and follow-up records for the current record. There are three work log types:

- CLIENTNOTE
- UPDATE
- WORK

You can use the **Communication Log** tab to view inbound and outbound communications for the current record, and to view any attachments that are associated with a communication. The Communication Log is read-only.

Select Action—Viewing Work Order Details

The **View** action allows you to view different aspects of the work order.

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Chapter Summary continued

Material Reservations

When users plan and use materials on work orders, several things can occur:

- Planned materials on a work order are reserved in inventory when the work order is approved.
- Material balances are decreased when materials are issued to a work order.
- Material balances increase when issued materials are returned.
- Materials that are out of inventory stock or that are a direct issue will change a work order status to Waiting on Material (WMATL) and will generate a purchase order when storeroom reordering is initiated for a site.

Viewing Material Availability and Reservations

To manage your materials planning activity, the Materials Detail button has a **View Item Availability** option with the following tabs:

- The Location tab allows you to view all the storerooms that carry this item.
- The All Lots tab allows you to view the lots and bins in which these items are located.
- The Purchasing tab allows you to view what purchase orders, purchase requisitions, and purchase contracts have been written against this item.
- The Alternate Items tab allows you to view what items are alternates for the one selected.
- The Reservations tab allows you to view what outstanding work orders have this item reserved, and the storeroom the reservation is against.

NOTES:

NOTES:

Work Management Using MXES

Chapter 8: Scheduling Work Assignments

In This Chapter

This chapter contains the following topics:

Chapter Overview

Introduction

This chapter focuses on the scheduling aspects of Maximo and the scheduling of work labor assignments using the Assignment Manager application.

Learning Objectives

After completing this chapter you should be able to:

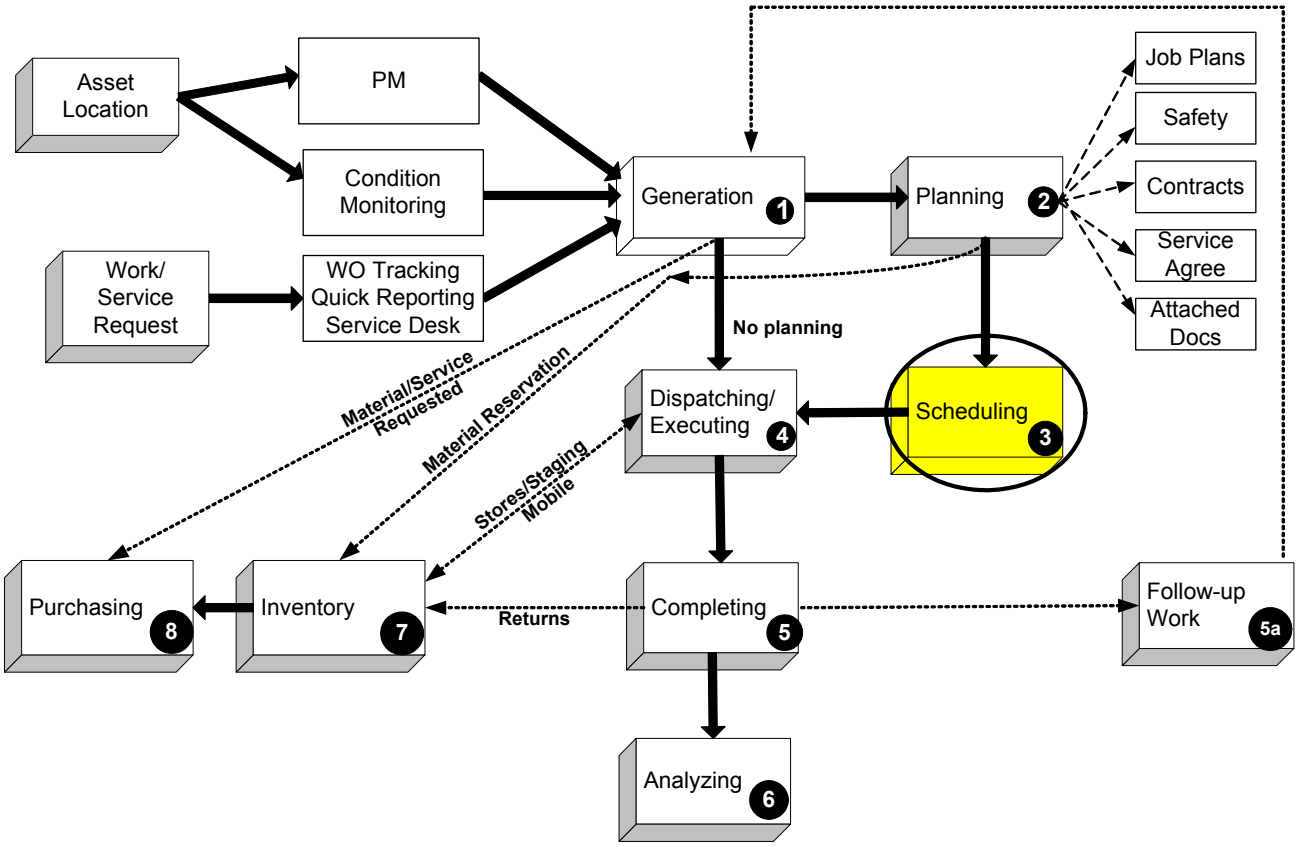
- discuss how Maximo determines scheduling dates,
- identify the actions on the Select Action menu,
- assign labor to a work requirement,
- assign work to another craft, and
- reassign or reschedule work.

continued on next page

Chapter Overview continued

You Are Here

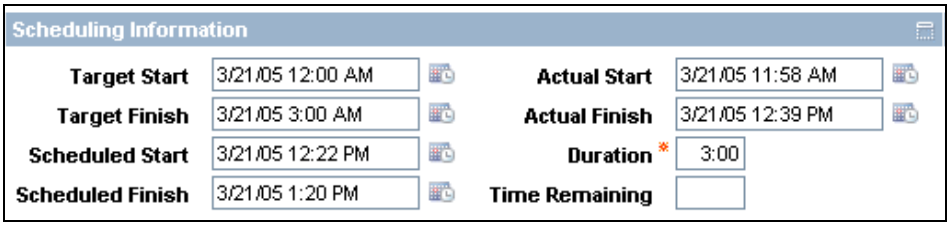
Scheduling data is drawn from the Scheduling Information table in the Work Order Tracking application and is used in Assignment Manager. Based on priority, backlog is ranked, with the highest-priority work being done first, and work and assignments are scheduled.



Scheduling Overview in Maximo

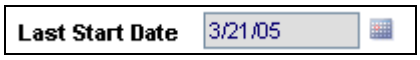
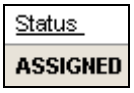
Introduction

On the Work Order tab, use the **Scheduling Information** table to view, enter, and modify scheduling criteria.



Field Definitions

The following table describes some of the fields in the Scheduling Information table:

Field	Description	Comments
Target Start	Assign dates for when the work order should be done	Date is pulled from the Preventive Maintenance application **Last Start Date** field. 
Target Finish	Target Start incremented by the Duration hours	Duration hours come from the Work Order application **Duration** field. Time is either manually entered or comes from the current job plan Duration. 
Scheduled Start	Assign dates for when the work can get done	Can be manual input or date comes from the Assignment Manager application, when labor is assigned (Status = ASSIGNED) to a work order with a scheduled work date. 
Scheduled Finish	Scheduled Start incremented by the Duration hours	Duration hours come from the Work Order application **Duration** field. Time is either manually entered or comes from the current Job Plan duration. 

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Scheduling Overview in Maximo continued

Field	Description	Comments
Actual Start	Post actual dates that the work was started	Dates come from the Work Order In Progress status (INPRG). When the first work assignment against a work order in Assignment Manager is started (Status = STARTED),  the work order status in the Work Order Tracking application will change to INPRG. 
Actual Finish	Post actual dates that the work was completed or closed	Dates come from the work order Complete (COMP) or Close (CLOSE) status. When the last work assignment against a work order in Assignment Manager is completed (Status = COMPLETE),  the work order status in the Work Order Tracking application will change to COMP  or CLOSE (depends on how Assignment Manager is set up). 

Assignment Manager Overview

Introduction

This section describes the Assignment Manager application and how it is used to help planners and dispatchers manage work based on labor requirements or labor availability. Assignment Manager allows you to assign specific individuals to short-term work orders (one day to one week).

Assignments

A work order is a request for work to be performed. The work might require that different tasks be performed, and might require the services of different laborers or crafts. Maximo creates a separate requirement for each task/labor combination listed on a work order's work plan. If two mechanics are required for a task, two requirements are created. Similarly, if two different crafts are required for a task, Maximo creates a requirement for each craft. After a labor (craft) requirement has been assigned to an appropriate laborer, it is considered an assignment. Assignments are made and managed in the Assignment Manager application.

Labor/Craft Requirements

Labor/craft requirements records can be created in the following applications:

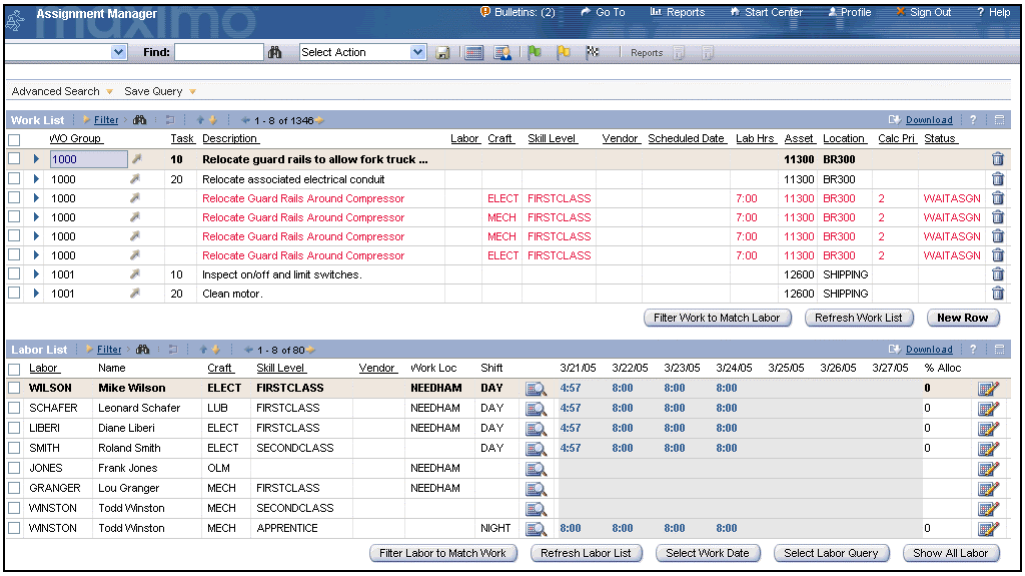
- Quick Reporting
- Work Order Tracking
- Change
- Release

continued on next page

Assignment Manager Overview continued

Assignment Manager Application

The Assignment Manager application allows you to assign labor to requirements from work orders; to plan future work; to start, interrupt, and finish assignments; and modify a laborer's availability. Use Assignment Manager for planning future work over a seven-day period, or to dispatch available labor to requirements for the current day's work. Workers can also use Assignment Manager to assign themselves to work.



Ways to Use Assignment Manager

The **Assignment Manager** application can be used by a variety of workers to assign labor to work orders:

- Planners can plan future assignments by labor availability over any seven-day period.
- Dispatchers can dispatch currently available workers to incoming work requests.
- Workers can assign themselves to open work requirements.

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Assignment Manager Overview continued

Considerations: Orgs/Sites

Work orders and labor transactions are managed at the site level in Multisite. However, when assigning labor to work orders, you should remember that labor records are at the organization level. If your company has laborers who work at more than one site, it is possible to assign them work at any site within their organization.

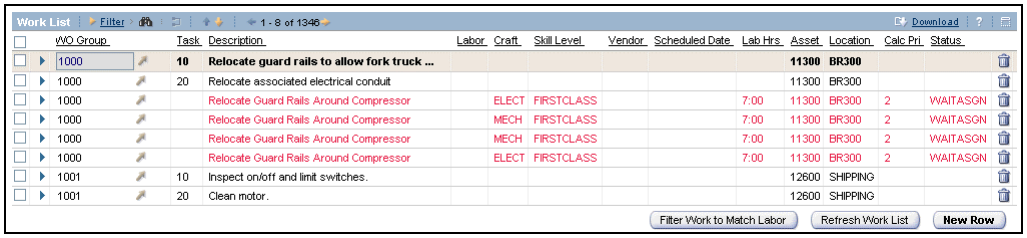
Considerations: Calendars

So that you can most effectively view and manage labor records in the Assignment Manager application, labor records should include a value in their **Calendar** and **Shift** fields.

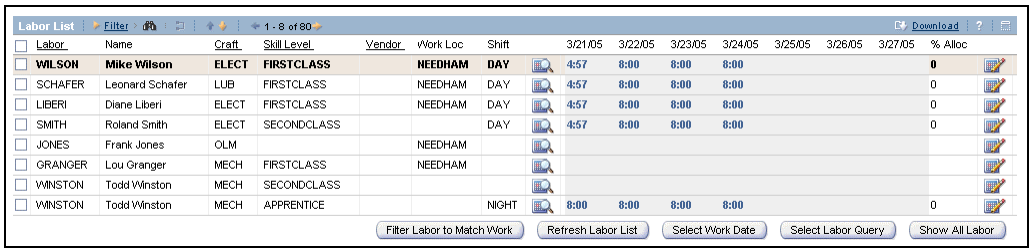
Assignment Manager Tables

The **Assignment Manager** application displays the following tables:

- **Work List**



- **Labor List**



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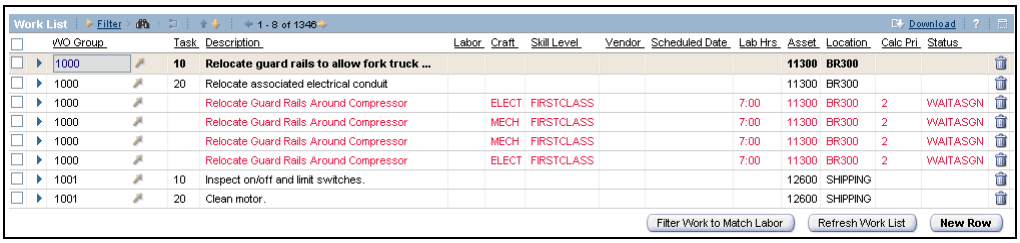
Assignment Manager Overview continued

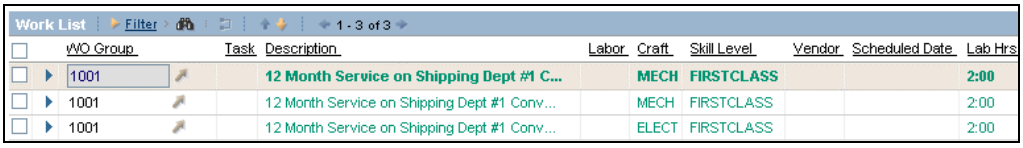
Work List Table

The **Work List** table displays requirements that Maximo automatically creates from a work order's work plan, plus any "unplanned" work orders. You also can add new requirements to the Work List on the Assignment Manager page by using the **New Row** button.



Work Orders and a Work Group

Maximo generates the assignments that you see in the Assignment Manager application from information that has been entered onto a work order. When a work plan is created for a work order, Maximo creates an assignment for *each* labor or craft requirement listed on the work plan. For example, if two mechanics are required for a task, two requirements are created. Similarly, if two different crafts are required for a task, Maximo creates a requirement for each craft. The WO Group column represents the relationship of the individual assignment to the work order.



If a work order does not have a defined work plan, Maximo still creates a requirement, where no Craft or Labor is indicated. You can still assign the requirement to an appropriate laborer. When the requirement is assigned, Maximo enters a default duration of one hour, which can then be modified as needed.

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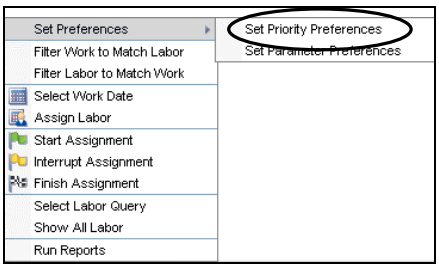
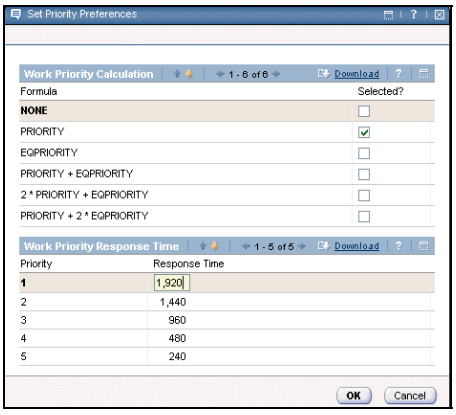
Assignment Manager Overview continued

Setting Priority Preferences

The formula Maximo uses to calculate work priority is defined using the **Set Priority Preferences** action.



When you select this action, Maximo displays the **Set Priority Preferences** dialog box.



- In the **Work Priority Calculation** table, indicate the work priority formula to use
- In the **Work Priority Response Time** table, indicate the time within which a response is required

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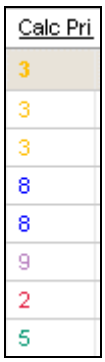
Assignment Manager Overview continued

Work List Priority Colors

To facilitate dispatching, the Work List is color coded to display work requirements by priority.



Note: By default, Maximo uses a range of five priorities when color-coding work requirements. Your system administrator can tailor the color choices and priority ranges to fit your business needs.

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Assignment Manager Overview continued

Work List Status Definitions

The Status column has six possible status actions.

Status	Description
Waiting for Assignment (WAITASGN)	Indicates that craft or labor was part of the work plan and is waiting for a labor assignment to be made.
Assigned (ASSIGNED)	Indicates that someone has assigned the work requirement to a laborer. If you delete the labor code for this assignment, the status reverts to WAITASGN.
Started (STARTED)	Indicates that the laborer has begun work on that assignment.
Interrupt (INTERPT)	Indicates that an assignment that a laborer had started was interrupted before the work was completed.
Complete (COMPLETE)	Indicates that the laborer finished the work assignment.
Blank	An empty Status field. This type of requirement comes from an unplanned work order. After you assign the requirement to a laborer, Maximo creates a new assignment with an ASSIGNED status.

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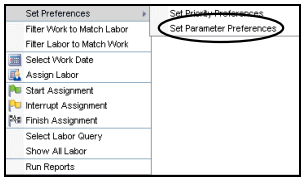
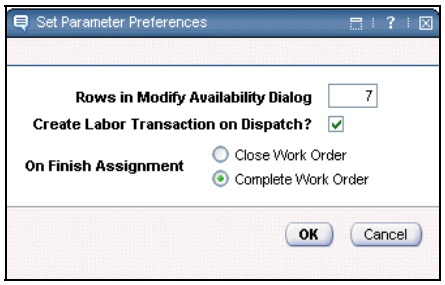
Assignment Manager Overview continued

Setting Parameter Options

To set certain transaction parameters, use the **Set Parameter Preferences** action.

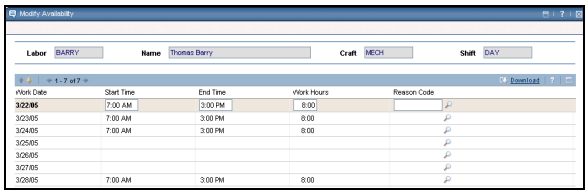


When you select this action, Maximo displays the **Set Parameter Preferences** dialog box.

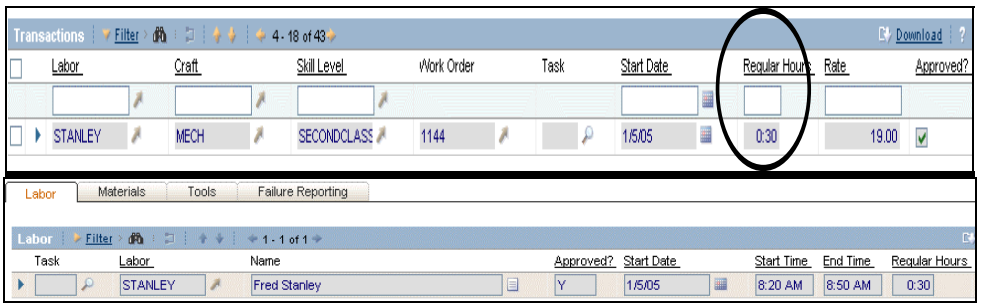


In this dialog box you can indicate:

- How many rows are displayed in the **Modify Availability** window



- Whether to create labor transactions (visible in the Labor Reporting application or Actuals Labor tab) upon the cumulative hours from the start to the finish of an assignment



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Assignment Manager Overview continued

Setting Parameter Options

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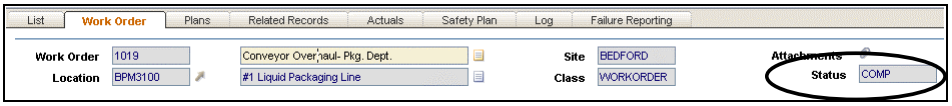
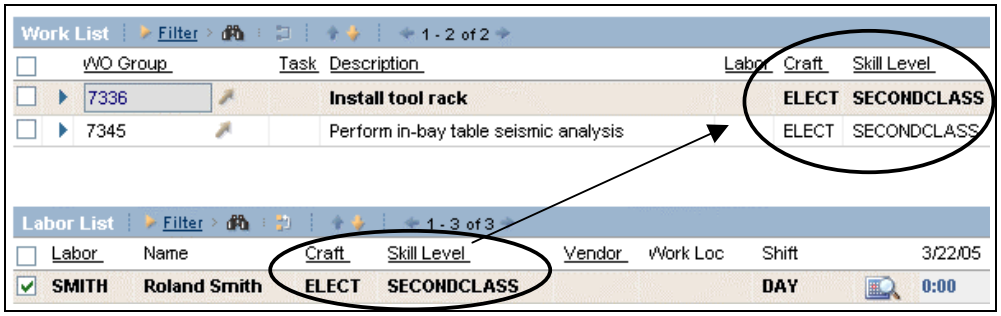
- Whether the work order **Status** field is changed to a Complete (COMP) or Close (CLOSE) status on the COMPLETE status of *all* assignments against that work order



Filtering Work to Match Labor

When assigning labor to work, you can filter the Work List to match the crafts, skill levels, vendors, contracts, and organizations on selected requirements to the crafts, skill levels, vendors, contracts, and organizations of the labor.



Refresh Work List

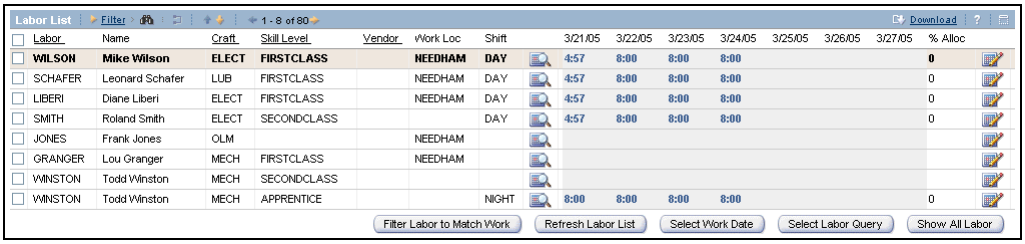
Use **Refresh Work List** to remove the filter options and redisplay the labor that matches the *current* query.

continued on next page

Assignment Manager Overview continued

Labor List

The **Labor List** displays either all labor in the database, or a filtered list of available labor codes, depending on whether someone selects a default labor query in the Labor application. To schedule labor codes, the labor record must have both a calendar and a shift specified on the labor record in the Labor application.



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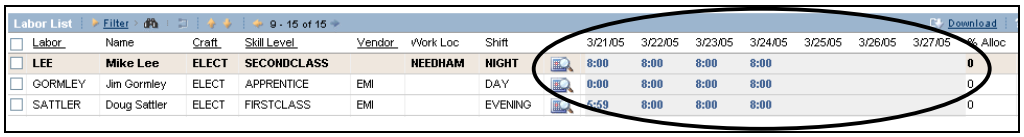
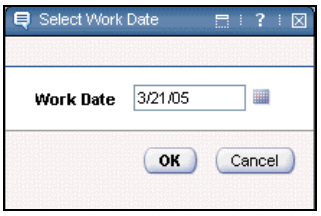
Assignment Manager Overview continued

Labor Availability

The right side of the Labor List contains a calendar grid, displaying workers' available hours over a seven-day range starting with the current date.

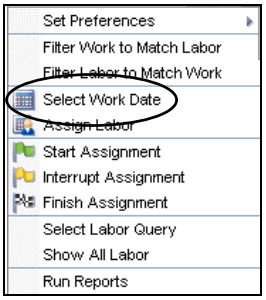


- If the laborer is available to be scheduled for work that day, there will be a numeric value displayed. A value of 0:00 indicates that the worker has no available hours in the shift.
- Empty fields indicate days that are designated as non-work days for the labor code's calendar (for example, weekends or holidays).
- As assignments are made, Maximo recalculates the available labor hours and will indicate utilization percentage in the **% Alloc** column.
- The **Select Work Date** dialog box allows you to change the date range displayed in the calendar grid.

