This document and its publication do not constitute or create a contract. MRO Software, Inc. makes no warranties, express or implied, regarding the accuracy or completeness of this document or of the related program material.

© 1994-2001 MRO Software, Inc. All rights reserved. Contains Trade Secret Information of MRO Software, Inc. Use, transfer, disclosure, or copying without MRO Software, Inc.’s express written permission is strictly forbidden.

Restricted Rights Legend: Use, duplication, or disclosure by the U.S. Government is subject to restrictions as set forth in subdivision (b)(3)(ii) of the Rights in Technical Data and Computer Software clause at DFAR 252.227-7013.

Trademarks: MAXIMO®, INTERMAT®, Struxure®, MAXIMO® Enterprise™, MAXIMO® Extended Enterprise™, MAXIMO® for Integrated Supply™, MAXIMO® Scheduler™, MAXIMO® Workflow™, MAXIMO® Analyzer™, MAXIMO® Buyer™, MAXIMO® Fleet Manager™, MAXIMO® Aviation Manager™, mroManufacturer™, mroDistributor™, mroConnect™, mroRFQ™, mroHosting Center™, Illustrated Parts Catalogue™, Standard Modifier Dictionary™, and Autocon™ are trademarks of MRO Software, Inc.

Other products and brand names are trademarks or registered trademarks of their respective companies; some are noted below.

Third Party Technology: Certain MRO Software, Inc. products contain technology provided under license from third parties, as noted below:

<table>
<thead>
<tr>
<th>MRO Software Products</th>
<th>Third Party Technology Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXIMO</td>
<td>Portions © 1996 by Centura Software Corporation.</td>
</tr>
<tr>
<td>Analyzer</td>
<td>Portions © 1999 Cognos Incorporated.</td>
</tr>
<tr>
<td>Scheduler</td>
<td>Portions © 1999 MERANT ODBC DataDirect™ provided by MERANT</td>
</tr>
<tr>
<td>MAXIMO Workflow</td>
<td>Portions © 1998, 1999 METRONIC Software GmbH.</td>
</tr>
<tr>
<td>MAXIMO Buyer</td>
<td>Portions © 2000 Verity, Inc. Verity® Search™ provided by Verity, Inc.</td>
</tr>
<tr>
<td>All products</td>
<td>Portions © 2000 webMethods, Inc. webMethods B2B Developer™, webMethods B2B Integration Server™ provided by webMethods, Inc.</td>
</tr>
<tr>
<td>mroDistributor &amp; mroManufacturer</td>
<td>Portions © TAXWARE International, Inc. TAXWARE® VERAZIP™ Sales/User™, STEP™ provided by TAXWARE International, Inc.</td>
</tr>
</tbody>
</table>
CHAPTER 1 INTRODUCTION

OVERVIEW .....................................................................................................................11
SYSTEM REQUIREMENTS ...........................................................................................14
  Client Workstation ........................................................................................................14
  Database Server ...........................................................................................................15
  File Server (Optional) .................................................................................................16
  Application Server for Business Components (for Self Service Applications) ..........16
  e-Commerce Server (for e-commerce transactions only) ..............................................17
RELATED DOCUMENTATION AND HELP ................................................................18
  The MAXIMO Help System .........................................................................................18
  The MAXIMO Documentation Set ...............................................................................18
CONVENTIONS USED IN THIS GUIDE .................................................................19

CHAPTER 2 SECURITY

OVERVIEW .....................................................................................................................21
SIGNATURE SECURITY ..............................................................................................22
  Groups, Users, and Security Privileges ........................................................................23
  Setting Up Groups and Users ....................................................................................23
  The DEFLT Group ....................................................................................................23
  Usernames and Passwords ..........................................................................................24
THE SIGNATURE SECURITY ACTIONS MENU ..................................................24
MAXIMO Online Help .................................................................................................27
APPLICATION SECURITY TAB ...............................................................................28
  Setting Application, Tab, and Menu Privileges .............................................................29
Login Tracking .............................................................................................................30
  Setting Login Controls .............................................................................................32
  Changing a User's Login Status .................................................................................33
Online Verification....................................................................................................34
Authorizing Access to GL Component Information..................................................34
Authorize Reassignment to User Groups Dialog Box..................................................36
Parameter Login........................................................................................................38
  Automatic Start-Up of an Application....................................................................40
Setting Field Defaults..............................................................................................41
  Menu Security for Set Field Defaults.....................................................................41
  Setting a Field Default.........................................................................................42
DATABASE SECURITY TAB......................................................................................43
  Setting SQL Database Privileges ...........................................................................44
USER RESTRICTIONS ............................................................................................46

