Los Angeles Unified School Dist.

MAXIMO 5.2 SUPERUSER TRAINING

Prepared by:

API
APPLIED PLANNING INTERNATIONAL, INC.

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INTRODUCTION TO MAXIMO 5.2

In this introduction, we’ll give a general overview of MAXIMO as it relates to the LAUSD Trouble Call system. We will discuss accessing the database and define the MAXIMO modules and Applications we currently utilize.
Maximo Modules And Applications

Maximo has several **modules**:
MAXIMO’s Applications are grouped into modules. The Applications in a module have similar purposes, for example all the Applications related to purchasing are grouped together. Some Applications, like Work Order Tracking, function individually, while others, like Safety Precautions, create records designed to be used in conjunction with other Applications.

The following Applications will be discussed in greater detail in later Chapters.

**Work Orders**

**The Following Applications are part of the WORK ORDERS Module**

- **Work Order Tracking**: Perform every function related to processing work Orders.
- **Quick Reporting**: Report work on open work orders, small jobs without pre-existing work orders, or to report equipment downtime where no maintenance work is involved.
- **Labor Reporting**: Report hours worked by labor or craft.
- **Work Request**: Reporting any problems that require corrective maintenance activity.

**Preventive Maintenance**

**Manage preventive maintenance**
The Following Applications are part of the PM Module

Preventive Maintenance
Plan and schedule periodic, preventive maintenance and inspections for Locations and equipment

Inventory

INVENTORY MODULE
Manage Inventory

The Following Applications are part of the INVENTORY Module

Inventory
Manage items in inventory, including tracking stock levels, reordering items, and tracking rotating equipment

Item Master
Define inventory items, and add them to a storeroom’s stock lists

Storerooms
Define storeroom Locations, and view lists of items stocked at each storeroom

Issues and Transfers
Issue stock from inventory, and to transfer stock from one storeroom Location to another

Equipment

EQUIPMENT MODULE
Manage equipment and Locations

The Following Applications are part of the EQUIPMENT Module

Equipment Locations
Record and store equipment numbers and corresponding information

Create Location records and track equipment that might be used in multiple Locations

Failure Codes
Build and display failure hierarchies which you can then use to track failure trends for equipment and Locations

Condition Monitoring
Create and view measurement points and to track measurements taken on equipment to track performance, use, and wear

Purchasing

PURCHASING MODULE
Manage Purchasing

The Following Applications are part of the PURCHASING Module
### Purchase Requisitions
- Process purchase requests for items or services

### Request for Quotation
- Send requests to suppliers for prices and conditions to allow for comparison before a purchase order is generated for items or services

### Purchase Orders
- Create and process purchase orders for items or services

### Receiving
- Receive materials and services into inventory

### Invoices
- Record invoices, and to match purchase orders with receipts and invoices

### Desktop Requisitions
- Create self-service requisitions for items or services

## Plans

### Plans Module
- Plan how to perform a job safely

#### The Following Applications are part of the PLANS Module

<table>
<thead>
<tr>
<th>Application</th>
<th>Description</th>
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<tr>
<td>Job Plans</td>
<td>Create a detailed description of how a job is to be performed</td>
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<tr>
<td>Routes</td>
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<tr>
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<td>Create a detailed plan of how to safely service equipment or Locations</td>
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<tr>
<td>Safety Hazards</td>
<td>Define hazards that exist in the workplace, and associate precautions with those hazards</td>
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<tr>
<td>Safety Precautions</td>
<td>Define precautions that workers can take against hazards in the workplace</td>
</tr>
<tr>
<td>Lock Out / Tag Out</td>
<td>Create a detailed description of how to safely take equipment or Locations out of service and place them back into service</td>
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## Resources

### Resources Module
- Manage internal and external resources

#### The Following Applications are part of the PLANS Module

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<th>Application</th>
<th>Description</th>
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<td>Manage Tools owned by your Company</td>
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<td>Service Contracts</td>
<td>Manage service contracts your company has with vendors or manufacturers</td>
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<td>Manage employee and contractor records</td>
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<td>Crafts</td>
<td>Manage craft records</td>
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<td>Manage labor group records</td>
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## Reports

### Reports Module
- Manage internal and external resources

#### The Following Applications are part of the PLANS Module
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<td>Labor Groups</td>
<td>Manage labor group records</td>
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## DATABASE STRUCTURE IN MAXIMO

### STRUCTURED QUERY LANGUAGE

MAXIMO’s database is designed as a relational database.

MAXIMO uses Structured Query Language (SQL) to retrieve data from the database. Requests to find information in a database are called "queries." SQL is a standard language specifically designed to allow people to create, edit, maintain, and retrieve data from databases.

### MAXIMO HIERARCHIES

Some MAXIMO Applications group related records using "parent-child" relationships. A parent-child relationship is a one-way referral or link from one table to another. A column in the child table makes reference to a column in the parent table. The column referred to in the parent table must be part of the primary key. For example, in the Equipment Application you can have a "parent" equipment record that has "child" records for subassemblies. The subassembly records contain a reference to the parent record that they "belong to."

MAXIMO uses these parent-child relationships to group related records such as equipment, operating Locations, work orders, or PMs into hierarchies. You can build and use hierarchies of records in many MAXIMO Applications, including Work Order Tracking, Preventive Maintenance, Equipment, Locations, and Failure Codes.

With a parent-child relationship, you cannot delete a parent record without first deleting the children, because if you delete a record from the parent table, then the child would have an entry referencing a record that no longer exists.

Because MAXIMO’s Applications work together, data from a column in one database table can be shared with other database tables. Because of this column sharing, a data entry error in a single field (column) can appear in more than one Application.

In many cases errors can be corrected, but in some instances once data is entered, or a record’s status has been changed, the data cannot be changed in the database. In these cases errors are preserved intentionally, to create records for auditing purposes.

### DATA SHARING BETWEEN APPLICATIONS

Note: You can find information about each field’s table and column location in the field Help, discussed later in this manual.
Relationships Between Applications

An Application in Maximo may display information that resides in other Applications. To display that information, Maximo pulls data from one Application to another. As an example, in the Work Order Tracking Application displayed below:

- The Location field is populated from the Location Application,
- The Equipment field from the Equipment Application,
- The Job Plans field is populated from the Job Plans Application, and
- The Labor/Craft field from the Labor Application.
GETTING STARTED

MAXIMO 5.0 is a Web based product. This chapter describes what you need to know to get started using MAXIMO. It also describes the different elements of the Application screens.

System Requirements

To use MAXIMO you need the following:

**Web Browser**
- A Web browser. MAXIMO currently supports Microsoft® Internet Explorer version 5.5 or higher

**Monitor**
- A monitor with resolution of 1024 x 768 pixels per inch or greater

**User Name & Password**
- A User Name and a Password. These are assigned by your System Administrator

**Cookies**
- In addition, your Web browser should have the following settings:
  - Accept Cookies
  - Refresh the screen every time you visit a page. This is only necessary if you are using Internet Explorer version 5.0. This setting is automatic in version 5.0.1 and higher

Logging On To Maximo

**LOGGING ON TO MAXIMO**

Path to LAUSD Development database

From the Web Browser, enter the Internet Address for the Maximo Application.
http://maximo.laschools.org:7001/maxt/jsp/common/system/login.jsp

Enter your Username and Password set up by your System Administrator
For Training purposes, use
Username = TRAIN01, TRAIN02, TRAIN03, etc.
Password = TRAIN01, TRAIN02, TRAIN03, etc

**NOTE: PLEASE DO NOT CHANGE THESE PASSWORDS**

If you do not have a User Name and Password, for example if you are not a MAXIMO user but must file a maintenance request, click "register now" to register yourself and create a User Name and Password
Signature Security

Your System Administrator uses the Signature Security Application to establish each MAXIMO user’s access rights to MAXIMO modules, Applications, screens, and options. Your security clearances are tied to your User Name.

Changing Your Password

To change existing password, click in the “Change Password” checkbox. The Change Password dialog box is displayed.

Enter your current password and then enter your choice for a new password. Click OK or Cancel when you are done.
Maximo Start Center

After you sign in, MAXIMO displays your Start Center. You have a default Start Center defined for your User Name in Signature Security. Your Start Center is a grouping of modules that relate to your work, and can include all of the MAXIMO modules, or a selection of modules. Even if they are not a part of your Start Center, you can still access all of the MAXIMO modules from the Go To menu.

Starting an Application

1. Move your mouse over a module icon in your Start Center.
2. Click the Application name to open it.

Note: You can also access any Application from the Go To menu in the top right corner of the MAXIMO screen.

Application Screens

Most MAXIMO Applications look and feel similar. The MAXIMO Application screen starts below your browser’s address bar and contains the following areas:

- MAXIMO Navigation Bar
- MAXIMO Toolbar
- Application Tabs
- Forms
- Table Windows

Browser Menu and Icons

The menu and toolbar icons at the top of the page control your Web browser. Do not confuse them with the MAXIMO menus and toolbars.

CAUTION: Using the browser Forward and Back buttons to navigate within MAXIMO is not recommended.
Below the browser address box is the Navigation Bar, the first part of the MAXIMO Application screen. The following figure shows the Navigation Bar:

You use the Navigation Bar to identify the current Application, display messages, and maneuver among MAXIMO Applications. It contains the following sections:

- **Application icon and name**
  Shown on the left to identify the current Application.

- **Message area**
  In the center. When appropriate, MAXIMO displays messages in this area. These messages are only informational, and need no response, for example “At last record” and “Record has been saved.”

**GLOBAL NAVIGATION BAR**
In the right corner. The available links vary depending on what screen you are currently using. The possible options include:

- **Change Site** — Displays a menu of sites, allowing you to log into a different site. This link is only available from the Start Center.
- **Go To** — Displays a menu of modules, allowing you to maneuver among modules and Applications.
- **Sign Out** — Log out of MAXIMO.
- **Return** — Return to the previous Application screen without selecting a value. Available when you have linked to another Application.
- **Return with Value** — Return to the previous Application screen with selected value(s). Available when you have linked to another Application.
- **Help** — Displays Help menu. This link is always available.

**MAXIMO TOOLBAR**
Immediately below the Navigation Bar is the MAXIMO Toolbar. The Toolbar consists of four sections:

- **Current Query Menu**
  The Current Query menu contains any queries you have saved, and three additional search options: All Records, All Bookmarks, and Quick Key Search. If you select a query from this menu, MAXIMO executes it immediately.

- **Quick Key Search**
  Use Quick Key search to search the Application database by the key field of the Application. For example, in Work Order Tracking, the search is by Work Order Number. You can use the Quick Key search from any tab in the Application.

  **To use Quick Key search:**
  1. Enter a key in the Quick Key field.
  2. Click **Quick Key Search**.

- **Select Action Menu**
  The Select Action menu contains all of the Application specific actions that are available to you. Select an action from the menu to perform it.

**Note:** Action Menu options appear only if you have been given security access to them by your System Administrator.
The Toolbar also contains toolbar buttons that are common to all MAXIMO Applications. You see buttons only for actions your System Administrator has authorized you to perform

**The Standard Toolbar Buttons:**

- **Insert New Record** — Inserts a new record. You will need to supply Key.
  
  If the Application numbers new records automatically the button displays a number sign (#)

- **Save Record** — Saves a record. MAXIMO displays a message if a required field is empty.

- **Clear changes** — Clears the screen and returns you to the Find sub tab of the Search tab. MAXIMO prompts you to save if unsaved changes exist.

- **Previous Record** — Takes you to the previous record in the result set. A message is displayed in the Navigation bar if you are at the first record.
  
  MAXIMO prompts to save if unsaved changes exist.

- **Next Record** — Takes you to the next record in the result set. A message is displayed in the Navigation bar if you are at the last record.
  
  MAXIMO prompts to save if unsaved changes exist.

- **Go to Results** — Returns you to the Results sub tab of the Search tab.
  
  MAXIMO prompts to save if unsaved changes exist.

- **Create Attachment** — Use to attach documents to a MAXIMO record.
  
  Appears only on the Attached Documents Tab.

- **Change Status** — Displays the Change Status screen.

- **Route** — Routes record in Workflow. This button has two possible actions:
  
  - **Record not in Workflow** — Takes you to the Start Workflow screen.
  
  - **Record in Workflow** — Takes you to the Route Workflow screen.

- **Overview Report** — Activates Reports, creating a List report for all records in the result set.

- **Print Report** — Activates Reports, creates a Details report for the selected record, and then goes directly to the Print Report screen.

**APPLICATION TABS**

Most Applications display three or more tabs at the top of the screen’s working area. Data entry fields are arranged in logical groupings within each Application, and tabs organize and display the groupings. Tab screens are sometimes also referred to as "forms."

![Application Tabs](image)

The Search tab appears first for all Applications. The second tab contains the main information for that Application. Subsequent tabs contain secondary, related information. The selected tab appears as a lighter color than the inactive tabs.

Tabs can, in turn, have **sub tabs** that display additional information. Sub tabs contain data pertinent to their parent tab. For example, the Search tab contains several sub tabs related to searching the database. Sub tabs...
FORMS

When there are many fields on a single screen, they are divided into logical groupings called **forms**. Depending on the type of data, a form can be an entire screen, or several separate regions of a screen. Sometimes these forms are labeled to identify the reason why the fields were grouped together. The Labor Application for example, which creates employee records, has forms for Employment History, Pay, and YTD Hours.

TABLE WINDOWS

MAXIMO Applications use table windows to display multiple records from the database simultaneously. The table windows might have a label. The top row of the table window displays column headings; they are the field labels for each record displayed in the table window. The rest of the table window displays rows of data, each row representing one record. MAXIMO highlights the record in the table when you select it.

Navigating Table Rows (Records)

MAXIMO tables generally contain more rows and columns than a single screen can list. The top of the table window displays **Previous** and **Next** buttons. Between the buttons a number range shows the records currently being displayed (for example, 1-15, 16-30, and so on).

Table Row Navigation Buttons

Click **Next Page** to display the next page of records; click **Previous Page** to display the previous page. If you are at the first set of records, you cannot use the **Previous** button. If you are at the last page of records, you cannot use the **Next** button.

To the left of the **Previous** button are two arrows that you use to move up and down the displayed results set. Click the **Next Row** button to move the focus to the next record in the list. Click the **Previous Row** button to move the focus back to the previous record.

In addition to the buttons that allow you to navigate table windows there are also buttons that allow you to act on the records displayed in the table. These buttons are located on either side of the row in the table.

**Count Results** — Counts the records in a table window. The count appears as a message dialog box.

**Mark Row check box** (shown selected) — Selects records to include in Action menu actions. Click the check box to select it. If a record is selected in error, clicking the box again clears it.

**View Details** — Click to open the Row Details form, displaying all fields in the record so that you can enter, view, or modify data.

**Close Details** — When the Row Details form is open, the View Details button changes to the Close Details button. Click to close the Row Details form.

**Add to Bookmarks** — Marks a document or record for later viewing. Bookmarked records can be accessed from the Bookmarks sub tab of the Search tab.

**Mark Row for Deletion** — Marks a record for deletion. MAXIMO does not delete the row until you click **Save**.
**Undelete Row** — Undeletes a row that you have marked for deletion. This button indicates that you have marked the row for deletion.

The number of columns that can be displayed in a MAXIMO table window is limited, and most records contain more fields than can be displayed on-screen at one time. You access all of the fields in the record using the **View Details** button for an existing record, or the **New Row** button if adding a record.

Clicking the **View Details** button next to a row opens the Row Details form beneath the rows in the table window. When the Row Details form is open you can enter, view, or modify any data that is not read-only (blue).

In the example from a Work Order job plan below, the Tasks table window shows an open Row Details form. Note the **Close Detail** button to the left of the highlighted row.

---

### Task Information

**Task ID**: 20

<table>
<thead>
<tr>
<th>Description</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check terminals and cables, battery chargers.</td>
<td>0:00</td>
</tr>
</tbody>
</table>

### Measurement Information

- **Measurement Point**: 
- **Measurement**: 
- **Measurement Date**: 
- **Inspector**: 
- **Measurement**: 
- **Measurement Date**: 

### Work Reference Information

- **Equipment**: Electric Cart
- **Location**: Shipping and Receiving Department
- **Actual Start**: 10/05/00
- **Actual Finish**: 
- **Remaining Hours**: 
- **Reference WO**: 

---

**CAUTION**: MAXIMO does not automatically save changes made in the Row Details form. You must click **Save**.

You can sort columns with **underlined headers**. To sort a column, click the header.

First - Sorts the column in ascending order. An arrow pointing up appears in the column header.

Second - Sorts the column in descending order. An arrow pointing down appears in the column header.

Third - Returns the column to the default database sort. No icon is displayed.

You can only sort one column at a time, and that column displays an icon in the column header. If no icon appears in the table, no sorting is being performed.
Sorting Ascending

Notice the orange highlighted arrow
If you edit a table row, or do not save the record, and decide to sort by a column in the table, MAXIMO automatically saves the record (and table changes)

MAXIMO FIELDS

MAXIMO Application screens consist of multiple fields. As you work with MAXIMO you will encounter the following:

Data entry fields
Fields where you can enter, view, or modify information from the MAXIMO database

Required fields
Indicated by an asterisk (*) you must fill these fields before MAXIMO can save a record

Read-only fields
Indicated by blue text, you cannot modify these fields. For example some default values, or values on a saved record might be read-only

Default values
Some fields contain default values programmed by your system administrator, for example, your user name or the current date. You might be unable to modify default values

Calculated values
Some fields contain values that are calculated based on data stored in MAXIMO. Default values are read-only, you cannot modify them

FIELD BUTTONS

Fields can have actions associated with them. A field can have a long description, a select value lookup, or a menu of actions attached. In all cases, you access these actions via a field button

Displays a menu of actions available for the field. Specific choices vary by field

Provides room for entering more data than can fit in the on-screen field

Once a long description entry is created, the button appears orange to indicate there is more information available

Displays the Select Date screen. Click a date to return the value to the Date field

Displays a screen showing available values for the fields. Select Value screens are often lists of records created in other Applications, for example inventory items created in the Item Master Application

FIELD HELP

The Help includes detailed information about each of the MAXIMO fields, including the corresponding database table and column. To access this field information, complete the following steps:

1. Click the Help link in the Global Navigation bar.
   The Help menu appears.

2. Select the Application Help file.
   The Application Help opens.

3. Click Field Information.
   A menu of topics appears.

4. Click the topic for the tab or sub tab you are working on.
   The Help displays a table containing all of the fields contained on that tab or sub tab.

5. Click a field name for additional information.
COMMON PROCEDURES

SEARCHING THE MAXIMO DATABASE

MAXIMO stores entered information in a database, and requests to find information in the database are called queries. When you start a MAXIMO Application it opens with the Search tab displayed, to allow you to make requests for information. The Search tab functions are divided into five possible sub tabs:

- Find
- Advanced
- Saved Queries
- Bookmarks
- Results

Note: When you enter a search, MAXIMO uses Structured Query Language (SQL) to retrieve the data from the database. You do not need to know SQL to conduct basic searches of the MAXIMO database. The Search sub tabs allow for both SQL and non-SQL based queries.

Searching All Records

If you do not tell it otherwise, when you query MAXIMO assumes that you want to see every record in the current Application, for example all work orders. The implied query request is "all records."

1. Open an Application.
   The Find sub tab on the Search tab is displayed.
2. Click Find.
   MAXIMO displays the first 20 results of your query on the Results sub tab. You can navigate a lengthy Results Set using the Next and Previous buttons at the top of the table window.
3. Click the underlined record link to open a record.
   For example, in Work Order Tracking, the work order number is the link.

Narrowing a Search Request

MAXIMO allows you to narrow or filter your search requests using the Find sub tab. The Find sub tab is for querying by example (QBE), meaning that you provide MAXIMO with an example of what types of records you are searching for. For example, you might want to find all work orders with a status of waiting for approval (WAPPR).

The Find sub tab contains any fields your System Administrator has chosen as appropriate for user searches. You can enter values for each field that you want to have included in your query.

USING THE FIND SUB TAB

There are three buttons on the Find sub tab:

- **Find**: Click to execute a search. If no fields have been filled in, MAXIMO searches all records.
- **Clear**: Click to clear the fields on the Find sub tab.
- **Save**: Click to save a named query for later retrieval from the Current Query menu.
Because all Applications open to the Find sub tab, there are several actions you can execute from the sub tab. You can:

- Create a new record by clicking the **Insert New Record** button in the Toolbar.
- Execute a saved query from the Current Query menu.
- Perform a key field search with Quick Key search.
- Enter the Key field of an existing record and click **Find** to view or modify it.
- Execute a query by example by entering values in the available fields.
- Click any of the other Search sub tabs.
- Click any tab to see the first record in the result set.

**MAKING A QUERY BY EXAMPLE**

You can give examples of the kinds of records you want to find by entering values in one or more fields on the Find sub tab. This narrows your search. If no records match your query, MAXIMO displays a message:

1. Make sure you are on the Find sub tab of the Search tab.
2. Enter a value in one or more fields.
3. Click **Find**.

MAXIMO displays the first records that match your query on the Results sub tab. You can navigate a lengthy results set using the **Next** and **Previous** buttons at the top of the table window.

4. Click the record link on the Results sub tab to open a record.

For example, in the Purchase Orders Application, the PO number is the link.

**VIEWING SEARCH RESULTS**

The Results sub tab displays all records that match the current query. The results Columns can be sorted:

- Click the **Count Results** button to count the number of records that match your search request.
- Click the **Next Page** and **Previous Page** buttons to navigate the pages of your result set.
- Click the **Mark Row** check boxes to select multiple records to perform batch actions from the Actions menu.
- Click a **Record Number or Name** to open a single record.
- Click the **Add to Bookmarks** to mark the record for inclusion in the list of bookmarked records on the Bookmarks sub tab.

**SEARCHING USING WILDCARDS**

Sometimes you do not know the exact value for one of the fields you want to use in a query. For example, you only remember part of a work order number, but not the exact number. When this is the case, you can substitute a wildcard for the value you do not know. A **wildcard** is a special symbol that stands for one or more characters. A character is a letter or number.

**MAXIMO Wildcards**

MAXIMO uses two wildcards:

- The underscore (_) is used to substitute for a single character.
The percent sign (%) is used to substitute for a string of characters.

The equal sign (=) is used to match query exactly.

A string is any grouping of letters, numbers, or both. A word is an example of a string of letters.

When you use a wildcard in a search field, you must place the wildcard exactly where the unknown character(s) would occur. You can use more than one wildcard in a single search.