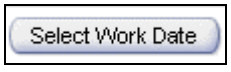


You can do this by:

- Selecting the **Select Work Date** action



- Clicking **Select Work Date**



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Assignment Manager Overview continued

Colors in the Labor List

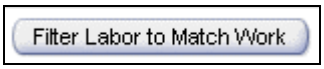
To facilitate assigning work to labor, the Labor List is color-coded using the following colors to indicate how a laborer's time has been scheduled:

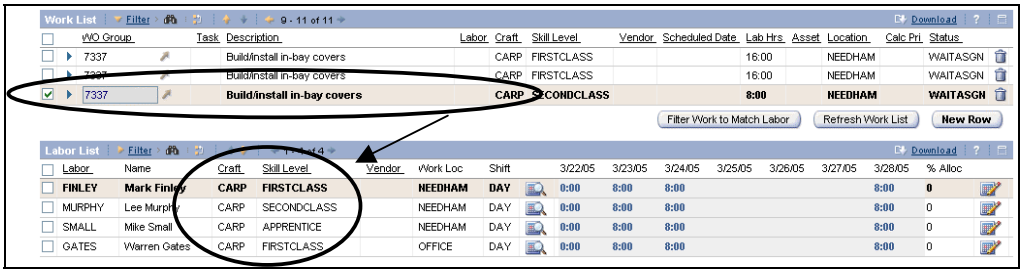
Color	Labor Hour Utilization
Red	Less than 50% utilized
Yellow	From 50–80% utilized
Green	More than 80% utilized

Note: Your system administrator can tailor the color choices to fit your business needs.

Filtering Labor to Match Work

When assigning labor to work orders, you can filter the Labor List table according to the crafts, skill levels, vendors, contracts, and organizations on selected work order requirements





When filtering labor to match work:

- For those work requirements that indicate the planned *top*-level skill set, Maximo will display all labor skill levels for that craft.
- For those work requirements that indicate the planned *lowest*-level skill set, Maximo will display only those labor skill levels at that level.

continued on next page

Assignment Manager Overview continued

Refresh Labor List

Use **Refresh Labor List** to remove the filter options and redisplay the labor that matches the current query.

Show All Labor

Use **Show All Labor** to display all labor in the database instead of only a filtered labor list. Show All Labor overrides the default saved labor query.

Select Labor Query

The Labor List table displays either the labor records or a filtered list of labor records based on the saved default query (if one exists) in the Labor application.

Deleting Assignments

Deleting an assignment will remove the work requirement (the task and labor/craft) from both the work order and the database. You should delete assignments *only* when the task and labor code are not required for the work order.

Scheduling Work Assignments

Introduction

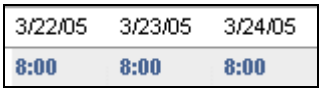
In this section, we will plan future work assignments and assign labor to craft requirements.

Assigning Work to Laborer

After you have selected one or more requirements from the Work List,

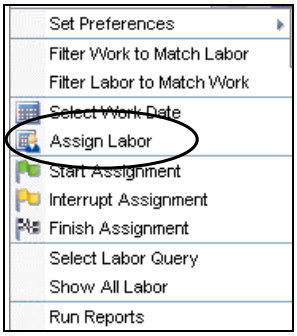
there are three ways to assign the work to a laborer:

- Click on the date with available hours in the laborer's calendar in the Labor List.



- Click on the labor code, then click **Assign Labor** in the toolbar.

- Click on the labor code, then select **Assign Labor** from the Select Action menu.



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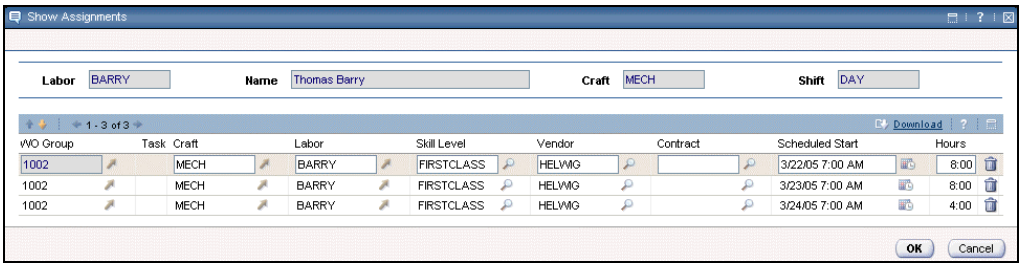
Scheduling Work Assignments continued

Viewing Work Assignments

You can view work assigned to a laborer by clicking the **Show Assignments** button for the labor code.

The **Show Assignments** dialog box displays work assigned to the laborer over the seven-day range currently displayed in the Labor List calendar grid.



From the **Show Assignments** dialog box you can:

- Reschedule an assignment by changing the Scheduled date
- Reassign an assignment by changing the Labor code
- Un-assign the assignment by clearing the Labor code
- Delete the assignment from the laborer by using the Mark for Delete button

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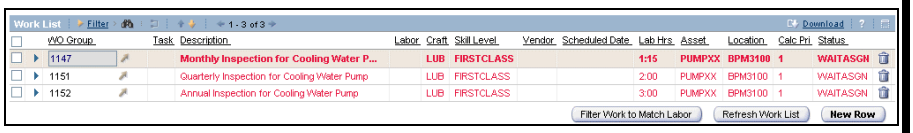
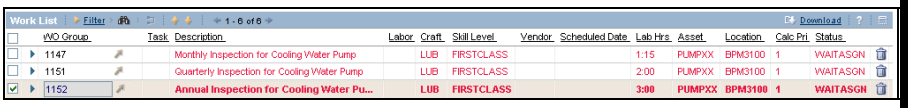
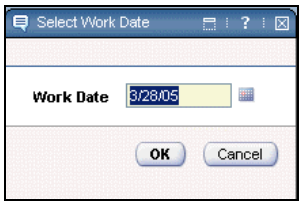
Scheduling Work Assignments continued

Exercise #1: Assigning Work

In this exercise we are going to make an assignment against a work order record that has WAITASGN status.

Step	Action
1	In the **Assignment Manager** application, use **Advanced Search** to search for work records that match the following criteria: **Field** — **Criteria** **Asset** — *XX* (what your record identifier is) **Assignment Status** — WAITASGN **Is Task?** — NO Result: Your Work List should look similar to the one below. 
2	Select your **Annual Inspection for Water Cooling Pump** record. Result: Your Work List should look similar to the one below. 
3	From the toolbar, click **Select Work Date**.  Result: The Select Work Date dialog box opens. 

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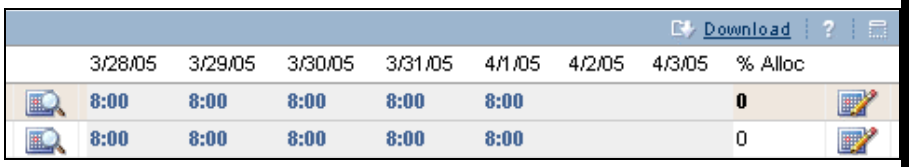
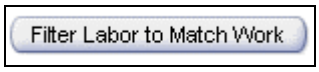
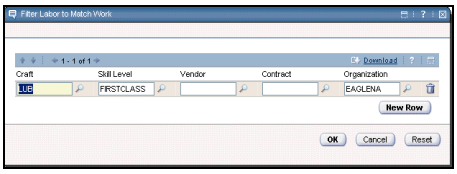
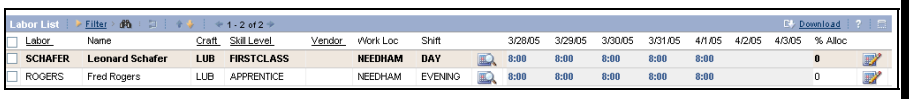
Scheduling Work Assignments continued

Exercise #1: Assigning Work continued

Step	Action
4	Enter a date one or two weeks out into the future, and then click **OK**. Result: Your grid should extend seven days out from your work date. Note: We are going out several weeks because, in a hosted environment, everyone is picking the same date. This will make it easier to see what the assignment schedule looks like. 
5	In the Labor List, click the **Filter Labor to Match Work** button.  Result: The Filter Labor to Match Work dialog box opens. 
6	Accept the default, and click on **OK**. Result: Your Labor List should look like the one below. 
7	Select **SCHAFER** by clicking on the **Select Record** check box.

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Scheduling Work Assignments continued

Exercise #1: Assigning Work continued

Step	Action
8	Remember, there are two ways you can assign labor: • Click the **Select Labor** box and then click the **Assign Labor** button.  • Click the labor's work date hours.  Choose one of these methods to assign **Schafer** to the **Monday** of your work week. Result: Schafer's hours on that date are reduced by 3 and his allocation % is indicated.  The Work Assignment Status is ASSIGNED. Our work list will not show this record because the current query is for Waiting for Assignments.

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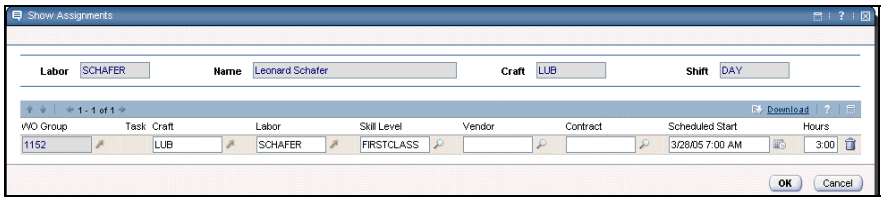
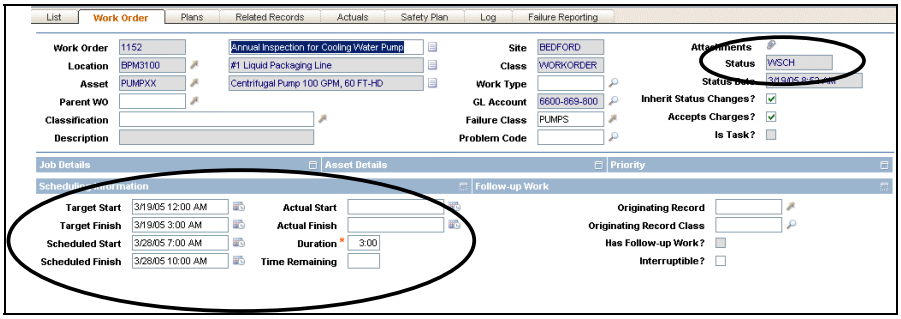
Scheduling Work Assignments continued

Exercise #1: Assigning Work continued

Step	Action
9	Rather than doing another search for this record to verify that this assignment was made, click **Show Assignments** for **Schafer** to view his assignments.  Result: The Show Assignments window displays all of Schafer's current assignments with a schedule start date and time. Note: If you are in a hosted environment, other work records might be displayed. 
10	For your work order record, click on the **Detail** menu and select **Go To Work Order Tracking**. Result: You are brought to the Work Order Tracking application. Notice that the Scheduled Start and Scheduled Finish fields are populated. Also notice that the status is WSCH. 

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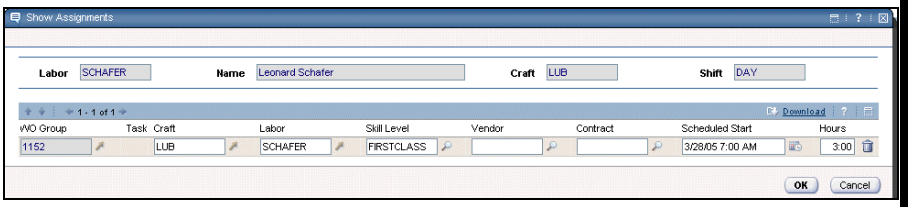
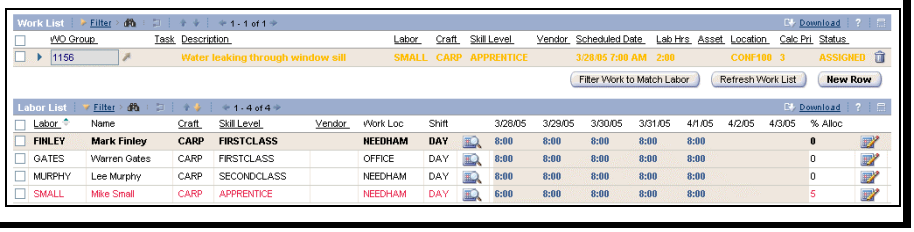
Scheduling Work Assignments continued

Exercise #1: Assigning Work continued

Step	Action
11	In the upper right-hand corner, click **Return**. Result: You are brought back to the Show Assignments window. 
12	Click **OK**.

Exercise #2: Assigning Work

In this exercise we will retrieve and assign labor to a work order.

Step	Action
1	Search for and retrieve your work record for the **window sill leak**.
2	Assign an **Apprentice**-level carpenter to do the work next week. Result: With the exception of the dates, your screen should look like the one below. 

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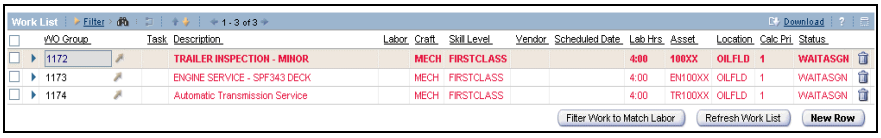
Scheduling Work Assignments continued

Exercise #3: Assigning Labor to Multiple Work Records

In this exercise we are going to assign labor to multiple work records.

Step	Action
1	Using **Advanced Search**, search for work records that match the following criteria: **Field** — **Criteria** **Assignment Status** — WAITASGN **Is Task?** — NO **Asset** — *XX* (what your record identifier is) **Site** — FLEET Result: Your Work List should look similar to the one below. Note: In a hosted environment, you might receive other students' work records. 
2	Select one of the work orders by clicking on the **Select Record** box.

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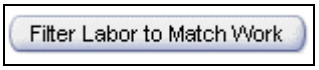
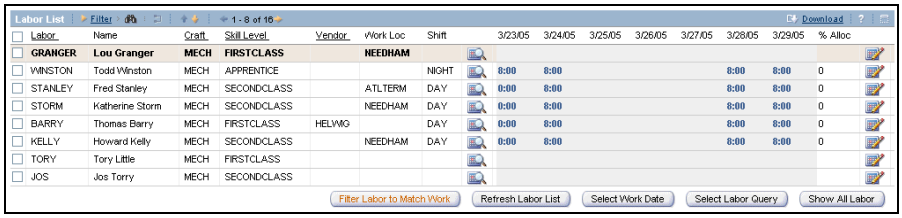
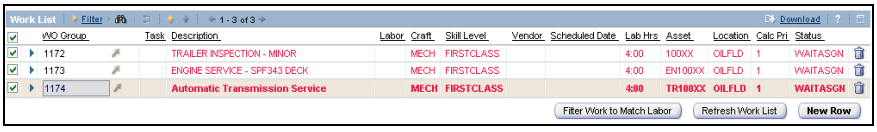
Scheduling Work Assignments continued

Exercise #3: Assigning Labor to Multiple Work Records continued

Step	Action
3	Click **Filter Labor to Match Work**.  Result: Your Labor List should look similar to the one below. 
4	Select all of your work records. Result: Your screen should look similar to the one below. 

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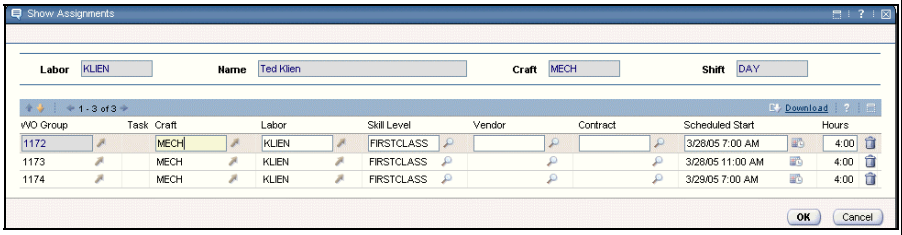
Scheduling Work Assignments continued

Exercise #3: Assigning Labor to Multiple Work Records continued

Step	Action
5	Search and assign **Ted Klien** to do the work one day out into the future on your grid. Result: Ted Klien's assignment grid should look similar to the one below and your work order should no longer be visible in the work list. Because there is a calendar and shift associated to Klien, his work hours, which totaled 12 hours, extended beyond his 8-hour work shift and into the following day. 
6	View Ted's assignments. Result: Your Show Assignments window should look similar to the one below. Note: If you are in a hosted environment, there might be other work records displayed. 

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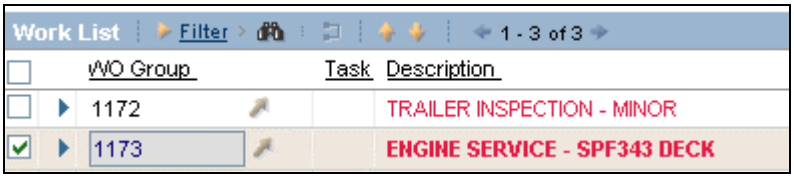
Scheduling Work Assignments continued

Exercise #4: Reassignment

In this exercise we are going to reassign labor to the work record.

Step	Action
1	Use **Advanced Search** to search for work records that match the following criteria: **Field** — **Criteria** **Assignment Status** — ASSIGNED **Is Task?** — NO **Asset** — XX (what your record identifier is) **Site** — FLEET Result: Your work records should look like the example below.
2	To un-assign Klien from one of his work assignments and reassign the work to another labor, select the **Engine Service** work record. Result: The Engine Service work record is selected.

Description	Labor	Craft	Skill Level	Vendor	Scheduled Date	Lab Hrs	Asset	Location	Calc Pri	Status
TRAILER INSPECTION - MINOR	KLIEN	MECH	FIRSTCLASS		3/28/05 7:00 AM	4:00	100XX	OILFLD	1	ASSIGNED
ENGINE SERVICE - SPF343 DECK	KLIEN	MECH	FIRSTCLASS		3/28/05 11:00 AM	4:00	EN100XX	OILFLD	1	ASSIGNED
Automatic Transmission Service	KLIEN	MECH	FIRSTCLASS		3/29/05 7:00 AM	4:00	TR100XX	OILFLD	1	ASSIGNED



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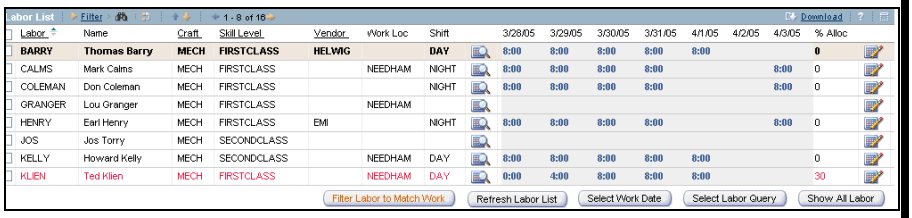
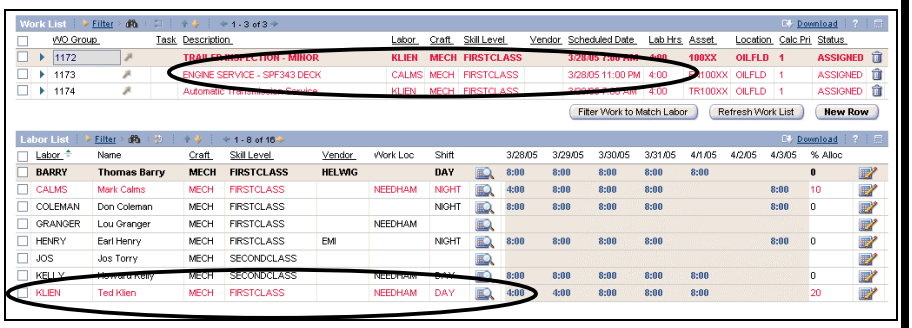
Scheduling Work Assignments continued

Exercise #4: Reassignment continued

Step	Action
3	Click **Filter Labor to Match Work**. Result: Your Labor List displays a result set. 
4	Select Mark Calms's record, and then click **Assign Labor**.  Result: Mark Calms is now assigned the work and Ted Klien's work hours are restored. 

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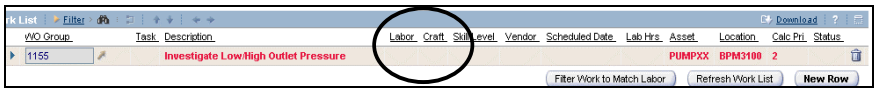
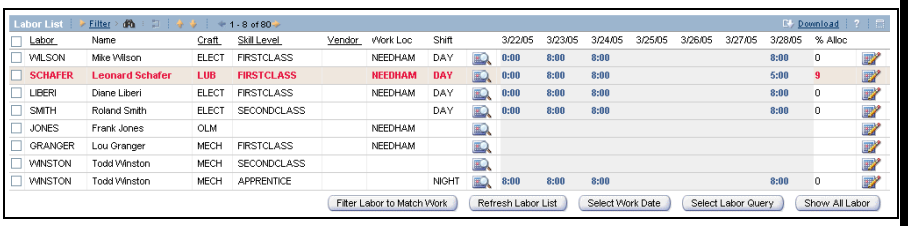
Scheduling Work Assignments continued

Exercise #5: Assigning Unplanned Labor

In this exercise we are going to make an assignment to a work record that does not have any Planned Labor or Craft.

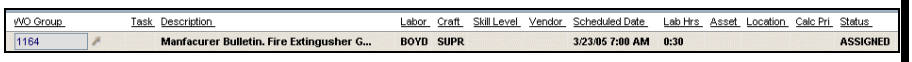
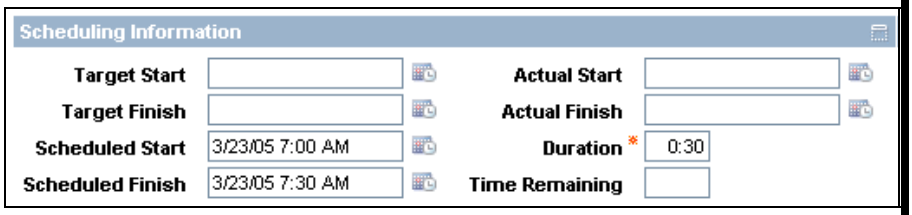
Step	Action
1	Retrieve your **Investigate Low/High Outlet Pressure** work record. Result: The work record does not have any craft or labor planned, nor is there an assignment status. 
2	Click **Show All Labor**.  Result: The Labor List is refreshed with all labor in the database. 
3	Assign **Bill Lewis** to do this work next week for **2** hours. Result: Your work record should look similar to the one below. 

continued on next page

Scheduling Work Assignments continued

Exercise #6: Assignment to a Work Order Hierarchy

In this example, we are going to make a work assignment to the parent of a work hierarchy of the fire extinguisher inspection route.

Step	Action
1	Search for and retrieve the record for the **parent** level of the work record **Manufacturer bulletin. Fire Extinguisher Gauge**.
2	Assign **Scott Boyd** to do the work next week for **30** minutes. Result: Your work record should look similar to the one below 
3	Click on this record's **Detail** menu and **Go to Work Order Tracking**. Result: You are brought to the Work Order Tracking application. Notice the Scheduled Start and Scheduled Finish dates.  Why are there no dates in the **Target Start/Finish** fields? _____
4	Click on the **Plans** tab and view the **Details** of one of the children work orders. • Are there scheduling dates indicated on the child?_____ • Should there be?_____ • When will scheduling dates be indicated?_____ • In which fields?_____ • Why?_____
5	Return to **Assignment Manager**.

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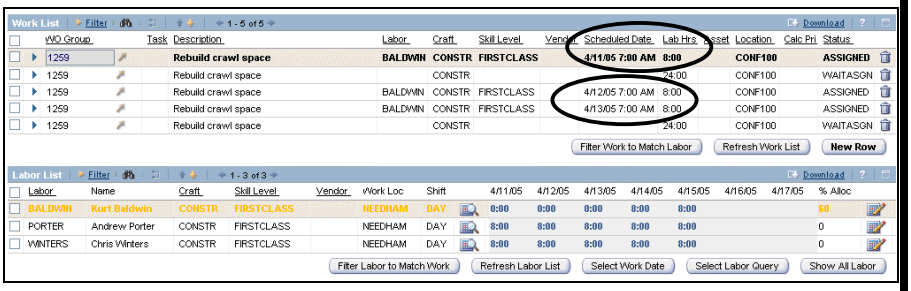
Scheduling Work Assignments continued

Exercise #7: Modifying Craft Requirements

In this exercise, we will search for and retrieve the "Rebuilding the crawl space" record and assign a different craft than the ones planned for.

Step	Action
1	Search for and retrieve your work record for **Rebuilding the crawl space** and assign **Kurt Baldwin** to the first **24-hour** work assignment. Result: Kurt Baldwin is assigned this work assignment, which spans three 8-hour shifts.  We are left with two 24-hour work totals. 