CHAPTER 3 OBJECT NATIONALIZER SCREEN EDITOR

OVERVIEW .................................................................................................................49
CUSTOMIZATION .......................................................................................................50
  Accessing the Object to Customize .......................................................................51
  Toolbar Customization..........................................................................................52
  Menu Customization.............................................................................................53
  Tab and Dialog Box Customization .......................................................................54
    Moving, Relabeling, Deleting, and Adding Tabs .................................................54
  Object Nationalizer Menu Choices ........................................................................56
  Customizing View List Dialog Boxes ......................................................................59
  Customizing Dynamic Value List Dialog Boxes ....................................................61
  Customizing the Drilldown Dialog Box ...................................................................63
  Modifying the Login Dialog Box for Multiple Schemas .........................................64
  When NOT to Use Object Nationalizer ..................................................................65
  Customizing Future MAXIMO Releases ...............................................................66
GUIDELINES FOR CONFORMING TO MAXIMO 4i SCREENS ..............................66
  General Style Guidelines.......................................................................................72

CHAPTER 4 DATABASE CONFIGURATION

OVERVIEW .................................................................................................................73
THE DATABASE CONFIGURATION ACTIONS MENU .............................................74
  MAXIMO Online Help ..........................................................................................76
THE APPLICATIONS TAB .......................................................................................76
TABLE DEFINITIONS TAB .......................................................................................78
  Saving Your Changes............................................................................................80
**Contents**

**Performing a Database Configuration** ................................................................. 81
**INDEX DEFINITIONS TAB** ................................................................................ 84
  Creating an Index ................................................................................................. 85
  Dropping an Index ............................................................................................... 86
**VIEW DEFINITIONS TAB** .................................................................................. 87
  Creating Table Views and Column Aliases .......................................................... 88
**GL ACCOUNT CONFIGURATION** ..................................................................... 89
  GL Account Code Formats ................................................................................... 89
  Account Components ......................................................................................... 89
  Component Sequence ......................................................................................... 89
  Required Versus Optional ................................................................................... 90
  Specifying the GL Account Configuration ......................................................... 91
**SQLTIMEOUT SETTING (SQL Server only)** ....................................................... 94

**CHAPTER 5  CUSTOM APPLICATIONS**

OVERVIEW ............................................................................................................. 95
**THE CUSTOM APPLICATIONS ACTIONS MENU AND ONLINE HELP** .............. 96
**APPLICATIONS TAB** ..................................................................................... 96
  Creating a Custom Application Table ................................................................. 98
  Creating an Extra Application Table ................................................................. 100
  Dropping a Custom Application Table ............................................................. 103
  Launching a Custom Application ..................................................................... 103

**CHAPTER 6  APPLICATION SETUP**

OVERVIEW ............................................................................................................. 105
**THE ACTIONS MENU AND MAXIMO ONLINE HELP** ...................................... 106
  Work Order Options: How do I specify ............................................................. 106
  Inventory Options: How do I specify ............................................................... 106
  Other Application Options: How do I specify .................................................. 106
  Actions Menu Items Discussed in This Chapter .............................................. 107
**MODULE TAB** .................................................................................................. 107
  Changing Main Menu Icon Positions and Application Bar Module Sequence .... 109
  Customizing a Module Menu ............................................................................. 110
  Creating a New Module ..................................................................................... 111
  Moving an Application to Another Module .................................................... 113
  Hiding and Unhiding Applications .................................................................. 113
  Hiding and Unhiding Modules ......................................................................... 114
## Contents

- Cloning an Application ................................................................. 115
- Restricting the Records an Application Can Access .................. 117
- Specifying the Order in Which an Application Retrieves Records .. 117
- Setting Up Multiple Base Currencies .......................................... 118

**VALUE LISTS TAB** ........................................................................ 120
- Value List Types ................................................................. 122
- Showing All Value Lists ..................................................... 123
- Creating a Value List .......................................................... 124
- Assigning and Deassigning Value Lists ................................. 125
- Changing a Value List Type .................................................. 126
- Adding Synonym Values to a Value List ................................. 126
- Dropping a Value List ......................................................... 127

**FIELD HELP** ............................................................................. 128

## CHAPTER 7 HYPERLINK

- OVERVIEW .................................................................................. 131
- HYPERLINK TAB ......................................................................... 132
- Creating a Hyperlink .............................................................. 133
- Finding a Field or Push Button Name ................................. 136