<table>
<thead>
<tr>
<th>Placement</th>
<th>Finds</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>%X</td>
<td>all instances where X is the last in the string of characters</td>
<td>%ing would return all instances where a word ended in -ing</td>
</tr>
<tr>
<td>X%</td>
<td>all instances where X is the first in a string of characters</td>
<td>M% would return all instances where the word started with the letter M</td>
</tr>
<tr>
<td>=XXX</td>
<td>all instances where X falls anywhere within the string of characters</td>
<td>=XYZ would return all instances where the word is XYZ</td>
</tr>
<tr>
<td>X_X</td>
<td>Finds a single character</td>
<td>A_C would return all words that start with A and end in C</td>
</tr>
</tbody>
</table>

The Saved Queries sub tab holds all of the queries that you have saved and named. These queries are also available from the Current Query menu in the Toolbar.

To save a query, type a name and description in the Save Current Query area of the Find or Advanced sub tab and click Save. You can also create, modify, and delete SQL queries from the Saved Queries sub tab.

You can define a default query that is executed every time the Application is launched, for example, all work orders with a status of WAPPR (waiting for approval). If MAXIMO does not find a match for your default query, the Find sub tab displays instead of the Results sub tab with the message "No records found that match the specified query."

Default queries are specific to each Application. For example, a work order query is only activated in the work orders Application.

To save a query as a default:
1. Use the Find sub tab of the Search tab to create a query. For more information about constructing queries see “Making a Query by Example” on page 35.
2. (Option) Give the query a name and description in the Save Query As and Query Description fields.
3. Check the My Default? checkbox.
4. Click Save.
You use the Advanced sub tab of the Search tab to conduct advanced queries of the MAXIMO database using Structured Query Language (SQL). In order to perform advanced queries you should be familiar with both SQL and the MAXIMO database.

The Advanced sub tab displays the current SQL WHERE clause in the Current Query field. If you have entered values on the Find sub tab then clicked on the Advanced sub tab you see the WHERE clause MAXIMO created based on your query values. You can modify the WHERE clause to change your search parameters. You can also name the WHERE clause and add it to your saved query list.

The above query will return all Work Orders that are in the “APPR” Status, not in History and not a Task.

The above query will return all Work orders in “APPR” Status with a Supervisor of Connelly and with a Scheduled Start Date between 10/01/01 and 11/01/01.

The Bookmarks sub tab displays all records that you have "Bookmarked" on the Results sub tab. The records include a Select Record check box, record number, description, the date the record was bookmarked, and a Delete Row button.

The Bookmarked records are "owned" by the user name and location that you have logged in under. If you log in under a different name, you see a different Bookmarks list.
Adding a Bookmark

There are two ways to add a record to your list of Bookmarks:
- From the Results sub tab — Click the **Add to Bookmarks** button for the record.
- From any of the Application tabs — Select **Add to Bookmarks** from the Action menu to add the current record.

Deleting a Bookmark

To remove a bookmark from the Bookmarks sub tab click the **Delete Row** button for the record. The bookmark is deleted immediately.

Creating a Record

The procedure for creating a record is similar for most of the Applications. The major difference is that some Applications are set to automatically generate a number for each new record, while other Applications let you create the name or number for the record.

1. Open the Application.
2. Click the **Insert Record** Action button.

**NOTE:** The tool tip text for this button varies by Application. For example, in Work Order Tracking it reads "New WorkOrder".

3. If needed, enter a unique value in the key field, usually the first field on the left.
4. Type a description for the record in the **Description** field.
5. Fill in the other fields as dictated by your company’s business rules.

**NOTE:** Fields that require a value for MAXIMO to save a record are indicated by an asterisk (*). See the Help for more information about any of the fields.

6. (Option) You can edit default values that are not read-only (blue).
7. Click **Save**.

Editing an Existing Record

The ability to edit an existing record varies by Application and the impact modifying that record could have on the maintenance process. MAXIMO often uses statuses as a means to indicate where in the process a record is, and which fields can be edited. For example, MAXIMO does not allow you to change a purchase order once it has been sent to a vendor. In some cases there is a need to maintain records for auditing purposes and editing is not allowed.

Deleting Records

Much like the ability to edit, the ability to delete records varies by Application and the impact that the deletion could have on the maintenance process. In some cases there is a need to maintain records for auditing purposes and deletion is not allowed.

Hierarchy associations affect the ability to delete records. Parent records cannot be deleted if there are children associated with the record. The child associations must be broken before the record can be deleted.

Entering Values

MAXIMO Applications are linked, allowing you to select values from...
lists of existing records when you are filling in fields in other Applications. For example, when you are filling in the Equipment field on a work order, you can select from the list of equipment records in the Equipment Application.

MAXIMO contains several options for selecting a value for a field. All of these options appear on a separate screen that allows you to select a value and return it to the Application you were working in. Your options vary by field. This section describes some of the most common ways to select a value for a field.

**USING THE SELECT VALUE BUTTON**

Clicking the Select Value button displays a Select Value list, either of records created in another MAXIMO Application, or created by your System Administrator.

1. Click Select Value. The Select Value screen appears.
2. (Option) Enter a value in the Search For field and click Find (Binoculars) to narrow the search results.
3. Click the Select Record button beside the value you want to use.

MAXIMO returns the value to the field on the Application screen.

**USING THE SELECT DATE SCREEN**

Clicking the Select Date button displays the Select Date screen. This screen displays the previous, current, and next month. You can navigate forward and backwards in three month increments, or search by month and year.

1. Click Select Date. The Select Date screen appears.
2. (Option) Navigate to the correct date.
3. Click the date to select it.

MAXIMO returns the value to the field on the Application screen.
Work orders are the core of maintenance management. A work order specifies a particular task to be accomplished, and the labor, materials, and tools needed to do the work. When you create a work order in MAXIMO you initiate the maintenance management process and create a historical record of work performed.

**Work Orders Applications**

- **Work Order Tracking** — Used to perform every function related to processing work orders.
- **Quick Reporting** — Used to report work on open work orders, small jobs without pre-existing work orders, or to report equipment downtime where no maintenance work is involved.
- **Labor Reporting** — Used to report hours worked by labor (employees) or craft (employee groups).
- **Work Requests** — Used for reporting any problems that require corrective maintenance activity.

The MAXIMO Applications recognize these general categories of work orders:

- **Emergency (EM)** maintenance work orders are problems that need to be corrected immediately, because they are life threatening, could damage equipment, cause production to go down, or are of an urgent nature.
  
  You can enter this type of work order in the Work Order Tracking, Work Requests, or Quick Reporting Applications.

- **Corrective (CM)** maintenance work is work that needs to be done, but does not have to be performed immediately. Corrective work can be scheduled if necessary.
  
  You can enter this type of work order in the Work Order Tracking, Work Requests, or Quick Reporting Applications.

- **Event report** work orders are intended to represent any unscheduled event that stops work (production) but does not necessarily require a maintenance crew to fix. Examples of these are (EV) for Events like setting up for a BBQ, or (TR) Training, Safety Meeting, Etc. or (AD) Administrative Work Orders, should be assigned for requests to Systems Administration, or documentation not connected to a specific work order.
  
  You can enter this type of work order in the Work Order Tracking, or Work Request Applications, but would most likely use the Quick Reporting Application.

- **Standard Recurring Work (SR)** may include some weekly, monthly and annual open work orders.
- **Project (PRJ)** Capital, Planned work expenses
- **Support Work (SP)** Shop Work (Optional)
- **Alteration & Improvements (AI)**
- **Preventative Maintenance Masters (PM)** are used over and over on a periodic basis to generate preventive maintenance work orders. Preventive Maintenance masters are created in the Preventive Maintenance module. However, you process preventive maintenance work orders in Work Order Tracking or Quick Reporting.
- **Predictive Maintenance (PdM)**

**CREATING WORK ORDERS USING MAXIMO**

You can use several Applications in MAXIMO to create work orders:

- **Work Order Tracking** — Use to create and report on high volume or complex work orders.
- **Work Requests** — Use to report any problems that require corrective maintenance activity.
- **Quick Reporting** — Use to create work orders and report actual work done for simple jobs, unplanned work, or work not performed by the maintenance department.
- **Preventive Maintenance** — Use to generate scheduled maintenance work orders.
- **Condition Monitoring** — Use to generate work orders to correct problem conditions found during monitoring procedures.

**WORK ORDER STATUSES**

Every work order in MAXIMO has a status 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. When you change a work order’s status, MAXIMO records the date and time of the status change, and allows you to record a memo. When you change the status of a work order that is part of a Hierarchy, the status for the entire hierarchy is changed. Your System Administrator can configure MAXIMO to allow child work orders to be statused individually.

**NOTE:** Your System Administrator sets the signature security authorizations that allow users to change work order statuses.

The following Statuses come predetermined with MAXIMO. To fit the Business Process of their Company, a System Administrator can add Statuses that are synonyms of any of these:
- **WAPPR** — Waiting for Approval. Default status for work orders created in Work Order Tracking.

- **WSCH** — Waiting to be Scheduled. Default status for work orders generated from Preventive Maintenance.

- **APPR** — Approved. When you approve a work order, MAXIMO reserves the work plan items in Inventory and records cost and rate data. If rates change in Inventory, Labor, or Tools, the work plan reflects the rates in effect when the work order was approved.

- **WMATL** — Waiting for Material. This option is available for work orders with a status of WAPPR, APPR, or INPRG. Indicates that the work order cannot be initiated because needed material is unavailable. When the direct issue items requisitioned for the work order have been issued in Issues and Transfers, the work order status changes to approved (APPR).

- **WPCOND** — Waiting for Plant Conditions. Status for work orders that require a particular plant condition in order to be worked on, for example for a production line to be shut down.

- **INPRG** — In Progress. Default status for work orders created in Quick Reporting. This status initiates the work order. If there are insufficient items to complete the work order, MAXIMO changes the status to WMATL.

- **COMP** — Completed. Indicates that all physical work is finished. If the equipment is down, MAXIMO displays a reminder message.

- **CLOSE** — Closed. Change status to CLOSE when the electronic "paperwork" on a work order is complete and you want to finalize the record. Inventory reservations for items not issued to the work order are removed. The work order becomes a history record and cannot be edited.

- **CAN** — Canceled. If you have selected multiple work orders, MAXIMO cancels the ones that have not been initiated or for which no Actuals have been reported. If the work order has been approved, MAXIMO removes Inventory item reservations for the work order. The work order becomes a history record.
Work Orders Tracking Application

You can use the MAXIMO Work Order Tracking Application to plan, review, and approve work orders for pieces of equipment, Locations, or other work charged to general ledger (GL) accounts.

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.

You can access the Work Order Tracking Application by selecting the Work Orders icon on the MAXIMO Start Center and then choosing Work Order Tracking or by using the Go To link.

There are eight tabs on the Work Order Tracking Application screen:

- **Search** — Use to search the database using any combination of available fields.

- **Work Order** — Use to enter, view, or modify work orders, view identifiers for an applied job plan and safety plan, view PM and scheduling information. If this is a follow-up work order, you can view the identifier of its originating work order. You can also identify the failure hierarchy for the work asset.

- **Plans** — Use to enter, view, or modify information on work orders in a hierarchy as well as lists of estimated job tasks, labor and crafts, materials, and tools for the work order's work plan.
Assignments — Use to view Labor/Craft Assignment Status on Work Order

Actuals — Use to 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 — Use to enter, view, or modify safety information on the work order.

Failure Reporting — Use to record and view equipment and Location problems, causes, and remedies so that you can identify trends for equipment and Location breakdowns.

Attached Documents — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

WORK ORDER TRACKING ACTIONS

The following actions are available from the Work Order Tracking Action Menu.

Change Status — Use to change the status of a record. If the action is selected from the Results subtab of the Search tab, you can change the status of all selected records as a batch action

Route Work Order — Used to Route Work Order

Stop Workflow — Use to stop the Workflow approval process and remove the document from Workflow. Workflow is an optional component of MAXIMO.

View Workflow Help — Use to view a Help topic for the Workflow In Box

View Status / Workflow History — Use to view the status change history and Workflow information for a work order. Workflow is an optional component of MAXIMO.

Generate Follow-up Work — Use to create a new work order when you complete a job but there is additional work needed on the same equipment or Location, beyond the work described in the original work order.

Apply Route — Use to apply a route to a work order. Route stops are displayed on the Plans tab.

Assign to New Parent — Use to assign the work order to a new parent work order.
- **Move Equipment** — Use to move a piece of equipment to a new location within the same site or to another site in the organization, or associate a new parent.


- **Select Safety Hazards** — Use to select hazards from the lists defined for individual assets on a Safety Plan.

- **Remove Safety Plan** — Use to remove an existing Safety Plan on a work order before inserting a new Safety Plan.

- **Report Downtime** — Use to report equipment downtime.

- **View Follow-up Work** — Use to view a list of follow-up work orders for the originating work order.

- **View PO Information** — Use to view a read-only list of all purchase orders that were generated for work order items, and services received against the work order.

- **View Costs** — Use to view estimated and actual cost totals for the selected work order.

- **View Entire Plan** — View the work plan for the entire hierarchy (children and tasks) below the current work order. Levels of the hierarchy above the current work order are not included in this action.

- **Edit History Work Order** — Use to modify a work order with a status of CLOSE. Limited fields are available for editing with this action.

- **Run Reports** — Use to access the Reports available for the current Application.

- **Work Order Details Report** — Use to activate Reports, create and print a Details report for the selected record.

- **Print With Attachments** — Use to print all documents associated with a record through Attached Documents.

- **Duplicate Work Order** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record. Duplicating a parent work order duplicates the entire hierarchy.

- **Delete Work Order** — Use to delete the current record from the MAXIMO database.
WORK ORDER TRACKING REPORTS

- **Add to Bookmarks** — Use to add the current record to your personal bookmark list.

The following standard MAXIMO reports are available for the Work Order Tracking Application:

- **Work Order Material Shortage Report** — Calculates the item availability expected at the time the work order starts using reservations and expected receipts. Determines if the item’s expected balance will be sufficient for the planned materials for the current work order.

- **Work Order Pick Report** — Lists items to be picked for selected work order.

- **Work Order Details Report** — Lists details of the selected record(s).

- **Work Assignment Report** — Lists work order assignments for Labor by Supervisor or by Locations.

- **Work Order List Report** — Lists work order, description, and status for selected records. Links are available via work order number to the Work Order Details report for individual work orders.

- **Estimated vs. Actual Work Order Costs** — Lists a cost summary of work orders. The report displays estimated and actual costs for each work order by labor, material, and tools, and provides totals for these costs.

The above Reports are just the standard reports. Customized Reports can be developed as needed.

**Using the Work Order Tracking Application**

Work Order Tracking is intended for maintenance supervisors, planners, and schedulers to plan, review, and approve work orders. Work orders are essential elements of maintenance management. Work orders serve to track both events that have occurred and work that has been performed.

- **Event** tracking consists of recording occurrences of problems and reporting the downtime resulting from the problem.

- **Work** tracking includes specifying the tasks to be accomplished, the labor, items, and tools needed to do the work, and the equipment or Location to be worked on.

**CREATING A WORK ORDER**

You create a work order on the Work Order tab of the Work Order Tracking Application. You can also use several other Applications to...
create work orders.

**TIP:** Indicating a **Failure Class** and **Problem Code** on a work order can help limit the number of duplicates that are entered in the system. MAXIMO displays a message if the same problem code has already been entered for the Equipment / Location.

1. Open the Work Order tracking Application.

2. Click the **New Work Order** button in the Toolbar. MAXIMO switches to the Work Order tab, displaying an empty work order record.

3. Enter a description for the work order.

4. (Option) Charge the work order to either a Location, a piece of equipment, or a GL account by doing one of the following:
   - **Location** — Click **Detail** to access the Equipment / Location Drilldown and select a Location.
   - **Equipment** — Click **Detail** to access the Equipment / Location drilldown and select an equipment.
   - **GL account** — Click **Select Value** to access the Account Navigator and select a GL Account code.

5. Fill in the other required fields.

**NOTE:** Required fields are indicated by an asterisk (*). Refer to the Field Help for more information about any of the fields.

6. Click **Save**.

A work plan describes the tasks, labor, materials, and tools needed to complete a work order. You can create a work plan two ways:

- Associate a job plan with the work order. When you select a job plan, MAXIMO copies it to the work order. The copy becomes the work plan. You can make changes to the work plan without affecting the original job plan it was copied from.

**NOTE:** MAXIMO can also add a safety plan to the work order if one has been associated with the job plan.

- Create a custom work plan using the Plans tab. Defining a Work Plan consists of four steps:
  1. Defining the Tasks by breaking the job down into steps in the Tasks table window.
  2. Defining the Labor skills and hours on the Labor sub tab.
  3. Defining the Materials needed on the Materials sub tab.
  4. Defining the Tools needed on the Tools sub tab.
1. Open or create a work order record.

2. Click the **Detail** button on the Job Plan field.

3. Choose Select Value.
   The Select Job Plan screen appears, displaying the available Job Plans for the Equipment/Location combination if one was associated earlier.

4. Click **Select Record** for the job plan.
   MAXIMO copies the job plan to the work order. The work plan can be viewed on the Plans tab.

5. Click **Save**.

**EDITING A WORK PLAN**

When MAXIMO copies a Job Plan to a work order, the Job Plan becomes a work plan, which can be edited. Changes made to a Work Plan do not affect the original Job Plan.

1. Apply a Job Plan as described earlier.

2. Click the Plans tab.
   The Tasks table window displays the steps in the Work Plan.

3. Click a Task to select it.

4. Click **View Details** to open the Row Details form for the task.
   a. Edit the fields as needed.
   b. Choose one of the following options:
      - **New Row** to add another row.
      - **Done** to close the Row Details form.
      - **Delete** to delete the row.

5. Click the Labor, Materials, or Tools sub tab to select it.

6. Click **View Details** to open the Row Details form for the sub tab.
   a. Edit the fields as needed.
   b. Choose one of the following options:
      - **New Row** to add another row.
      - **Done** to close the Row Details form.
      - **Cancel** to cancel the changes

7. Repeat step 6 for each additional sub tab that needs editing.

8. Repeat steps 3 through 7 for each additional task that needs editing.

9. Click **Save**.
DEFINING WORK PLAN TASKS

If no job plan exists that meets your needs you can create one in the Tasks table window on the Plans tab. The Tasks table window can also be used to add measurement point data for the work asset.

Task numbers must be unique within each work plan. The system sorts tasks in numerically ascending order. The task with the lowest number is the first step in the work plan. The default is for MAXIMO to increment task numbers by 10, for example 10, 20, 30 and so on. This gives you the flexibility to add new tasks between existing ones.

1. Open or create a work order.
2. Click the Plans tab.
3. Click New Row.
   The Row Details form opens.
4. Enter a Description for the task.
5. Fill in the required fields.

NOTE: Required fields are indicated by an asterisk (*). Refer to the Field Help for more information about any of the fields.

6. Choose one of the following options:
   - New Row to add another row.
   - Done to close the Row Details form.
   - Delete to delete the row.

7. Click Save.

DEFINING WORK PLAN LABOR NEEDS

You use the Labor sub tab on the Plans tab to enter, view, or modify planned labor for a work order.

1. Open a work order.
2. Click the Plans tab.
3. Click the Labor sub tab.
4. Click New Row.
   The Row Details form opens.
5. (Option) Enter a Task ID in the Task ID field. If there is an Hours value for this task MAXIMO copies it to the Hours field.
6. Enter a Labor Code by either
   - Typing a Labor or Craft code.
   - Clicking Select Value to select a code.
7. Enter or modify data as required in the Quantity, Hours, and Rate fields. MAXIMO calculates the value in the Line Cost field.

8. Choose one of the following options:
   - New Row to add another row.
   - Done to close the Row Details form.
   - Delete to delete the row.

9. Click Save.

You use the Materials sub tab on the Plans tab to enter, view, or modify planned materials for a work order. The Materials sub tab contains three buttons:

- Search Catalogs — Displays a menu, which allows you to search for items in local inventory or in vendor’s online catalogs.

**NOTE:** Your System Administrator must configure MAXIMO to be e-commerce enabled before you can search online catalogs.

- Select Spare Parts — Allows you to enter an equipment number to view the list of spare parts defined in the equipment record.

- New Row — Opens the Row Details form, allowing you to manually enter material needs for the work plan.

To enter materials manually:

1. Open a work order.

2. Click the Plans tab.

3. Click the Materials sub tab.

4. Click New Row.
The Row Details form opens.

5. (Option) Enter a Task ID in the Task ID field.

6. Click the Detail button to select an Item.

7. Fill in the other fields as dictated by your company’s business rules.

**NOTE:** Fields that require a value for MAXIMO to save a record are indicated by an asterisk (*).

8. Choose one of the following options:
   - New Row to add another row.
   - Done to close the Row Details form.
   - Delete to delete the row.
9. Click **Save**.

**Materials Interactions**

When you plan materials for a work plan, MAXIMO uses the data to do the following:

- Items identified in Item Master as a hazardous material have their hazard information copied to the Safety Plan tab.
- Planned materials are reserved in Inventory when the work order status is changed to approved (APPR). If the work order status is unapproved or canceled, the reservations are removed.
- Material reservations can be copied to the Materials sub tab of the Actuals tab when the materials are issued to the work order.

**Defining Work Plan Tool Needs**

You use the Tools sub tab on the Plans tab to enter, view, or modify any specialized tool needs for a work order. The tools listed can range from hand tools to heavy machinery such as cranes. You can also include tools that your company does not own and might need to rent to complete the work order.

The procedure for adding Tools data is the same as described in “Defining Work Plan Materials Needs”

**Work Order Hierarchies**

A work order hierarchy is a group of work orders arranged in parent-child relationships. A work order hierarchy is often used when you have a large maintenance project that might need to be broken down into smaller jobs to be completed. Hierarchies allow each smaller job to be handled as an individual work order, while having a relationship to the larger project.

Hierarchies allow work order costs to be viewed individually and be included in the project totals. You can view the Actuals for the parent, as well as the combined totals of the parent and all of its child work orders via the View Costs action.

At the highest level of a work order hierarchy, there is one work order that is the parent. This top-level work order can have one or more child work orders. Each child work order can have one or more children, and so on. A child work order can only have one parent. The lowest level of any branch of the hierarchy is the task level containing the steps that are defined in a work plan, job plan, or safety plan.

**Building a Work Order Hierarchy**

To build a hierarchy you create a parent work order, then create or associate child work orders. For example, your company has decided to change to more energy efficient lighting, which requires re-lamping the entire plant. You might create a child work order for each building Location. This allows you to track the costs of the work done at each building Location and also keep a running total of costs for re-lamping the plant.

You can create a work order hierarchy in a number of different ways.
including:

- Building a hierarchy in the Plans tab
- Applying a route to a single work order
- Generating a work order hierarchy from a PM hierarchy

You can use the Plans tab to view and modify hierarchies regardless of how they were created. Once work orders have been grouped into hierarchies, you can easily change all statuses, view all estimated and actual costs, and put all work orders into a sequence so that workers can perform tasks in a defined order. You can also move a work order to another hierarchy.