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Scheduling Work Assignments continued

Exercise #7: Modifying Craft Requirements continued

Step	Action
2	• We could assign Baldwin to the next 24-work assignment, which would continue into the following work week, OR • We could distribute the remaining 48 hours to other laborers, including Baldwin.
3	Click on the second work record with **WAITASGN** and assign **Mark Finley**. Result: Mark Finley is given this work assignment, which spans three 8-hour shifts.
4	Assign the last **WAITASGN** work record to **Mike Small**. Result: Mike Small is given this work assignment, which spans three 8-hour shifts.

WO Group	Task	Description	Labor	Craft	Skill Level	Vendor	Scheduled Date	Lab Hrs
1259		**Rebuild crawl space**	**BALDWIN**	**CONSTR**	**FIRSTCLASS**		**4/11/05 7:00 AM**	**8:00**
1259		Rebuild crawl space	FINLEY	CARP	FIRSTCLASS		4/11/05 7:00 AM	8:00
1259		Rebuild crawl space	BALDWIN	CONSTR	FIRSTCLASS		4/12/05 7:00 AM	8:00
1259		Rebuild crawl space	BALDWIN	CONSTR	FIRSTCLASS		4/13/05 7:00 AM	8:00
1259		Rebuild crawl space	FINLEY	CARP	FIRSTCLASS		4/12/05 7:00 AM	8:00
1259		Rebuild crawl space	FINLEY	CARP	FIRSTCLASS		4/13/05 7:00 AM	8:00

continued on next page

Scheduling Work Assignments continued

Exercise #7: Modifying Craft Requirements continued

Step	Action
5	Click on the **Scheduled Date** to list the dates in order. Result: Your assignments and dates should be in order by date.
6	On Baldwin's second and third day of work, replace him with **Lee Murphy**, a second-class carpenter. Result: Your work list should look similar to the one below.

Labor	Craft	Skill Level	Vendor	Scheduled Date
BALDWIN	**CONSTR**	**FIRSTCLASS**		**4/11/05 7:00 AM**
FINLEY	CARP	FIRSTCLASS		4/11/05 7:00 AM
SMALL	CARP	APPRENTICE		4/11/05 7:00 AM
BALDWIN	CONSTR	FIRSTCLASS		4/12/05 7:00 AM
FINLEY	CARP	FIRSTCLASS		4/12/05 7:00 AM
SMALL	CARP	APPRENTICE		4/12/05 7:00 AM
BALDWIN	CONSTR	FIRSTCLASS		4/13/05 7:00 AM
SMALL	CARP	APPRENTICE		4/13/05 7:00 AM

Labor	Craft	Skill Level	Vendor	Scheduled Date	Lab Hrs
BALDWIN	**CONSTR**	**FIRSTCLASS**		**4/11/05 7:00 AM**	**8:00**
FINLEY	CARP	FIRSTCLASS		4/11/05 7:00 AM	8:00
SMALL	CARP	APPRENTICE		4/11/05 7:00 AM	8:00
MURPHY	CARP	SECONDCLASS		4/12/05 7:00 AM	8:00
FINLEY	CARP	FIRSTCLASS		4/12/05 7:00 AM	8:00
SMALL	CARP	APPRENTICE		4/12/05 7:00 AM	8:00
MURPHY	CARP	SECONDCLASS		4/13/05 7:00 AM	8:00
SMALL	CARP	APPRENTICE		4/13/05 7:00 AM	8:00

Chapter Summary

Scheduling Information Table

On the Work Order tab, use the **Scheduling Information** table to view, enter, and modify scheduling criteria.

Assignments

A work order is a request for work to be performed. The work might require that different tasks be performed, and might require the services of different laborers or crafts. Maximo creates a separate requirement for each task/labor combination listed on a work order's work plan. If two mechanics are required for a task, two requirements are created. Similarly, if two different crafts are required for a task, Maximo creates a requirement for each craft. After a labor (craft) requirement has been assigned to an appropriate laborer, it is considered an assignment. Assignments are made and managed in the Assignment Manager application.

Labor/Craft Requirements

Labor/craft requirements records can be created in the following applications:

- Quick Reporting
- Work Order Tracking
- Change
- Release

Assignment Manager Application

The Assignment Manager application allows you to assign labor to requirements from work orders; to plan future work; to start, interrupt, and finish assignments; and modify a laborer's availability. Use Assignment Manager for planning future work over a seven-day period, or to dispatch available labor to requirements for the current day's work. Workers can also use Assignment Manager to assign themselves to work.

continued on next page

Chapter Summary continued

Ways to Use Assignment Manager

The **Assignment Manager** application can be used by a variety of workers to assign labor to work orders:

- Planners can plan future assignments by labor availability over any seven-day period.
- Dispatchers can dispatch currently available workers to incoming work requests.
- Workers can assign themselves to open work requirements.

Considerations: Orgs/Sites

Work orders and labor transactions are managed at the site level in Multisite. However, when assigning labor to work orders, you should remember that labor records are at the organization level. If your company has laborers who work at more than one site, it is possible to assign them work at any site within their organization.

Considerations: Calendars

So that you can most effectively view and manage labor records in the Assignment Manager application, labor records should include a value in their **Calendar** and **Shift** fields.

NOTES:

NOTES:

Work Management Using MXES

Chapter 9: Dispatching and Executing Work Assignments

In This Chapter

This chapter contains the following topics:

Chapter Overview

Introduction

This chapter will focus on the dispatching and execution of work.

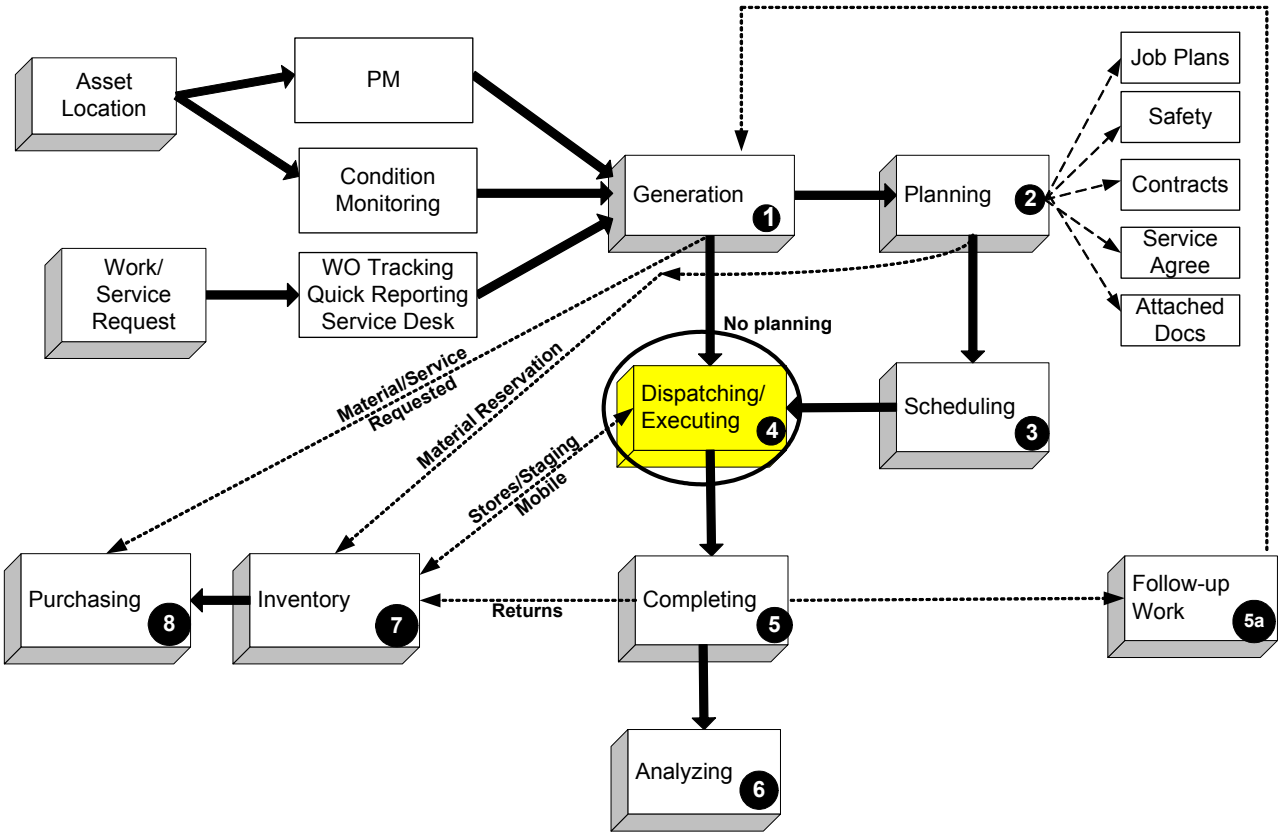
Learning Objectives

After completing this chapter you should be able to:

- issue materials to a work order using the Issues and Transfers application,
- initiate a work order,
- start a work assignment, and
- interrupt a work assignment.

You Are Here

After work assignments are scheduled, work orders are printed and then dispatched to the staff, indicating that the work is in progress (INPRG).



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Chapter Overview continued

Work Activities

In this chapter, the work activities that follow will be to:

- have reserved materials issued to the work order from the storeroom, and
- physically start the actual work assignment.

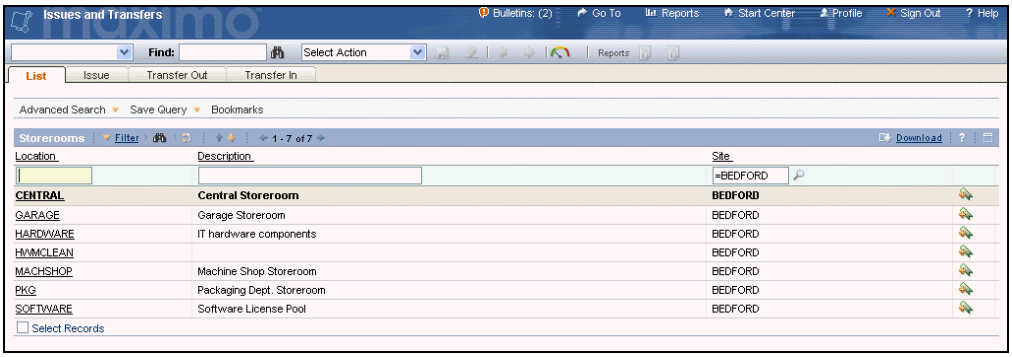
Setting the Work in Progress

Introduction

After work has been approved, work orders are printed and distributed among the staff. Materials can be kitted and issued to workers, or workers can draw materials from an open storeroom; the materials can then be reported on by direct entry into Maximo. In this section, we will use the Issues and Transfers application to issue materials to the work order.

Issues and Transfers Application

Use the **Issues and Transfers** application to issue or transfer stock from one location to another. You can issue items directly to a work order, location, or asset, or against a general ledger account code. When material is issued to a work order, the material is moved from the storeroom where it is located to the work order.



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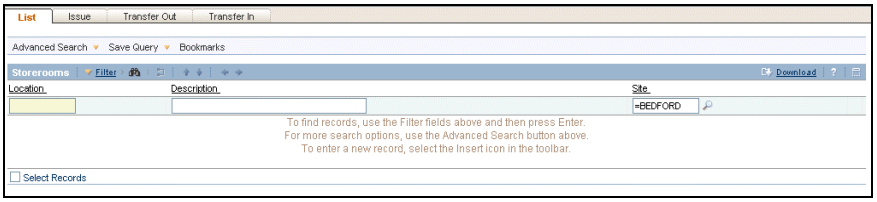
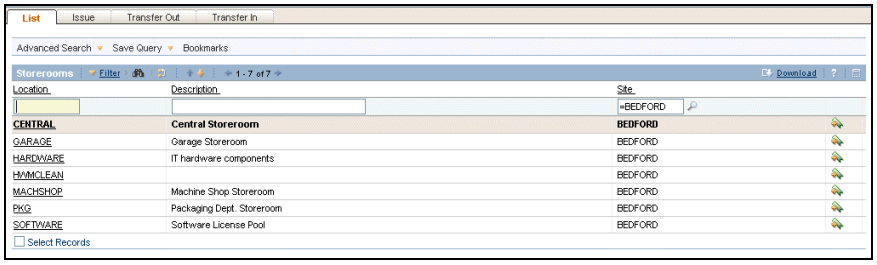
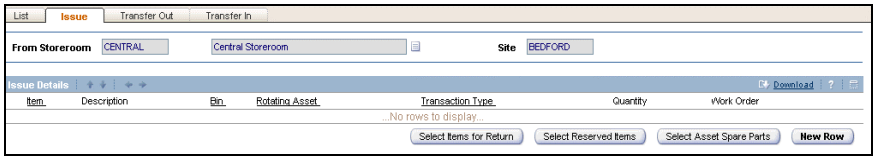
Setting the Work in Progress continued

Issue Items to a Work Order

In this exercise, we issue items from the storeroom to the Annual Inspection work order.

Step	Action
1	Go to the **Issues and Transfers** application. Result: Your List tab should look like the one below. 
2	Press **Enter**. Result: Your result set should look similar to the example below. 
3	Click **CENTRAL**. Result: Maximo displays the Issues tab. 

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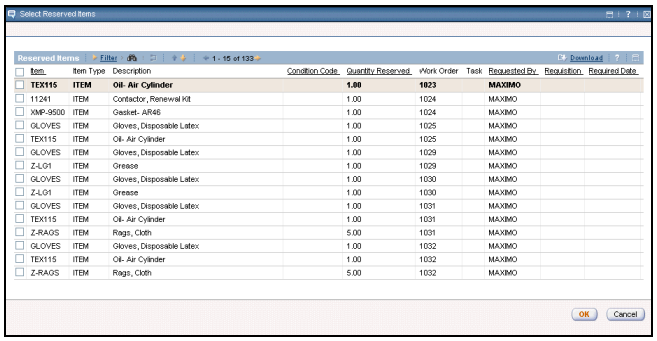
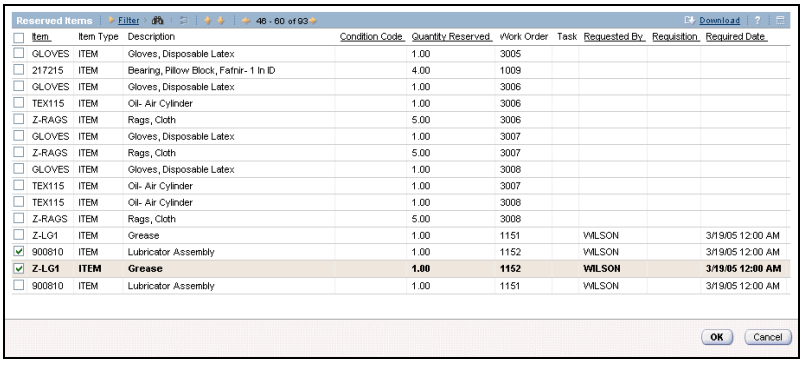
Setting the Work in Progress continued

Issue Items to a Work Order continued

Step	Action
4	Click **Select Reserved Items**.  Result: Maximo displays a list of items reserved for approved work orders. 
5	Search for your items on the **Annual Inspection for Water Cooling Pump** work order by the work order number. Click on the **Select** box for each item (**Grease** and **Lubricator Assembly**). Result: Both items should be selected, as shown below. Your items might not be on the same screen; you might have to select one item and then scroll down through the list to locate the other. 

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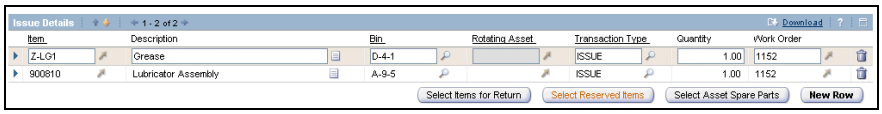
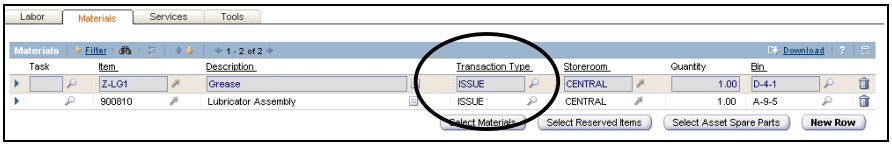
Setting the Work in Progress continued

Issue Items to a Work Order continued

Step	Action
6	Click **OK**. Result: Your Issue table window should look like the one below. 
7	**Save** your record.
8	To verify that items have been issued, open the **Work Order Tracking** application and search for your record.
9	Click on the **Materials** subtab on the **Actuals** tab. Result: Your items have been transferred. 

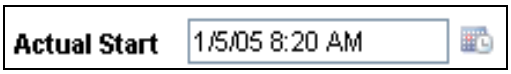
Dispatching and Executing Work Overview

Introduction

In this section we are going to automatically change the work order status to INPRG by using the Assignment Manager application and the Work Order Tracking application.

Flashback: INPRG Status and Actual Start Times

As we learned earlier, the **Actual Start** field is date- and time-populated on a status change to INPRG.



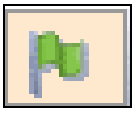
Field	Description	Comments
Actual Start	Post actual dates that the work was started	Dates come from the Work Order In Progress status (INPRG). When the first work assignment against a work order in Assignment Manager is started (Status = STARTED),  the work order status will change to INPRG. 

Dispatching and Executing

In Maximo there are several ways to indicate that the physical work has begun with an INPRG status. You can:

- Manually change the status in the Work Order Tracking or Quick Reporting applications by clicking **Change Status**

- Start a work assignment in the Assignment Manager application by clicking **Start Assignment**



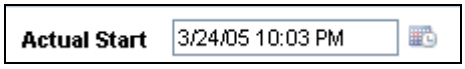
Manual In-Progress (INPRG) Status Change

Introduction

In this section, we will manually start the work to an INPRG status.

Status Change

In this exercise, we will change the status to INPRG using the Work Order Tracking application.

Step	Action
1	With your work order record for the **Annual Water Pump** still on the screen, change the status to **INPRG**. Result: The status is changed and the Actual Start field has been populated with today's date and time.
2	Click on the **Work Order** tab. Result: Your Actual Start field should be populated with today's date and time.  Under what condition(s) will the **Actual Finish** field be populated? _____ Are there any costs associated with this work order? _____ What is the Current Estimate Total Cost? _____ What is the Estimate at Approval Total Cost? _____ What is the Actual Total Cost? _____

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Manual In-Progress (INPRG) Status Change continued

Exercise

In Chapter 6, you used the Quick Reporting application to generate a work order record, “Live wire - pole 300 oak and third st.” To indicate that this work has started, do you need to change the status to INPRG? Why or why not?

Starting Work Using Assignment Manager

Introduction

In this section, we use the Assignment Manager application to automatically change the work order status to INPRG.

Dispatch Function Overview

After a requirement has been assigned to a laborer, you can use the Assignment Manager application's dispatch functions to indicate when work on the assignment has been started, interrupted, and finished. The procedures for dispatching work are similar to those for planning future work, but the work is assigned to the current shift (by default, the first date in the calendar grid) rather than to future shifts.

Dispatch	Description
Start Assignment 	Use the Start Assignment action to indicate that work has been started on an assignment. By default, Maximo will begin recording labor actuals for an assignment after its status has been changed to STARTED.
Interrupt Assignment 	Use the Interrupt Assignment action when an assignment with a status of STARTED needs to be stopped for any reason. When you interrupt an assignment, Maximo logs a labor transaction for the completed portion of the work, then modifies the assignment, assigning a status of INTERPT to the remaining work hours.
Finish Assignment 	Use the Finish Assignment action to indicate that work on an assignment has been completed. Maximo stops recording labor actuals after an assignment's status is changed to COMPLETE. Assignment statuses are linked to the work order that contains the work requirement. When the *last* assignment for a work order has been completed, Maximo changes the status of the work order to COMP or CLOSE.

Assignment Manager starts the labor time clock for an assignment as soon as you click the **Start Assignment** button. You can start an assignment only if it has a status of Assigned.

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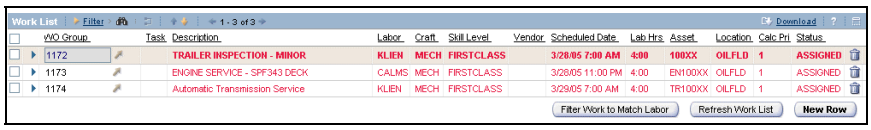
Starting Work Using Assignment Manager continued

If a work order currently has a status of INPRG, you can still start the assignment and record the labor of the labor transaction. While the status of the assignment will change to Start, there will be no effect on the work order Actual Start time.

Exercise #1: Starting an Assignment

In this exercise we will change the work order status to INPRG by starting an assignment in Assignment Manager.

Step	Action
1	Open the **Assignment Manager** application. Using **Advanced Search**, retrieve your records using the following search criteria: **Field** — **Value** **Assignment Status** — ASSIGN **Location** — FLEET **Asset** — XX Result: Your work list should look like the one below. 
2	For the **Trailer Inspection – Minor** work record, select Klien's first assignment work record, then click **Start**.  Result: The Status field is changed to STARTED and can be removed from your work list. 

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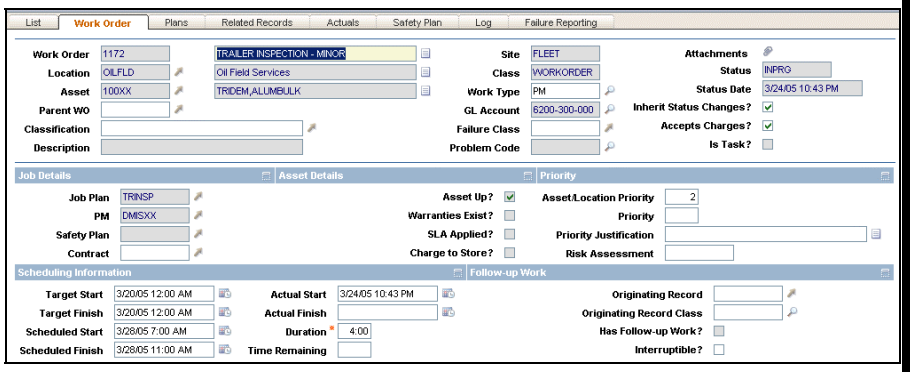
Starting Work Using Assignment Manager continued

Starting an Assignment continued

Step	Action
3	Retrieve this work record and, using the **Detail** button, go to the **Work Order Tracking** application. Result: The work order status is changed to INPRG and the Actual Start field is populated with today's date and time. 
4	Return to **Assignment Manager**.

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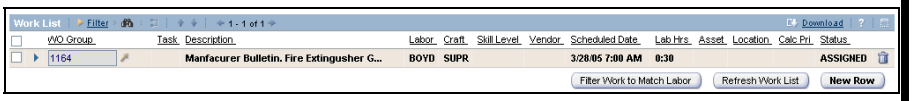
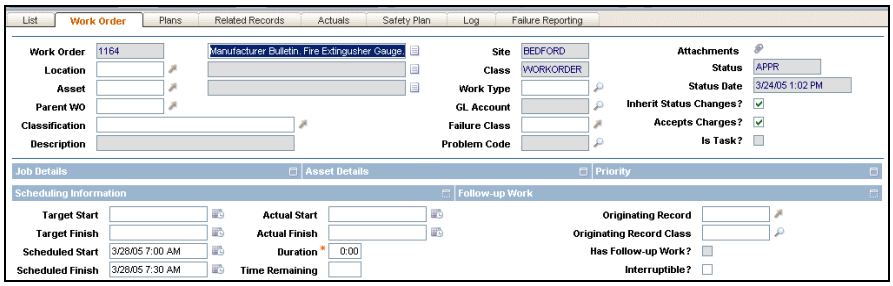
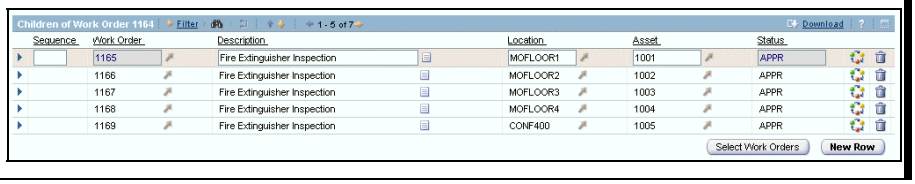
Starting Work Using Assignment Manager continued

Exercise #2: Starting an Assignment

In this exercise we will start the assignment for the fire extinguisher gauge check.

Step	Action
1	Retrieve your **Manufacturer Bulletin. Fire Extinguisher Gauge. Inspect for corrosion** work record. Result: Your Work List should look like the one below. 
2	Click this work record's **Detail** button and go to the **Work Order Tracking** application. Result: Notice that the Actual Start field is not populated. 
3	Click on the **Plans** tab and expand the **Children's Work Order** table. Result: Notice that all the children work orders have an APPR status. 