You can associate existing work orders with a hierarchy, or change the hierarchy association of a child work order using the Assign to New Parent action.

1. Open or create a work order record.
3. Click Select Record for the new parent. MAXIMO displays a message in the Navigation bar, and the Parent WO field displays the new parent work order.
4. Click Save.

ASSOCIATING EXISTING WORK ORDERS WITH A HIERARCHY

BUILDING A HIERARCHY ON THE PLANS TAB

You use the Task table window on the Plans tab to add Tasks to a work order. Each of these tasks can also be a child work order, and MAXIMO assigns each task its own work order number. You can view the work order number for a task in the Reference WO field.

1. Open or create a work order record.
2. Click the Plans tab.
3. Click New Row. The Row Details form opens. Note the work order number in the Reference WO field.
4. Enter a Description for the Task. This description is copied to the child work order.
5. (Option) Enter an Equipment or Location.
6. Fill in the other fields as dictated by your company’s business rules.

NOTE: Fields that require a value for MAXIMO to save a record are indicated by an asterisk (*).

7. Choose one of the following options:
   - New Row to add another row.
   - Done to close the Row Details form.
   - Delete to delete the row.
8. Click **Save**.

A route can be applied to a work order or specified on a PM. 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.

1. Open or create a work order record.

2. Choose **Apply Routes** from the Action menu.
The Apply Route screen appears.

3. Click **Select Record** to select a route.
MAXIMO copies the route to the Plans tab of the work order.

4. Click **Save**.

**GENERATING A WO HIERARCHY FROM A PM HIERARCHY**

PM hierarchies group Equipment or Locations with the same PM schedules in parent-child relationships. When you generate work orders from a PM that is the part of a hierarchy, work orders are generated for the entire hierarchy. You generate PM work orders in the Preventive Maintenance Application, and can view the work orders in Work Order Tracking.

**NAVIGATING WORK ORDER HIERARCHIES**

You view and navigate a work order on the Plans tab. The **Parent WO** field displays the parent work order. Child work orders are visible in the Task table window.

**To move from a parent work order to a child work order:**

1. Click **View Details** for the Task.
The Row Details form opens.

2. Click the **Detail** button for the **Reference WO** field.
The menu shows the parent work order.

3. Select **Move to:**
MAXIMO moves to the child work order.

**To move from a child work order to a parent work order:**

1. Click the **Detail** button for the **Parent WO** field.
The menu shows the parent work order.

2. Select **Move to:**
MAXIMO moves to the parent work order.
MAXIMO lets you report both planned and unplanned downtime:

- **Planned downtime** — the equipment is scheduled to be down and available for maintenance work to take place.

- **Unplanned downtime** — the equipment goes down unexpectedly.

Reducing unplanned downtime saves you money. To reduce costs caused by unplanned downtime, you can use Work Order Tracking to report downtime, then analyze downtime trends and take action to reduce unplanned downtime in the future, for example by increasing your preventive maintenance schedule.

MAXIMO recognizes two types of downtime:

- **Operational** — occurs during a time when the equipment would normally be in use and causes work or production to stop.

- **Non-operational** — occurs during a time that does not stop work or production, even though the equipment is down. For example, if a production line is down during the night shift, but does not normally run during that shift.
REPORTING DOWNTIME

In order to report downtime, an equipment number must be specified on the work order. MAXIMO records downtime after the fact, once the work order has been completed.

1. Open a work order record using the Search tab.

2. Choose Report Downtime from the Actions menu.

The Report Downtime screen appears.

3. Enter a **Start Date** and Time.

4. Enter an **End Date** and Time.

The default is the current date and time. MAXIMO calculates the Hours field value.

5. Select a Downtime Type.

6. Click **OK**.

RECORDING ACTUALS

You use the Actuals tab to enter, view, and modify the actual work order job tasks, and usage of labor, materials, services, and tools. The work order must be approved before you can report actuals.

To report Actuals for labor, material, and tool usage, click the appropriate subtab.

COPYING LABOR FROM A WORK PLAN

You can copy the planned labor from the work plan to the Actuals tab and then edit the fields to reflect the actual hours required to complete the work order.

1. Open an approved work order using the Search tab.

2. Click the Actuals tab.

3. Click the Labor sub tab.

4. Click **Planned Labor**.

The Planned Labor screen appears.

5. Select rows by doing either of the following:
   - Click **Select All** to select all the rows.
   - Select individual rows by checking the box next to the row.

You can select more than one row. If you select a row in error, click it again to clear the check box.

6. Click **OK**.

MAXIMO returns the values to the Labor sub tab.

7. To edit the values for a row:
   a. Click **View Details**
      The Row Details form opens.
   b. Edit the fields as necessary.
c. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

8. Repeat step 7 for each row that needs editing.

9. Click **Save**.

If the work plan did not estimate Labor hours, or there were additional Labor needs on the work order, you can add additional rows to the Labor sub tab’s table window to record the Labor hours used.

1. Open an approved work order using the Search tab.

2. Click the Actuals tab.

3. Click the Labor sub tab.

4. Click **New Row**
   The Row Details form opens.

5. Fill in the fields as dictated by your company’s business rules.

**NOTE:** Fields that require a value for MAXIMO to save a record are indicated by an asterisk (*).

6. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

7. Click **Save**.

You can copy the planned materials from the work plan to the Actuals tab and then edit the fields to reflect the actual materials required to complete the work order.

1. Open an approved work order using the Search tab.

2. Click the Actuals tab.

3. Click the Materials sub tab.

4. Click **Reserved Items**.
   The Reserved Items screen appears.

5. Select rows by doing either of the following:
   - Click **Select All** to select all the rows.
   - Select individual rows by checking the box next to the row

You can select more than one row. If you select a row in error, click it again to clear the check box.
6. Click OK. MAXIMO returns the values to the Materials sub tab.

7. To edit the values for a row:
   a. Click View Details. The Row Details form opens.
   b. Edit the fields as necessary.
   c. Choose one of the following options:
      - **New Row** to add another row.
      - **Done** to close the Row Details form.
      - **Delete** to delete the row.

8. Repeat step 7 for each row that needs editing.

9. Click Save.

**COPYING TOOLS FROM A WORK PLAN**

You can copy the planned tools from the work plan to the Actuals tab and then edit the fields to reflect the actual tools required to complete the work order.

Do the same steps as Planned Materials above but select the Tools Tab and click on Planned Tools.

**ADDING A SAFETY PLAN TO A WORK ORDER**

When you apply a job plan to a work order, or generate a work order from a Condition Monitoring or PM record with an associated job plan, MAXIMO copies safety information from the job plan to the work order. This safety information can be viewed on the Safety Plan tab.

You add a safety plan to a work order to help ensure that the work is performed safely. Safety Plans are one way to provide workers with information about identified hazards and precautions they can take against those hazards.

**NOTE:** The ability to add safety information after a work order’s status has changed from WAPPR is set by your System Administrator.

There are three ways to insert a safety plan on a work order:

- Applying an existing Safety Plan to a work order.
- Select **Select Safety Hazards** from the Actions menu
- Create a safety plan in the **Safety Plans** tab.

You can apply an existing Safety Plan to a work order. Safety Plans are defined in the Safety Plan Application.

**NOTE:** If there is already a safety plan applied to the work order, you must remove it before you can insert a new one.

1. Open or create a work order record.

2. Click **Detail** for the **Safety Plan** field.


**APPLYING AN EXISTING SAFETY PLAN TO A WORK ORDER**

You can apply an existing Safety Plan to a work order. Safety Plans are defined in the Safety Plan Application.
4. Click **Select Record** to select a plan. MAXIMO copies the plan to the work order.

5. Click **Save**.

**EDITING SAFETY INFORMATION**

Safety Plans created in the Safety Plans Application are similar to Job Plans, they are templates that can be copied to work orders. Once the Safety Plan has been applied, you can add, edit, or delete plan information on the work order without affecting the original Safety Plan.

Your System Administrator determines which work order statuses allow editing of Safety Plan information.

**SELECTING SAFETY HAZARDS**

You can use the Select Safety Hazards action to view and select hazards for related assets of the equipment and Location listed on a work order. Related assets are defined in the Equipment and Location records. Selecting Safety Hazards allows you to provide workers with additional information about hazards that can be in the surrounding area.

1. Open or create a work order record.

2. Click the Safety Plans tab.

3. Select **Select Safety Hazards** from the Actions menu. The Select Safety Hazards screen appears displaying the equipment and/or Location, related assets and their associated hazards.

4. Click the table row in the Related Assets table to select it. MAXIMO displays the Hazards associated with the asset in the Hazards table window.

5. Select Hazards by doing either of the following:
   - Click **Select All**.
   - Select Hazards by checking the box next to the row.

   You can select more than one Hazard. If you select a Hazard in error, click it again to clear the check box.

6. Click **Apply to Work Order**.

7. (Option) Select another Related Asset and repeat steps 5 and 6.

8. Click **OK**. MAXIMO copies selected Hazards, Precautions, and Tag Outs to the Safety Plan tab.

**CREATING A SAFETY PLAN IN WORK ORDER TRACKING**

You can use the Safety Plan tab to apply Safety Hazards, Safety Precautions, and Lock Out / Tag Outs to your work order. This safety information is defined in Applications in the Plans module.

1. Open or create a work order.
2. Click the Safety Plan tab.

3. Select a sub tab.

4. Click **New Row**.
The Row Details form opens.

5. Fill in the fields as dictated by your company’s business rules.

   **NOTE:** Fields that require a value for MAXIMO to save a record are indicated by an asterisk (*).

6. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

7. Click **Save**.

Failure reporting is a long-term process where you gather data about failures so that you can analyze trends and take steps to avoid problems in the future. For example, in looking back over the failure reports for a pump, you might notice that the pump often breaks down about one week before its monthly preventative maintenance check is scheduled. You might decide to change the frequency of the PM checks to every other week, rather than every four weeks.

Failure data for Equipment and Locations is recorded on their work orders. This failure data must belong to one or more failure hierarchies, which you create in the Failure Codes Application.

A failure hierarchy is an organized set of **Problems, Causes**, and **Remedies** related to equipment and Location failures. The failure hierarchy is identified by its top-level component, called a **Failure Class**. There must be an associated failure class for each equipment or Location that you want to report failures for. This association is made in the Equipment and Locations Applications.

**TIP:** Indicating a **Failure Class** and **Problem Code** on a work order can help limit the number of duplicates that are entered in the system. MAXIMO displays a message if the same problem code has already been entered for the equipment/Location.

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**Failure Class and Problem Codes for LAUSD**

LAUSD is using only the Failure Class and Problem Codes for Failure Reporting. These two codes will be used to route the Trouble Call as before.

| **Failure Class** | **CRPNTRY** = Carpentry Failure Class |
MO-AA-05 = Acoustical Tile Needs Repair / Replace

MO = Maintenance Department (MO=Maintenance & Operations, OP=Operations, CS=Central Shops)

AA = Craft (AA=Carpentry, etc.)

05 = Work Category (05=Acoustical Tile Needs Repair / Replace, etc.)

The above would be routed to Maintenance & Operations, Carpentry dept, Acoustical Tile, Repair/Replace

You report failures on the Failure Hierarchy tab, using failure hierarchies that were created in the Failure Codes Application.

You build the failure report by entering codes for a Problem, Cause, and Remedy for the failure

NOTE: You can also enter and view a Failure Class and Problem Code on the Work Order tab.

NOTE: If you encounter a Problem, Cause, or Remedy that are not listed in MAXIMO, use the Failure Codes Application to add the data to the failure hierarchy, then return to Work Order Tracking to complete your failure reporting. You must have Signature Approval to the Failure Codes Application to make additions or changes

1. Open or create a work order record.
2. Click the Failure Reporting tab.
3. Click Select Value to select a Failure Class if MAXIMO has not copied one from the Equipment or Location record.
4. Click Select Value to select a Problem.
5. Click Select Value to select a Cause.
6. Click Select Value to select a Remedy.
7. Click Save.

Failure analysis is the process by which you examine equipment failure history, reported over a significant period of time. Use any equipment or Location failure reports to look for breakdown trends, average time between failures, and so on

By correlating this failure information with other data available to you, for instance, preventive maintenance schedules for a piece of equipment or Location, you can develop ways to reduce or limit equipment failures in the future. For example, you might want to review your preventive
maintenance schedule, or you might be able to identify a branch of faulty inventory items

**Quick Reporting Application**

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 allows personnel to report on open work orders, or small jobs that might not have had a pre-existing 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.

You can access the Quick Reporting Application by selecting the Work Orders icon on the MAXIMO Start Center and then choosing Quick Reporting or by using the Go To link.

Generally the Quick Reporting Application is used to report work that has already been completed without a Work Order.

**QUICK REPORTING MAIN SCREEN**

There are three tabs on the Quick Reporting application screen:

- **Search** — Use to search the database using any combination of available fields.

- **Quick Reporting** — Use to enter, view, or modify work orders, record Actuals for labor, materials, and tools, record meter
readings, and perform failure reporting.

- **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Quick Reporting Action Menu.

- **Change Status** — Use to change the status of a record. If the action is selected from the Results subtab of the Search tab, you can change the status of all selected records as a batch action.

- **Route Work Order** — Used to Route Work Order

- **Stop Workflow** — Use to stop the Workflow approval process and remove the document from Workflow. Workflow is an optional component of MAXIMO.

- **View Workflow Help** — Use to view a Help topic for the Workflow In Box

- **View Status / Workflow History** — Use to view the status change history and Workflow information for a work order. Workflow is an optional component of MAXIMO.

- **Generate Follow-up Work** — Use to create a new work order when you complete a job but there is additional work needed on the same equipment or Location, beyond the work described in the original work order.

- **Apply Route** — Use to apply a route to a work order. Route stops are displayed on the Plans tab.

- **Assign to New Parent** — Use to assign the work order to a new parent work order.

- **Move Equipment** — Use to move a piece of equipment to a new location within the same site or to another site in the organization, or associate a new parent.

- **Remove Work Plan** — Clears Work Plan

- **Select Safety Hazards** — Use to select hazards from the lists defined for individual assets on a Safety Plan.

- **Remove Safety Plan** — Use to remove an existing Safety Plan on a work order before inserting a new Safety Plan.

- **Report Downtime** — Use to report equipment downtime.
- **View Follow-up Work** — Use to view a list of follow-up work orders for the originating work order.

- **View PO Information** — Use to view a read-only list of all purchase orders that were generated for work order items, and services received against the work order.

- **View Costs** — Use to view estimated and actual cost totals for the selected work order.

- **View Entire Plan** — View the work plan for the entire hierarchy (children and tasks) below the current work order. Levels of the hierarchy above the current work order are not included in this action.

- **Edit History Work Order** — Use to modify a work order with a status of CLOSE. Limited fields are available for editing with this action.

- **Run Reports** — Use to access the Reports available for the current Application.

- **Work Order Details Report** — Use to activate Reports, create and print a Details report for the selected record.

- **Print With Attachments** — Use to print all documents associated with a record through Attached Documents.

- **Duplicate Work Order** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record. Duplicating a parent work order duplicates the entire hierarchy.

- **Delete Work Order** — Use to delete the current record from the MAXIMO database.

- **Add to Bookmarks** — Use to add the current record to your personal bookmark list.

For additional information about using these Actions, refer to the Help.

The following reports are available for the Quick Reporting application:

- **Quick Reporting List Report** — Lists work order, description, and status for selected records. Links are available via work order number to the Work Order Details report for individual work orders.

- **Work Order Details Report** — Lists details of the selected
Using the Quick Reporting Application

Quick Reporting contains a portion of the fields available in Work Order Tracking, and can be configured by your System Administrator to meet the needs of your site. It is designed to allow you report the work done on an open work order or a small job that might not have had a pre-existing work order, or to report equipment failures/downtime in which no maintenance department work is involved.

You can create a work order with Quick Reporting when unplanned maintenance work is required immediately on a shop floor or other work area. For creating work orders that require planning or scheduling, or for adding additional data to a work order created through Quick Reporting, use the more detailed Work Order Tracking application.

Use the following procedure to create a work order from the Quick Reporting application.

1. Open the Quick Reporting application.

2. Click New Work Order.

MAXIMO switches to the Quick reporting tab, displaying an empty work order.

3. Fill in at least one the following required fields:
   - Equipment
   - Location
   - GL Account

4. (Option) The Reported Date field displays the current date, but you can edit it.

5. (Option) You can enter a work plan. See “Creating a Work Plan” on page 67 for more information.

6. (Option) If the work order is for a piece of equipment, you can enter meter readings. See “Entering Meter Readings” for more information.

7. (Option) You can enter Actuals for labor, materials, or tools. See “Reporting Actuals” for more information.

8. Click Save
ENTERING METER READINGS

If the work order is for a piece of equipment, you can enter meter readings on the Meters subtab.

1. Open or create a work order in Quick Reporting.
2. Click the Meters subtab
3. Enter or edit the measurement data
4. Click Save

REPORTING ACTUALS

Quick Reporting work orders are created with a status of WAPPR, which changes to INPRG when saved. If you are creating a work order after the job has been completed, you must save the work order before you can report Actuals for labor, materials, or tools.

REPORTING ACTUAL LABOR FOR LAUSD

You can also use Quick Reporting to record Actuals for any approved work order, regardless of where it was created.

1. Open or create a work order in Quick Reporting.
2. Select an Actuals subtab (Labor, Materials or Tools)
3. Click New Row on the Actuals subtab

The Row Details form open

4. Fill in the other fields as dictated by your company’s business rules.
   a. Labor Code
   b. Start Date
   c. If Start Time is listed, enter value. Skip “e” if values are used. Maximo will calculate Actual time.
   d. Finish Time if listed (BE SURE TO ENTER TIME IN APPROPRIATE FORMAT, USE A SPACE AFTER HOUR BEFORE AM OR PM)
   e. Number of Hours worked for that Work Order, (BE SURE TO CORRECT FOR ANY LUNCH TIME TAKEN)
   f. Number of Hours of Overtime if used
   g. Work Type
   h. Location if not already assigned
   i. Any additional comments in the Additional Comments field. This is where the answers to the questionnaire
   j. Click the “NEW ROW” button to repeat above for each Labor Code and for each Work Day
   k. Click the “DONE” button when all records have been entered
   l. SAVE record

NOTE: Fields that require a value for MAXIMO to save a record are
indicated by an asterisk (*).

5. Choose one of the following options:

- **New Row** — to add another row.
- **Done** — to close the Row Details form.
- **Delete** — to delete the row before Saving record

6. Do item #4 for every day for each Work Order

**CORRECTING AN ACTUAL LABOR ENTRY**

If an error was made on an entry, do a reversal for that Work Order, employee and Date.

Same as in a checkbook, use a **NEGATIVE** value for the number of Hours

**REPORTING ACTUAL MATERIAL**

Same process as in Work Order Tracking

**CORRECTING AN ACTUAL MATERIAL ENTRY**

Use the Return to Stock process. Must use an Issue Type of “**RETURN**”

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**Work Requests Application**

The Work Requests Application is a greatly simplified version of the Work Order Tracking Application, and provides another way for you to request maintenance work from your computer.

Work Requests is a self-service Application, designed to be used by both experienced and novice users who need to log work requests. It includes on-screen instructions to guide you through each of the processes.

You can access the Work Requests Application by selecting the Work Orders icon on the MAXIMO Start Center and then choosing Work Requests or by using the Go To link.
Information entered in the Work Requests application is used to generate work orders, which can then be accessed from the Work Order Tracking, Quick Reporting, and Labor Reporting applications.

The following reports are available for the Work Requests application:

Work Request List Report — Lists work order, description, and status for selected records. Links are available via work order number to the Work Order Details report for individual work orders.

**Using the Work Requests Application**

The Work Requests application is designed primarily for maintenance department customers anywhere in a facility who might need to report problems that require corrective maintenance activity. Work Requests contains:

- a search screen to search for your own and other’s work requests
- a single, simplified screen where you can enter new work request
When you open Work Requests, MAXIMO displays the Search page with a default results set showing the work requests you have entered. You can use this Search page to query for your own and other’s work requests.

1. Enter values in any combination of the available fields.
2. Click Find.
   MAXIMO displays the results of your search.

When a person places a work request, a work order number is automatically assigned in the Request # field, and the work order is automatically assigned a status of WAPPR (waiting for approval). Planners, dispatchers, and maintenance personnel can then review all work orders that are WAPPR and act accordingly.

1. Open the Work Requests application.
2. Click New Work Request
   MAXIMO switches to the Work Requests page.
3. Enter information about the problem or work needed in the fields provided. You must list either a location or a piece of equipment.

**NOTE:** Fields that require a value for MAXIMO to save a record are indicated by an asterisk (*). See the Help for more information about any of the fields.

4. Click one of the following options:
   - **Submit** — to submit your completed work request.
   - **Reset** — to clear your entries.
Cancel — to cancel the work request without sending it.

1. Click the “New Work Request” button
2. Reported Date field auto populates
3. Enter a Location Code
4. Enter Location’s Phone Number
5. Local M&O District will Auto Populate from Location entry
6. Enter Requestor’s Name
7. Enter Requestor’s Title
8. Enter a short Description of Trouble Call
9. Enter any additional comments
10. Enter or Select a Failure Class from list
11. Enter or Select a Problem Code from list
12. Enter or Select a Cause Code from list
13. Enter or Select a Craft Code from list
14. Enter or Select a Work Type
15. Enter a Work Order Priority
16. Enter or Select a Tracking Code
17. Enter or Select an Equipment Number if required
18. Operator to Requestor Questionnaire. The answers to these questions will be added to the Additional Comments field
19. Use existing Troubleshooting Tools book for nomenclature explanations. At a later time most of this information will be added to Maximo
20. Click Submit (also saves record)

To view a work request from the search results click the Request link for the record.
MAXIMO displays a new page with three tabs:

- **Details** — Shows the request details, including scheduling information and costs.

- **History** — Shows the status history and Workflow history of the request.

- **Map** — Shows the progress of the request in Workflow.
In general, any field that is not read-only (blue) can be edited. The following fields can be edited only under certain conditions:

- **Problem Code** — If the equipment has a problem code associated with it, you can edit that value until the work order is approved.

- **Work Order Status** — Once a work order with a WAPPR status is changed, the work order status cannot be changed back to WAPPR.

The work order status cannot be edited if the status changes are under the control of the Workflow application.

- **Equipment / Location** — The Equipment and Location fields can only be edited if the work order status is WAPPR.

### Labor Reporting Application

The Labor Reporting Application is used to report the type and total numbers of hours of work performed. This Application is designed to report labor hours by worker or craft instead of by work order. You can use the Labor Reporting tab for "timecard" reporting.

You can access the Labor Reporting Application by selecting the Work Orders icon on the MAXIMO Start Center and then choosing Labor Reporting or by using the Go To link.
There are three tabs on the Labor Reporting Application screen:

- **Search** — Use to search the database using any combination of available fields.
- **Labor Reporting** — Use to report actual labor usage.
- **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Labor Reporting Action Menu.

**Create Service Receipts** — Use to create a service receipt for contract labor hours. This action is an alternate to recording service receipts in the Receiving Application.

**Approve Labor** — Use to approve the selected row in the Daily Time table window.

**Add to Bookmarks** — Use to add the current record to your personal bookmark list.

**Using the Labor Reporting Application**

The Labor Reporting Application is used to report labor Actuals for Labor and Crafts. The labor usage you report here is included in when calculating totals for labor Actuals in the Work Order Tracking Application.

There are two functional differences between this Application and the Actuals tab in the Work Order Tracking Application:

- Labor Reporting is used to report labor hours by Worker or Craft...
instead of by work order. So, if a worker or group of workers (Craft) has worked on 10 work orders in a day, you can report the work on one tab, rather than individually by work order.

- Reported labor with the types WORK (actual work time), TRAV (travel time), or WMATL (waiting materials) must have a charge value. The labor can be charged against a work order, equipment, Location, or GL Account code. Any other work type does not require a charge value.

You can search by either Labor or Craft in the Labor/Craft field on the Search tab. Enter the code for the person or craft performing the work.

**NOTE:** Your system administrator can restrict user access to certain labor or craft records in Signature Security.

The Daily Time table window is used to report labor hours by worker or craft instead of by work order. This streamlines the reporting process when more than one work order has been worked in a day.

1. Open the Labor Reporting Application.
2. Open a Labor or Craft record using the Search tab.
3. Click **New Row** in the Daily Time table window: The Row Details form opens.
4. Click **Detail** to select a Work Order. MAXIMO copies work order data to the Row Details form.
5. Fill in the other fields as dictated by your company’s business rules. You can edit values that are not read-only (blue).
   a. Work Order Number
   b. Start Date
   c. If Start Time is listed, enter value. Skip “d” if values are used. Maximo will calculate Actual time.
   d. Skip if using Start Time and Finish Time, otherwise enter number of Hours worked on that Work Order for that day
   e. Finish Time if listed (**BE SURE TO ENTER TIME IN APPROPRIATE FORMAT, USE A SPACE AFTER HOUR BEFORE AM OR PM**)
   f. Number of Hours of Overtime if used
   g. Work Type
   h. Location is not displayed but listed on Work Order
   i. Craft
   j. Any additional comments in the Additional Comments field. This is where the answers to the questionnaire
   k. Any GL Account numbers if appropriate

**NOTE:** Fields that require a value for MAXIMO to save a record are indicated by an asterisk (*).
6. Choose one of the following options:
   - New Row to add another row.
   - Done to close the Row Details form.
   - Delete to delete the row.

7. Click Save.

Daily Attendance is an optional table window that can be used to track employee’s attendance records. Unlike the Daily Time table window, which is used to track time spent on specific tasks, Daily Attendance simply tracks time spent on the job for the current craft or labor record.

You can use the Daily Attendance table window for "timecard" reporting.

NOTE: You cannot enter Daily Attendance records for Crafts.

1. Open the Labor Reporting Application.

2. Open a Labor record using the Search tab.

3. Click New Row in the Daily Attendance table window:
The Row Details form opens.

4. Enter the following required data:
   - Start Date — The date on which the employee started the day’s work. The default is the current system date.
   - Start Time — The time at which the employee punched in or began work for the day.
   - Finish Time — The time at which the employee punched out or finished work for the day

   MAXIMO calculates the Hours, based on the Start Time and Finish Time.

5. Choose one of the following options:
   - New Row to add another row.
   - Done to close the Row Details form.
   - Delete to delete the row.

6. Click Save.
The Preventive Maintenance module consists of a single Application, Preventive Maintenance.

Preventive maintenance (PM) work is often repetitive work performed to keep equipment running efficiently. Using PMs can help you to plan for regular maintenance work by planning the labor, material, and tool needs of your regularly scheduled maintenance and inspection work orders.

PM records can serve as templates for work orders and other PM records. You can identify work assets, add job plan and scheduling information to a PM, and then generate work orders or other PMs that contain the same information. You can build PM hierarchies to generate work order hierarchies for complex jobs.

You can streamline the PM process further by using master PMs. Updates to a master PM can be copied automatically to all PMs associated with the master PM.

**Preventive Maintenance Application**

Many Locations and pieces of equipment require periodic maintenance to ensure uninterrupted efficiency and to guard against breakdowns. You can use the Preventive Maintenance (PM) Application to create PM records and generate work orders from them. A PM record specifies work to be performed regularly based on elapsed time or on meter readings.

You can access the Preventive Maintenance Application by selecting the PM icon on the MAXIMO Start Center and then choosing Preventive Maintenance or by using the Go To link.
There are seven tabs on the PM Application screen:

- **Search** — Use to search the database using any combination of available fields.
- **PM** — Use to enter, view, or modify Preventive Maintenance records and associate them with equipment, Locations, or GL accounts.
- **Frequency** — Use to enter, view, or modify scheduling criteria to use when generating work orders. Also use to enter meter readings.
- **Job Plan Sequence** — Use to enter, view, or modify sequences of job plans and associate them with PM records.
- **PM Hierarchy** — Use to enter, view, or modify PM hierarchies to generate scheduled work order hierarchies.
- **Master PM** — Use to enter, view, or modify PM scheduling templates and insert and update associated PM records.
- **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Preventive Maintenance Action Menu

- **View Sequence** — Use to view a PM’s Job Plan sequence.
- **Generate Work Orders** — Use to generate work orders from selected PM record(s)
- **Set PM Counter** — Use to set or reset the Counter field on the Frequency tab.
- **Create Associated PMs** — Use to create associate PMs from a Master PM.
- **Update Associated PMs** — Use to update information on associate PMs if changes have been made to the Master PM.
- **Run Reports** — Use to access the Reports available for the current Application.
- **Print With Attached Documents** — Use to print all documents associated with a record through Attached Documents
- **Duplicate PM** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new
**Deleting a PM Record**

**Add to Bookmarks** — Use to add the current record to your personal bookmark list.

**Using Preventive Maintenance**

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

You can use PM records to plan the labor, materials, and tools needed for any preventive maintenance, periodic maintenance, or periodic inspections or certifications. PM records can also be generated on a seasonal basis, for equipment that is not used year round.

Master PM records are templates for other PM records, called associated PM records. A master PM does not generate work orders. You use non-master and associated PM records to generate work orders. You can also organize non-master PM records into PM hierarchies, from which you generate corresponding work order hierarchies.

You can use PMs to track non-preventive maintenance that you still need to figure into your maintenance schedule, for example periodic inspections.

**Creating a PM Record**

**NOTE:** You can set up a PM record for either a piece of equipment or a Location, but not both.

1. Open the PM Application.

2. Click the New PM button in the Toolbar.

3. Enter a unique identifier in the PM field and a description. Click the Long Description button if you need more space.

4. Fill in the other required fields.

**NOTE:** Required fields are indicated by an asterisk (*).

5. Click Save.

**CAUTION:** You must set a frequency for a PM before MAXIMO can generate work orders from it.

**Setting PM Frequency**

Frequency is the number of days or meter units that should elapse between the generation of preventive maintenance work orders from a master PM. You can create a PM schedule to generate work orders based...
on elapsed time between work orders or changes to equipment meter readings over time, or both.

Usually, a PM schedule for a Location measures only elapsed time between work orders. A typical PM schedule for equipment measures both elapsed time between work orders and changes to meter readings. If frequency is based on meter units, MAXIMO checks service hours and miles on the Meters tab of the Equipment record.

1. Create a PM

2. Click the Frequency tab.

3. Fill in the required fields and any optional fields.

   **CAUTION:** The First Start Date field must be filled in to activate the PM.

4. Click Save.

**MASTER PMs**

Master PM records are templates for other PM records, called associated PM records. You can create associated PM records from master PM records, or make associations between existing PM records and a master PM. You can use the scheduling information on a master PM record to update its associated PM records.

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

**CREATING A MASTER PM**

To create a master PM, follow the procedure described in “Creating a PM” and check the Master PM? box next to the description field. Once you have created a master PM, you can create associated PM records.

**CREATING ASSOCIATED PMs**

Associate PM records are records for individual pieces of equipment or Locations covered by the job plan of a master PM. For example, you create a master PM for regular oil changes for a certain model truck. Using that master PM, you would then create one associate PM for each of the trucks of that model in your fleet.

Associate PMs can be created in two ways:

- Create associate PMs from a master PM using the Create Associated PMs action.

- Associate existing PMs with a master PM by entering an identifier in the record’s Master PM field.

Once associated with a master PM, updated scheduling information can be passed from the master PM to the associate PMs using the Update Associated PMs action.

**GENERATING A PM WORK ORDER**

A master PM record specifies work to be performed regularly based on elapsed time or on meter readings that can indicate service hours or mileage. A master PM does not generate work orders.
You use non-master and associated PM records to generate work orders. Once generated, a PM work order is processed in Work Order Tracking and Quick Reporting.

**NOTE:** Frequency of a PM must be set before a PM work order can be generated from the PM.

To generate work orders from one or more PM records from the Results sub tab of the Search tab:

1. Select one or more records by either:
   - Clicking a single PM record to open it.
   - Selecting multiple PMs by checking the box next to the row. If you select a PM in error, click it again to clear the check box.

2. Choose Generate Work Order from the Actions menu.

3. Enter a number in the **Generate WOs Due Today Plus Next** field. For example, to generate work orders for the next week, enter "7."

4. Click **OK**. MAXIMO displays a message with the work order numbers of the work orders that have been generated.

5. Click **OK**.

**PM Hierarchies**

A PM hierarchy is a group of PMs arranged in parent-child relationships, much like a work order hierarchy. You use PM hierarchies to generate hierarchies of scheduled work orders. At the highest level of a PM hierarchy, there is one PM that is the parent. This top-level PM can have one or more child PMs. Each child PM can have one or more children, and so on. A child PM can only have one parent PM.

You use PM hierarchies to generate work order hierarchies. Because you cannot generate work orders from a master PM, master PM records are never part of a PM hierarchy. You can add a sequence number to each PM in a PM hierarchy; the sequence number is copied to work orders you generate from the PM.

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.

**Seasonal PMs**

A seasonal PM is a master PM record that is shut down for a period of time to accommodate changing equipment or Location needs. After the work is completed for the season, you can reset the master to be dormant until the season returns.

You might use seasonal PMs related to seasonal work such as air conditioning maintenance, or servicing snow removal equipment.
To reset a master PM for seasonal work, change the **First Start Date** field to the date you want to begin generating work orders again. The system resets the **Counter** field to 0 when you enter the current date or a future date in the **First Start Date** field.
Managing inventory is an important part of maintaining any facility. The Inventory module in MAXIMO tracks materials needed for maintenance. MAXIMO keeps track of items in stock, indicates when stock falls below user-defined reorder points, creates purchase requisitions and purchase orders to restock needed items, and tallies items received.

Inventory is one of the central modules in MAXIMO. It functions in a dynamic relationship with the Preventive Maintenance, Work Orders, Purchasing, and Equipment modules, and with the Companies Application in the Resources module. These other modules affect the quantity of items in inventory, identify where those items are used, as well as who sells them to your company.

The MAXIMO Inventory module works to balance two opposing objectives:

- Maximizing the availability of items for upcoming work tasks.
- Reducing the outstanding inventory balances and related carrying costs.

The goal is to find a balance of inventory stock that allows for maintenance work to be performed with minimum delays due to unavailable materials, without keeping unnecessary or seldom used items in stock.

The Inventory Module contains the following Applications:

- **Inventory** — Used to manage items in inventory, including tracking stock levels, reordering items, and tracking rotating equipment.

- **Item Master** — Used to define inventory items, and add them to storerooms.

- **Storerooms** — Used to define storeroom locations, and view a read-only list of items stocked at each storeroom location.

- **Issues and Transfers** — Used to issue stock from inventory (with or without a work order), and to transfer stock from one storeroom location to another.

When using the Inventory Applications you first define your Storerooms and define items to be stocked there using the Storerooms and Item Master Applications. You then create a master list of items that are stocked in each storeroom using the Item Master Application.
You use the Inventory Application to manage stock levels and reorder items. You track the movement of items into and out of inventory with the Issues and Transfers Application, the Work Order Tracking Application in the Work Order module, and the Receiving Application in the Purchasing module.

**Inventory Application**

An important part of maintenance management is keeping track of inventory. The Inventory Application keeps track of items (stocked, nonstocked, and special order items) and indicates when stock falls below a specified reorder point so you know when to reorder.

You can access the Inventory Application by selecting the Inventory icon on the MAXIMO Start Center and then choosing Inventory or by using the Go To link.
There are six tabs on the Inventory Application screen:

- **Search** — Use to search the database using any combination of available fields.

- **Inventory** — Use to enter, view, or modify item balances, costs, balances, bins and lots, and to view storeroom locations where the item is stocked.

- **Reorder Details** — Use to enter, view, or modify reorder details, such as the reorder point, lead time, and issue units of an item. In addition, you can enter or view information about one or more vendors for a item, as well as information about multiple manufacturers or models for each vendor.

- **Rotating Equipment** — Use to identify and track rotating equipment associated with a rotating item record.

- **Where Used** — Use to list all pieces of equipment on which an item is listed as a subassembly or spare part.

- **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Inventory Action Menu:

- **Reorder Items** — Use to reorder stocked items, direct issue items, or both.

- **Reorder Direct Issue Items** — Use to reorder direct issue items.

- **Clear Reorder Locks** — Use to clear a reorder lock for your user name.

- **Issue Current Item** — Use to issue the current item directly to a work order, against equipment, a Location, or a general ledger account.

- **Transfer Current Item** — Use to transfer items from one storeroom to another, or from one bin or lot to another.

- **View Item Availability** — Use to view item balances at all storeroom locations that stock the item.

- **Add Modify Order Unit** — Use to modify the unit that is used when ordering an item, for example case, feet, roll, and so on.

- **Zero Year to Date Quantities** — Used to reset the Year to Date issue
history, usually at the beginning of the fiscal year.

View Vendor Analysis — Use to view information about the vendors for the selected item, allowing you to analyze price, quality of goods, and delivery time.

View Inventory Transactions — Use to display inventory transactions (receipts, transfers, issues, returns, and adjustments) related to the current inventory record.

Reconcile Balances — Use to adjust current balances based on a physical count.

Standard Cost Adjustment — Use to change the standard cost for an item at the location named in the Storeroom field.

Average Cost Adjustment — Use to update the average cost at the specified storeroom.

Run Reports — Use to access the Reports available for the current Application.

Print With Attachments — Use to print all documents associated with a record through Attached Documents.

Current Balance Adjustment — Use to make changes to the current balance that have not been reflected in any other inventory transaction, for example correcting data entry errors.

Physical Count Adjustment — Use to change the physical count figure for the current item for the location, bin, and/or lot you specify.

The following reports are available for the Inventory Application:

Inventory List Report — Lists item number and description for selected item(s) by storeroom location.

Inventory ABC Analysis Report — Displays the ABC category of inventory items both before and after running the report. The "after" ABC calculation is based on the number of parts issued YTD and the part’s last cost average for the storeroom. This report includes the ability to update the database with the new ABC classifications.

Inventory Balance Report — Lists all items in the storeroom of the selected record, including current balance, available balance, quantity reserved, cost, and last transaction.

Economic Order Quantity Report — Displays the optimum economic ordering quantity for selected items in the selected storeroom location.
**Inventory ROP** — Calculates the reorder point (ROP) or optimum minimum level of an item to have in stock based on demand, lead delivery time, and a reserve safety stock. Includes the option to update the database with new ROP values.

**Storeroom Pick Report** — Lists items to be picked for Selected Storeroom

**Inventory Transactions Report** — Lists selected transaction information (receipts, issues, transfers, returns, or adjustments) for the selected storeroom location, between the specified dates.

**Item Availability Analysis Report** — Lists all site and storeroom locations for the selected item(s). For each item at the selected storeroom the report shows the current balance, reserved quantity, available quantity, standard cost, and average cost. Items with current balances of zero are not displayed on this report.
Using the Inventory Application

Use this Application to enter, display, and update information on each inventory item. Special order and nonstocked items as well as stocked items can be tracked. You can view master inventory item records (information about items, irrespective of their storeroom location), or item/location records (information about an item at a specific storeroom location). You can track vendors that supply an item, and item balances down to the bin and lot level for each storeroom location.

Most of the fields on the Inventory tab refer to item/location records. **Current Balance**, for example, means the current balance of the item at the storeroom in the Storeroom field. Like **Current Balance**, the fields in the Balance Summary, Issue History, and Balances forms all apply to the item in a specific storeroom.

If an item is stored in more than one storeroom location you can use the **View Item Availability** action on the Actions Menu to view balances for all storeroom locations on one screen.

Stocked, Nonstocked, and Special Order Items

MAXIMO recognizes three categories of inventory items:

<table>
<thead>
<tr>
<th>Category</th>
<th>Item is needed:</th>
<th>Record is needed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocked</td>
<td>At all times</td>
<td>Permanently, for regular, ongoing reordering</td>
</tr>
<tr>
<td>Nonstocked</td>
<td>On a predictable or scheduled basis (for example, every year), rather than at all times</td>
<td>Permanently, for occasional reordering</td>
</tr>
<tr>
<td>Special Order</td>
<td>For just a single event or occasion; you do not expect to need this item again</td>
<td>Just for the duration of the project; then the record should be deleted</td>
</tr>
</tbody>
</table>

Stocked Items

**Stocked items** are those that you always need to have on hand because they have a regular turnover rate and are frequently needed. Stocked items have reorder criteria (for example, a reorder point and an economic order quantity) specific to each storeroom location. Bearings, gaskets, valves, and belts are examples of stocked items.
To keep a supply in stock, these items are periodically reordered. This can be done automatically, based on the MAXIMO reorder logic, which follows the formula below:

\[
\text{(current balance} + \text{quantity on current Purchase Requisitions and Purchase Orders}) - (\text{quantity reserved on Work Orders and internal Purchase Orders} + \text{quantity expired}) \leq \text{ROP}
\]

**“Current” PO, PR Definition**

"Current Purchase Requisitions and Purchase Orders" are any PRs and POs with a status of waiting for approval (WAPPR), approved (APPR), or in progress (INPRG). MAXIMO checks to see how many units of this item are listed on current PRs and POs, adds this number to the current balance, then subtracts any items on approved work orders, internal POs, and any expired items. If the resulting number is less than or equal to the reorder point (ROP), MAXIMO reorders.

**Nonstocked Items**

*Nonstocked items* are items you need only occasionally and do not want to maintain in inventory throughout the year. Nonstocked items are not automatically reordered. However, you do want to keep records for nonstocked items in the database because you are likely to order these items again at some point. These records are useful both for cost tracking purposes and for future reference (for example, the vendor's name, the price, and so on).

For example, you replace twelve air filters each spring, but do not reorder them immediately after using them because you do not want to purchase them just to sit in storage for months. Since you intend to order these air filters again each year, you want to keep the record for the item in your database for reference next spring.

**Special Order Items**

*Special order items* are typically items that are ordered only once, often for unexpected needs or for a one-time work order. These items are not kept in stock, and you do not need a permanent record of them in your database. In most cases, after the project is finished you want to remove these records to avoid cluttering your database.

**Viewing Item Availability**

The Inventory Application displays separate item records for each storeroom location.

To view all of the storerooms that stock an item open an item record and use the View Item Availability action.
Reordering Items

Many companies are moving to a “Just-In-Time” (JIT) system to reduce their inventory levels and associated carrying costs. When using a just-in-time system for maintenance, you base your purchasing and stock levels on upcoming work, rather than on past usage. Because parts and equipment can become obsolete and your company’s process can change, looking back might not be as useful as looking forward when considering your inventory needs.

MAXIMO can accommodate a just-in-time system by allowing you to set reorder quantities. Using the Preventive Maintenance Application to plan upcoming maintenance and inspection work can also help to determine what items will be needed in the future.

The Reorder Point (ROP) is the point at which items should be reordered so that their number does not fall below the number designated as safety stock during the lead time for the order. Ideally the calculation of the ROP is based on the following variables:

- **Safety stock** is the minimum number of the item that you must have on hand at all times.
Lead time is the amount of time it takes between placing an order and delivery of the items.

Economic Order Quantity (EOQ) is the number of an item that should be reordered at one time, usually based on the vendor’s price for a particular quantity ordered. For example, buying a case of an item can cost less per item than buying the item individually.

To reorder all items in a storeroom that need replenishment use the following procedure. You can repeat the reorder process for additional storerooms without exiting the Reorder Items screen.

If you are using Workflow, you can set the reorder process to run in the background, and notify you by e-mail when the process is finished. This allows you to do other work when running a lengthy reorder process.

1. Open an item record.

2. Choose Reorder Items from the Action menu. The Reorder Items screen appears.

3. (Option) Enter the number of days you want in the Lead Time in Days field.

4. Check All Items in Storerooms. MAXIMO overrides any item selections. This also makes the Storeroom field editable.

5. Select the other Reorder Options that apply.
   - Ignore Reorder Point – the item(s) are ordered even if the available balance is above the reorder point.
   - Reorder Direct Issue Items – include direct issue items on approved work orders in reorder calculations.
   - Consider Agreement Purchase Orders – release purchase orders are created from existing blanket purchase orders. Prices and details from the Price Agreements are included when PRs and POs are created.
   - Run in Background Mode — runs the reorder process in background mode and sends notification via e-mail when complete.

6. Click either,
   - Run Reorder – to initiate the reorder process automatically.
   - Preview Reorder (recommended) – to preview the items and amounts to be ordered. Order amounts can be edited from this screen.
     - On the Preview Reorder screen click either
7. (Option) Click Select Value to change the Storeroom location.

8. Repeat steps 3 through 6 to repeat the reorder process for the new storeroom.

You can choose selected inventory items to reorder using the following procedure. All items selected must be from the same storeroom location.

If you are using Workflow, you can set the reorder process to run in the background, and notify you by e-mail when the process is finished. This allows you to do other work when running a lengthy reorder process.

1. Use the Search tab to generate a results set for a storeroom location.

2. Select items by checking the box next to the row. If you select an item in error, click it again to clear the check box.

3. Choose Reorder Items from the Action menu. The Reorder Items screen appears.

4. (Option) Enter the number of days you want in the Lead Time in Days field.