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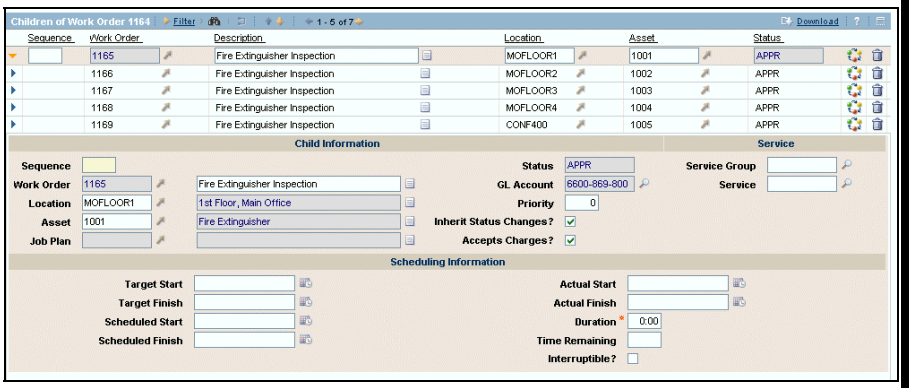
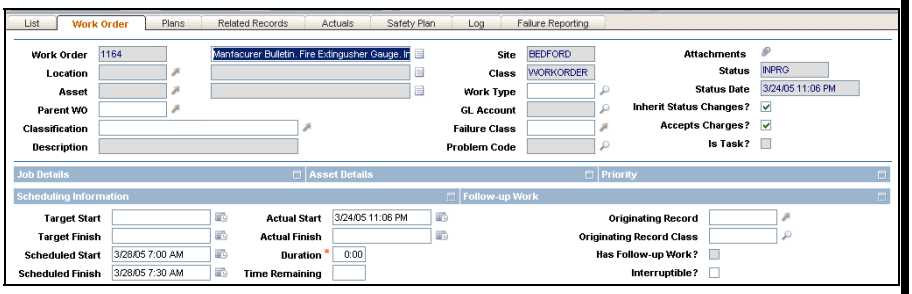
Starting Work Using Assignment Manager continued

Exercise #2: Starting an Assignment continued

Step	Action
4	Click one of the children work orders' **View Details** button. Result: The child row expands. Notice that there is no date in the Actual Start field. 
5	Start Klien's assignment for this work record.
6	For this record, go to the **Work Order Tracking** application. Result: Notice that the status is changed to INPRG and the actual start time is indicated.  Did the children work orders' status change? _____ Actual start time? _____
7	Return to **Assignment Manager**.

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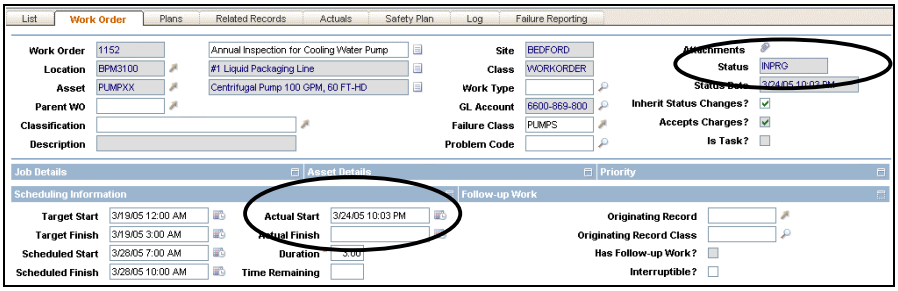
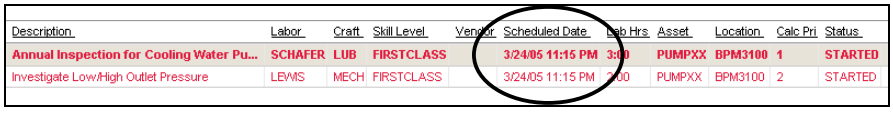
Starting Work Using Assignment Manager continued

Starting Multiple Assignments

Start an assignment with an INPRG status already indicated. Retrieve the annual pump and window sill work orders.

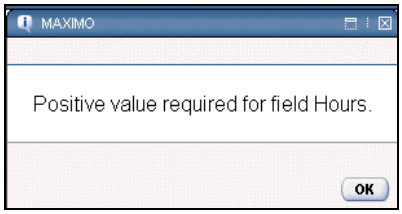
Step	Action
1	Retrieve your work records for **Annual Inspection** and **Investigate Low/High**. Select one of the work records and go to the **Work Order Tracking** application. Result: The status of the work order is already INPRG and the Actual Start time is indicated. 
2	Return to **Assignment Manager** and select both work records. Result: Your Work List should look like the one below. 
3	Click the **Start Assignment** button. Result: The status for both work assignments has changed to STARTED. Note the time. 
4	Select one of the work records and go to the **Work Order Tracking** application. Result: The Actual Start time was not affected by the start of the assignment.
5	Return to **Assignment Manager**.

Interrupting an Assignment

Introduction

Assignment Manager lets you stop the labor time clock when a laborer has begun a job and must interrupt it before completing the assignment. You can interrupt assignments only if they have a status of STARTED. When you interrupt an assignment, Maximo changes the status to INTERPT, stops the labor time clock, logs a labor transaction for the completed portion of the work, and displays the hours necessary to complete the assignment.

Note: You cannot interrupt an assignment if the clocked hours amount is greater than the assigned labor hours. Maximo will display a message indicating that positive hours are required.



Restarting an Interrupted Assignment

If you want to restart a work requirement that has been interrupted, you must assign labor to the work requirement and then start the assignment.

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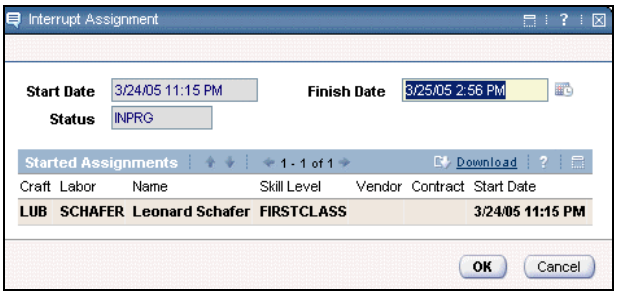
Interrupting an Assignment continued

Interrupting an Assignment

In this exercise, we will interrupt an assignment.

Step	Action
1	Select the **Annual Inspection** work record and then click the **Interrupt Assignment** button.  Result: The Interrupt Assignment dialog box opens. 
2	Click **OK**. Result: The status of the work assignment is changed to INTERPT and Leonard Schafer is removed from the assignment. Maximo calculates the time remaining for the assignment. Inspection for Cooling Water Pump | | LUB | FIRSTCLASS | | 3/25/05 3:06 PM | 2:60 | PUMPXX | BPM3100 | 1 | INTERPT
3	To restart the work assignment, search for the Lubricator Apprentice, **Fred Rogers**, and assign him to this work. Result: Your work assignment should look similar to the one below. Inspection for Cooling Water Pump | ROGERS | LUB | APPRENTICE | | 3/28/05 3:00 PM | 2:60 | PUMPXX | BPM3100 | 1 | ASSIGNED
4	**Start** the assignment.

continued on next page

Interrupting an Assignment continued

Interrupting Multiple Assignments

You can interrupt multiple assignments by selecting all the work records and then clicking the **Interrupt** button.

Chapter Summary

In-Progress Work

After work has been approved, work orders are printed and distributed among the staff. Materials can be kitted and issued to workers, or workers can draw materials from an open storeroom; the materials can then be reported on by direct entry into Maximo.

Issues and Transfers Application

Use the **Issues and Transfers** application to issue or transfer stock from one location to another. You can issue items directly to a work order, location, or asset, or against a general ledger account code. When material is issued to a work order, the material is moved from the storeroom where it is located to the work order.

Dispatch Function Overview and Assignment Manager

After a requirement has been assigned to a laborer, you can use the Assignment Manager application's dispatch functions to indicate when work on the assignment has been started, interrupted, and finished. The procedures for dispatching work are similar to those for planning future work, but the work is assigned to the current shift (by default, the first date in the calendar grid) rather than to future shifts.

Interrupting an Assignment

Assignment Manager lets you stop the labor time clock when a laborer has begun a job and must interrupt it before completing the assignment. You can interrupt assignments only if they have a status of STARTED. When you interrupt an assignment, Maximo changes the status to INTERPT, stops the labor time clock, logs a labor transaction for the completed portion of the work, and displays the hours necessary to complete the assignment.

NOTES:

Work Management Using MXES

Chapter 10: Completing Work

In This Chapter

This chapter contains the following topics:

Chapter Overview

Introduction

One of the last stages in the work order lifecycle is to complete and close the work order to history. This section will look at the activities involved in this stage.

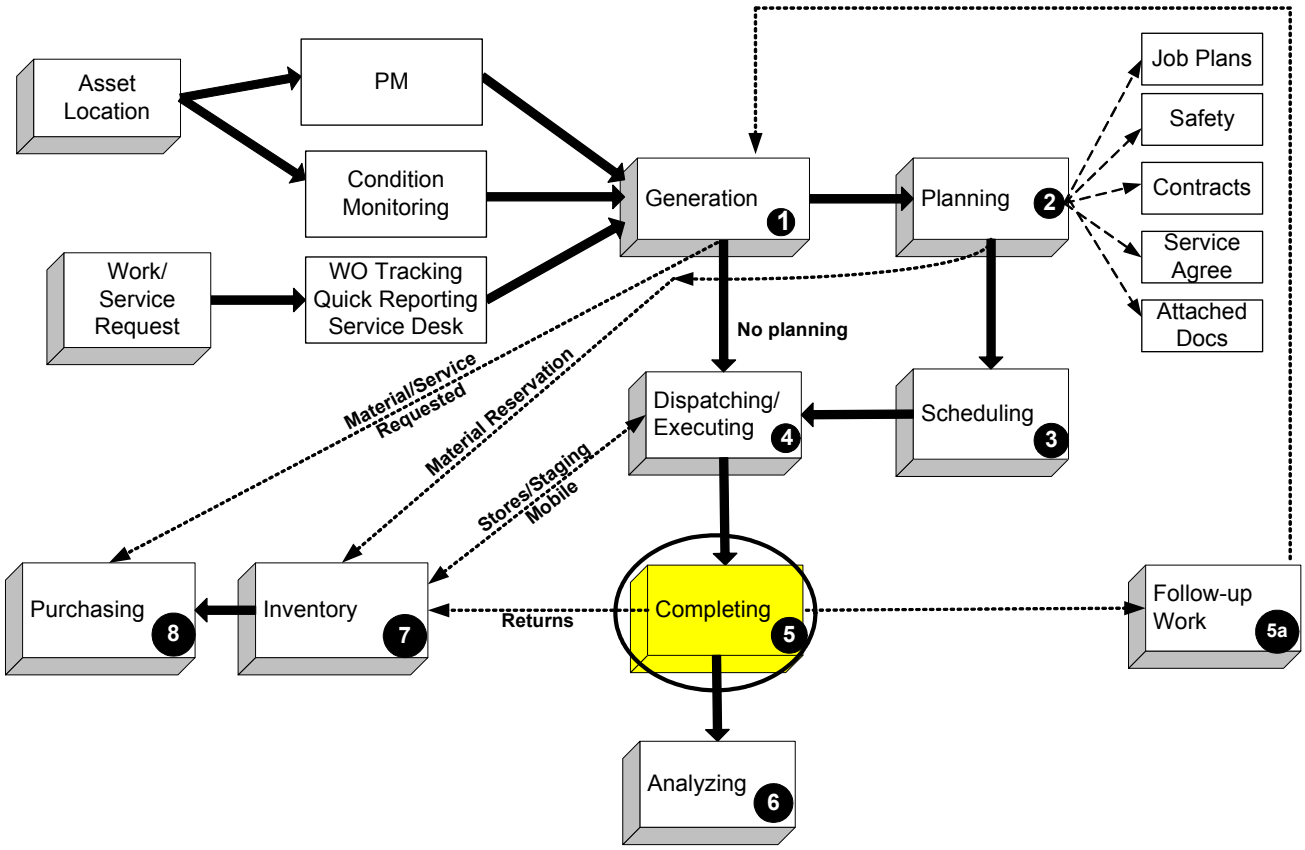
Learning Objectives

When you have completed this chapter, you should be able to:

- record labor and materials usage,
- report failure information, and
- return unused materials to inventory.

You Are Here

Throughout this chapter, we will record the actual work.



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Chapter Overview continued

Work Activities

In this chapter, work activities include:

- Finishing the work and reporting on resource usage
- Returning unused items

Completing the Work and Reporting Actuals Overview

Introduction

As we learned earlier, good work management practices include not only the planning of the work, but also the reporting of who, what, where, when, and why—called *actuals* in Maximo. The following table shows the actuals you can report on and the applications in which you can do so.

Actual to Be Reported On	Where It Can Be Entered
Labor	• Labor Reporting • Work Order Tracking Actuals tab • Assignment Manager
Materials	• Work Order Tracking Actuals tab • Quick Reporting
Tools	• Work Order Tracking Actuals tab • Quick Reporting
Failures	• Work Order Tracking Failure Reporting tab • Quick Reporting
Meters	• Work Order Tracking Select Action • Quick Reporting Select Action
Condition Measurement Points	• Work Order Tracking Actuals tab • Quick Reporting • Condition Monitoring
Downtime	• Work Order Tracking Select Action • Quick Reporting Select Action

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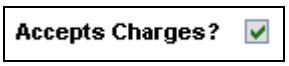
Completing the Work and Reporting Actuals Overview continued

Accepting Charges

Each work order record contains an Accepts Charges? check box, which indicates whether or not you can report actuals against the work order.



- If the check box is selected (the default), you can charge actuals against the work order.
- If the check box is cleared, you cannot enter charges against the work order. If the work order is a child work order and the check box is cleared, you report actuals against its parent work order.

Main Reporting Applications

The two main applications that can be used to report actuals against a work order are:

- Work Order Tracking
- Quick Reporting

Review: COMPLETE and CLOSE Statuses

Maximo has two statuses for a work order that indicate the work has been finished and the results reported:

- Completed (COMP)
- Closed (CLOSE)

A description of each of these statuses is provided in the table below.

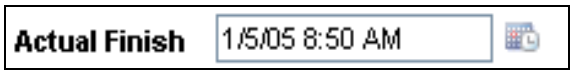
Status	Description
Completed (COMP)	Use the COMP status when the *physical* work is done. The electronic work order record is still editable by authorized people. Reporting on actuals can be done when in this status.
Closed (CLOSE)	Use the CLOSE status when the *electronic* work is done. A work order can be closed when the work is finished *in Maximo*. A closed work order becomes a history record and can be modified only by using the **Edit Work Order History** action.

continued on next page

Completing the Work and Reporting Actuals Overview continued

Flashback: COMPLETE Status and Actual Finish Time

As we learned earlier, the **Actual Finish** field is date- and time-populated on a status change to COMP or CLOSE.



Field	Description	Comments
Actual Finish	Post actual dates that the work was completed or closed	Dates come from the work order Complete (COMP) or Close (CLOSE) status. When the last work assignment against a work order in Assignment Manager is completed (Status = COMPLETE),  the work order status will change to COMP or CLOSE (depends on how Assignment Manager is set up).  

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Completing the Work and Reporting Actuals Overview continued

Ways to Indicate a COMP Status on the Work Order

In Maximo there are several ways to indicate that the physical work has been completed with a COMPLETE status.

- You can manually change the status in the Work Order Tracking or Quick Reporting applications by clicking **Change Status**.

- You can complete a work assignment in the Assignment Manager application by clicking **Complete Assignment**.

Ways to Indicate a CLOSE Status

In Maximo there are several ways to indicate that the physical work has been completed with a CLOSE status.

- You can manually change the status in the Work Order Tracking or Quick Reporting applications by clicking **Change Status**.

- You can complete a work assignment in the Assignment Manager application by having set your preference to Close on a finished assignment, so that when you click the **Complete Assignment** button, it will put a CLOSE status on the work order instead of a COMP status.

Reporting Actuals Using Work Order Tracking

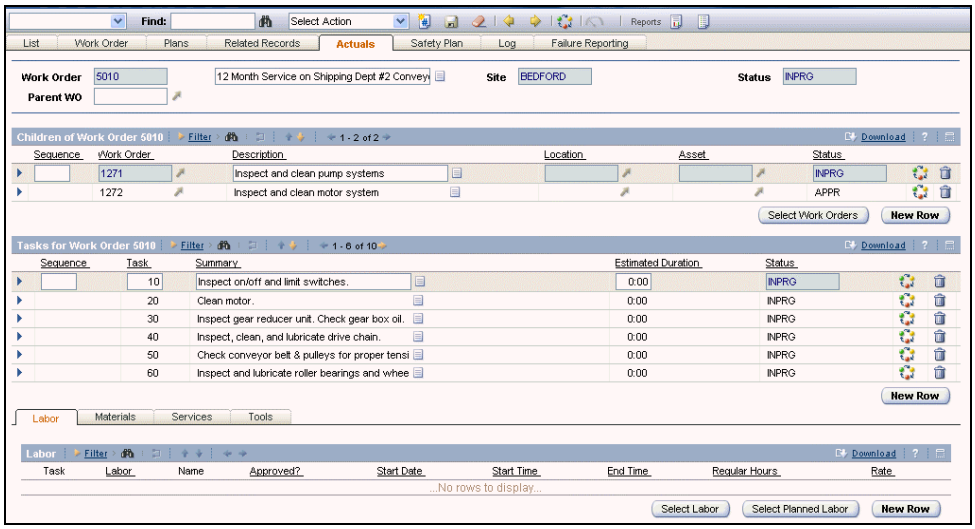
Introduction

In this section we will use Work Order Tracking to record actual labor, materials, and meter readings.

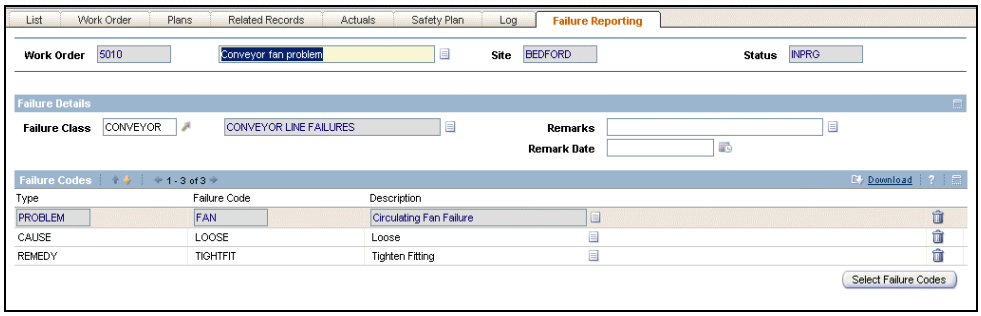
Work Order Tracking and Reporting Actuals

As we learned earlier in the course, the two tabs that are used for most work reporting are:

- **Actuals**



- **Failure Reporting**



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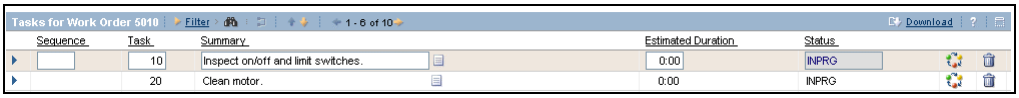
Reporting Actuals Using Work Order Tracking continued

Actuals Tab

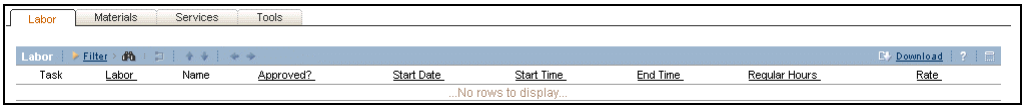
Like the **Plan**s tab, the **Actuals** tab has three sections:

- **Children Work Order**

- **Tasks**



- **Resource subtabs: Labor, Materials, Services, Tools**



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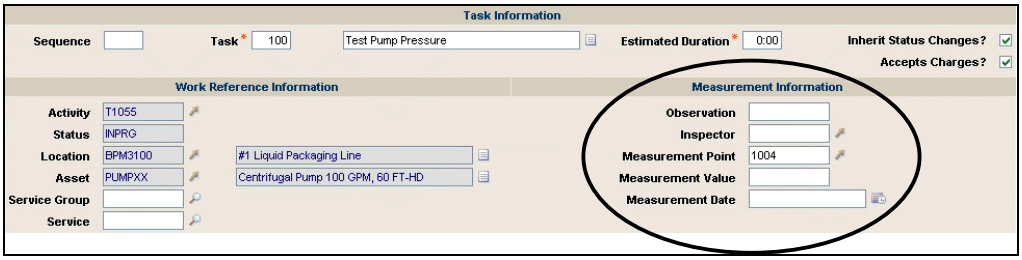
Reporting Actuals Using Work Order Tracking continued

Tasks and Resources Subtabs

The sections that are mainly used to report actuals against a work order are the Tasks and Resources subtabs.

Tasks and Meter Reading Actuals

In the **Tasks** area you can record condition monitoring measurement readings and observations.



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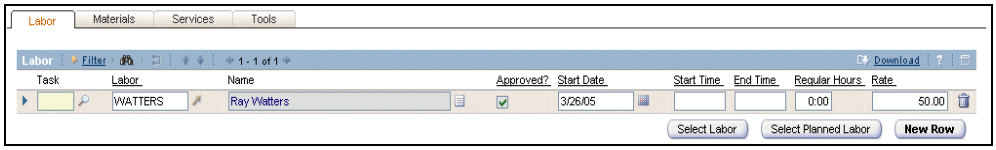
Reporting Actuals Using Work Order Tracking continued

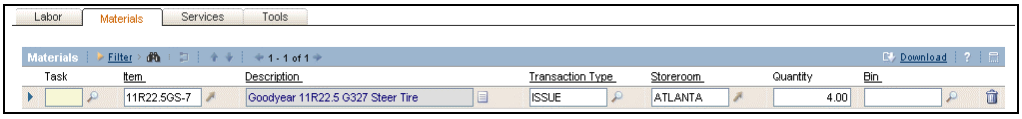
Resources Subtabs

In the **Resources** area you can copy data from an existing plan, modify this data to reflect actual events, or insert new data for an approved work order.

- Use the **Labor** subtab to enter and modify actual hours for labor used on an approved work order.

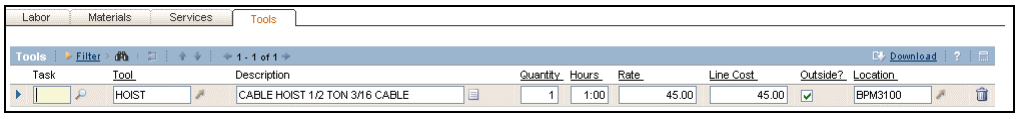


- Use the **Materials** subtab to enter and modify actual quantities (and, if applicable, condition code), storeroom, and costs for items used on an approved work order.



- Use the **Services** subtab to view services recorded against the work order. This tab is read-only.

- Use the **Tools** subtab to enter and modify actual quantities, hours, and rates for tools used on an approved work order.



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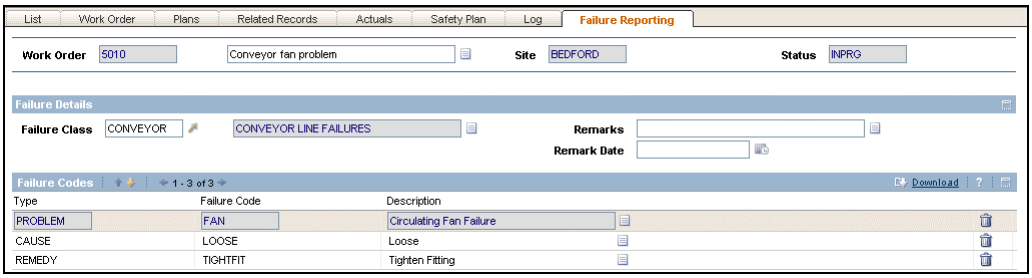
Reporting Actuals Using Work Order Tracking continued

Failure Reporting Tab

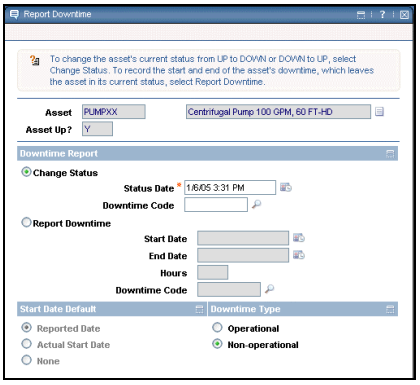
To conduct failure analyses to review histories of assets and location failures over time, if a failure class has been associated with the involved asset or location, use the Failure Reporting tab to record problems, causes, and remedies.