5. Select the Reorder Options that apply.
   - **Ignore Reorder Point** – the item(s) are ordered even if the available balance is above the reorder point.
   - **Reorder Direct Issue Items** – include direct issue items on approved work orders in reorder calculations.
   - **Consider Agreement Purchase Orders** – release purchase orders are created from existing blanket purchase orders. Prices and details from the Price Agreements are included when PRs and POs are created.
   - **All Items in Storerooms** – overrides any item selections. Also makes the Storeroom field editable.
   - **Run in Background Mode** — runs the reorder process in background mode and sends notification via e-mail when complete.

6. Click either
   - **Run Reorder** – to initiate the reorder process automatically.
   - **Preview Reorder** (recommended) – to preview the items and amounts to be ordered. Order amounts can be edited from this screen using the Row Details form. After viewing the preview,
select one of the following actions:
  o **Run Reorder** – to initiate the reorder process.
  o **Reorder Report** – to generate a report listing the reordered items and quantities ordered.
  o **Cancel** — to cancel the reorder process

➢ **Cancel** — to cancel the reorder process

1. Open an item record using the Search tab.

2. Choose **Reorder Items** from the Action menu. The Reorder Items screen appears.

3. (Option) Enter the number of days you want in the **Lead Time in Days** field.

4. Select the Reorder Options that apply.
  ➢ **Ignore Reorder Point** – the item(s) are ordered even if the available balance is above the reorder point.

  ➢ **Consider Agreement Purchase Orders** – release purchase orders are created from existing blanket purchase orders. Prices and details from the Price Agreements are included when PRs and POs are created.

5. Click either
  ➢ **Run Reorder** – to initiate the reorder process automatically.

  ➢ **Preview Reorder** (recommended) – to preview the items and amounts to be ordered. Order amounts can be edited from this screen using the Row Details form.

  ➢ After viewing the preview, select one of the following actions:
    o **Run Reorder** – to initiate the reorder process.
    o **Reorder Report** – to generate a report listing the reordered items and quantities ordered.
    o **Cancel** — to cancel the reorder process

  ➢ **Cancel** — to cancel the reorder process
Use the **Reorder Direct Issue Items** action to reorder items are listed on approved work orders and are issued without being received into Inventory.

1. Open the Inventory Application.

2. Click the Inventory tab.


4. (Option) Select **Consider Agreement Purchase Orders** to create release purchase orders from existing blanket purchase orders.

5. (Option) Enter the number of days you want in the **Lead Time in Days** field.

6. Click either:
   - **Run Reorder** – to initiate the reorder process automatically.
   - **Preview Reorder** (recommended) – to preview the items and amounts to be ordered. Order amounts can be edited from this screen.

Choose either
   - **Run Reorder** – to initiate the reorder process.
   - **Reorder Report** – to print generate a report listing the reordered items and quantities ordered.

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**Managing Inventory Item Counts**

Using MAXIMO you can adjust the balances for each of the items in inventory to accommodate a variety of circumstances. For example:

- After a routine physical count.
- At the end of the year.
- When items have entered or left a storeroom without a MAXIMO transaction.

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The **Current Balance** field on the Inventory tab is read-only (except when you are inserting and duplicating an item). You must use the **Current Balance Adjustment** action to make any changes to the current balance of an item at the location named in the **Location** field.
MAXIMO automatically makes most of the adjustments to the current balances and the physical count is the usual way of making up for other discrepancies. However, you can use this action if you are aware of a change in the current balance that has not been reflected in any other inventory transaction.

1. Open an item record.

2. Select the **Current Balance Adjustment** button. The Adjust Current Balance screen appears. The current balance value is shown in the **Current Balance** field.

3. Enter the adjusted current balance value in the **New Balance** field.

4. (Option) Specify the bin and/or the lot for which you are adjusting the balance in the **Bin** and **Lot** fields.

5. (Option) Enter account code information for the account(s) in the **Control Account** and **Shrinkage Account** fields.

6. Click **OK** to update the **Current Balance** field on the Inventory tab. MAXIMO records the current balance adjustment in the Inventory Transactions table.
**PHYSICAL COUNTS**
figure for the current item, at the specified location, bin, and/or lot.

1. Open an item record.

2. Select the **Physical Count Adjustment** button. The Adjust Physical Count screen appears.

3. Enter the new count in the **New Physical Count** field.

4. (Option) Specify the bin and/or lot for the item in the **Bin** and **Lot** fields.

5. (Option) Enter the date in the **Count Date** field. The default is the current date and time.

6. Choose **OK**.

MAXIMO updates the Physical Count field on the Inventory tab.

**You must now reconcile balances to update the item’s balance information based on the physical count.**

**RECONCILING BALANCES**

You use “**Reconcile Balances**” from the Select Actions menu, to adjust the current balance based on a physical count. This action updates only the selected item in the selected storeroom.

1. Record a physical count as described in “Adjusting Physical Counts”

2. With the item record still open, select Reconcile Balances from the Actions menu.

   The Reconcile Balances screen appears.

3. Enter general ledger account information in the **Control Account** and/or **Shrinkage GL Account** fields.

4. Click **OK**.

MAXIMO reconciles the item balances.
You use the Item Master Application to define items that are stocked in your storerooms. When you create an item record you can define the type of stock the item is, whether it is lotted or nonlotted, associate Hazards and Material Safety Data Sheets (MSDS) with the item, define the item as rotating equipment, and identify alternate items that can be used as substitutes for the item.

You can also define other information related to items, such as the storeroom locations that stock the item, Item Specification, Item Assembly Structures, and documents outside of MAXIMO that relate to the item record.

You can access the Item Master Application by selecting the Inventory icon on the MAXIMO Start Center and then choosing Item Master or by using the Go To link.

There are six tabs on the Item Master Application screen:

- **Search** — Use to search the database using any combination of available fields.
- **Item** — Use to enter, view, or modify items, and to specify alternate items.
- **Storerooms** — Use to view a read-only list of information about storerooms that stock the item.
- **Specifications** — Use to enter, view, or modify Specification Templates containing detailed information specific to a type of inventory item.
- **Item Assembly Structure** — Use to enter, view, or modify Item Assembly Structures.
Assembly Structures.

- **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Item Master Action Menu:

- **Change Capitalized Status** — Use to change the `Capitalized?` field setting for an item.

- **Copy Item Assembly Structure** — Use to copy an existing Item Assembly Structure to an item record.

- **Add Items to Storeroom** — Use to add the item record to a storeroom location’s stock list.

- **Run Reports** — Use to access the Reports available for the current Application.

- **Duplicate Item** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record.

- **Delete Item** — Use to delete the current record from the MAXIMO database.

- **Add to Bookmarks** — Use to add the current record to your personal bookmark list.

The following reports are available for the Item Master Application:

- **Item List Report** — Displays item and description for selected records.

## Using the Item Master Application

You use the Item Master Application to create item records for items, materials, supplies, and rotating equipment that are stocked and stored in your company’s storerooms.

**NOTE:** The initial record creation process is one of the few times you make an entry in the `Current Balance` field. Usually, this field is either calculated by MAXIMO or updated when inventory is received in the Receiving Application. Rotating item balances are zero until an equipment record is created for the rotating item number.
1. Open the Item Master Application.

2. Click the **New Item** button in the Toolbar. MAXIMO switches to the Item tab, displaying an empty Item record.

3. Enter a unique identifier in the Item field and a description. Click the **Long Description** button if you need more space.

4. Fill in the other required fields.
   **NOTE:** Required fields are indicated by an asterisk (*).

5. Click **Save**.

### UNDERSTANDING ROTATING ITEMS

Rotating items are items such as pumps and motors that can be stocked in inventory and rotated in and out of use in different locations.

Once you have created an item record, the **Rotating ?** field becomes read-only and cannot be edited, and the **Current Balance** field becomes read-only. If an item is defined as rotating, the values in the Balances fields are controlled by the movement of the rotating equipment in and out of the storeroom.

**NOTE:** An item cannot be both a spare part and a rotating item.

The term **Rotating Equipment** refers to pieces of equipment that can be used interchangeably. Rotating equipment consists of multiple pieces of interchangeable equipment, with each piece having the same item number and a different equipment number. These items are tracked both by their item numbers in the Inventory module and by their individual equipment numbers in the Equipment module.

Alternate items are items that can be used interchangeably with other inventory items, for example two different brands of motor oil. In many cases, one item can be an alternate for another, but the opposite relationship might not be desired. As a result, MAXIMO does not automatically create matching alternate item records for both items. If you want two items to be alternates for each other, you must assign each as an alternate for the other.
1. Open or create a item record.

2. Select either of the following in the Alternate Items table window:
   - New Row to add an alternate.
   - View Details to view details for an existing alternate.

3. Click the Detail button on the Item field to select an alternate from the Select Value screen.

4. Fill in the other required fields.

   **NOTE:** Required fields are indicated by an asterisk (*).

5. Choose one of the following options:
   - New Row to add another row.
   - Done to close the Row Details form.
   - Delete to delete the row.

6. Click Save.

**UNDERSTANDING ITEM ASSEMBLY STRUCTURES**

An item assembly structure (IAS) is a list of individual items and subassemblies that are required to build a piece of equipment or define the requirements of a location. Rather than specify its components each time you enter an individual piece of equipment or a location, you create an item assembly structure as a template. You can use an IAS as a template when building multiple equipment assembly structures and their related location systems.

The IAS is built onto an item record, and the IAS is then identified by the item number at the top of the hierarchy. You can apply an Item Assembly Structure to a piece of equipment or to a location by specifying the top-level item number in the Item field on an equipment or location record, then choosing the Apply Item Assembly Structure action.

For example, a five-horsepower motor and its constituent spare parts can be used in 10 equipment assembly structures in a plant. Rather than entering 10 equipment records and specifying the spare parts for each one, you enter the equipment records and apply (copy) the five-horsepower motor IAS to the records. The entire IAS is applied to the equipment assembly structure. Similarly, you could apply the same IAS to the 10 operating locations in the plant that require the motor and its spare parts.

**NOTE:** Note that while you can use any item as the top level of an IAS, you can only apply an IAS to equipment or operating locations if the top level is a Rotating item.

**CREATING AN ITEM ASSEMBLY STRUCTURE**

You create item assembly structures on the Item Assembly Structure tab.

1. Open or create an item record.
2. Click the Item Assembly Structure tab.

3. Click Create IAS.
The Children Table Window appears.

4. Click New Row.
The Row Details form opens.

5. Click the Detail button on the Item field to select an item record to add to the IAS.

6. (Option) Change the number in the Quantity field if needed.

7. Choose one of the following options:
   - New Row to add another row.
   - Done to close the Row Details form.
   - Delete to delete the row.

8. Click Save.

**USING ITEM ASSEMBLY STRUCTURES**

Item assembly structures are applied in the Equipment and Locations Applications.

**LINKING ITEMS TO THE ASSET CATALOG**

MAXIMO includes functionality called the Asset Catalog to help companies keep track of their increasingly complex list of assets. The Asset Catalog is a structured list of items and equipment organized by their attributes, such as type, color, or unit of measure.

Once item records are associated with specification templates you can use the Asset Catalog Search screen to search through MAXIMO to find the item you are looking for. You use the Specifications tab to associate inventory items, such as motors or bearings, with an asset Specification Template.
1. Open an item record using the Search tab.

2. Click the Specifications tab.

3. Click **Associate Specification Template**.
   The Associate Specification Template Screen appears.

4. Click the **Select Value** button to select a Classification.

5. Click the **Select Value** button to select a Subclassification.

6. Click **OK**.
   MAXIMO displays the Classification, Subclassification, and attributes associated with the Specification Template on the Specifications tab.

7. Click **View Details** for the first attribute.
   The Row Details form opens.

8. Enter or edit the field data. Use the field buttons to select values.

9. Click **View Details** for the next attribute.

10. Repeat steps 8 and 9 for each attribute.

11. Click **Done** to close the Row Details form.

12. Click **Save**.

**ADDING ITEMS TO STOREROOMS**

You use the Add Items to Storeroom action to add an item record to a storeroom location’s stock list.

1. Open or create an item record.

2. Click the Storerooms tab.
   MAXIMO displays the storerooms that stock the item.

3. Select Add Item to Storeroom from the Action menu.
   The Select Storeroom screen appears.

4. Click **Select Value** for the **Storeroom** field.
   The Select Location screen appears.

5. Click **Select Record** to select a storeroom.
   MAXIMO copies the storeroom location to the Select Storeroom screen.

6. Click **OK**.

7. MAXIMO copies the storeroom location to the Add Items to Storerooms screen.

8. (Option) Use the **View Details** button to edit Storeroom Information,
for example to assign the item to a bin.

9. Click OK. MAXIMO adds the item to the storeroom.

You delete items from storerooms on the Storerooms tab.

**NOTE:** In order to delete an item from a storeroom, there cannot be a balance for the item in that storeroom.

1. Open an item record using the Search tab.

2. Click the Storerooms tab. The Storeroom Information table window displays the storerooms that stock the item.

3. Click **Mark Row for Deletion** for the storeroom. The button changes to **Undelete Row** and a line is drawn through the storeroom.

4. Click Save.

**Issues and Transfers Application**

The Issues and Transfers Application is used to issue or transfer items from existing locations. You can issue directly to a work order, against a general ledger account code, or to a location or equipment. You can also transfer stock from one storeroom location to another; balances are adjusted accordingly. In addition, you can trace the transfer of stock from one storeroom to another by transferring to and from “transit” locations (for example, COURIER, or LABOR).

You can access the Issues and Transfers Application by selecting the Inventory icon on the MAXIMO Start Center and then choosing Issues and Transfers or by using the Go To link.

There are four tabs on the Issues and Transfers Application screen:
TRANSFERS TABS

- **Search** — Use to search the database using any combination of available fields.

- **Issue** — Use to issue items directly to a work order, equipment, location, or against a general ledger account. Also used for returning items to the storeroom.

- **Transfer Out** — Use to transfer items out of your storeroom to another storeroom, courier, or labor code.

- **Transfer In** — Use to transfer items from another storeroom, a courier, or labor code into your storeroom.

ISSUES AND TRANSFERS ACTIONS

The following actions are available from the Issues and Transfers Action Menu.

- **Select Equipment Spare Parts** — Use to view and select the spare parts for a piece of equipment.

- **Add/Modify Reservations** — Use to add or modify items reserved in inventory for work orders.

- **Add to Bookmarks** — Use to add the current record to your personal bookmark list.

- **Run Reports** — Use to access the Reports available for the current Application.

ISSUES AND TRANSFERS REPORTS

The following reports are available for the Issues and Transfers Application:

- **Inventory Transactions Report** — Lists selected transaction information (receipts, issues, transfers, returns, or adjustments) for the selected storeroom location, between the specified dates.
Using the Issues and Transfers Application

To issue items from the Issues and Transfers Application there must be a storeroom specified, and you must be authorized to issue items from that storeroom.

Although items are generally specified in a job plan and issued in conjunction with specific work orders, it is also sometimes necessary to issue them directly to a location, or against a piece or equipment, or against a General Ledger account, without a work order number. For example, you might want to charge the cost of items such as soap, grease, or rags to a location or GL account rather than to a work order or specific piece of equipment.

To allow MAXIMO to track inventory costs, you must make an entry in at least one of the following fields when issuing items:

- Work Order
- Location
- Equipment
- Debit GL Account

In general, when you make an entry in one field, one or more other fields are filled in with default values associated with the first specified field. For example, if you specify a work order, the equipment and/or location and/or GL account named on the work order are also filled in.

**NOTE:** You can also record physical counts for items when issuing or transferring.

**ISSUING AN ITEM**

If you issue items to a specific work order (or location, equipment, or GL account) via this Application, do not record their usage in the Work Orders module, and vice versa. If you record items usage in two places, the item is subtracted from inventory twice, thereby causing inaccurate item count. To protect your inventory records, establish a policy for your site as to whether item usage will be recorded in the Issues and Transfers Application or in the Work Orders module.

No matter where the materials issues/ usage are originally recorded, the information is copied to the Materials subtab on the Actuals tab in Work Order Tracking.

**ISSUING A RESERVED ITEM**

When you create a job plan for a work order, the materials needed for the work order are reserved in inventory. Once the work order is approved, you can issue the reserved items.

1. Open the Issues and Transfers Application.
2. Open a storeroom record using the Search tab.
3. Click the Issues tab.

4. Click Select Reserved Items.

5. (Option) On the Select Reserved Items screen, enter a work order in the **Work Order** field in the Filter By area, and click Find.

6. Select those items reserved for the specific work order by checking next to them and click OK.

7. (Option) Click View Details if you need to edit any of the fields, for example, to change the quantity issued.

8. Click Save.

**ISSUING AN UNRESERVED ITEM**

Sometimes you need to issue items directly to a location, or against a piece or equipment, or against a General Ledger account, or issue items that are not included in a work order.

1. Open the Issues and Transfers Application.

2. Open a storeroom record using the Search tab.

3. Click New Row.

   The Row Details form opens.

4. Click the Detail button in the **Item** field to select an item.

   Choose one of the following options:
   - Select Value to choose an item from the Select Item screen showing the master item list.
   - Asset Catalog Search to use the Category Drilldown to select an item.
   - Go to Item Master to define a new item record.

5. Enter the **Quantity** of the item and the **Work Order** number, **Equipment**, **Location**, or **GL Account** code.

6. Fill in the other required fields. Edit any of the other fields as appropriate.

   **NOTE:** Required fields are indicated by an asterisk (*). Refer to the Field Help for more information about any of the fields.

7. Choose one of the following options:
   - New Row to add another row.
   - Done to close the Row Details form.
   - Delete to delete the row.

8. Click Save.

**ISSUING METERED**

MAXIMO allows you to issue metered materials and record meter
MATERIALS

readings as you issue the material. One example of this kind of transaction is issuing fuel to a truck and recording the reading on the truck’s odometer each time it is refueled. You can then generate a report to examine the truck’s fuel efficiency.

To track metered materials, first set up the Meters for the equipment on the Meters tab of the Equipment Application. Then, when issuing materials, enter the Meter readings on the Row Details form of the Issue tab.

TRANSFERRING ITEMS

Items can be transferred from one storeroom location to another inventory location using the Transfer Out and Transfer In tabs. You can also transfer items from a storeroom to a labor or courier location. Transferring items to another storeroom is done on the Transfer Out tab. You have three options for selecting items for transfer out to another storeroom:

- **Select PO Items** — allows several options for filtering your search when you are transferring items on an internal PO to another company storeroom.

- **Select Items for Transfer** — allows you to filter your search by Item, Bin, and Lot.

- **New Row** — to enter items to be transferred individually.

Receiving the transfer into a storeroom is done on the Transfer In tab. The same three options are available when transferring items into a storeroom.

RETURNING ITEMS

You use the Issues tab to return previously issued items and materials, for example if some of the parts on a work order were not needed.

**Note:** You cannot return rotating equipment that has been modified (moved or worked on) since its original issue.
1. Use the Search tab to select a storeroom.

2. Click the Issue tab.

3. Click **Select Items for Return** button

4. Use the filters at the top of the page to locate the items you wish to return. For example, unused items on a work order.
   a. Enter a value in a field.
   b. Click **Find**.

5. Select items by checking the box next to the row. You can select more than one item. If you select an item in error, click it again to clear the check box.
   **NOTE:** An item can have been issued multiple times. Be careful to select the correct issue for return.

6. Click **OK**.

7. (Option) Click **View Details** to edit the Quantity returned for each returned item.

8. Click **Save**.
EQUIPMENT MODULE

MAXIMO enables you to track equipment from purchase to salvage—from the beginning to the end of its life cycle. You have the ability to track equipment that is in a temporary location, or even in transit between locations. The Equipment module contains Applications designed to track equipment and locations used by your company.

The Equipment Module consists of four Applications:

- **Equipment** — Used to create equipment records, store equipment numbers and corresponding information.
- **Locations** — Used to create location records and track equipment that might be used in multiple locations. Also used to build hierarchical or networked systems.
- **Failure Codes** — Used to define failure codes and define the Problem, Cause, Remedy hierarchy.
- **Condition Monitoring** — Used to define unlimited measurement points for equipment, and to specify alarm limits and associated work to be performed when those limits are reached.

MAXIMO includes functionality called the Asset Catalog to help companies keep track of their increasingly complex list of assets. The Asset Catalog is a structured list of items and equipment organized by their attributes, such as type, color, or unit of measure.

The Asset Catalog allows you to structure your assets in organized hierarchies so that:

- Items, locations, and equipment can be easily located.
- Item, location, and equipment records are not duplicated.
- Your company’s asset lists is consistent with vendor’s lists.

You build the Asset Catalog using the Specifications tab on the Item Master, Equipment, and Locations Applications. Once assets are associated with specification templates you can use the Asset Catalog Search screen to search through MAXIMO to find the asset you are looking for.
The Asset Catalog uses classifications and attributes to define specification templates. Each unique combination of classification levels becomes a separate Specification Template.

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td><strong>Level 1</strong> — A general category used to represent a collection of assets that share certain attributes</td>
<td>Pump</td>
</tr>
<tr>
<td>Subclassification</td>
<td><strong>Level 2</strong> — Used to create subsets of items that fit into the same classification, but can be divided into smaller groups based on their attributes. Your System Administrator can create up to four levels of subclassification</td>
<td>Centrifugal</td>
</tr>
</tbody>
</table>
| Attribute(s)  | Characteristics that assets have in common and can be applied to all classifications in the Asset Catalog. They are defined by the following criteria:  
  - Name  
  - Description  
  - Type (numeric or alphanumeric)  
  - Measure Unit  
  - Domain (possible values) | Size  
  Capacity  
  Speed |

You can define specification templates to include up to five classification levels and as many attributes as necessary to describe each asset.

The Equipment / Location Drilldown is a graphical tool available from the Equipment or Location field of an Application. It is used to view and navigate equipment and location hierarchies. You use it to select a record to be returned as a value to the field.

The Locations tab of the Drilldown is built by creating location hierarchies in the Locations Application. The Equipment tab of the Drilldown is built by creating equipment assembly structures in the Equipment Application.
**Equipment Application**

The Equipment Application is used to store equipment numbers and corresponding information such as equipment location, vendor, up/down status, and maintenance costs for each piece of equipment.

Tabs in the Equipment Application enable you to build the equipment hierarchy, an arrangement of equipment, subassemblies, and spare parts. The equipment hierarchy provides a convenient way to roll up maintenance costs so that you can check accumulated costs at any level, at any time. It also makes it easy to find a particular equipment number.

You can access the Equipment Application by selecting the Equipment icon on the MAXIMO Start Center and then choosing Equipment or by using the Go To link.
EQUIPMENT TABS

There are ten tabs on the Equipment Application screen:

- **Search** — Use to search the database using any combination of available fields.
- **Equipment** — Use to enter, view, or modify the main record for a piece of equipment.
- **Spare Parts** — Use to create the equipment hierarchy and view the subassemblies and spare parts of a piece of equipment.
- **PMs** — Use to view the PMs and service contracts for a piece of equipment.
- **Measurement** — Use to view the monitoring points for a piece of equipment.
- **Safety Plan** — Use to enter, view, or modify safety records for a piece of equipment.
- **Meters** — Use to enter, view, or modify metering information for a piece of equipment.
- **Routes** — Use to view routes associated with a piece of equipment.
- **Specifications** — Use to enter, view, or modify the specification for the equipment as recorded in the Asset Catalog.
- **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

EQUIPMENT ACTIONS

The following actions are available from the Equipment Action Menu:

- **View Status History** — Use to view the status change history of equipment.
- **Open Drilldown** — Use to view the equipment hierarchy graphically via the Equipment/Location Drilldown.
- **Apply Item Assembly Structure** — Use to build equipment assembly structures and spare parts lists using an Item Assembly Structure as a template.
- **Reset Meter Readings** — Use to zero meter readings for a piece of equipment.
- **Update Average Units Per Day** — Use to update the average
units per day you expect for meters

- **Move Equipment** — Use to move equipment to a new location or associate a new parent

- **View Equipment Move History** — Use to view the history of equipment’s movements

- **Zero Equipment Costs** — Use to zero year-to-date and/or total equipment costs. This action operates on all equipment records and is typically only used at the end of the fiscal year

- **Change Item Number** — Use to change the item number of rotating equipment that is not in a storeroom location

- **Run Reports** — Use to access the Reports available for the current Application

- **Replicate Equipment** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record

- **Delete Equipment** — Use to delete the current record from the MAXIMO database

- **Add to Bookmarks** — Use to add the current record to your personal bookmark list

**Using the Equipment application**

The Equipment Application lets you create and maintain records for the equipment at your site. You can specify the location of equipment, and its vendor and manufacturer. You can also connect the equipment to an equipment hierarchy

MAXIMO recognizes two types of equipment records:

- **Standard equipment** — pieces of equipment that you want to keep a repair history for, but that will not be stored in Inventory.

- **Rotating equipment** — pieces of equipment that are interchangeable, for example motors or pumps. Rotating equipment has both an equipment number and an inventory item number. This allows you to track it as it moves from an operating location to a storeroom and vice versa
The following procedure describes how to create a record for equipment that is not going to rotate:

1. Open the Equipment Application.

2. Click the **New Equipment** button in the Toolbar. MAXIMO switches to the Equipment tab, displaying an empty Equipment record.

3. Enter a unique identifier in the **Equipment** field and a description. Click the **Long Description** button if you need more space.

4. (Option) In the **Belongs To** field, click the **Detail** button and select the parent equipment. If the parent equipment is associated with a location, MAXIMO copies the location into the **Location** field. You can modify the field.

5. Fill in the other required fields.

**NOTE:** Required fields are indicated by an asterisk (*).

6. Click **Save**

**UNDERSTANDING ROTATING EQUIPMENT**

**Rotating equipment** are interchangeable pieces of equipment that are moved in and out of service as needed. The term is generally applied to equipment that can be repaired or refurbished rather than replaced, and can be used interchangeably at different locations or on different pieces of equipment. Pumps, motors, and fire extinguishers are examples of rotating equipment.

Other terms for this kind of equipment include "rotating assets," "rotating parts," "stocked equipment," "serialized equipment," "serialized assets," "rotables," and "rotatable spares.

Rotating equipment records also have a **rotating item** number to allow tracking as the equipment moves from the storeroom to an equipment or location, to repair, and so forth. Having both an equipment and item number gives you a way to track identical pieces of equipment both individually, via their unique equipment numbers, and as a group, via their shared item number.

For example, a company might have four identical centrifugal pumps (same make, same model), so all four pumps have the **same item number**. However, each pump has a unique history of use and repair, so each pump has a **unique equipment number** to enable you to track each pump individually.
NOTE: Before creating rotating equipment records, the rotating item must first be defined in the Item Master Application.

1. Open the Equipment Application.

2. Click the New Equipment button in the Toolbar. MAXIMO switches to the Equipment tab, displaying an empty Equipment record.

3. Enter a unique identifier in the Equipment field and a description. Click the Long Description button if you need more space.

4. In the Belongs To field, click the Detail button and select the parent equipment. If the parent equipment is associated with a location, MAXIMO copies the location into the Location field.

5. Enter the Item identifier in the Item field.

6. Fill in the other required fields.

NOTE: Required fields are indicated by an asterisk (*).

7. Click Save

An Equipment Assembly Structure (EAS) is a hierarchical listing of equipment records. An EAS is the logical organization of pieces of equipment into a unit that reflects their physical connection. You can also add spare parts and inventory items to an EAS. The EAS serves two functions:

1. It provides a way to track maintenance costs. Costs get "rolled up" the EAS to the equipment responsible for assuming the maintenance cost.

2. It builds the Equipment / Location hierarchy, allowing you to visually navigate the hierarchy to locate a specific piece of equipment in the Equipment / Location Drilldown.
There are three kinds of possible elements in an EAS:

1. **Top EAS Elements** – There is a single element at the top level of each EAS. Any equipment record entered in the Equipment database and not specified as “belonging to” any other equipment is a top-level EAS element.

2. **Subassemblies** – Subassemblies are entities that “belong to” another piece of equipment. A subassembly can have one or more other subassemblies belonging to it. This type of relationship is referred to as a “parent-child relationship.” A parent piece of equipment can have one or more subassemblies (children) belonging to it, but a subassembly belongs to only one parent.

3. **Spare Parts** – An inventory item can belong to any piece of equipment – the top EAS element or a subassembly, or both. Unlike individual pieces of equipment, spare parts can be entered multiple times in an EAS. For example, both a motor and the motor housing might require two half-inch nuts as parts.

Equipment assembly structures can be built on either the Equipment tab or the Spare Parts tab of the Equipment Application:

- **Equipment Tab** — Use the **Detail** button to specify a piece of equipment in the **Belongs To** field. By doing this, you make the equipment shown in the **Equipment** field a child of equipment in the **Belongs To** field, thereby building a hierarchy.

- **Spare Parts Tab** — Use the **New Row** button in the Sub Assemblies or Spare Parts table window to add an existing equipment or item records to the equipment assembly structure.

Using the Spare Parts tab of the Equipment Application you can see the parents and all the children of the current record. In addition, you can see the spare parts that have been defined for the equipment.

**Current equipment** in the Equipment field

**Parent of the equipment** in the Belongs To field

**Subassemblies** in the Subassemblies table window

**Spare Parts** in the Spare Parts table window

Instead of viewing the current equipment record, you might want to view the record for its parent or for one of the subassemblies.

- To view the parent record, click the **Detail** button in the **Belongs To** field (if there is an entry in that field) and select **Move To**. MAXIMO moves up the hierarchy to the parent record.
To view the record for a subassembly, click the View Details button for the subassembly. Click the Detail button in the Equipment field and select Move To. MAXIMO moves down the hierarchy to the subassembly record.

Item assembly structures (IAS) are created in the Item Master Application and can be used as templates for creating equipment assembly structures. When you apply an IAS to an equipment record the rotating and non-rotating items are copied into the equipment’s EAS and the non-rotating items are displayed as spare parts.

You typically apply an item assembly structure to equipment when you first create the equipment record. You can apply an IAS to equipment by specifying the top-level item number in the Item field, then choosing the Apply Item Assembly Structure action. The rotating item at the top level of the IAS becomes a piece of rotating equipment when the IAS is applied to an equipment record.

Any lower-level elements in the IAS that are themselves rotating items need to be given equipment identifiers when the IAS is applied. Any children of nonrotating items in the IAS are treated in the equipment hierarchy as belonging to the closest rotating equipment above the item in the IAS.

NOTE: While the IAS can have multiple levels of nonrotating items, the equipment assembly structure can have only one level of nonrotating items below an equipment number.

1. Open or create an equipment record.
2. Enter a rotating item number in the Item field.
3. Select Apply Item Assembly Structure from the Actions menu.
   The Apply Item Assembly Structure screen appears.
4. Choose either of the following:
   - Click Autonumber All to have MAXIMO create equipment numbers for every rotating item displayed in the IAS table window.
   - Click View Details to assign values to each item individually.
     a. Enter an identifier in the Equipment field.
     b. (Option) Enter a GL Account code.
     c. Click Done.
5. Click OK.
   MAXIMO copies the IAS to the Spare Parts tab.
6. Click Save.
**Using Meters**

MAXIMO uses equipment meters as one of the criteria for generating PM work orders. PM frequency is based on elapsed time in days or in meter units used since the last work order was completed or targeted to start.

The Meters tab allows you to enter Meter readings for two meters per equipment record.

**NOTE:** We recommend that you enter only meter readings (which always increase), rather than gauge readings (which fluctuate).  

**Locations Application**

The Locations Application lets you enter and track locations for equipment and organize these locations into logical hierarchical or network systems. Using systems of locations and specifying the location for equipment on the equipment record provides the groundwork for gathering and tracking valuable information on the history of equipment, including its performance at specific sites, as it is moved from location to location. With locations organized into systems, you can quickly find a location in the Equipment/Location Drilldown, and identify the equipment at a specific location.

You can also use the Locations Application to create repair locations, courier locations, salvage locations, vendor locations, and define labor as locations.

You can access the Locations Application by selecting the Equipment icon on the MAXIMO Start Center and then choosing Locations or by using the Go To link.
There are seven tabs on the Locations Application screen:

- **Search** — Use to search the database using any combination of available fields.

- **Location** — Use to enter, view, or modify detailed information specific to a location.

- **Equipment** — Use to view equipment at the location.

- **History** — Use to view the history of move transactions into and out of the location.

- **Safety** — Use to enter, view, or modify safety records associated with the location.

- **Specifications** — Use to enter, view, or modify the specification for the location as recorded in the Asset Catalog.

- **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.
The following actions are available from the Locations Action Menu:

- **Change Status** — Use to change the status of the Location, for example from Planned to Active.

- **View Status History** — Use to view the status change history of a location.

- **Open Drilldown** — Use to view the location hierarchy graphically via the Equipment/Location Drilldown.

- **Associate Systems with Location** — Use to associate or disassociate the location with systems.

- **Manage Systems** — Use the Manage Systems screen to:
  - Add a new system
  - Change a hierarchical system to a network system
  - Select a system to be the primary system

- **Apply Item Assembly Structure** — Use to apply an Item Assembly Structure to a location.

- **View Parents** — Use to view parents for the location across systems.

- **Run Reports** — Use to access the Reports available for the current Application.

- **Duplicate Location** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record.

- **Delete Location** — Use to delete the current record from the MAXIMO database.

- **Add to Bookmarks** — Use to add the current record to your personal bookmark list.
**Using the Locations Application**

**Locations** are the places where equipment operates. Work order costs are typically charged to the location itself or to the equipment at a location.

In addition to locations, equipment can be located in other "equipment-type" locations. Other equipment type locations are vendor locations, salvage locations, and repair locations. You can track equipment not only as it moves from one location to another, but as it moves to a vendor or repair location, and eventually to salvage.

Along with "equipment type" locations, there are "inventory type" locations such as labor and courier. These are locations that, like a storeroom, can maintain a balance of items issued from a storeroom. For example, if a courier is holding a number of parts, he is responsible for them until they are received into another location.

**PREPARING TO CREATE LOCATIONS**

We recommend that you carefully review all of the topics on Locations and Systems in this guide before creating locations. Inserting location records and specifying parents and systems for the new locations creates relationships that are not easily undone once you have established them.

The time and thought you invest in planning your locations and systems makes their creation easier, and makes it easier for users to navigate the Equipment / Location Drilldown.

**CAUTION:**

The first location you create in a hierarchical system becomes the top level location. **This cannot be undone**

**CREATING A NEW LOCATION**

By default, new locations are added to the system the parent location belongs to. You can specify the new location’s parent in the **Parent Of** table window. If you are specifying both a parent and a system, the system must be one that the parent belongs to.

**NOTE:** We recommend that you carefully review all of the topics on Locations and Systems in this guide before creating locations.

1. Open the Locations Application.

2. Click the **New Location** button in the Toolbar. MAXIMO switches to the Location tab, displaying an empty Location record.

3. Enter a unique identifier in the **Location** field and a description. Click the **Long Description** button if you need more space to finish the description.

4. Choose a **Type**. All location fields except **Location ID**, **Description** and **Type** are read only until a location type is selected. Some fields might
remain read-only after you have selected a type.

5. Fill in the other required fields.

**NOTE:** Required fields are indicated by an asterisk (*).

6. Click **Save**.

Location hierarchies provide a way of grouping equipment and locations into areas of responsibility. A location hierarchy can be designed to include all locations in your plant against which work orders are written, and can provide a means of tracking the movement of equipment into and out of locations. MAXIMO calls location hierarchies **Systems**.

Establishing one or more systems allows you to build a logical model of the locations at your site by specifying their parent(s) and/or children. Locations can be placed in more than one system. Your primary system might divide an office building into floors, and the floors into offices. In this example, an office might belong to the primary system, and also belong to the heating system, and the electrical system.

It is possible to add location records without organizing them into systems. However, organizing locations into named systems can help you manage your maintenance work more effectively by letting you see how a work order could affect equipment, locations, or systems beyond the specific equipment or location the work is to be done on.

With operating locations organized into systems, you can quickly find a location via the **Equipment / Location Drilldown**, and identify the equipment at that location.

If you are entering location records for the first time, and no systems currently exist, you need to create one. You use the **Manage Systems** action to create a new system, and also to designate your primary system.

In general, we suggest that the first system you create be the primary system, one intended to be the system to which all your operating locations belong. Having all your operating locations tied together in one complete primary system provides a solid foundation for the use of locations and systems, and might be the only system your site needs for tracking equipment.
Example of a Primary Location Hierarchy

You can navigate down through the hierarchy by clicking on the (+) sign before the location level you want to expand. A (-) sign indicates you are at the lowest level for that parent (no child records).

The primary system must be hierarchical, that is it must have one top-level location as the “ancestor” of all other locations in the system. You could call this system Primary, Main, Plant, or whatever is appropriate for your site.

**NOTE:** The first location you add to a new hierarchical system becomes the top-level location in the system; for every location you add to the system after that you have to specify a parent location. You should plan carefully before adding the first location to any new system.

1. Open or create a location record.


3. Click the New Row button.

4. Type a name and description for the new system.

5. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

6. Click Save

If the location belongs to multiple systems, after defining the location
you can use the **Associate Location with Systems** action to specify additional systems.

You can use an item’s Item Assembly Structures to create location records for rotating equipment associated with the item. When the same IAS is applied to both a location and equipment, a location hierarchy is created that matches the equipment hierarchy. An IAS can be applied multiple times, to different locations that require the same kind of equipment.

You can apply an IAS to a location by specifying the top-level item number in the **Item** field on a location record, then choosing the **Apply Item Assembly Structure** action. You can then create location records for any rotating items in the structure. Nonrotating items in the IAS are ignored in the location hierarchy.

**NOTE:** You can only apply an item assembly structure (IAS) to a location if the location belongs to a system.

When you define a system you can specify whether it is Hierarchical or Network using the **Network?** check box. If an association requires the system to be networked MAXIMO does not automatically change the system to network. You have to change the property of the system using the **Manage Systems** action and then associate the location with the system.

Examples of locations that might be organized as a network include a ventilation system, or a piping system.

**NOTE:** You can change a system from hierarchical to networked but not from a network back to a hierarchy.

The Locations tab displays three table windows:

- **Systems** — displays the systems associated with the location. Clicking on a system populates the other two table windows.

- **Parent of** — displays the location’s parent in the selected system. Additional parents can be added using the **New Row** button only if the selected system is a Network.

- **Children of** — displays the location’s children that belong to the selected system. New children can be added using the **New Row** button.

If a system is a network, there is a check mark in the Network column of the System table window. If a system is hierarchical, the Network column is not checked.
DISASSOCIATING LOCATIONS AND DELETING SYSTEMS

When you disassociate a location from a system the location should not have any children that are associated with the same system. You should delete the children from the Children table window present in the Locations main page and then disassociate the system.

You can delete a system only when it is not associated with any locations.

Failure Codes Application

The Failure Codes Application is used to build and display failure hierarchies, which help you construct accurate histories of the failures that affect your equipment and locations. After reporting and analyzing failure trends, you can take preventive measures.

You can access the Failure Codes Application by selecting the Equipment icon on the MAXIMO Start Center and then choosing Failure Codes or by using the Go To link.

Failure Codes Application Main Screen

Failure Codes Tabs

There are three tabs on the Failure Codes Application screen:

1. **Search** — Use to search the database using any combination of available fields.

2. **Failure Codes** — Use to enter, view, and modify failure hierarchies.

3. **Attached Documents** — Use to create links between the record
The following actions are available from the Failure Codes Action Menu.

**Copy Problem Hierarchy** — Use to copy a single Problem and its associated Causes and Remedies from another failure class.

**Run Reports** — Use to access the Reports available for the current Application.

**Duplicate Failure Code** — Use to create a copy of the current failure hierarchy, which can then be modified and saved as a new record.

**Delete Failure Code** — Use to delete the current record from the MAXIMO database.

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**Using the Failure Codes Application**

You use the Failure Codes Application to create and store a hierarchical list of the equipment and location failures recognized within your company.

A **Failure Hierarchy** is a chart that shows the possible causes of equipment failure. It can also be thought of as a tree structure that lists the possible *solutions* to equipment failure, and provides the paths to those solutions. The hierarchies are used on the Failure Reporting tab of the Work Order Tracking Application to record equipment problems for future analysis.

A failure hierarchy resembles an Equipment Assembly Structure (described in “Understanding Equipment Assembly Structures” on page 160) or the location hierarchy in that there is a highest-level category (the failure class) which can have one or more levels of failure codes beneath it.

**NOTE:** Using failure codes on work orders can help reduce the number of duplicate work orders that are entered in the system.
UNDERSTANDING THE FAILURE CODE HIERARCHY

The failure class is at the very top of the failure hierarchy. Each level in the failure hierarchy beneath the failure class can contain one or more failure codes, which "belong to" the failure code in the next higher level. An individual failure code can have multiple children; each child can in turn have one or more child failure codes.

The MAXIMO failure hierarchy is build on a problem—cause—remedy framework. By default, MAXIMO supplies a hierarchy containing these three levels:

- The **PROBLEM** is the symptom. What looks or feels broken? These top level codes are displayed in the top table window on the Failure Codes tab.

- The **CAUSE** creates the problem. Why did the problem occur? These second level codes are displayed in the second table window on the Failure Codes tab.

- The **REMEDY** is the correction. What will fix the problem? These third level codes are displayed in the third table window on the Failure Codes tab.

Your company can have different or additional types available. You do not have to specify a type for failure codes. They can be used at any level. For example, OVERHEATING could be both a Problem and a Cause.

BUILDING A FAILURE HIERARCHY

Failure hierarchies are built from the top down. You can make use of existing failure codes and/or create new ones to build the hierarchy. You navigate the failure hierarchy from top to bottom. A Failure Hierarchy can be created all at once, or partially completed and added to later as necessary.

1. Open the Failure Codes Application.

2. Click the **New Failure Code** button in the Toolbar. MAXIMO switches to the Failure Code tab, displaying an empty Failure Code record.

3. Enter a unique identifier in the **Failure Class** field and a description in the **Description** field.

4. Click **Save**.

ADDING CHILD LEVELS TO A FAILURE CODE

The procedure for adding Problem, Cause, and Remedy level failure codes is the same with one exception, selecting the parent for Causes and Remedies. All Problem failure codes are children of the Failure Class, but note the labels for the Cause and Remedy tables, which indicate the parent levels for the records in each table window.

**CAUTION:** Before entering Causes or Remedies, check that the table window label reflects the correct parent for the failure code you are about to enter.

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to enter. To change the table label, click the appropriate row in the parent table window.

1. Open or create a Failure Class record.

2. Select either of the following in the table window:
   - New Row to add a new failure code.
   - View Details to view details for an existing row.
   The Row Details form opens.

3. Enter a value in the Problem field, or click Select Value to select a value.

4. Enter a description in the Description field.

5. Enter a type in the Type field, or click Select Value to select a value.

6. Choose one of the following options:
   - New Row to add another row.
   - Done to close the Row Details form.
   - Delete to delete the row.

7. Click Save.

Failure reporting allows you to identify and track equipment and location failures. You report failures via the Quick Reporting or Work Order Tracking Applications.

Note that in order to do failure reporting, the following must be true:

- The failure hierarchy for the problem must exist in the database.

- The piece of equipment or the location you are reporting failure on must have the appropriate failure class code specified in its Failure Class field in the Equipment or Locations Application.

Failure analysis is the process by which you examine equipment failure history, reported over a significant period of time. Use any equipment or location failure reports to look for breakdown trends, average time between failures, and so on.

By correlating this failure information with other data available to you, for instance, preventive maintenance schedules for a piece of equipment or location, you can develop ways to reduce or limit equipment failures in the future. For example, you might want to review you preventive maintenance schedule, or you might be able to identify a branch of faulty inventory items.
PLANS MODULE

Preventive maintenance work is often repetitive work performed to keep equipment running efficiently. The Plans module allows you to create standard templates of tasks, labor, materials, tools, and necessary safety information needed to complete a job. Using these templates avoids the need to repeatedly key in work and safety related information.

**Plans Module Applications**

The Plans Module consists of six Applications:

1. **Job Plans** — Used to create a detailed description of how a job is to be performed.

2. **Routes** — Used to list related work assets (Equipment and/or Locations), which are considered "stops" along an inspection or maintenance route.

3. **Safety Plans** — Used to create a detailed plan of how to safely service equipment or locations.

4. **Safety Hazards** — Used to define hazards that exist in the workplace and associate related safety precautions.

5. **Safety Precautions** — Used to define precautions that can be taken against hazards in the workplace.

6. **Lock Out / Tag Out** — Used to create a detailed description of how to safely take equipment or locations out of service and place them back into service.

The Plans module provides a way to track safety information, which can then be supplied to workers when it is associated with work order, equipment, location, and item records. This includes information that you might be required by law to provide to your workers.

You use the Job Plans Application to create templates for preventive maintenance repairs, inspections, and other tasks. You include:

- The steps that need to be performed to complete the work
- The number of workers needed to complete the work and the job skills they must have
- The supplies and parts that will be needed
- The tools that will be needed to complete the repairs

Once these templates are created they can be useful for planning worker schedules, inventory stocks, and budgets.
You use the Safety Hazards and Safety Precautions Applications to create generic lists of possible hazards and possible precautions that exist in your workplace. These lists are then used when adding safety information to equipment and locations, and when creating safety plans.