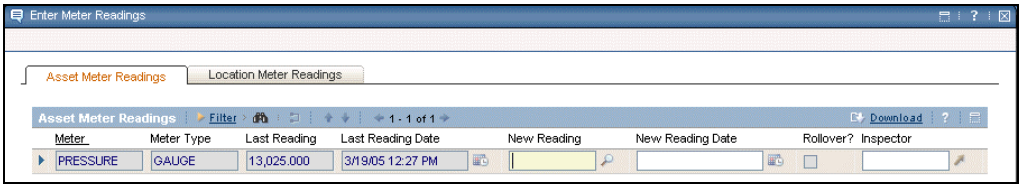
Select Action

The **Select Action** menu allows reporting of:

- Downtime for an asset



- Meter readings for assets and/or locations



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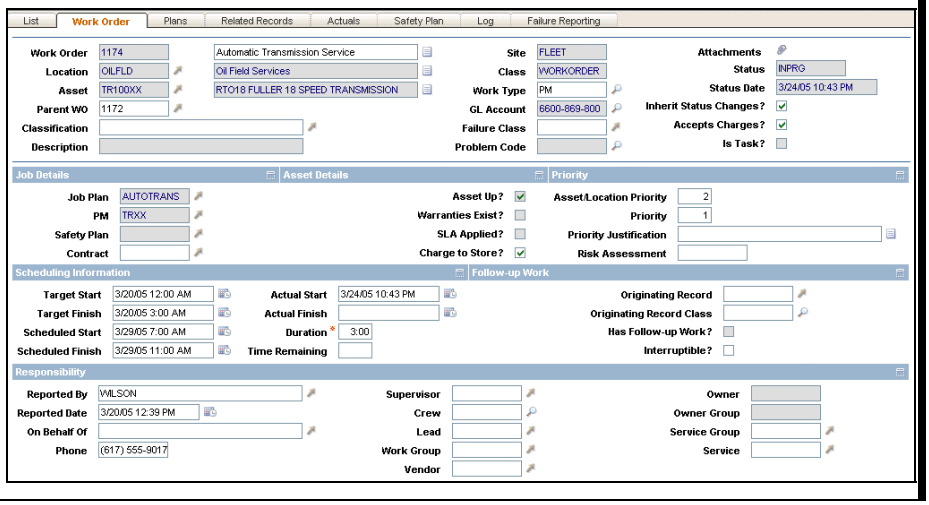
Reporting Actuals Using Work Order Tracking continued

Recording Actuals Using Work Order Tracking

In this exercise we will use the Work Order Tracking application to record work order actuals for the Minor Trailer Inspection .

Step	Action
1	Open the **Work Order Tracking** application and retrieve your **Automatic Transmission Service** work order record at the **FLEET** site. Result: Your Work Order tab should look like the one below. 

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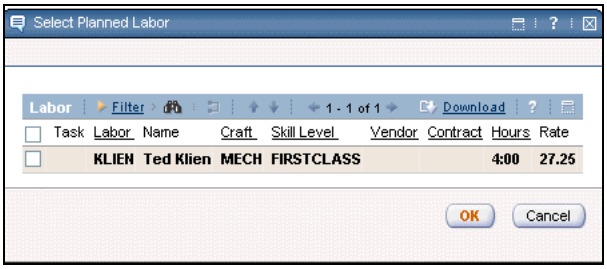
Reporting Actuals Using Work Order Tracking continued

Recording Actuals Using Work Order Tracking continued

Step	Action
2	Click on the **Actuals** tab, and in the **Labor** subtab area, click **Select Planned Labor**.  Result: Your Planned Labor should reflect Ted Klien. This is because we assigned him to this work in the Assignment Manager application. Indicating him in our work plan, instead of a craft, would also be another reason his name would appear on this list. 
3	Select this labor record and then click **OK**. Result: You are returned to the Labor subtab.
4	For a start time, enter **7** and tab out of the field. Accept the default finish time of 11:00 am.
5	To enter unplanned or unassigned labor, click either **Select Labor** or **New Row**. Enter **Todd Winston** as having worked **4** hours from 7:00 am to 11:00 am.

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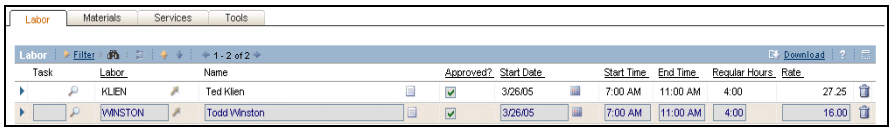
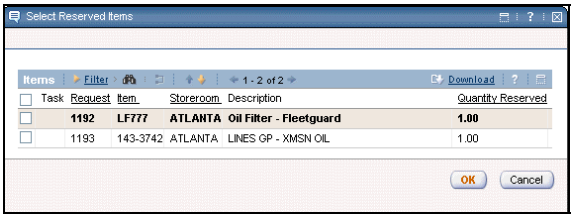
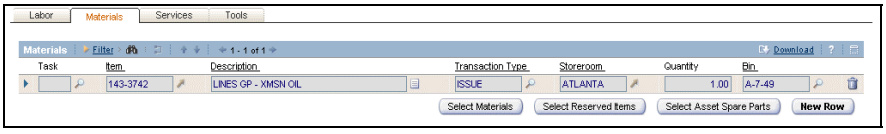
Reporting Actuals Using Work Order Tracking continued

Recording Actuals Using Work Order Tracking continued

Step	Action
6	**Save** your record. Result: Your Labor subtab should look like the example below. 
7	Click on the **Materials** subtab.
8	To enter reserved materials, click **Reserved Materials**. Result: Maximo displays materials that were planned and put on reserve. 
9	Select item **143-3742** and then click **OK**. Note: In a hosted environment, depending on the class size, the number of requests might exceed the stock number available. If this is the case, select item LF777. Result: Your Materials subtab should look similar to the one below. 

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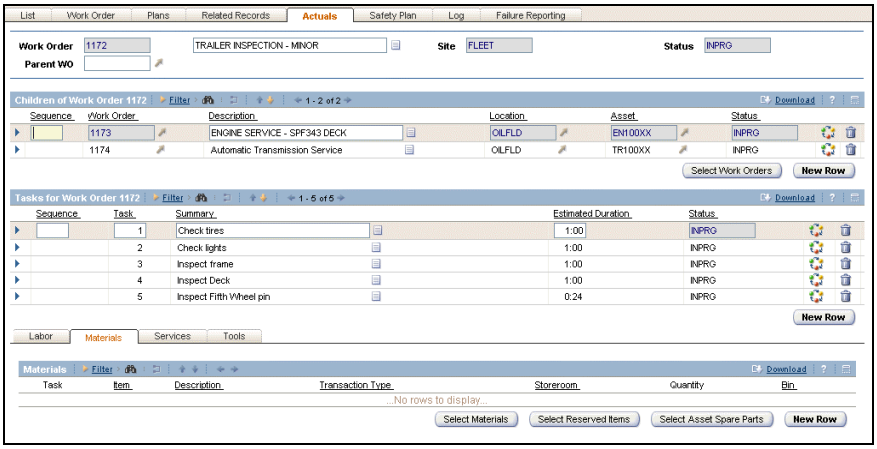
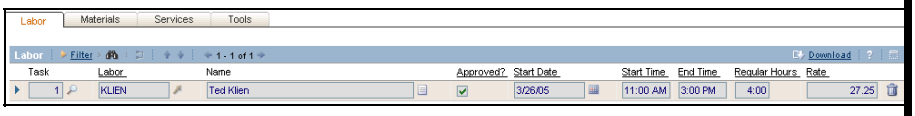
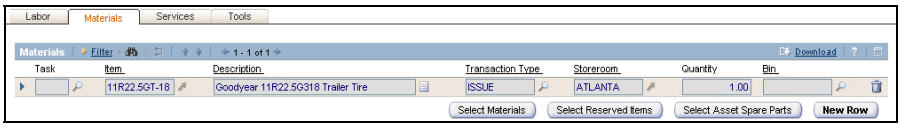
Reporting Actuals Using Work Order Tracking continued

Recording Actuals Using Work Order Tracking continued

Step	Action
10	**Save** your record and then move the parent work order to the top level. Result: Your Actuals tab should look like the example below. 
11	For Labor actuals, enter **Ted Klien** has having worked **4** hours, from 11:00 am to 3:00 pm. Result: Your Labor subtab should look like the one below. 
12	For Material actuals, enter 1 of the following item: 11R22.5GT-18. Result: Your Materials subtab should look like the example below. 

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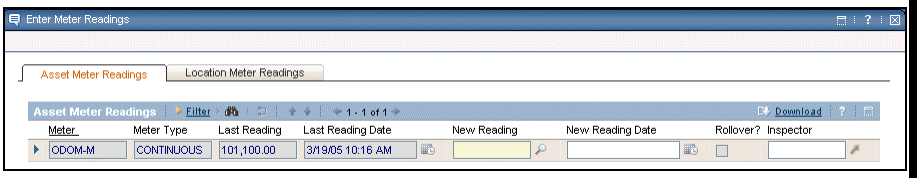
Reporting Actuals Using Work Order Tracking continued

Recording Actuals Using Work Order Tracking continued

Step	Action
13	**Save** your record.
14	To enter a meter reading for this asset, go to the **Select Action** menu and choose **Enter Meter Reading**. Result: The Meter Reading dialog box opens. 
15	Enter 126,900 in the **New Reading** field.
16	Click **OK**.
17	Change the status to **COMP**. Are the Actual Finish fields populated with a Date?_____ What are the Hierarchy Grand Totals costs at: Estimated at Approval?_____ Estimated at Actual?_____ When is the next PM - DOT and Minor Inspection and Service Earliest next due date?_____

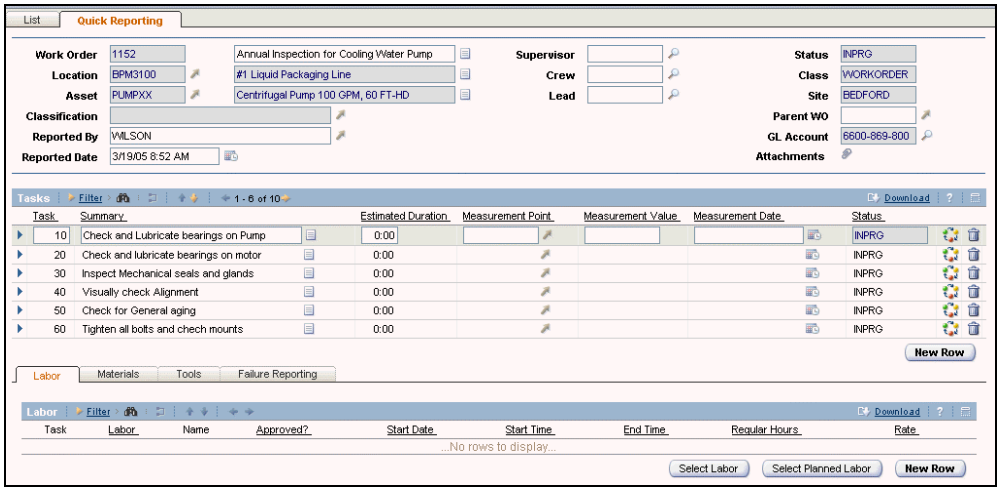
Reporting Actuals Using Quick Reporting

Introduction

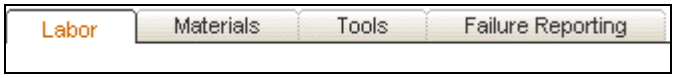
In this section we will use Quick Reporting to record actual labor, materials, tool usage, and condition measurement values.

Quick Reporting

The **Quick Reporting** application is very similar to Work Order Tracking...



with one exception: failure reporting is done on a subtab, instead of on its own separate tab.



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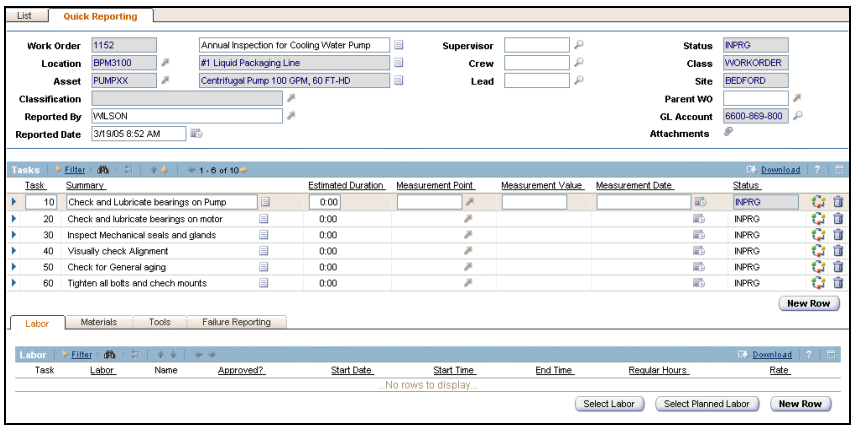
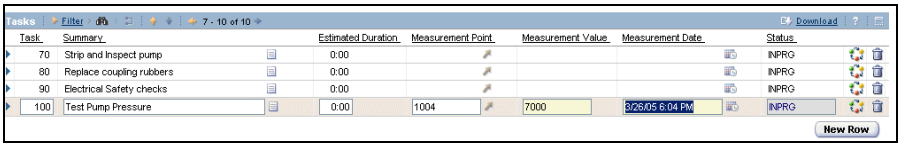
Reporting Actuals Using Quick Reporting continued

Recording Actuals Using Quick Reporting

In this exercise we will use the Quick Reporting application to record work order actuals for the Annual Pump Inspection.

Step	Action
1	Open the **Quick Reporting** application and retrieve your **Annual Water Pump Inspection** work order record. Result: Your screen should look similar to the example below. 
2	Enter 7000 in the **Measurement Value** field for **Task 100**, Test Pump Pressure, and then tab out of the field. Result: Today's date populates the Measurement Date field. 

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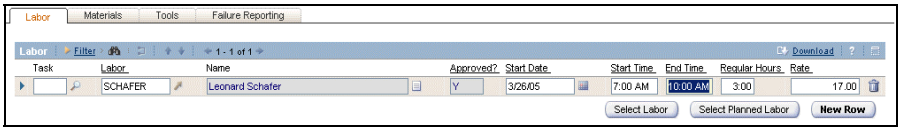
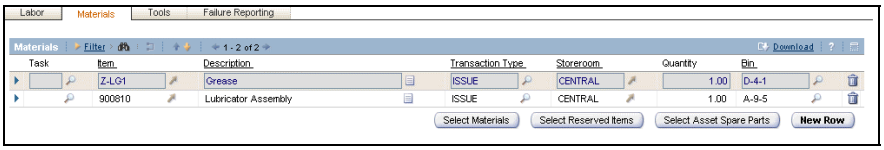
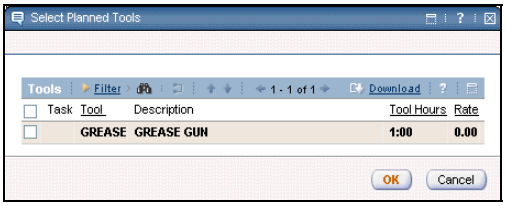
Reporting Actuals Using Quick Reporting continued

Recording Actuals Using Quick Reporting continued

Step	Action
3	For Labor actuals, use the planned labor. Enter 7:00 am and accept the Finish date defaults. Result: Your Labor subtab should look like the one below. 
4	Click on the **Materials** subtab. Result: The materials are already on the work order because we had issued inventory to this work order. Because inventory issued these, we cannot make modifications to the current item row numbers. We can add another row, but cannot modify storeroom-issued items—we have to return unused items. 
5	Click on the **Tools** subtab and select **Planned Tools**. Result: The Planned Tools dialog box opens. 

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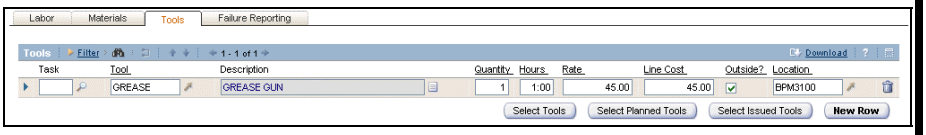
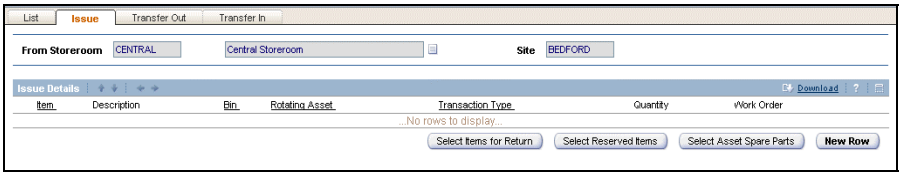
Reporting Actuals Using Quick Reporting continued

Recording Actuals Using Quick Reporting continued

Step	Action
6	Select the **Grease Gun** and click **OK**. Result: You are brought back to the Tools subtab. 
7	Enter the rate of 45.00 and change the status to **COMP**.
8	View your cost. What are the Actual Total Costs? _____
9	After the work is completed, we need to return unused items to the storeroom. Open the **Issues and Transfers** application.
10	Retrieve the **CENTRAL** storeroom. Result: Your Issues tab should look like the one below. 

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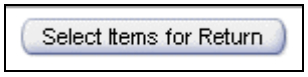
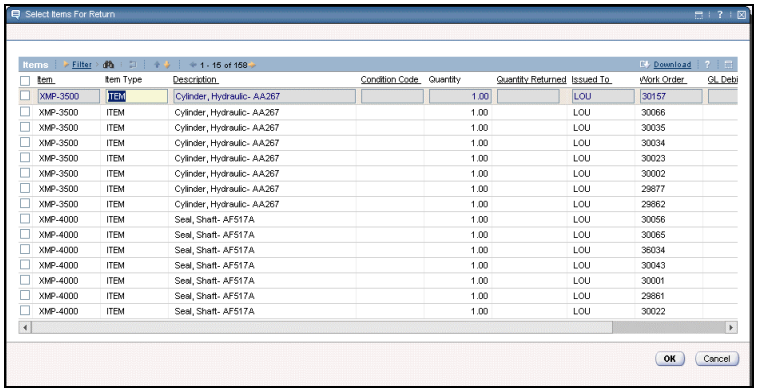
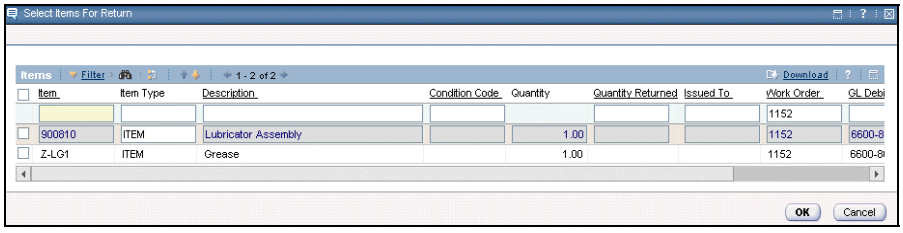
Reporting Actuals Using Quick Reporting continued

Recording Actuals Using Quick Reporting continued

Step	Action
11	Click **Select Items for Return**.  Result: The Select Items for Return window opens. 
12	Open your filter. In the **Work Order** column field, enter your work order number and then press **Enter**. Results: Items issued to this work order are listed. 

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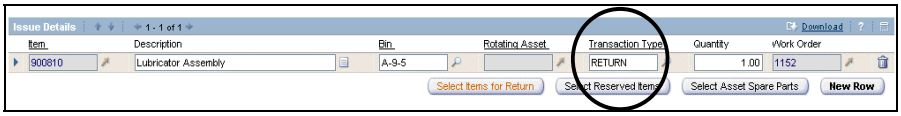
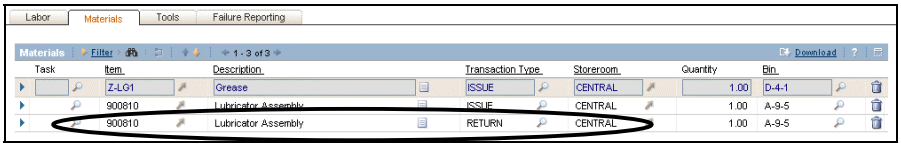
Reporting Actuals Using Quick Reporting continued

Recording Actuals Using Quick Reporting continued

Step	Action
13	Select the **Lubricator Assembly** record and then click **OK**. Result: You are brought back to the Issues Details table. Notice the transaction type is RETURN. 
14	**Save** the record. Result: The item is returned to inventory and removed from the work order.
15	Go back to the **Quick Reporting** application and retrieve this work order. Click on the **Actuals Materials** subtab. Result: The Lubricator Assembly row indicates a RETURN transaction. 
16	View your cost. What are the Actual Total Costs? _____

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Reporting Actuals Using Quick Reporting continued

Recording Actuals and Follow-up Work

In this exercise, we will use the Quick Reporting application to record work order actuals against the "Live wire - pole 300 oak and third st" record and to create a follow-up work order record.

Step	Action
1	Retrieve your work order for **Live wire - pole 300 oak and third st**.
2	On the **Labor** subtab, click **New Row** and enter the following information: **Field** — **Value** **Labor** — LIBERI **Regular Hours** — 3.
3	On the **Material** subtab, click **New Row** and enter the following information: **Field** — **Value** **Item** — BRACKET **Storeroom** — CENTRAL
4	Change the status to **COMP**.

Reporting on Labor Using the Assignment Manager Application

Introduction

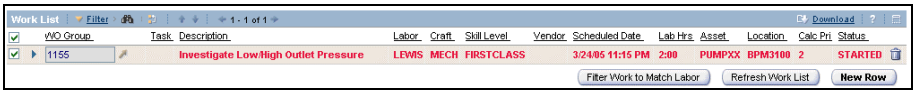
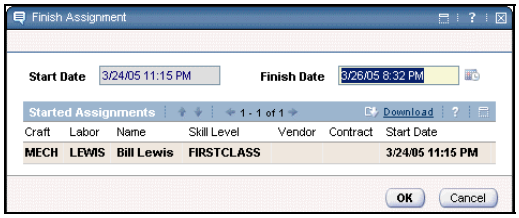
In this section, we will use Assignment Manager to finish assignments on a work order and automatically change the work order status to Complete.

Flashback

Assignment statuses are linked to the work order that contains the work requirement. When the last assignment for a work order has been finished, depending on the Preferences setup, Maximo changes the status of the work order to either COMP or CLOSE.

Finishing Assignments

In this exercise we will finish the assignment for Investigate Low/High Outlet Pressure.

Step	Action
1	Open the **Assignment Manager** application and retrieve your **Investigate Low/High Outlet Pressure** work assignment record.
2	Click on your record. Result: Your work list should look like the one below. 
3	From the toolbar, click **Finish Assignment**.  Result: The Finish Assignment dialog box opens. 

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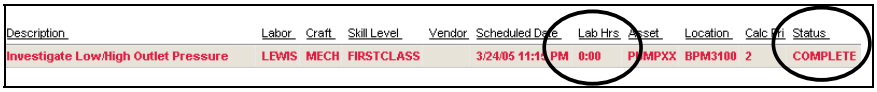
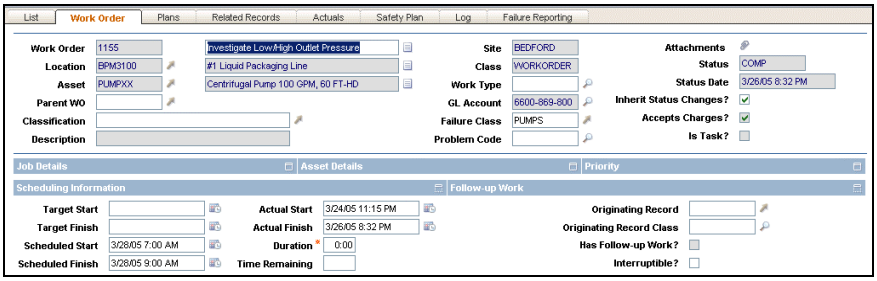
Reporting on Labor Using the Assignment Manager Application continued

Finishing Assignments continued

Step	Action
4	Click **OK**. Result: The assignment is COMPLETE and Lab Hours are adjusted accordingly. 
5	Verify that your work order status is Complete by going to the **Work Order Tracking** application. Result: Your status should be COMP and the Actual Finish field should be populated with a date and time. 

Recording Labor Using the Reporting Application

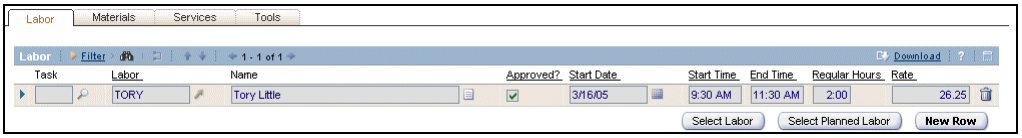
Introduction

In this section we will use Labor Reporting to report labor start and stop times on a work order.