The Lock Out / Tag Out Application is used to create specific procedures to be applied to specific pieces of equipment or locations. These procedures describe how to take the asset out of service to eliminate a hazard, and then return it to service once work is complete. These might be as simple as turning off electrical current to a piece of equipment, or as complex as shutting down a nuclear reactor.

All the safety information is brought together in the Safety Plans Application, where you can define the safety information necessary to follow a specific job plan on a work asset. By identifying hazards, precautions to be taken against those hazards, and any specified Tag Out procedures for the equipment or location, you can provide as much safety information as possible for your maintenance personnel.

Safety Plans can then be applied to Job Plans and Work Orders in their respective Applications. All of these Applications work together to help you plan for work to be performed safely.

**Job Plans Application**

MAXIMO uses job plans to predefine the work plan information describing the work that needs to be done on a work order. If you use job plan you do not have to key in the same information every time you create a work order for similar work.

A job plan is a detailed description of work to be performed on an asset. A job plan typically includes procedural descriptions and lists of estimated materials, items, labor, and tools to be used on the job.

The Job Plan record holds:

1. Operational Instructions (Procedures)
2. Estimated Labor (Includes Cost)
3. Estimated Materials (Includes Cost)

Estimated Tools (Includes Cost)

You can access the Job Plans Application by selecting the Plans icon on the MAXIMO Start Center and then choosing Job Plans or by using the Go To link.
There are four tabs on the Job Plans Application screen:

1. **Search** — Use to search the database using any combination of available fields.

2. **Job Plan** — Use to enter, view, or modify a job plan record. This tab displays basic information about the job plan, and is the tab on which you specify the job plan tasks, labor, materials, and tool.

3. **Work Assets** — Use to associate work assets and safety plans with job plans.

4. **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Job Plans Action Menu.

- **View Totals** — Use to view total hours and costs for the job plan.

- **Run Reports** — Use to access the Reports available for the current Application.

- **Print With Attachments** — Use to print all documents associated with a record through Attached Documents.

- **Duplicate Job Plan** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a
new record.

**Delete Job Plan** — Use to delete the current record from the MAXIMO database.

**Add to Bookmarks** — Use to add the current record to your personal bookmark list.

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**Using the Job Plans Application**

After examining your company’s maintenance activities to identify the kinds of work orders that are repeatedly generated, you can create job plans that describe those common maintenance jobs. This can help you estimate the labor, materials, and tools that are required for preventive maintenance and periodic inspections.

Once you build a job plan, you can reference the specific tasks repeatedly when you create similar work orders. For example, when creating work orders for similar equipment or locations. This can save you time and money, and ensure consistency when defining work for similar assets.

A job plan can be assigned to an unlimited number of work orders. When you assign a job plan to a work order, its resource estimates and tasks are copied into a **work plan** for the work order. You can then modify a work plan so that the procedures, labor, materials, and tools are more specific to the work order, without affecting the original job plan template.

Defining a Job Plan consists of the following steps:

- Defining the Tasks by breaking the job down into steps in the Tasks table window.
- Defining the Labor skills and hours on the Labor sub tab.
- Defining the Materials needed on the Materials sub tab.
- Defining the Tools needed on the Tools sub tab.

---

**Defining Job Plan Tasks**

Each maintenance job can be broken down into a series of steps or tasks, which need to be performed to complete the job. MAXIMO calls these numbered steps or operations **tasks**. The Tasks table window on the Job Plans screen contains a list of numbered tasks that have been defined for a job plan, along with a description of the work to be done at that step, and the estimated time for its completion.
Example of Tasks for a Job Plan

The following operations are associated with a job plan for performing annual maintenance on an electric cart. Note that the operation numbers are listed in increments of 10. This gives you the flexibility to add additional operations between existing ones at a later date or on the Work Plan when used with a Work Order.

10 Check tires, lights, horn, mirrors, windshield wipers, steering, key switch, and forward/reverse switch.

20 Check brakes, brake lights, and emergency brake.

30 Check battery. Add water as needed. Check terminals and cables.

40 Lubricate chain and check sprockets.

50 Repack wheel bearings. Grease steering chassis as needed.

60 Operate vehicle for safety check.

You can assign the task’s number to any estimated labor, materials, and tools that are associated with the task. This is helpful if you want to track and report information by task.

Defining Job Plan

Labor

Some tasks might be performed by any maintenance worker, while others can require specialized skills to be performed safely, for example working with electrical current. You use the Labor sub tab to define the labor and craft needs of a job plan, including number of workers needed, estimated hours workers are needed, and estimated line costs.

When you enter a code in the Labor/Craft table window, the labor or craft’s description and rate are displayed once you close the Row Details Form. Each time quantities or hours are inserted, deleted, or modified on the Labor/Crafts table window, these fields are updated automatically:

- Line Cost (Labor table window)
- Total Labor Hours (View Totals action)
- Total Labor Costs (View Totals action)

Materials

If you know what materials are needed for a job (replacement parts, filters, lubricants, and so on), you can record them as part of the job plan. You use the Materials sub tab to define a materials list for the job plan, including items needed, quantity needed, issuing storeroom location, and estimated unit and line costs.

Each time a quantity is modified, inserted, or deleted in the Materials table window these fields are updated automatically:

- Line Cost (Materials table window)
- Estimated Total Materials Cost (View Totals action)

Tools

If you know that specific tools are required for a job you can record that information as part of a job plan. You use the Tools sub tab to define a list of tools needed by the job plan including the number of the tools needed, tool rate, and estimated line costs.
Tools are defined in Maximo and given a number, a description, and a cost per hour (Rate) for usage. These tools are then available for use on the Job Plan records.

Each time a quantity is modified, inserted, or deleted in the Tools table window these fields are updated automatically:

- Line Cost (Tools table window)
- Estimated Total Tool Cost (View Totals action)

1. Open the Job Plans Application.

2. Click the New Job Plan button in the Toolbar. MAXIMO switches to the Job Plan tab, displaying an empty Job Plan record.

3. Type a name for the new Job Plan, and a description.

4. Fill in the other required fields.

   **NOTE:** Required fields are indicated by an asterisk (*).

5. Click New Row in the Tasks table window to add Tasks.

6. Enter Labor, Materials, and Tools information

7. Click Save.

**ENTERING TASKS**

Each maintenance job can be broken down into a series of steps or tasks, which need to be performed to complete the job. You use the Tasks table window to define a list of numbered tasks for the job plan, along with a description of the work to be done at that step, and the estimated hours for its completion.

Job plan task numbers must be unique within each job plan. The system sorts tasks in numerically ascending order by Task ID. The task with the lowest number is the first step of your job plan. The default is for MAXIMO to increment task numbers by 10, for example 10, 20, 30 and so on. This gives you the flexibility to add new tasks between existing ones at a later time or on the Work Plan.

1. Open or create a job plan record.

2. Select either of the following in the table window:
   - New Row to add a row.
   - View Details to view details for an existing row.
   The Row Details form opens.

3. Enter a unique identifier in the Task ID field and a description. Click the Long Description button if you need more space.
4. Estimate the time required in the **Hours** field.

5. (Option) Enter a measurement point name if you plan to utilize condition monitoring for this task.

6. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

7. Click **Save**.

You can enter task numbers for estimated labor, materials, and tools, although you are not required to do so. Task numbers on the sub tabs do not need to be unique.

The task number you use for estimated labor, materials, or tools should correspond to the job plan task where it is used. This allows you to track estimates by task through the use of reports, which can be valuable when the job plan is lengthy or complicated.

The procedure is the same for defining Labor, Materials, or Tools in a job plan.

1. With a Job Plan record open, select a sub tab.

2. Select **New Row** in the sub tab table window. The Row Details form opens.

3. (Option) Enter a **Task ID** if your business rules call for tracking data by task.

4. Select a **Labor/Craft, Item, or Tool** record by:
   a. Clicking the **Detail** button next to the field.
   b. Selecting a record by clicking the **Select** button to the left of the record.

5. Fill in remaining fields as dictated by your business rules.

6. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Cancel** to cancel the row.

7. Click **Save**.
**DUPLICATE A JOB PLAN**

You might want to create a job plan that is very similar to one you already have. The quickest way is to duplicate that job plan and then modify the copy.

1. In the Job Plans Application, find the job plan you want to duplicate.
2. From the Actions menu, choose Duplicate Job Plan.
3. In the Duplicate Record dialog box do one of the following:
   - Enter a new Job Plan number or unique identifier in the New Key field.
   - Click Auto number to have MAXIMO generate a number for this field.
4. When you click OK, MAXIMO copies all the information from the original to the duplicate, including all Work Asset and Safety Plan information.
5. Make the changes you want to the new job plan.
6. Click Save.

**VIEW TOTALS**

To display totals from the Labor, Materials, and Tools tabs, choose View Totals from the Action menu.

**ASSOCIATING WORK ASSETS WITH A JOB PLAN**

You use the Work Assets tab to associate Locations, Equipment, and Items to job plans. You can assign Safety Plans to individual work assets at the same time. The assets that have been associated with the Job Plan are displayed in the table window.

1. Open or create a Job Plan record.
2. Select either of the following:
   - **New Row** to add a row.
   - **View Details** to view details for an existing row. The Row Details form opens.
3. Enter a **Location**, **Equipment**, or **Item**.
4. (Option) Add a safety plan. See Associate a Safety Plan with a Job Plan
5. Fill in the other required fields.
6. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.
7. Click **Save**.
A route is a list of related work assets, which are considered “stops” along the route. These route stops represent assets such as equipment or locations. The list of 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 make it easy to build simple hierarchies of work orders for inspections.

You can access the Routes Application by selecting the Plans icon on the MAXIMO Start Center and then choosing Routes or by using the Go To link.

There are three tabs on the Routes Application screen:

1. **Search** — Use to search the database using any combination of available fields.
2. **Route** — Use to enter, view, or modify routes.
3. **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Routes Action Menu:

- **Run Reports** — Use to access the Reports available for the current Application.
- **Print With Attachments** — Use to print all documents associated with a record through Attached Documents
- **Duplicate Route** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record.
Delete Route — Use to delete the current record from the MAXIMO database.

Add to Bookmarks — Use to add the current record to your personal bookmark list.

**Using the Routes Application**

You can simplify your maintenance routines by creating a list of equipment or locations that require the same types of periodic maintenance. You might also generate work orders for a list of equipment or locations so that the work can be done at the same time, while the labor, materials, and tools are available. In MAXIMO this list of equipment or locations is called a route.

You can use a route in the following ways:

- Apply the route to a preventive maintenance record to generate inspection-type work orders for all work assets listed as stops on the route.
- Apply the route to a work order, and generate child work orders for each work asset listed as a stop on the route.
- Create a route on which you specify that child work orders generated for the route stops are treated as "tasks" on the parent work order. When you print the parent work order, you see the individual route work orders as work order tasks on the parent work order.

**CREATING A ROUTE**

Before you can apply a Route to a work order or PM, you must create it in the Routes Application. You can list either Equipment or Locations on a single route.

**NOTE** Before you can add equipment or locations to a Route, you must first create records for them in the Equipment or Locations Applications.

1. Open the Routes Application.

2. Click the **New Route** button on the Toolbar. MAXIMO switches to the Route tab, displaying an empty Route Stops table window.

3. Enter a unique identifier in the **Route** field and a description.

4. Select **New Row** to add a piece of equipment or location as a stop on the route. The Row Details form opens.
5. Click the **Detail** button on the **Equipment** or **Location** field.

6. Select a record by clicking the **Select** button to the left of the record.

7. (Option) You can associate a **Job Plan** with a Route stop.

8. (Option) You can enter a sequence number (**Seq**) to indicate that the stops should be worked on in a certain order.

9. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

10. Click **Save**.

### Safety Plans Application

You must clearly associate safety requirements and procedures with work orders to fulfill regulatory requirements of agencies such as the Occupational Safety and Health Administration (OSHA). You need to show that employees have been informed of hazards they might encounter while performing work, as well as actions they need to take to prevent accidents.

In the Safety Plans Application, you can define the safety information that needs to be passed along to workers in order for them to work safely.

You can access the Safety Plans Application by selecting the Plans icon on the MAXIMO Start Center and then choosing Safety Plans or by using the Go To link.

There are six tabs on the Safety Plans Application screen:

1. **Search** — Use to search the database using any combination of available fields.

2. **Safety Plan** — Use to enter, view, or modify safety plans and to view work assets associated with a selected safety plan.
3. **Hazards and Precautions** — Use to enter, view, or modify hazards associated with the selected safety plan and to view precautions against those hazards.

4. **Hazardous Materials** — Use to enter, view, or modify details about hazardous materials associated with the selected safety plan.

5. **Tag Outs** — Use to enter, view, or modify hazards defined for each work asset and tag out procedures associated with each hazard.

6. **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Safety Plans Action Menu.

**Select Hazards** — Use to select hazards from lists defined for individual assets and related assets for each individual asset. Related assets are neighboring assets that might have hazards associated with them.

**Run Reports** — Use to access the Reports available for the current Application.

**Print With Attachments** — Use to print all documents associated with a record through Attached Documents.

**Duplicate Safety Plan** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record.

**Delete Safety Plan** — Use to delete the current record from the MAXIMO database.

**Add to Bookmarks** — Use to add the current record to your personal bookmark list.

**Using the Safety Plans Application**

In the Safety Plans Application, you can define the safety information that needs to be conveyed to workers in order for them to work safely. This can range from the safety information necessary to follow a specific job plan on a specific work asset, to a general plan for how to handle a hazardous situation.

For example, a piece of equipment, such as a pump, needs to be shut down in a particular way to minimize electric shock, or materials leakage, before any maintenance can be performed. Or before maintenance personnel can safely enter a particular location they need to
be notified that they might be exposed to chemicals and should wear eye protection and protective clothing. The safety plan provides the relevant information that workers need to know about hazards and precautions, hazardous materials, and tag out procedures in order to perform the work safely.

Once you have created safety plans for identified hazards, you can then associate them with:

- Work orders in the Work Order Tracking Application.
- Equipment in the Equipment Application.
- Locations in the Locations Application.
- Job plans in the Job Plans Application.

**NOTE:** A job plan can have more than one safety plan.

A safety plan should include all the information needed to perform a specific type of work safely. Before you create a new safety plan, you should think about the following:

- Is there a specific task that requires a safety plan?
- What work assets might use the safety plan? When designing a safety plan, the work asset combined with the type of work should dictate what safety information is required.
- What other equipment or locations might have associated hazards or other safety concerns that should be considered?
- What hazards relate to the work assets?
- Are there hazardous materials associated with the asset, or the type of work that is going to be performed?
- Are there Lock Outs or Tag Outs created for the asset that might apply to this safety plan?

You can create a safety plan any time you have safety information that you can apply to more than one work asset, job, or situation.

1. Open the Safety Plans Application.
2. Click the **New Safety Plan** button in the Toolbar. MAXIMO switches to the Safety Plan tab, displaying a new safety plan record.
3. Enter a unique identifier in the **Safety Plan** field and a description. Click the **Long Description** button if you need more

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**Preparing to Create a Safety Plan**

You can create a safety plan any time you have safety information that you can apply to more than one work asset, job, or situation.

1. Open the Safety Plans Application.
2. Click the **New Safety Plan** button in the Toolbar. MAXIMO switches to the Safety Plan tab, displaying a new safety plan record.
3. Enter a unique identifier in the **Safety Plan** field and a description. Click the **Long Description** button if you need more
4. Click **Save**.

5. Add at least one of the following types of safety information to the plan.
   - Associate Hazards and Precautions as described in “Associating Hazards and Precautions with a Safety Plan.”
   - Associate Tag Outs as described in “Associating Tag Outs with a Safety Plan”.

6. Click **Save**.

**ASSOCIATING ASSETS WITH A SAFETY PLAN**

If the safety plan is for an equipment or location, you indicate this in the Work Assets table window on the Safety Plan tab.

1. Open or create a safety plan record.

2. Click **New Row**.

   The Row Details form opens.

3. Enter an Equipment or Location where this safety plan might be applied.

   **NOTE** You can fill in the Equipment column or the Location column for a line, but not both.

4. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

5. Click **Save**.

**ASSOCIATING HAZARDS AND PRECAUTIONS WITH A SAFETY PLAN**

You can select hazards to be associated with a safety plan. If these hazards have associated precautions, MAXIMO copies this information to the safety plan. These hazards and their associated precautions are defined in the Safety Hazards Application.

If the hazard is associated with more than one asset, you create a separate row for each equipment or location. If you were creating a safety plan for electrical current, for example, your location might have more than one electrical outlet. Each outlet would need to be identified separately on the safety plan.

1. Open or create a safety plan record.

2. Click the Hazards and Precautions tab.
3. Click **New Row**.
The Row Details form opens.

4. Click **Detail** to select a **Hazard**.
The Select Hazard screen appears.

**NOTE:** On the Select Hazards page, the system displays only precaution-enabled hazards.

5. Click Select Record to select a hazard.
MAXIMO copies the precautions associated with that hazard to the Precautions table window.

6. (Option) Enter an **Equipment** or **Location**.

7. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

8. Click **Save**.

You use the Hazardous Materials tab to associate hazards with a safety plan that have hazardous material data defined for the hazard record. The data can include, for example, Material Safety Data Sheets (MSDS), health ratings, and flammability ratings.

If the hazardous material is associated with more than one asset, you create a separate row for each equipment or location.

**NOTE:** If a Hazard is both precaution-enabled and hazardous Material enabled, MAXIMO copies the data to both the Hazards and Precautions and the Hazardous Materials tab.

1. Open or create a safety plan record.

2. Click the Hazardous Material tab.

3. Click **New Row**.
The Row Details form opens.

4. Click **Detail** to select a **Hazard**.
The Select Hazard screen appears.

**NOTE:** On the Select Hazards page, the system displays only hazardous material-enabled hazards.

5. Click **Select Record** to select a hazard.
MAXIMO copies the hazardous material data to the Row
ASSOCIATING TAG OUTS WITH A SAFETY PLAN

1. Open or create a safety plan record.

2. Click the Tag Outs tab.

3. Click **New Row**.
   The Row Details form opens.

4. Click **Detail** to select a **Hazard**.
   The Select Hazard screen appears.

   **NOTE:** On the Select Hazards page, the system displays only tag out-enabled hazards.

5. Click **Select Record** to select a hazard.

6. Enter a Related Equipment or Location.

7. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

8. Click **Save**.

MAXIMO copies the tag out and lock out operations to the tag Outs tab.

APPLYING A SAFETY PLAN

You apply a safety plan by associating it with a work order or job plan. You can associate a Safety Plan:

- With a work order in the Work Order Tracking Application.
- With a PM through the PM’s job plan.
With a work asset in the Job Plans Application.

**Safety Hazards Application**

The Safety Hazards Application lets you define hazards that exist in the workplace. You can also associate precautions that can be taken against the hazard, and use Attached Documents to supply additional information. For example, a chemical that causes skin irritation might require wearing gloves and eye protection, and be Attached to a Material Data Safety Sheet (MDSD).

When use associate hazards with work orders, equipment, locations, and items you provide the opportunity for employees to be notified of potential dangers. When you associate a precaution or tag out procedures with a hazard, you provide another opportunity to reduce or eliminate the risks involved with the asset.

You can access the Safety Hazards Application by selecting the Plans icon on the MAXIMO Start Center and then choosing Safety Hazards or by using the Go To link.

There are five tabs on the Safety Hazards Application screen:

1. **Search** — Use to search the database using any combination of available fields.

2. **Hazards** — Use to enter, view, or modify a hazard. Use to indicate whether the hazard can be associated with precautions, hazardous materials, and tag out procedures. Also to list hazardous material information for the hazard.

3. **Precautions** — Use to enter, view or delete associations with previously defined safety precautions.

4. **Tag Outs** — Use to view a read-only list of tag out procedures. These are tag outs that have been associated with an asset against the hazard, either in the Equipment or Locations application.

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SAFETY HAZARDS

ACTIONS

The following actions are available from the Safety Hazards Action Menu.

Run Reports — Use to access the Reports available for the current Application.

Print With Attachments — Use to print all documents associated with a record through Attached Documents

Duplicate Hazard — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record.

Delete Hazard — Use to delete the current record from the MAXIMO database.

Add to Bookmarks — Use to add the current record to your personal bookmark list.

Using the Safety Hazards Application

You use the Safety Hazards Application to define a list of hazards that exist in your workplace. When you create hazard records you can:

- Associate the hazard with a type, for example "mechanical" or "health."
- Define the associations available for the hazard. These associations determine where the record can be used.
- Associate precautions that can reduce or eliminate the hazard
- Record hazardous material information and any associated precautions or tag outs.

When viewing existing records you can use the Tag Outs tab to view tag out procedures have been used to eliminate the hazard.

You can define a list of hazards (dust, chemicals, electrical current, and so on) that can be applied to many pieces of equipment or locations, or hazards that are specific to only one piece of equipment or location.

In order for a Hazard to be associated with Equipment or Locations, appear in value lists, or have additional safety information associated
with it you need to define the associations that are available for a Hazard.

1. Open the Safety Hazard Application.

2. Click the **New Safety Hazard** button in the Toolbar. MAXIMO switches to the Hazards tab, displaying an empty record.

3. Enter a unique identifier in the **Hazard** field and a description. Click the **Long Description** button if you need more space.

4. Select associations for the Hazard.

5. (Option) Define Hazardous Material Information for the Hazard.

6. Click **Save**.

Once you have defined a hazard, you can associate precautions with it.

**NOTE:** The **Precautions?** box on the Hazards tab must be checked for you to be able to associate precautions. Precautions are defined in the Safety Precautions Application.

1. Open or create a safety hazard record.

2. Select the Precautions tab.

3. Select **New Row**. The Row Details form opens.

4. Click the **Detail** button on the **Precaution** field and choose Select Value.

5. Select a record by clicking the **Select** button to the left of the record.

6. Choose one of the following options:

   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

7. Click **Save**.

The Tag Outs tab displays a read-only list of Tag Outs associated with the Hazard and the assets where the Tag Out is applied. These Tag Outs have been designed to eliminate the hazard. They have been associated with an asset against the hazard, either in the Equipment or Locations Application.
Safety Precautions Application

The Safety Precautions Application lets you define safety precautions against hazards in the workplace. You can then associate these safety precautions with workplace hazards in the Safety Hazards Application.

When you define precautions and then associate them with workplace hazards, you provide information about how employees can reduce or eliminate hazards involved with workplace tasks.

You can access the Safety Precautions Application by selecting the Plans icon on the MAXIMO Start Center and then choosing Safety Precautions or by using the Go To link.

Safety Precautions Application Screen

There are three tabs on the Safety Precautions Application screen:

1. **Search** — Use to search the database using any combination of available fields.
2. **Precaution** — Use to enter or view safety precautions. Also to view a read-only list of associated hazards.
3. **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Safety Precautions Action Menu.

- **Run Reports** — Use to access the Reports available for the current Application.
- **Print With Attachments** — Use to print all documents associated with a record through Attached Documents
- **Duplicate Precaution** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record.
Delete Precaution — Use to delete the current record from the MAXIMO database.

Add to Bookmarks — Use to add the current record to your personal bookmark list.

Using the Safety Precautions Application

You can define a list of precautions (wear hardhat, wear eye protection, wear gloves, and so on) that can be applied to many safety hazards, or define precautions that are specific to a particular hazard.

When creating precaution records, consider what to name the precautions. If your company uses more than one type of protective glove, you might name the records GLOVE1, GLOVE2, and so on.

1. Open the Safety Precautions Application.

2. Click the New Precaution button in the Toolbar. MAXIMO switches to the Precaution tab, displaying an empty record.

3. Enter a unique identifier in the Precaution field and a description.

4. Click Save.

Safety Precautions are not asset-specific, and are associated with hazards in the Safety Hazards Application. The same Precaution could be applied to more than one Hazard. For example you might wear gloves to protect you from multiple hazards.

Precautions are associated with assets when an associated hazard is listed for the asset in the Equipment or Locations Applications.

Lock Out / Tag Out Application

A lock out or tag out procedure is designed to take work assets out of service or place them back in service, when this is required to ensure a safe work environment.

You tag out a work asset to eliminate a particular hazard. You write separate tag out procedures for each hazard you can eliminate on a specific piece of equipment or at a specific location. An asset can have multiple lock out/ tag outs to eliminate multiple hazards.

You can access the Lock Out / Tag Out Application by selecting the Plans icon on the MAXIMO Start Center and then choosing Lock Out / Tag Out or by using the Go To link.
There are three tabs on the Lock Out / Tag Out Application screen:

1. **Search** — Use to search the database using any combination of available fields.

2. **Lock Out / Tag Out** — Use to enter, view, or modify tag out procedures.

3. **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Lock Out / Tag Out Action Menu.

- **Run Reports** — Use to access the Reports available for the current Application
- **Print With Attachments** — Use to print all documents associated with a record through Attached Documents
- **Duplicate Tag Out** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record
- **Delete Tag Out** — Use to delete the current record from the MAXIMO database.
- **Add to Bookmarks** — Use to add the current record to your personal bookmark list.

**Using the Lock Out / Tag Out**
MAXIMO uses the term tag out to describe the procedure, and the term lock out to describe the steps in a tag out procedure. Records created in this Application are identified by a tag out procedure ID, and are called tag out in the other Applications.

Lock out tasks are visible in the Lock Out Operations table window. Each lock out operation can apply to one of the following:

- Equipment listed in the Equipment Application, or a Location listed in the Locations Application, but not both.
- A description of a locking device not listed in either the Equipment or the Locations Application. For example a valve that needs to be opened.
- A description of an instruction or action to be taken, not referring to any device or asset. For example, "Notify control room before performing the next operation."

You can create Tag Out procedures for pieces of equipment or for locations.

1. Open the Lock Out / Tag Out Application.
2. Click the New Tag Out button in the Toolbar. MAXIMO switches to the Tag Out tab, displaying an empty record.
3. Enter a unique identifier in the Tag Out Procedure ID field and a description. Click the Long Description button if you need more space.
4. Enter either an Equipment or Location.
5. (Option) Indicate a required state, for example "power off."
6. Click Save.

You use the Lock Out Operations table window to define the steps to be followed when tagging out an asset. You can indicate a required state at each step, for example "Circuit breaker closed." The Apply Sequence values indicate the order the steps are to be completed in. You can also indicate a Remove Sequence if the order of the steps is different when the procedure is reversed.

1. Open or create a Tag Out.
2. Select New Row
   The Row Details form opens.
3. Enter either an **Equipment** or **Location**.

4. (Option) Indicate a required state, for example "power off."

5. Indicate an **Apply Sequence** number for the operation.

6. (Option) Indicate a **Remove Sequence** for the operation if the order of the steps is different when the procedure is reversed.

7. Choose one of the following options:

   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

8. Click **Save**.
The Resources Module provides a way for MAXIMO to track the resources, both internal and external, that your company uses to perform maintenance work. These resources include people, tools, and companies that do business with you.

### Resources Module Applications

The Resources Module consists of six Applications:

- **Companies** — Used to manage data on manufacturers, vendors, and other companies that you do business with.
- **Tools** — Used to manage tools owned by your company.
- **Service Contracts** — Used to track service contracts your company has with vendors or manufacturers.
- **Labor** — Used to manage employee and contractor records.
- **Crafts** — Used to manage craft records.
- **Labor Groups** — Used to manage Labor group records.

### Tools Application

The Tools Application maintains information on the tools used to do maintenance work. Tools can range from hand tools, to heavy equipment such as cranes and backhoes. This information is referenced in job plans and on work orders. Each tool can have an associated hourly cost charged for its use, which is carried on work orders.

You can access the Tools Application by selecting the Resources icon on the MAXIMO Start Center and then choosing Tools or by using the Go To link.

There are three tabs on the Tools Application screen:
The following actions are available from the Tools Action Menu.

**Run Reports** — Use to access the Reports available for the current Application.

**Print With Attachments** — Use to print all documents associated with a record through Attached Documents

**Duplicate Tool** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record.

**Delete Tool** — Use to delete the current record from the MAXIMO database.

**Add to Bookmarks** — Use to add the current record to your personal bookmark list.

The following reports are available for the Tools Application:

**Tool List Report** — Lists Tool and description for selected records.

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**Using the Tools Application**

The Tools Application allows you to store information about the tools your company uses, both those tools owned by your company, and those leased from outside vendors.

1. Open the Tools Application.

2. Click the **New Tool** button in the Toolbar. MAXIMO switches to the Tool tab, displaying an empty Tool record.

3. Fill in the following fields:
   - **Tool** — Unique identifier of the tool.
   - **Quantity** — Number currently owned.
   - **Stocked?** — Check if tool kept in-house.
   - **Vendor** — Identifier for vendor who supplies the tool.
   - **Rate** — Cost per hour for use of tool.
   - **Outside?** — Check if leased from an outside vendor.
4. Click **Save**.

You can duplicate tool records if, for example, you own similar tools with different manufacturers.
1. Open or create a tool record.
2. Select Duplicate Tool from the Action menu.
   MAXIMO copies the tool data to a new record.
3. Enter a new tool name.
4. Edit the record as needed.
5. Click **Save**.

**Service Contracts Application**

The Service Contracts Application maintains information on equipment service contracts you have with vendors or manufacturers. Once you have created an equipment record in the Equipment module, you can use the Service Contracts Application to create a contract (or multiple contracts) and associate it with the equipment.

You can access the Service Contracts Application by selecting the Resources icon on the MAXIMO Start Center and then choosing Service contracts or by using the Go To link.

There are three tabs on the Service Contracts Application screen:

- **Search** — Use to search the database using any combination of available fields.

- **Contract** — Use to enter, view, and modify information on service contracts between your company and vendors or manufacturers.

- **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.
The following actions are available from the Service Contracts Action Menu.

**Run Reports** — Use to access the Reports available for the current Application.

**Print With Attachments** — Use to print all documents associated with a record through Attached Documents

**Duplicate Service Contract** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record.

**Delete Service Contract** — Use to delete the current record from the MAXIMO database.

**Add to Bookmarks** — Use to add the current record to your personal bookmark list.

The following reports are available for the Service Contracts Application:

**Service Contracts List Report** — Lists Service Contract and description for selected records.

### Using the Service Contracts Application

Use the Service Contracts Application to enter, update, and view information on service contracts between your company and vendors. The records show the company providing the service, and the equipment to be serviced.

Service Contracts are referenced in the Equipment and Work Order Tracking Applications. Multiple service contracts can be tied to a single piece of equipment. The service contracts for an equipment can be viewed on the PMs tab of the Equipment Application. Unlike equipment, an individual work order can only have one associated service contract. A service contract is tied to a work order in the Work Order Tracking Application.

1. Open the Service Contracts Application.

2. Click the **New Service Contract** button in the Toolbar. MAXIMO switches to the Contract tab, displaying an empty Contract record.

3. Fill in the following fields:
   - **Contract** — *Your* company’s number for the contract.
Creating Multiple Service Contract Records

**Vendor** — Company code for company supplying the service contract.

**Equipment** — Equipment code for the piece of equipment serviced by the contract.

**Vendor’s Reference Number** — Vendor’s number for the contract.

**Contract Details** — Pertinent details about the contract.

4. Click **Save**.

As there are situations where multiple service contracts can be associated with a single piece of equipment, MAXIMO allows you to create more than one contract for a piece of equipment.

**EXAMPLE**

You company owns a dump truck. Three service contracts could be tied to the truck’s equipment record:

- A garage is contracted to do oil changes and tune-ups.
- A tire firm provides tire inspection and replacement.
- A washing service cleans the truck periodically.

To do this, you create three separate service contract records, each with the same Equipment identifier.

**Crafts Application**

You can use the Crafts Application to enter, view, and modify craft records. A craft represents a group of employees, and typically the craft name reflects the type of work done by these employees. It can also indicate a ranking by expertise. For example, you could have a craft for “mechanic, first class,” or “carpenter’s apprentice.” You can specify a pay rate and overtime scale for a craft so that all members of the craft are automatically assigned the same rates. The table window in this Application lists the labor records associated with each craft record.

You can access the Crafts Application by selecting the Resources icon on the MAXIMO Start Center and then choosing Crafts or by using the Go To link.
CRAFTS MAIN SCREEN

CRAFTS TABS

There are three tabs on the Crafts Application screen:

- **Search** — Use to search the database using any combination of available fields.
- **Crafts** — Use to enter, view, or modify craft records.
- **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

CRAFTS ACTIONS

The following actions are available from the Crafts Action Menu.

- **Zero Year to Date Totals** — Used to reset the Year to Date hours, usually at the beginning of the fiscal year.
- **Duplicate Craft** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record.
- **Delete Craft** — Use to delete the current record from the MAXIMO database.
- **Add to Bookmarks** — Use to add the current record to your personal bookmark list.

CRAFTS REPORTS

The following reports are available for the Crafts Application:

- **Crafts List Report** — Lists Craft and description for selected records.
Using the Crafts Application

You use the Crafts Application to create and work with craft records. Your System Administrator can restrict a user’s access to certain craft records by registering craft codes in Signature Security.

1. Open the Crafts Application.

2. Click the **New Craft** button in the Toolbar. MAXIMO switches to the Craft tab, displaying an empty Craft record.

3. Enter a unique identifier in the **Craft** field and a description.

4. Fill in the other fields as dictated by your company’s business rules.

**NOTE:** Fields that require a value for MAXIMO to save a record are indicated by an asterisk (*).

5. Click **Save**.

Creating a Craft Record

ASSOCIATING LABOR RECORDS WITH A CRAFT

When you delete a labor record from the Associated Craft table window, the labor is no longer associated with that craft. You are not deleting the labor record from the database, only removing the relationship between that labor record and the craft. You might use this if a worker has passed a certification that moved him from one craft level to another, for

1. Open the Crafts Application.

2. Open a craft record using the Search tab.

3. Click **New Row**.
   The Row Details form opens.

4. Click the **Detail** button on the Labor field.
   The Select Labor Code screen appears.

5. Click **Select Record** next to the Labor Code.
   MAXIMO copies the Labor Code to the **Labor** field.

6. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

7. Click **Save**.

Los Angeles Unified School District
example from an apprentice electrician to a journeyman electrician.

1. Open the Crafts Application.

2. Open the craft record using the Search tab.

3. Click **Mark Row for Deletion**. A line is drawn through the record and the **Mark Row for Deletion** button changes to an **Undelete Row** button.

4. Click **Save**.

MAXIMO deletes the Labor Record from the Associated Labor table window.

**Labor Groups Application**

You can use the Labor Groups Application to view existing Labor Groups and to define new ones. Once you have defined these groups, you can go to the Labor Groups field of a work order and select a predefined Labor Group.

You can access the Labor Groups Application by selecting the Resources icon on the MAXIMO Start Center and then choosing Labor Groups or by using the Go To link.
There are three tabs on the Labor Groups Application screen:

- **Search** — Use to search the database using any combination of available fields.
- **Labor Group** — Use to enter, view, or modify Labor Groups.
- **Attached Documents** — Use to create links between the record and documents outside the MAXIMO database. Once Attached, you can view, modify, and print the documents from this tab.

The following actions are available from the Labor Groups Action Menu.

- **Run Reports** — Use to access the Reports available for the current Application.
- **Print With Attachments** — Use to print all documents associated with a record through Attached Documents
- **Duplicate Labor Group** — Use to create a copy of the current record with the same settings or values, which can then be modified and saved as a new record.
- **Delete Labor Group** — Use to delete the current record from the MAXIMO database.
- **Add to Bookmarks** — Use to add the current record to your personal bookmark list.

The following reports are available for the Labor Application:

- **Labor Groups List Report** — Lists Labor Group and description for selected records.

**Using the Labor Groups Application**

The labor groups Application is used to view existing Labor Groups and to define new groups. A labor group is a group of workers who typically have the same skills, levels of authority, and security clearances. After creating a labor group in this Application, you then have the option to assign responsibility for a work order to a labor group. Work Order Tracking allows you to assign responsibility for work orders to a supervisor, a lead craft or person, or to a labor group.

Labor groups are also used in conjunction with the Workflow option. When Workflow routes a document, for example a work order or purchase order, one of the options is to send it to a labor group. It is automatically sent to everyone in the group or Workflow can automatically pick someone in the group whose calendar indicates that they are available.
DEFINING A LABOR GROUP

Your company might require Signature Authority to create craft records.

1. Open the Labor Groups Application

2. Click the **New Labor Group** button on the Toolbar. MAXIMO switches to the Labor Groups tab, displaying an empty Labor Groups record.

3. Enter a unique identifier in the Labor Groups field and a description.

4. Click **Save**.

ASSOCIATING LABOR WITH A LABOR GROUP

You can associate a Labor record with a Craft in either the Labor or Crafts Applications.

1. Open or create a Labor Group.

2. Select **New Row** in the Lead Craft/Person table window. The Row Details form opens.

3. Click the **Detail** button on the **Code** field.


5. Click the **Select Record** button next to the record. MAXIMO copies the Labor data to the Row Details form.

6. (Option) Enter a Sequence if you are using Workflow.

7. Choose one of the following options:
   - **New Row** to add another row.
   - **Done** to close the Row Details form.
   - **Delete** to delete the row.

8. Click **Save**.

DEFINING ALTERNATES

If you are using Workflow, you can define alternates for each Lead Craft/Person to handle approvals when they are unavailable.

1. Open the Labor Groups Application

2. Open a labor group record.

3. Select a Lead Craft/Person record.

4. Click **New Row** in the Alternates For table window. The Row Details form opens.

5. Click the **Detail** button on the **Code** field.
6. Choose Select Value.  
The Select Labor Code screen appears.

7. Click the **Select Record** button next to the record.  
MAXIMO copies the Labor data to the Row Details form.

8. (Option) Enter a Sequence if you are using Workflow.

9. Choose one of the following options:  
   - **New Row** to add another row.  
   - **Done** to close the Row Details form.  
   - **Delete** to delete the row.

10. Click **Save**.
The MAXIMO Applications provide a wide variety of reports. Your site or company might have created customized reports, or your Report Administrator might have created additional reports. The default MAXIMO installation includes both Application reports and Key Performance Indicator (KPI) reports.

This chapter gives an overview of the Applications’ reporting capability, provides a list of the standard reports, by Application, and instructions on how to run, e-mail, schedule, view, search, and print reports.

The following lists the reports available as part of the default MAXIMO installation. Your system administrator can add to, delete, or customize the available reports.

**NOTE:** Short descriptions of each Application’s reports are included in the previous chapters.

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|                           | Request for Quotation Details Report
|                           | RFQ Vendor Contacts
|                           | RFQ Vendor Details |
| Purchase Orders           | Purchase Orders List Report
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| Receiving                 | Receipts List Report |
| Invoices                  | Invoice List Report
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| Routes                    | Routes List Report |
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| Safety Hazards            | Safety Hazards List Report |
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| Tools                     | Tool List Report |
| Service Contracts         | Service Contracts List Report |
| Labor                     | Labor List Report |
| Crafts                    | Crafts List Report |
| Labor Groups              | Labor Group List Report |

**KPIs**

KPIs are Key Performance Indicators. These reports can be customized by your System Administrator. The "out of the box" MAXIMO
installation includes the following KPI reports:

**PM WOs Overdue by Priority** — Displays overdue PM work orders by WO priority. WOs must have targeted start and completion dates to be included in this calculation. A work order is considered overdue if the work order has not had an Actual recorded for the finish date and the current date is greater than its targeted completions date.

**PM WOs Overdue by Supervisor** — Displays overdue PM work orders by the responsible supervisor. WOs must have targeted start and completion dates to be included in this calculation. A work order is considered overdue if the work order has not had an actual recorded for the finish date and the current date is greater than its targeted completions date.

**Materials Failure KPI** — Graphically displays the average actual life expectancy vs. the manufacturer’s expected life for all stock types. You can drilldown to view by individual stock type, and then by item number. There is also a link to specific failure details, including work order number, actual Mean Time Between Failures (MTBF), and primary vendor.

There are additional reports available to your System Administrator via the Control Center, including:

**MAXIMO Database Table Report** — Displays the MAXIMO tables and their associated column information.

**Using Reports**

MAXIMO uses a reporting tool called Actuate to run reports. Actuate is a separate Application from MAXIMO.

If you need more information about Actuate, visit the Actuate Web site at www.actuate.com.

The Report Administrator is the System Administrator for the Actuate Reporting functions. They are responsible for the following:

- Setting up user and group access to Folders and Reports
- Archiving reports
- Prioritizing reports to determine which reports run first
- Canceling recurring reports
- Registering reports
- Setting up default printers for reports

Information for your Report Administrator is located in the *System Administrator’s Guide*. 
When you access reports through MAXIMO, the sign-in to Actuate is done automatically using your user name and password.

**Caution**

Your Web browser must be set to accept cookies to allow an automatic sign-in to reports.

There are multiple avenues that exist in MAXIMO that allow you to access reports, including:

- Selecting Reports from the Start Center brings you to the Report Center Home Page.

- Selecting the Run Reports action from the Action menu of an Application brings you to the Folder (Application) Details page, which lists the reports available for that Application.

- Clicking the Overview Reports button in the Toolbar of an Application brings you to the Request Page for the overview report. Selected records are imported as parameters. If no records are selected, all records are used.

- Clicking the Print Report button in the Toolbar of a statusable Application brings you directly to the applicable report.

**NOTE:** If you receive an Error Message when attempting to run a report you do not have permission to do so from your System Administrator.

If you access Reports through the MAXIMO Start Center the Report Center Home Page appears in a separate browser window. The Report Center Home Page has four tabs:

- **Reports** — lists available MAXIMO modules with their available detail folders. Click a folder (Application) to view a list of its available reports, and to run, download, e-mail, and schedule reports.

- **KPIs** — lists the available Key Performance Indicator reports. From this tab you can run, download, e-mail, and schedule KPI reports.

- **History** — lists your reports with the date/time and their outcome (success or failure).

- **Status** — displays the status of submitted reports. You can use this tab to schedule reports to run at a later date.
When you select an Application on the Reports tab, based on your User Privileges you have access to Run Reports, View Reports that have previously been run, or both. Each Application has a Folder Details page which displays the available reports. Previously run reports are visible in the View Reports section for one week after they have been run.

**NOTE:** The length of time reports appear in the View Reports section can be changed by your Report Administrator. One week is the default.

Example, Work Order Tracking Folder Details Page

If you have User Privileges to run reports, when you select a report the
Report Request Page appears allowing you to define parameters for the report.

The Query section of the Request Page allows you to set parameters for the report. The available parameters are predefined and vary by report. They can include record status, start/end dates, and/or field parameters.

For many requests, you have only three query options:

- Current Record – Uses data from current record. This is the default.
- Selected Record – Uses data from records selected in the Application.
- All Records – Uses data from all records.

You can choose to e-mail a report from the Request Page. The default to e-mail is No. If you select Yes, you can either:

- Select one or many e-mail addresses from the available MAXIMO e-mail addresses.
- Type in e-mail address(es) to send the report to. E-mails can be sent to non-MAXIMO users.

The “From” in the e-mail is filled in with the e-mail address from your employee record in the Labor Table of the database. If you do not have an e-mail address, and attempt to send an e-mail, the following error message is displayed:

To E-mail Reports, a valid e-mail address is required. Please contact your System Administrator to set one up for you.

You must then go back to the Request Page, and delete the e-mail information to continue.

The default for e-mails is to send attachments (not link) and to send via blind carbon copy (BCC).

The subject of the e-mail is the complete, spelled out title of the Report’s name, for example Work Order Tracking for WOTRACK.

The Request Page allows you to define the run time for a report. The available options are:

- **Right Now** — the default.
- **At This Time** — allows you to set a specific date and time.
- **Recurring** — allows you to set the report to run repeatedly at a specified time, for example every Monday at 9:00 a.m.

**NOTE:** If you select the Recurring Schedule Option, and later wish to discontinue the report, you must contact your Report Administrator. Only your Report Administrator has authority to cancel a Recurring Report.

You can view reports in two ways:
NOTE: If your User Privileges are only to View Reports you have the ability to view or print a report, but you cannot make any changes to it.

SEARCHING REPORTS

Clicking the Search link in the Navigation bar opens the Search Pane on the left hand side of the screen.

You can add or remove fields from your search query by clicking the fields in the Reports display. You can then enter search information. Operators (equals [=], less than [<], hyphen [-], comma [,], and exclamation mark [!]) and wildcards (question mark [?], asterisk [*], and number [#]) can be used when searching fields.

DOWNLOADING REPORTS

Once a Smart Search has been conducted, the Report can be downloaded and saved as either:

- Comma delimited data that can be downloaded to a spreadsheet program, such as Excel.
- Tab delimited data that can be downloaded to a text editor such as Notepad.

PRINTING REPORTS

There are two options for printing reports:

- Print — opens a separate browser session and displays a confirmation message.
  - Select OK to print the report to your default printer.
  - Select Cancel to cancel the printing. The separate browser session remains open.
- View PDF — opens a separate browser session in Adobe Acrobat Reader. From here you can either save the report as PDF or print the report.

END