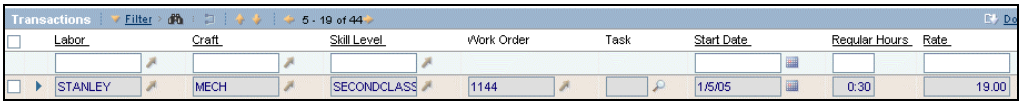
Labor Transactions and Reporting

A labor transaction is a record of the amount of time a laborer or contractor spent performing work. Labor transactions can be directly recorded in the following applications:

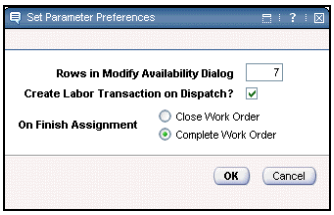
- Work Order Tracking or Quick Reporting Actuals Labor tab



- Labor Reporting



Note: If you set preferences in Assignment Manager to create labor transactions on Dispatch, hours worked from the start to the finish of the work assignment will be recorded in the Labor Reporting application.



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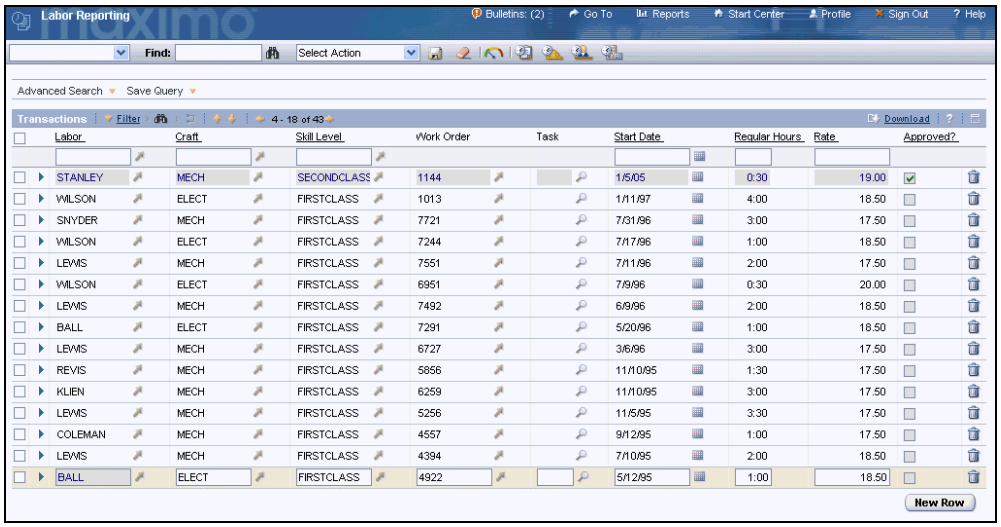
Recording Labor Using the Reporting Application continued

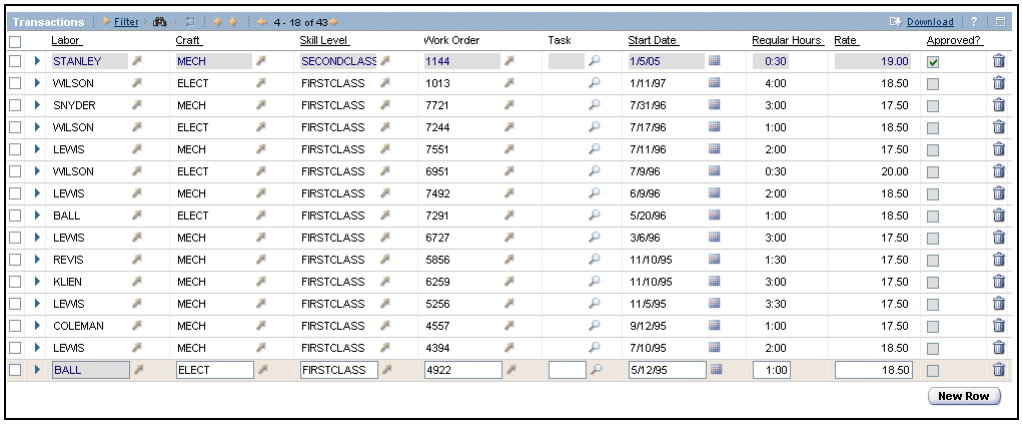
Labor Reporting Application

Use the **Labor Reporting** application to report the type and total number of hours of work performed by external contractors or internal employees. You can enter labor information by work order, labor ("timecard" reporting), ticket, or contract/vendor.



Transactions Table Window

The Transactions table window displays labor transactions that you entered in this application or in any other Maximo application where you can record labor actuals.



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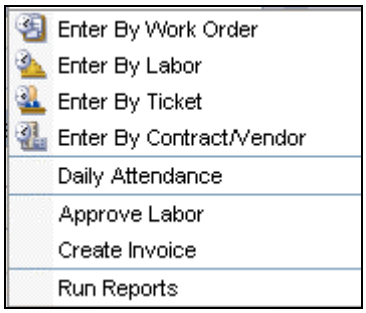
Recording Labor Using the Reporting Application continued

Select Action Menu

Using the **Select Action** menu, you can:

- Record daily attendance for a labor code to track when a worker starts and ends their work day.
- Enter labor transactions by contract or vendor.
- Enter labor transactions by ticket and select all the labor requirements on the ticket.
- Enter labor transactions by work order and select all the labor requirements on the work order.
- Approve outside labor work.
- Create an invoice against a labor contract.



Note

As this section focuses on work order specific activities, discussions will focus on this topic as it relates to the use of the Labor Reporting application. Additional Labor Reporting use as it relates to a daily time and attendance time card mechanism, contractor time management, or other types of labor reporting (vacation time, sick time, and so forth) is not discussed. Please refer to the *Maximo User's Guide* for additional information.

Labor Rates

When reporting labor, rates will populated based on the skill and craft for the work that was performed. If the labor is associated with multiple rates, the user will be required to select the rate from a list of available valid rates for the work that was done.

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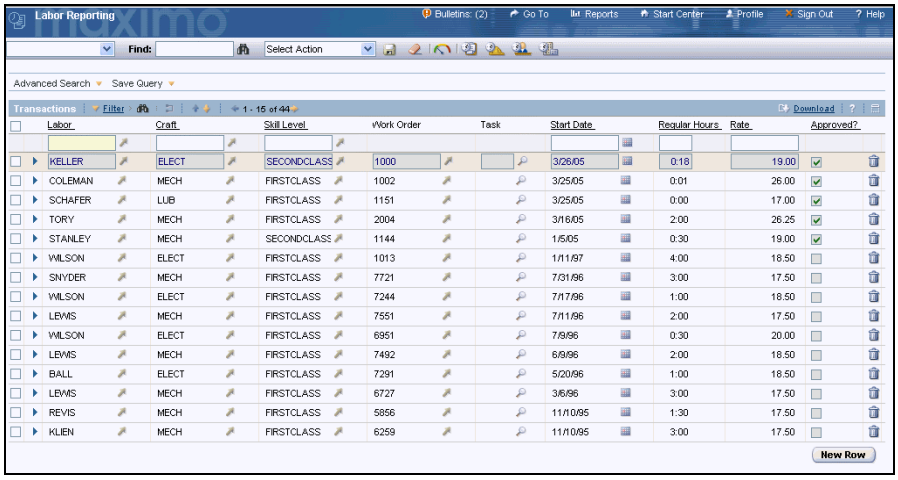
Recording Labor Using the Reporting Application continued

When labor reporting is done against work orders, which are at the site level, make sure that hours are reported against the correct site, because work order numbers can be duplicated at different sites.

Recording Actual Labor in Labor Reporting

In this exercise, we will use the Labor Reporting application to report actual labor against the "Manufacturer Bullet: Fire extinguisher. Check Gauge for corrosion" work order.

Step	Action
1	Open the **Labor Reporting** application. Result: The Labor Reporting application opens.



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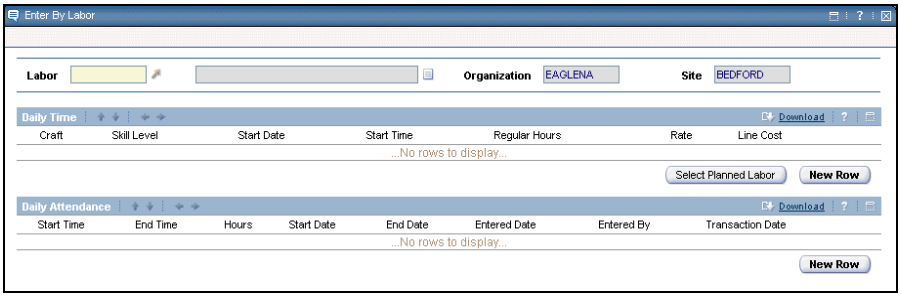
Recording Labor Using the Reporting Application continued

Recording Actual Labor in Labor Reporting continued

Step	Action
2	To report labor against this work order, you can enter by labor or enter by work order. For this step, we will enter the planned labor by labor. Click **Enter by Labor**.  Result: The Enter by Labor dialog box opens. 
3	Enter BOYD in the **Labor** field, then click **Select Planned Labor**.  Result: The Select Planned Labor table window opens.  This labor information came from the work assignment that we started in the Assignment Manager application. If no assignment had been started, then the Labor column would have been blank.

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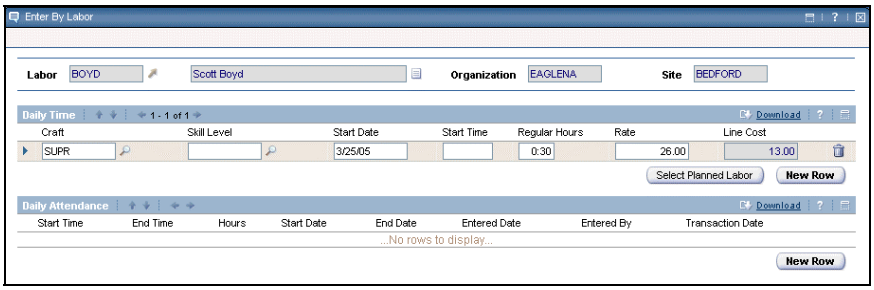
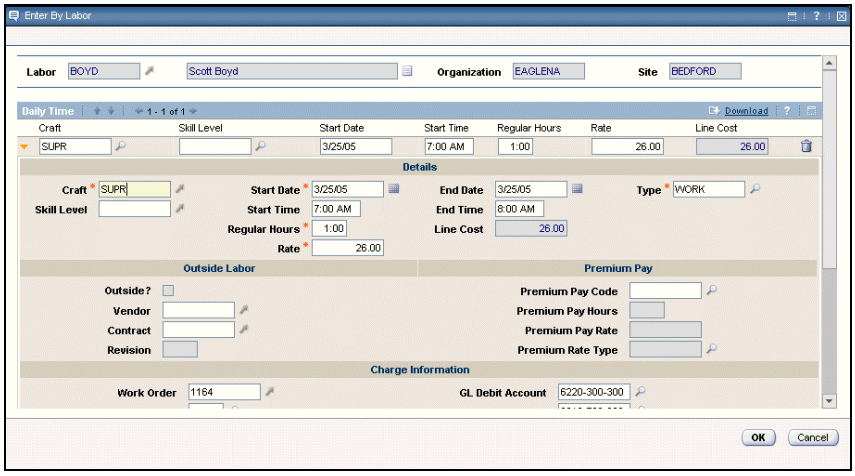
Recording Labor Using the Reporting Application continued

Recording Actual Labor in Labor Reporting continued

Step	Action
4	Select the work order record and click **OK**. Result: The Enter by Labor window opens. 
5	Click the **Detail** button, then enter a start time of 7:15 and a finish time of 8:00 am. Result: Your screen should look like the one below. 
6	Click **OK**. Result: The labor transaction has been saved to the database and you are brought to the Transactions table window.

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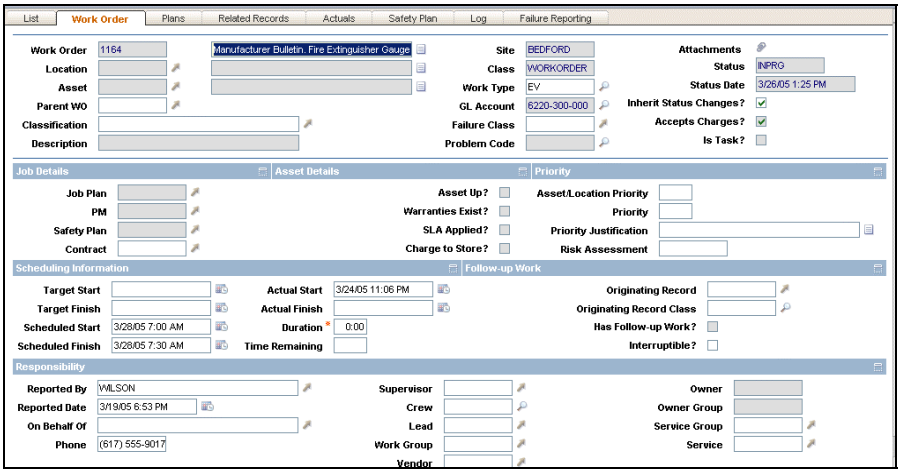
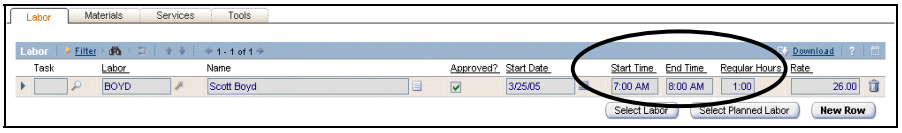
Recording Labor Using the Reporting Application continued

Recording Actual Labor in Labor Reporting continued

Step	Action
7	To verify that this labor transaction is reflected on the work order, search for BOYD, click on your work order record's **Detail** menu, and go to the **Work Order Tracking** application. Result: The Work Order Tracking application opens.  Why is there no time recorded in the **Actual Finish** field? _____
8	Click on the **Actuals** tab. Result: The labor transaction was recorded. 

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Recording Labor Using the Reporting Application continued

Recording Actual Labor in Labor Reporting continued

Step	Action
9	At this point this work order is considered complete. Rather than returning to the Labor Reporting application, change the status to **Complete**.
10	View the children work orders. • What is their status? _____ • Do they have Actual Start and Actual Finish times indicated? _____

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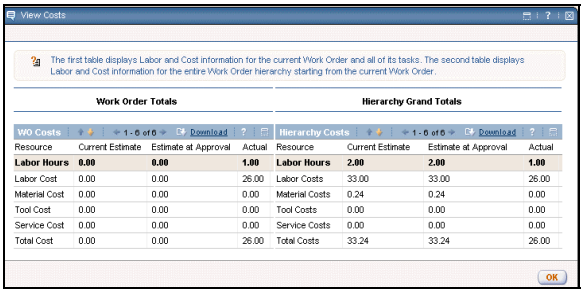
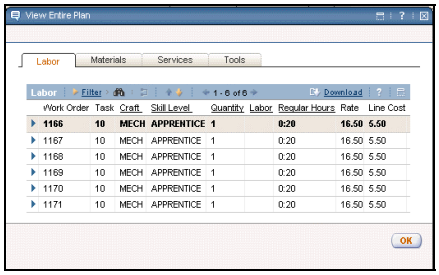
Recording Labor Using the Reporting Application continued

Recording Actual Labor in Labor Reporting continued

Step	Action
11	View the **Cost** for this work order. Result: The View Cost window opens.  Why are there no estimates? _____
12	Now, view the entire plan for this work order. Result: The View Entire Plan window opens.  Why are there planned labor and materials?_____

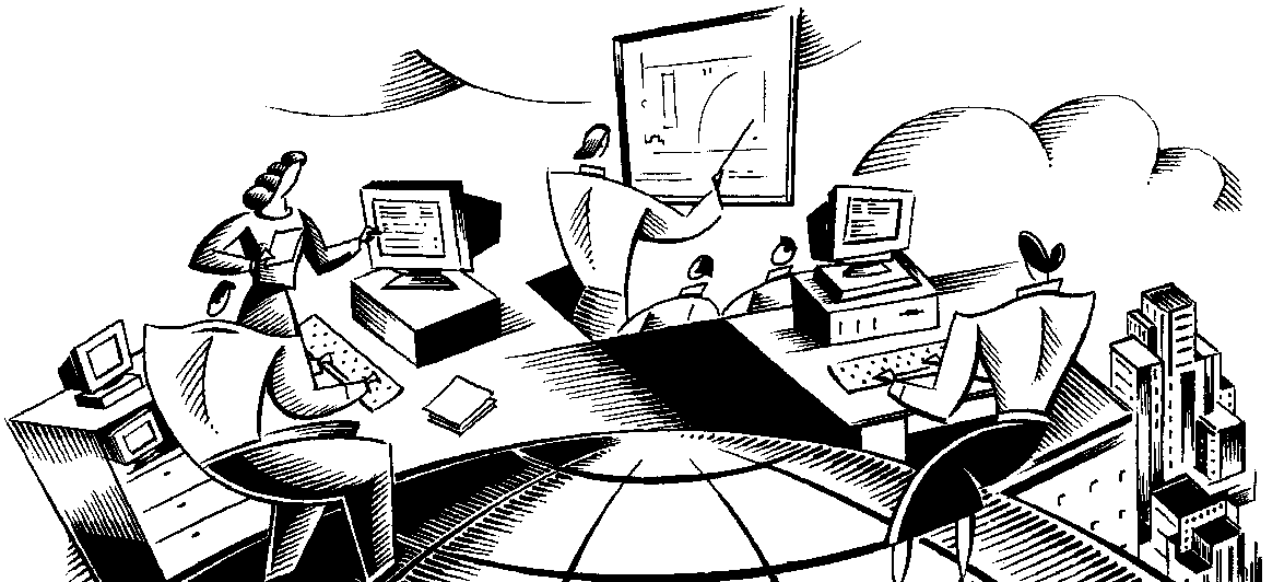
Chapter Summary

Issuing Materials	After the work order is approved, the **Issues and Transfers** application can be used to issue the materials to the work order. The materials are added as actuals and decrease the balance in the storeroom from which the materials were issued.
Initiating the Work Order	Changing the status of a work order to In Progress (also called *initiating* a work order) indicates that the physical work has begun.
Reporting Actuals and Failures	You can report actuals on the **Actuals** tab and failure information on the **Failure Reporting** tab in the Work Order Tracking application. You can also report actuals and failures in the Quick Reporting application, which is a simpler application with fewer tabs of information.
Returning an Item	You can return an unused item to its original storeroom by using the **Select Items for Return** action in the Issues and Transfers application. Returning items will add the unused amount to the storeroom balance, and subtract the line cost of the unused balance from your work order actual costs.
Failure Codes	From the Quick Reporting and Work Order Tracking applications, you can use the failure hierarchy to report problems, their causes, and the remedies applied to correct them.
COMPLETE and CLOSED	When the physical work is done, you can change the status of a work order to Complete (COMP). When actuals are reported and reviewed, the authorized person can change the status of a work order to Closed (CLOSE). Changes *cannot* be made to work orders after the status has been changed to CLOSE. A *closed* work order is placed in history. Note: If set by your system administrator, the Edit History action is available in the Select Action drop-down menu.

NOTES:

Work Management Using MXES

Unit 4: Automating Business Processes



In This Unit

This unit contains the following chapter:

Chapter	Title
11	Introduction to Workflow

Unit Overview

Introduction

In this unit we will process data with the additional applications that we implement. The following are the various topics and relevant application usage that will be covered in this unit.

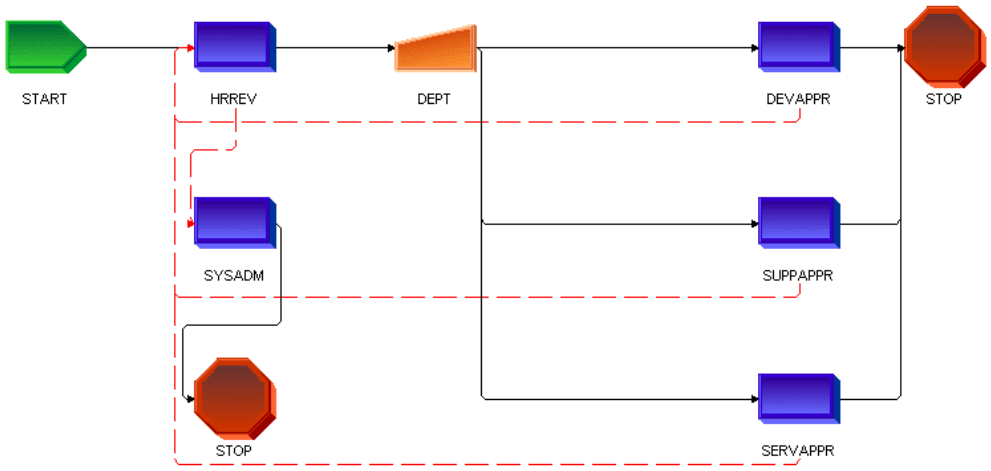
Learning Objectives

When you have completed this unit, you should be able to:

- describe the purpose of Workflow,
- enable and validate a Workflow process,
- start a Workflow process,
- view a Workflow process's history,
- view an in-process assignment, and
- complete a Workflow assignment.

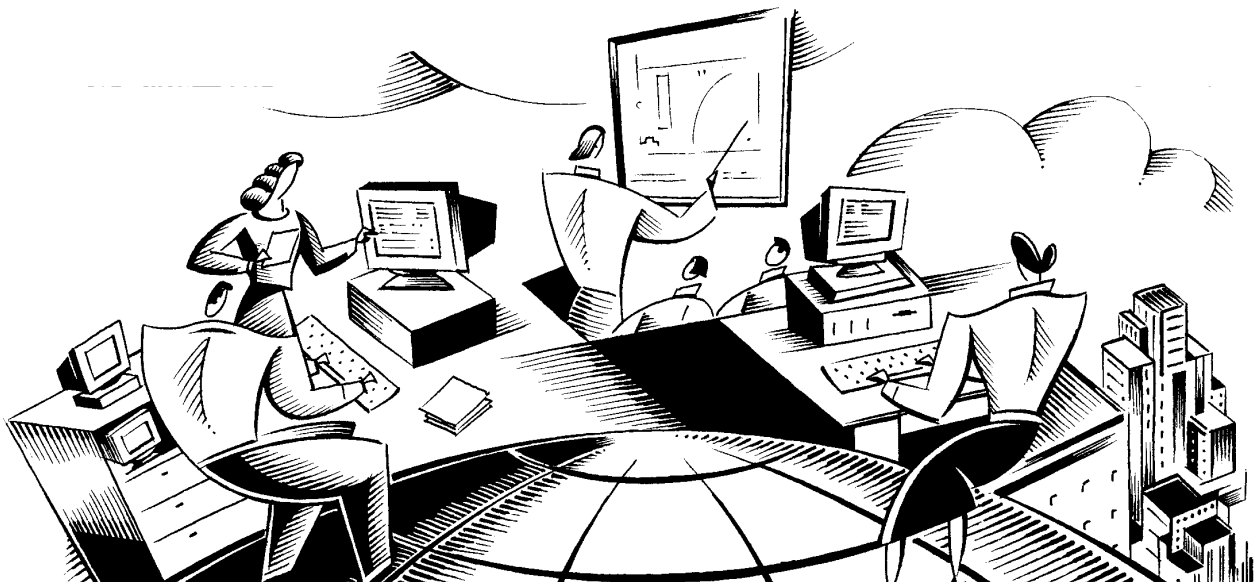
Automating the Approval Process

Workflow allows you to design the processing of data in Maximo to fit your business processes. Automating your approval processes will decrease record processing costs and allow you to track the approval history.



Work Management Using MXES

Chapter 11: Introduction to Workflow



In This Chapter This chapter contains the following topics:

Chapter Overview

Chapter Focus

In this chapter, we will discuss the nature of a Workflow solution. We will also discuss the process you will use to design, build, test, and deploy a new Workflow.

Learning Objectives

When you have completed this chapter, you should be able to:

- describe the purpose of Workflow,
- define what the Workflow solution consists of,
- list the advantages of using Workflow,
- enable and validate a Workflow process,
- start a Workflow process,
- view the history of a Workflow process,
- view an in-process assignment, and
- complete a Workflow assignment.

What Is Workflow?

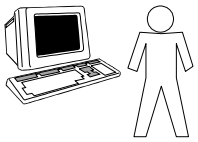
Introduction

In this section we define and explore the tools used to create, modify, and complete a Workflow process.

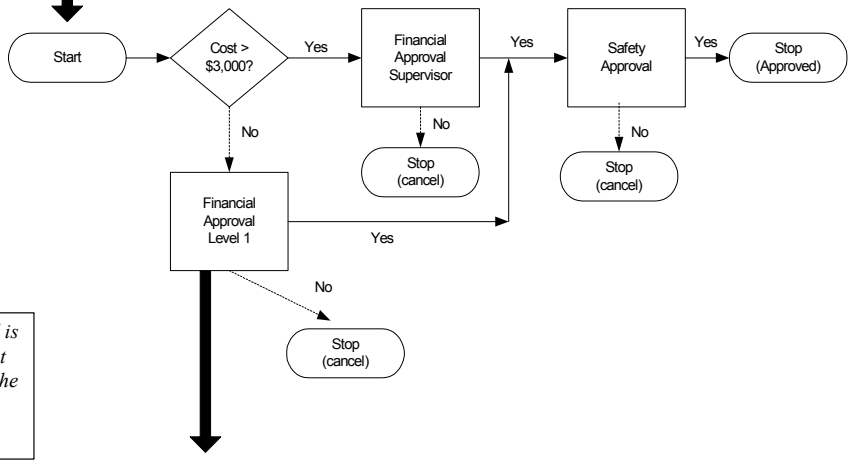
Pushing Information

Workflow gets information to the right people at the right time. Therefore, Workflow provides you with all of your work assignments *in one place*.

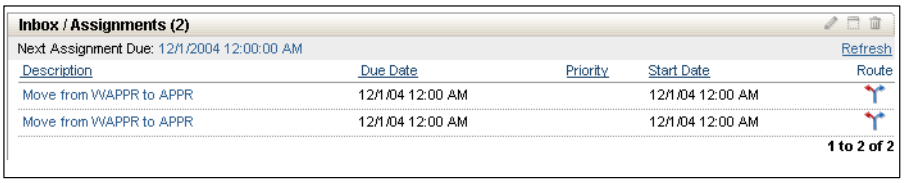
You do not need to search through long lists of information to find what you need to do.



Service work is requested and, using the Work Order Tracking application, is entered into Maximo



A work order begins its Workflow journey and is waiting for approval -- thus, based on the right criteria, pushing the right task assignment to the right person.



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What Is Workflow? continued

Workflow Capabilities

The Workflow components provide a variety of features that you can include in your Workflow design to streamline your approval processes.

These features include:

- Assignments to roles that can be comprised of labor, people, person groups, supervisors, or delegates
- User-defined escalation periods and procedures
- Manual initiation of a Workflow process on a specific process
- Automatic initiation of Workflow process, e.g., when the system generates purchase requisitions or purchase orders from inventory reorder
- Escalation of processes based on determined time intervals
- Notifications using communication templates
- Use of an SQL Expression Builder to more easily build detailed criteria for process points
- Context-based interactivity to bring the right application or application component to people when needed to perform a specific task in the process
- Manual reassignment of tasks using the Workflow Administrator

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What Is Workflow? continued

Several Categories of Workflows

You can create several different general categories of workflow processes:

- **Process workflow** (traditional, assignment-oriented)

  Where a structured process manages a record's lifecycle—conditionally pushing assignments to people, running actions, and sending notifications along the routing paths.

  Example: Route a corrective work order for cost approval, safety approval, scheduling, labor assignments, and supervisory signoff on completion.

- **Context-based interactions** (assignment-less)

  Where a menu of action choices is presented to the user based on the current record's data properties, "scripting" the user's interaction with the application.

  Example: When a help desk technician enters an SR and presses Route, properties such as ticket type and status conditionally present the available next steps—for example, close or create incident. Close could go to the Start Center; incident could take the user to the newly inserted incident in its application.

- **Hybrids**

  Where there is a mix of structured routings along with interactive, conditional page and dialog navigation.

  Example: Detect at the time of a work order's completion that a failure report should have been entered, and take the user to the Failure Reporting tab with instructions to that effect.

Workflow Components

Overview

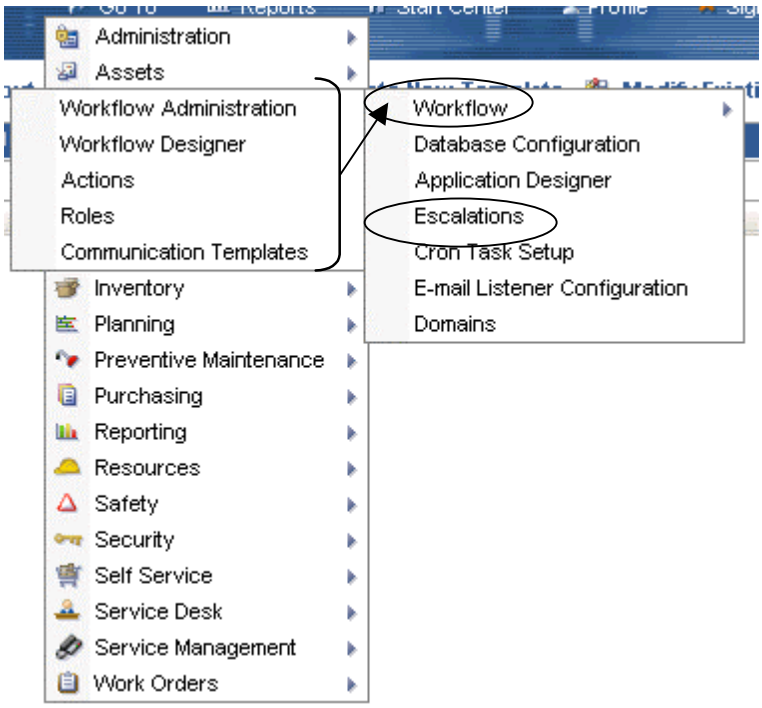
In the previous section, we mentioned the Workflow-related components and how to access them. In this section, we will briefly describe each component.

You will be given more detailed information on these components as they are used in exercises.

Locations of Workflow-Related Components

All directly Workflow-related applications, except for Escalations, are located in the **Workflow** *submodule* of the **Configuration** module.

The Escalations application is located directly in the Configuration module.



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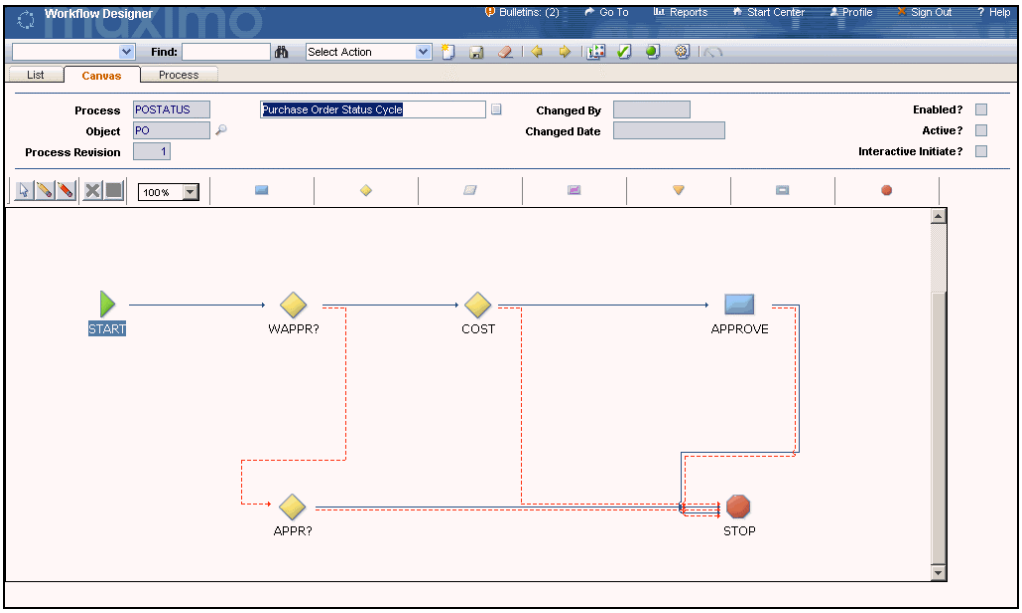
Workflow Components continued

Workflow Designer Application

You use the **Workflow Designer** application to create a series of paths for records to flow through, called a *process*.

A Workflow process can be thought of as a map that guides a record, or a user's interaction with that record through a set of steps.

The graphical interface of the Workflow Designer illustrates the possible paths the record can follow.



You can use Workflow to create a set of paths as simple or as complex as your business process demands.

A process might be able to handle all of the routing necessary for *one type* of record. However, more complex process flows (or processes that involve a number of record types) might require a series of processes.

For that reason, Workflow processes might appear quite simple or complex, depending on the business need.

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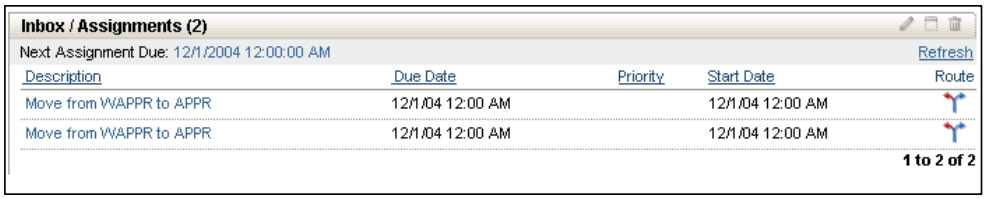
Workflow Components continued

Workflow Inbox/ Assignments

When added to a user's Start Center, the Workflow **Inbox/Assignments** table:

- provides a list of current assignments for the user;
- allows the user to click on the assignment description to see the underlying record; and
- allows the user to route assignments to the next point in the Workflow process.

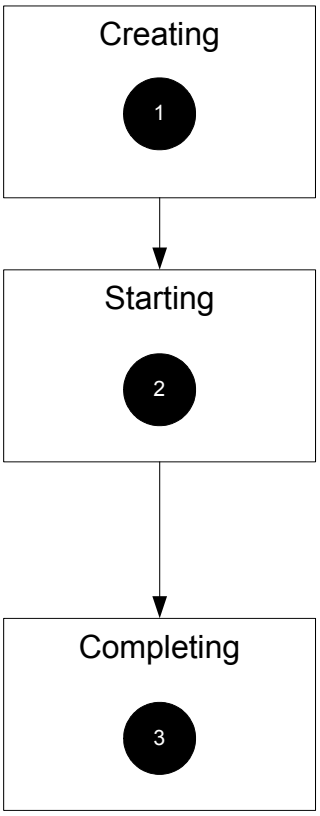


Workflow Stages

Introduction

To better acquaint you with the Workflow solution, a high-level overview of Workflow stages will be explored throughout the remainder of this chapter.

The following chart illustrates the stages.



In the first stage – **Creating** – a Workflow process is created or modified and then enabled and activated using the **Workflow Designer** application.

You can also use this application to modify and manage Workflow processes.

In the second stage – **Starting** – a record is manually or automatically started through a Workflow process.

Manual records are started through a process by clicking on the **Route Workflow** icon in a Workflow-supported Maximo application.

For automatically started records, you can:

- use the Select Action menu in the *Workflow Designer* to indicate that certain flows automatically enter a Workflow process when the record is saved or submitted;
- use an escalation to poll the system and start non-initiated processes; or
- use the Workflow Options to indicate that certain non-manual processes should auto-initiate when specific actions occur.

In the third stage – **Completing** – you use *Inbox/Assignments* in your Start Center to perform Workflow assignments.

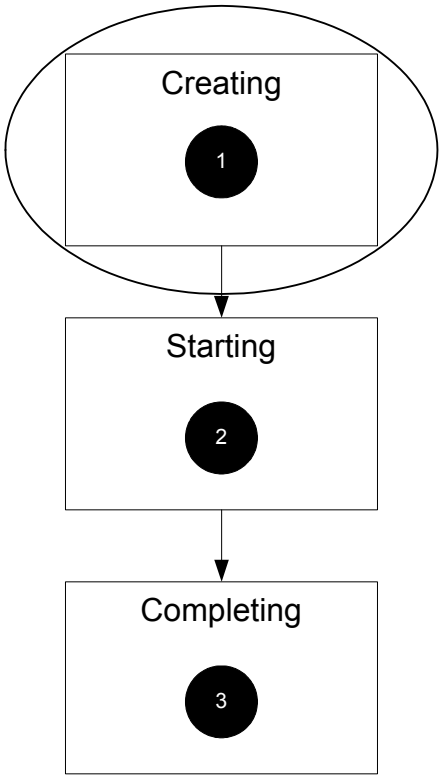
Creating Workflow Processes

Introduction

We saw earlier that Workflow consists of three stages—*Creating*, *Starting*, and *Completing*— each with its own application to meet its requirements.

In this section, we will learn how to navigate the **Workflow Designer** application and to enable and activate a previously created Workflow process.

We Are Here



*In the first stage, a Workflow process is created and/or modified, then enabled/ activated using the **Workflow Designer** application and related applications.*

You can also use this application to modify Workflow processes.

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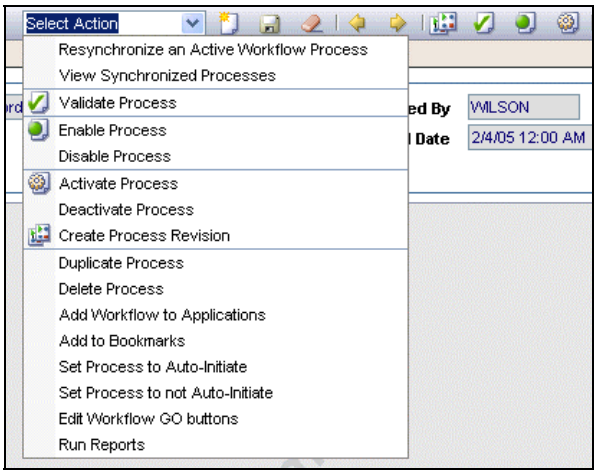
Creating Workflow Processes continued

Enabling/ Activation: Select Action Menu

Below are a few notes regarding enabling/activation and the **Select Action** menu of the Workflow Designer application:

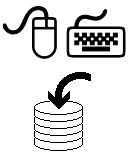
- Enabling and activation of processes can also be done using the **Select Action** menu.
- Processes can be *deactivated* by selecting **Deactivate Process**.
- Processes can be *disabled* by selecting **Disable Process**.
- Applications associated with the object can be manually Workflow-supported by selecting **Add Workflow to Applications**. (Note: You might recall that this is also determined when activating a process.)

The graphic below shows the selections available from the Select Action menu for the Workflow Designer application.



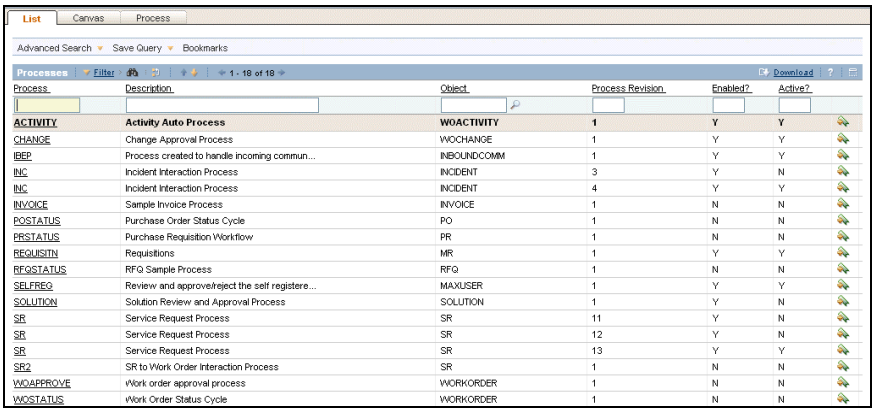
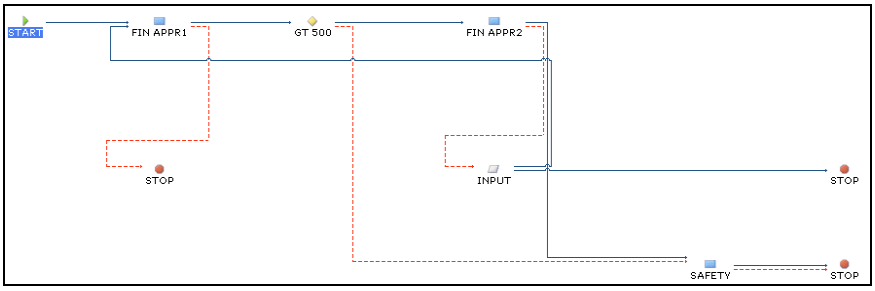
Creating Workflow Processes continued

Exercise: Enabling and Activating a Workflow Process



In this exercise, we are going to enable and activate the WOAPPROVE Workflow process to demonstrate how Workflow reacts when a process is activated and then used in the workplace.

This will allow us to put records through a Workflow process and then to access the Workflow task in the sections that follow.

Step	Action
1	Go to the **Configuration** module, **Workflow** submodule, and select **Workflow Designer**. Result: The Workflow Designer application opens. 
2	Click on the **WOAPPROVE** process. Result: Maximo displays the WOAPPROVE process. 

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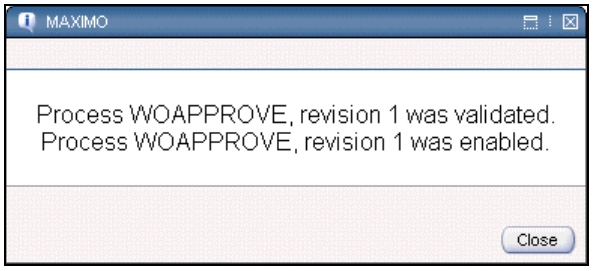
Creating Workflow Processes continued

Exercise: Enabling and Activating a Workflow Process

continued

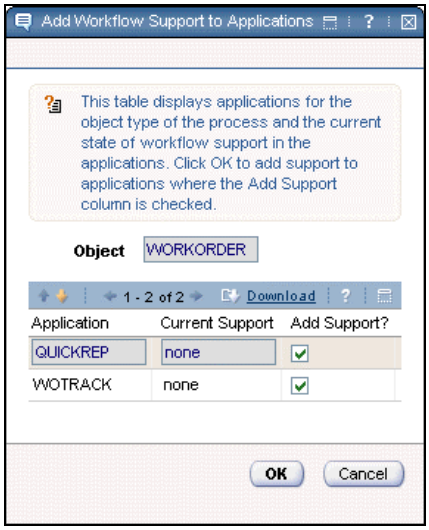
Step	Action
3	Click the **Enable Process** button.  Result: Maximo displays a dialog box indicating that the process has been validated and enabled. 
4	Click **Close** to close the dialog box. Result: Maximo checks the process to ensure that it contains valid nodes and accompanying parameters. The Enabled field is checked. 

continued on next page

Creating Workflow Processes continued

Exercise: Enabling and Activating a Workflow Process

continued

Step	Action
5	Click the **Activate Process** button.  Result: The Add Workflow Support to Applications dialog box displays a list of the applications associated with the object to which the process is associated. 

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Creating Workflow Processes continued

Exercise: Enabling and Activating a Workflow Process

continued

Step	Action
6	We are going to allow Maximo to add support for *both* the Quick Reporting and Work Order Tracking applications, so keep the **Add Support?** check box selected for both applications and click **OK**. Result: Maximo adds all necessary code to allow the selected applications to be supported by Workflow. The Active field is now selected.  Note: Because there is quite a bit going on behind the scenes, the activation process could take several minutes to complete.

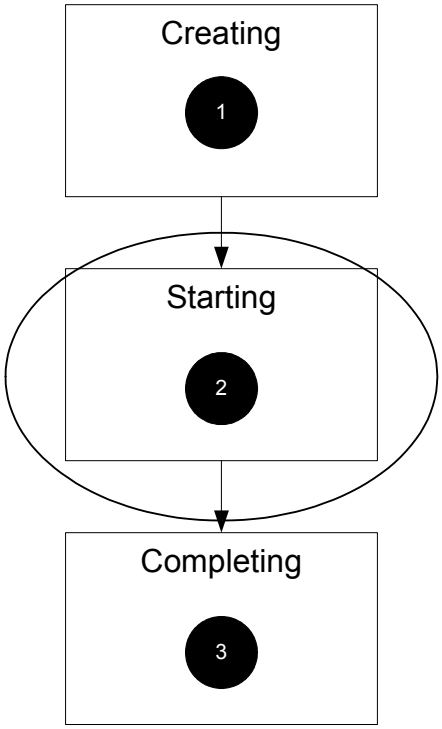
Starting a Record in a Workflow Process

Introduction

As we saw earlier, Workflow consists of three stages—*Creating*, *Starting*, and *Completing*—each with its own application and requirements.

In this section, our discussion centers on the different methods used to start a record in a Workflow process routine.

We Are Here



In the second stage, a record is automatically or manually started through a Workflow process.

Manually started records are started by clicking the Route Workflow button in a Workflow-enabled Maximo application, such as ***Work Orders****.*

One way to automatically start records is to use the ***Set Process to Auto-Initiate*** *action of Workflow Designer to automatically enter a Workflow process when the record is saved or submitted.*

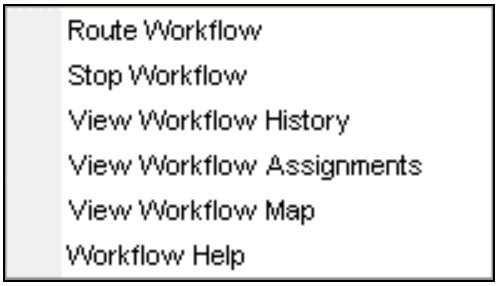
continued on next page

Starting a Record in a Workflow Process continued

Workflow Actions

Once an application is Workflow-supported, a **Workflow** action is added to the **Select Action** menu of the application.

From the Workflow selection in the Select Action menu of a supported application, there are a number of *sub-actions* available, as shown here:



The following sections describe each action.

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Starting a Record in a Workflow Process continued

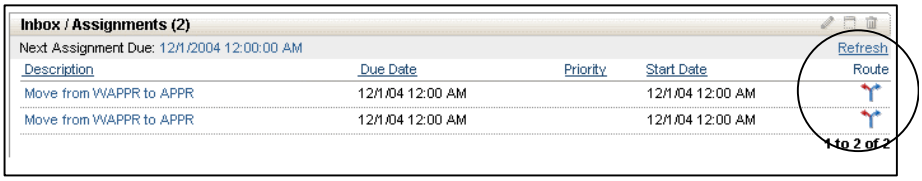
Manually Routing a Record

Records can be manually moved through a Workflow process by means of *routing*. You can manually route records by selecting the **Route Workflow** action.

Manual routing of records is generally accomplished in three ways:

- A Workflow-supported application will display a Route Workflow button in its toolbar:

- Workflow-supported applications also have a Route Workflow sub-selection in the Workflow selection of the Select Action menu.
- The Route Workflow button also appears on assigned records in the Inbox/Assignments table on the Start Center.



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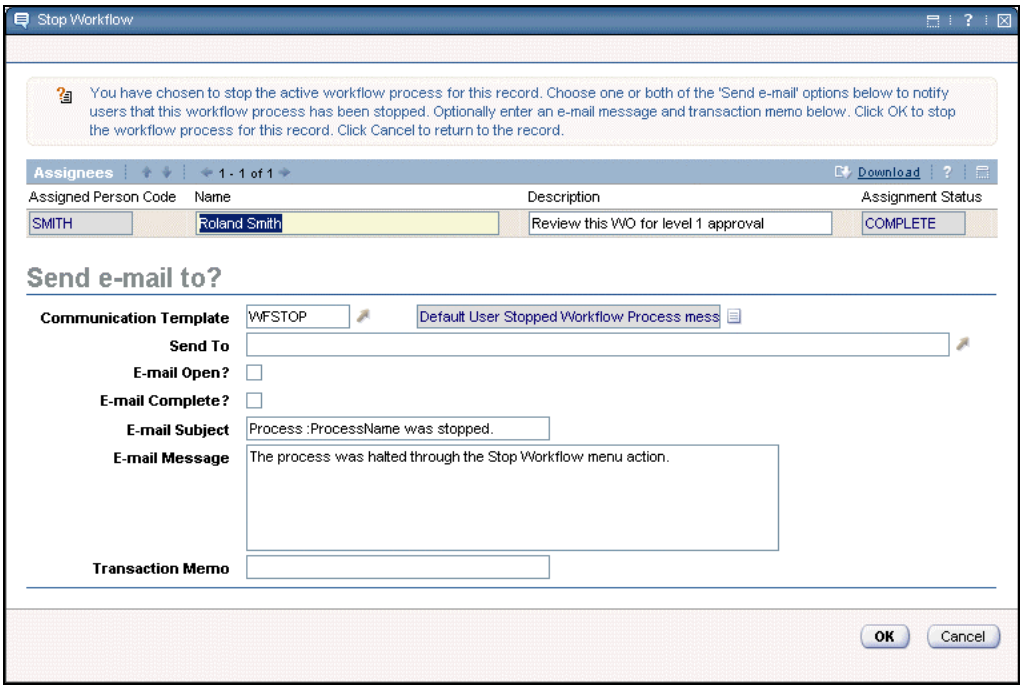
Starting a Record in a Workflow Process continued

Stop a Workflow Process

You can stop a Workflow process for a selected record by choosing the **Stop Workflow** sub-action of the Workflow action from Select Action.

When you select **Stop Workflow**, Maximo displays a dialog box similar to the example below. This dialog box allows you to send e-mails indicating that you are stopping the process.



You also can add a note in the **Transaction Memo** field to indicate why the process was stopped.

Note: Processes can also be stopped for selected records using the Workflow Administrator application.

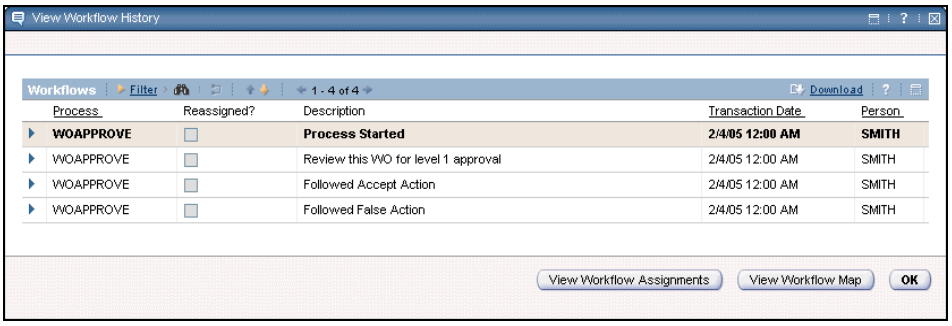
continued on next page

Starting a Record in a Workflow Process continued

Viewing Workflow History

You can view a history of what has happened to the current record in the Workflow process.

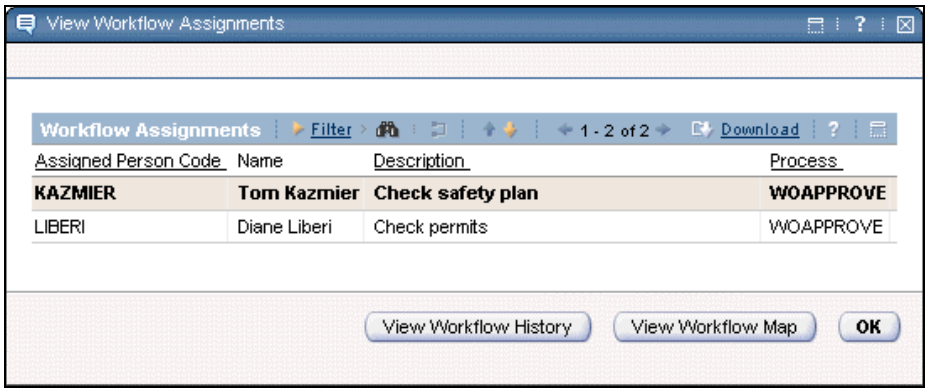
This information is accessed from the **View Workflow History** sub-action of the Workflow action from Select Action.



Note: The Workflow assignments and map can be accessed from this dialog box by clicking the respective buttons in the lower-right corner.

Viewing Workflow Assignments

You can view the assignments of the current record in a Workflow process by selecting the **View Workflow Assignments** sub-action of the Workflow action from Select Action.



Note: The Workflow history and map can be accessed from this dialog box by clicking the respective buttons in the lower-right corner.

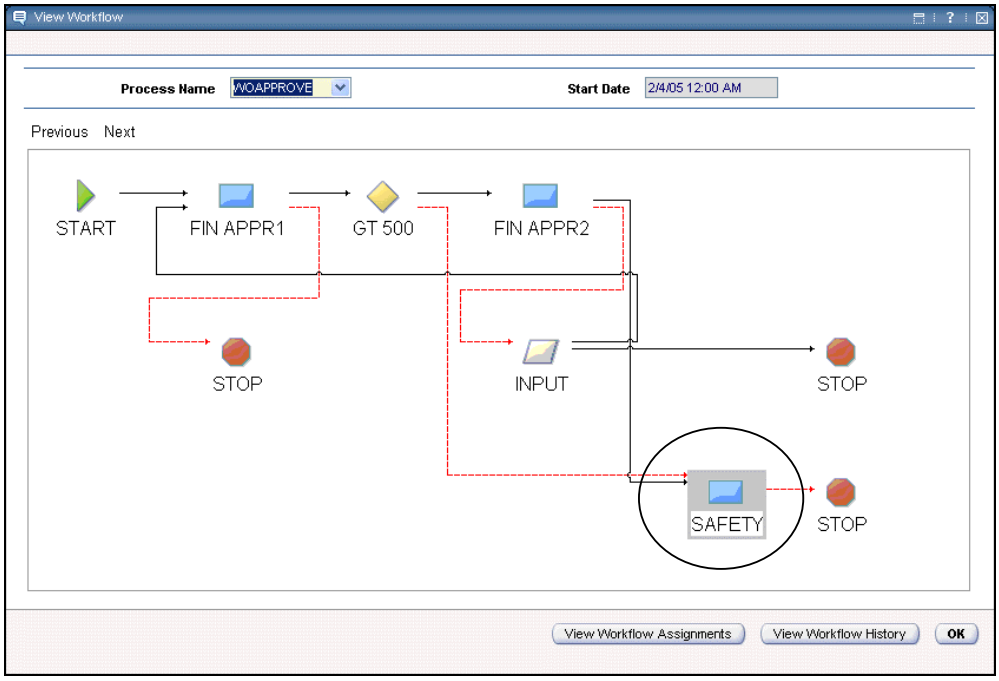
continued on next page

Starting a Record in a Workflow Process continued

Viewing the Workflow Map

You can view a map of the Workflow process and see the point in the process at which the current record resides.

You can access a *Workflow map* for the current record by selecting the **View Workflow Map** sub-action of the Workflow action from Select Action.



Notes:

- In the process above, the record is at the SAFETY node, as indicated by a gray square around the node in the map.
- The Workflow assignments and history can be accessed from this dialog box by clicking the respective buttons in the lower-right corner.

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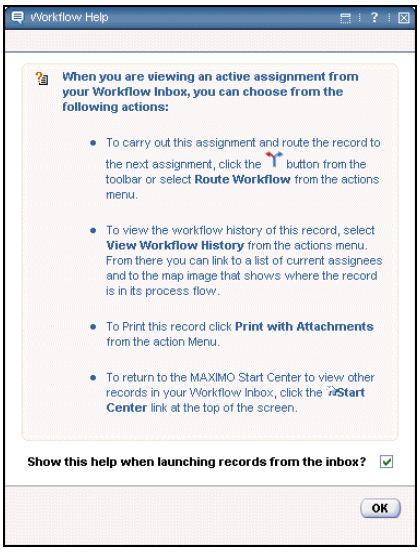
Starting a Record in a Workflow Process continued

Accessing Workflow Help

To access some basic, general help about Workflow processes, you can select the **Workflow Help** sub-selection of the Workflow selection from Select Action.



Note: The **Show this help when launching records from the inbox?** check box controls whether you see this help message when clicking the Route Workflow button in the Inbox/Assignments table on your Start Center.

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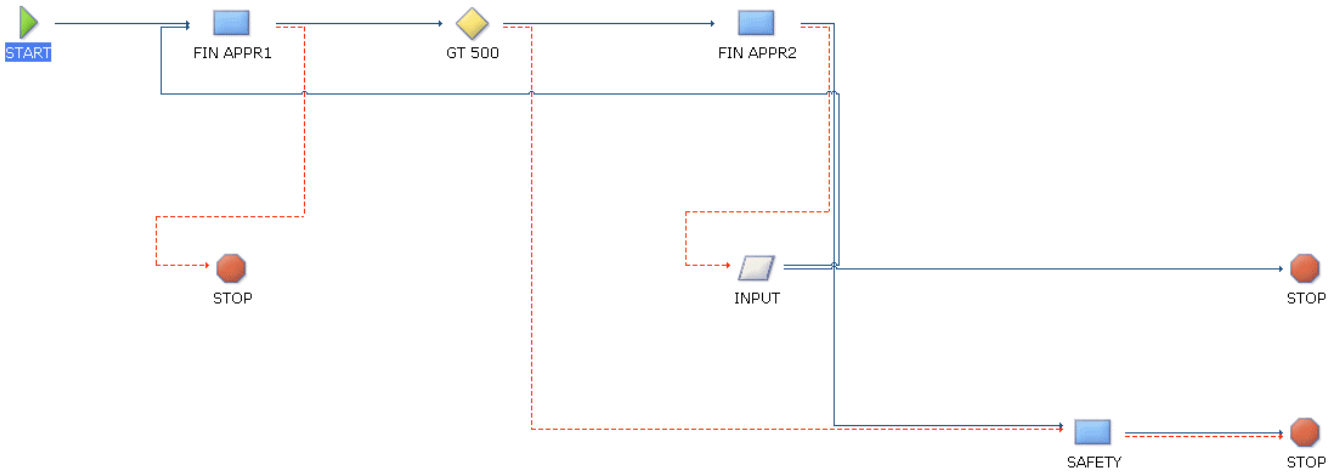
Starting a Record in a Workflow Process continued

Exercise: Work Order Approval Workflow

In this process, a work order is created in the **Work Order Tracking** application. The new record will be put into the WOAPPROVE process *manually*.



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Starting a Record in a Workflow Process continued

Exercise: Manually Starting a Workflow Record

In this exercise we will create a work order record using the Work Order Tracking application and manually start the record in Workflow.

Step	Action
1	Access the **Work Order Tracking** application and insert a new work order record. Write your work order # here: _____

continued on next page

Starting a Record in a Workflow Process continued

Exercise: Manually Starting a Workflow Record

continued

Step	Action		
2	Enter the following information for the tabs indicated below.		
	Tab > Subtab	**Field**	**Value**
	Work Order	Description	Fix broken windows and frames
		Location	CONF300
		Work Type	CM
	Plans > Labor	Craft	Carpenter / Secondclass
		Quantity	1
		Regular Hours	4:00
	Plans > Materials	Line Type	MATERIAL
		Description	5x8 window pane and frame
		Quantity	2
		Order Unit	EACH
		Unit Cost	500.00
		Vendor	FSC
		Issue to	Granger

continued on next page

Starting a Record in a Workflow Process continued

Exercise: Manually Starting a Workflow Record

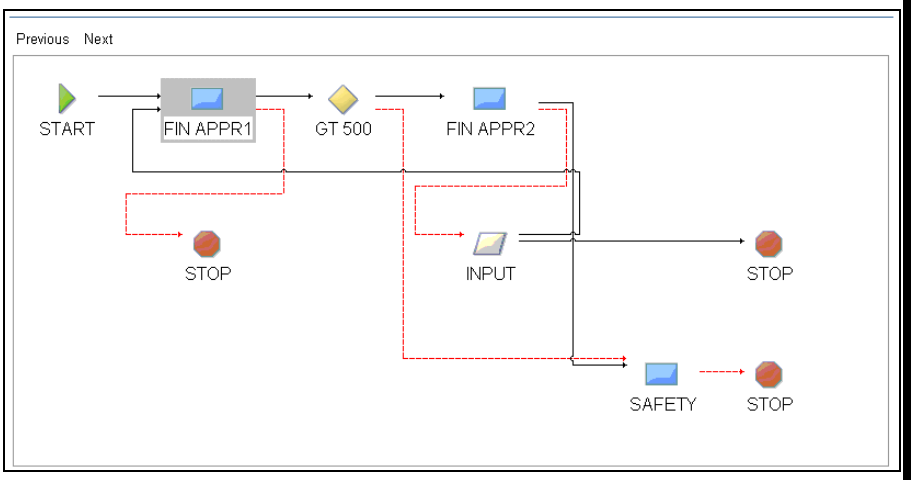
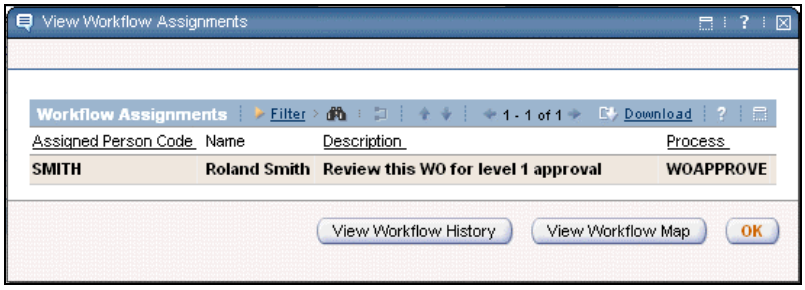
continued

Step	Action
3	**Save** the work order record. Note: In this example, the record did not enter the workflow because the underlying process is *not* set to auto-initiate.
4	Click the **Route Workflow** icon:  Result: The record is placed into the workflow process. The Route Workflow button changes, as shown below, to indicate that the record is now in a workflow process.  Note: You might also see a message flashed briefly just above the toolbar, indicating that the record has been placed into a process.

continued on next page

Starting a Record in a Workflow Process continued

Exercise: Manually Starting a Workflow Record continued

Step	Action
5	To view where the work order is in the Workflow map, select **View Workflow Map** from the Workflow **Select Action** menu. Result: Maximo displays the Workflow map. 
6	To view the current workflow assignee, click the **View Workflow Assignments** button. Result: The View Workflow Assignments window opens. 
7	Click **OK**.

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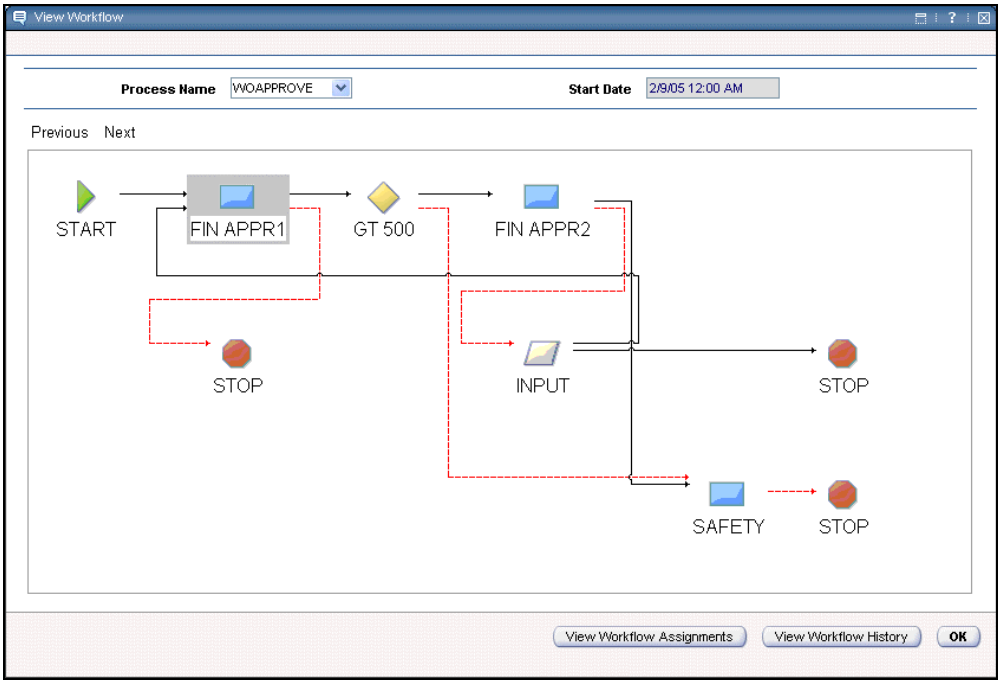
Starting a Record in a Workflow Process continued

Check Out the Process

Let's take a look at where the current work order record is in the process. View its Workflow map. The map should look like the graphic below.



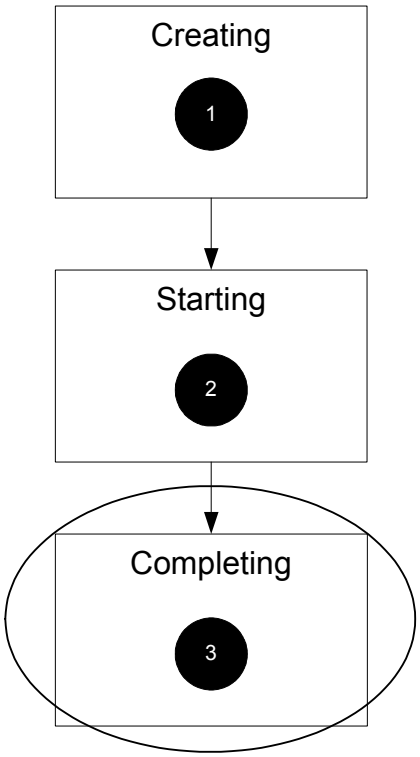
The first stage of the process is the Level 1 Financial Approval, where the record now resides.

Completing Workflow Assignments

Introduction

In this section we will learn how to navigate the **Inbox/Assignments** table for various users to complete a Workflow process.

We Are Here



*In the third stage, you use the **Inbox/ Assignments** table in the Start Center to perform the Workflow assignments.*

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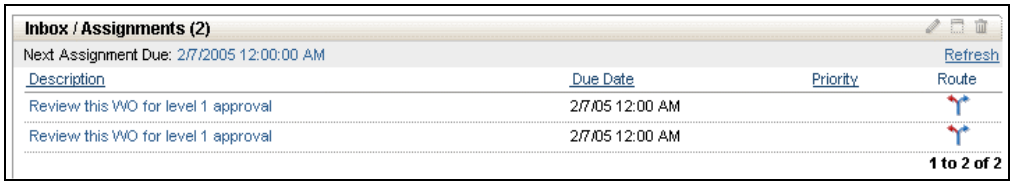
Completing Workflow Assignments continued

Inbox/ Assignments Table

As previously mentioned, the **Inbox/Assignments** table provides a handy place from which to review and route tasks that have been assigned to you.



In the following exercises, we will be using this table to complete the processes we started in the previous exercises.

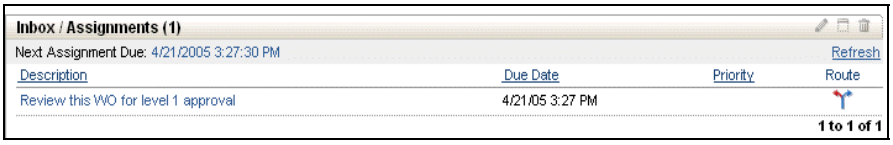
Note: You can also use the Route Workflow button to move selected records. However, we will focus on the use of the Inbox/Assignments table.

continued on next page

Completing Workflow Assignments continued

Exercise: Complete the Workflow

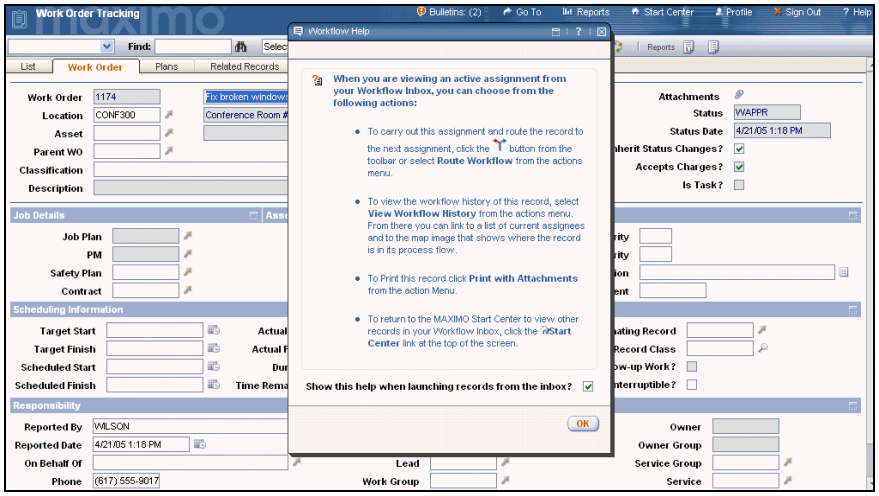
In the following exercise, we will sign in as Ronald Smith and complete the Work Order process from the Inbox in his Start Center.

Step	Action
1	Sign in to Maximo as Ronald Smith. User: **smith** / Password: **smith1** Result: Maximo displays Smith's Start Center. 

continued on next page

Completing Workflow Assignments continued

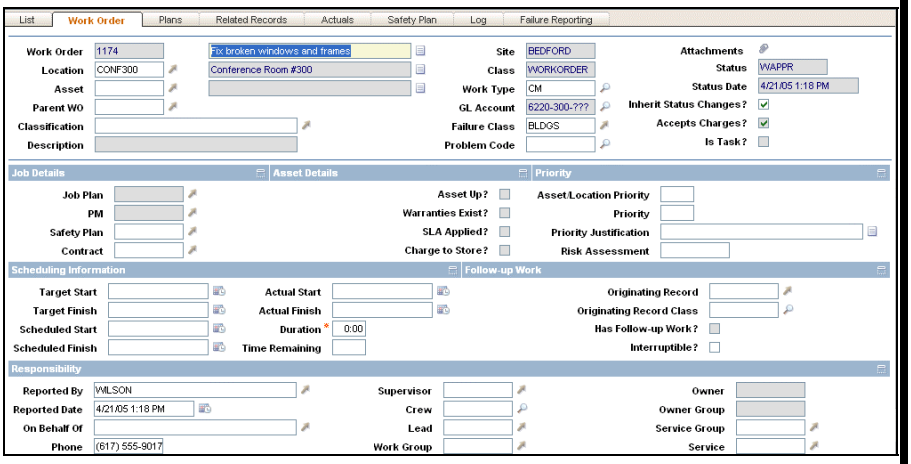
Exercise: Complete the Workflow continued

Step	Action
2	Click on the **Review this WO for level 1 approval** description in Smith's Inbox. Result: Maximo displays the underlying record in the Work Order application with Workflow Help displayed.  Note: You can clear the **Show this help when launching records from the inbox?** check box if you don't want help to show each time that you view an underlying record from the Inbox.

continued on next page

Completing Workflow Assignments continued

Exercise: Complete the Workflow continued

Step	Action
3	Clear the **Show this help when launching records from the inbox?** check box, then click **OK** in the Workflow Help dialog box. Result: Workflow Help closes and the WO record is fully displayed.  Note: Maximo will no longer display the automatic Workflow Help when you are viewing a record from the Inbox. However, application help is still available.

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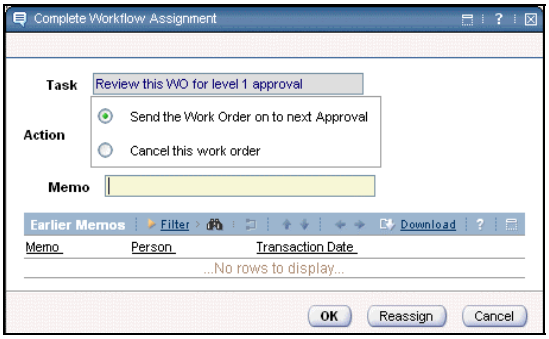
Completing Workflow Assignments continued

Exercise: Complete the Workflow continued

Step	Action
4	Now we want to route the record to the next point in the Workflow process. To do so, click the **Route Workflow** button on the displayed record.  Result: The Complete Workflow Assignment dialog box opens on top of the underlying record, asking whether the record should be sent to the next approval level or canceled. 

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Completing Workflow Assignments continued

Exercise: Complete the Workflow continued

Step	Action
5	Make sure the **Send the Work Order on to Next Approval** option is selected, then click **OK**. Result: The process goes to the next step. What is the next step? _____ Who is (are) the current assignee(s) of the assignment? _____
6	Using the **Select Action** menu to guide you, complete the assignments for each person. Move the work order through the process to an **APPR** status until it is no longer part of the workflow.

Chapter Summary

Components of Workflow

Workflow is comprised of a number of applications used to create workflows, applications used to create records using the workflow, the Inbox, and Workflow options.

Workflow Categories

There are several general categories of workflows:

- Process workflow
- Context-based instructions
- Hybrids of the two

Three Stages of Workflow Development

The three key stages of workflow development are:

1. Creating
2. Starting
3. Completing

Action Buttons

The action buttons on both the Canvas and the Process tabs are:

- Insert Process Revision
- Validate Process
- Enable Process
- Activate Process

Workflow Action Menu

When an application has been Workflow-supported, a Workflow item appears on its Select Action menu. The following choices are available:

- Route Workflow
- Stop Workflow
- View Workflow History
- View Workflow Assignments
- View Workflow Map
- Workflow Help

NOTES:

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Educational Services
Student Feedback Form

Name: _____ **Instructor:** _____
Class: _____ **Date:** _____

	Excel-lent	Very Good	Good	Fair	Poor	Very Poor
1. The course structure and style was:						
2. The course content was:						
3. The workshops as a whole were:						
4. The length of the course was :						
5. Course organization was:						
6. Relevance and usefulness of course content was:						
7. Opportunity for practicing what was learned was:						
8. Amount you learned in the class was:						
9. The instructor's effectiveness in teaching the subject matter was:						
10. Use of class time was:						
11. Instructor's use of examples and illustrations was:						
12. Instructor's ability to answer student questions was:						
13. Instructor's ability to present alternative explanations when needed was:						
14. Tailoring of instruction to varying student skill levels was:						
15. Instructor demonstrations were:						
16. Instructor's ability to solve unexpected problems was:						

17. Which aspects of this course were most effective? _____
_____
_____

18. Which aspects of this course detracted from your learning? _____
_____
_____

19. What suggestions do you have for improving this course? _____
_____
_____
_____

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Thank You!

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