## CHAPTER 8 VALIDATION AND FORMATTING

- OVERVIEW .................................................................................. 139
- Formatting Configured in WIN.INI .............................................. 140
- Formatting Configured in MAXIMO.INI ....................................... 140
- Characteristics of Formatting .................................................. 140
- FORMATTING OF NUMERIC FIELDS ....................................... 141
- Integers and Smallints ............................................................ 142
- Floats ......................................................................................... 143
- Decimals .................................................................................... 144
- Amounts ..................................................................................... 146
- FORMATTING OF DATE/TIME FIELDS ..................................... 148
- Short Date and Long Date ....................................................... 148
- Date/Time Format Specifiers .................................................. 149
- YMD Order ................................................................................. 149
- RULES AND METHODS FOR DATE/TIME FORMATTING .......... 150
- Short Date Validation ............................................................. 150
- Long Date Validation ............................................................. 150
On-Entry and Display Formats ................................................................. 151
Overriding Default Date Formats in MAXIMO.INI .................................. 151
Time Formats .......................................................................................... 153
Conditional Display of Minutes, Seconds, and Microseconds .................. 153
Time Suffixes ......................................................................................... 154
Date/Time Formats .................................................................................. 154
Two-Digit and Four-Digit Years .............................................................. 154
Partial Dates ............................................................................................ 155
Validation and Parsing of Dates .............................................................. 156
Plus and Minus Keys in Date and Date/Time Fields ................................. 156
QUERY MODE VALIDATION ................................................................. 156
Characteristics of Query Mode Validation ................................................. 157

CHAPTER 9 REPORTS AND OTHER APPS

OVERVIEW ................................................................................................. 159
APPLICATION TAB ................................................................. 161
Registering a Report Writer or Other Application ...................................... 162
Registering an SQR Report or Other Application File ................................. 163
Substitution Variables ............................................................................. 164
Specifying Report Preferences ................................................................. 166
Specifying User Prompts ......................................................................... 167
Running a Report ..................................................................................... 168
E-MAILING REPORTS ............................................................... 170
Setting Up to E-Mail SQR Reports ........................................................... 171
E-Mailing an SQR Report ........................................................................ 172
FAXING A REPORT .............................................................................. 173
REPORT ROUTING ................................................................. 173
Overview ............................................................................................... 173
Setting Up to Use Report Routing ........................................................... 174
Using the Specify Printer Routing Dialog Box ........................................... 175
Marking the Report for Routing ............................................................... 176
Adding Routing Commands to the SQR Report Script .............................. 177
WinFax PRO ......................................................................................... 177
Report Routing Commands ...................................................................... 178
Printer Routing Commands ...................................................................... 178
Mail Routing Commands .......................................................................... 178
Fax Routing Commands ........................................................................... 178
Contents

Archived Data and Configuring Your Database .......................................................... 252
GENERAL DATABASE ADMINISTRATION ............................................................. 253
Running a SQLTalk Session ....................................................................................... 253
Backing Up and Restoring ........................................................................................ 254
System Backups ......................................................................................................... 255
Database Backups ....................................................................................................... 255
Off-Line Backups ....................................................................................................... 256
Online Database Backups ........................................................................................ 256
Restoring System and Database Backups ............................................................... 256
Update Statistics......................................................................................................... 257
Database Integrity ...................................................................................................... 257

CHAPTER 12 VERITY SEARCH ENGINE
OVERVIEW ................................................................................................................... 259
VERITY CONFIGURATION ........................................................................................ 260
Building Collections .................................................................................................. 260
Adding New Fields to the Item Collection .............................................................. 261
Modifying Synonym Lists ....................................................................................... 262
Running Verity as a Windows NT Service ............................................................. 264
Updating the Collections ........................................................................................ 264
Setting Verity Commodity Restrictions ................................................................... 265

CHAPTER 13 SELF SERVICE APPLICATIONS
OVERVIEW ................................................................................................................... 267
SETTING A DEFAULT VENDOR FOR AN ITEM ..................................................... 268
Unhiding the Default Vendor? Field in Reorder Details .......................................... 269
Setting a Default Vendor for an Item ....................................................................... 269
GENERATING AUTONUMBERS FOR SPECIAL ORDER ITEMS ......................... 270
CHANGING THE AUTOMATIC TIME-OUT PERIODS ........................................... 270
SETTING UP COMMODITY RESTRICTIONS ....................................................... 271
How to Set Up Commodity Restrictions .................................................................. 272
Approach ................................................................................................................. 272
Steps ......................................................................................................................... 273
SPECIFYING HOW CATEGORIES ARE DISPLAYED............................................. 275
E-COMMERCE CAPABILITY USING MAXIMO .................................................. 276
Receiving and Managing Electronic Invoices ......................................................... 278
Setting Up to Receive Electronic Invoices .............................................................. 278
<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting Up to Have an Electronic Invoice Initiate a Workflow Process</td>
<td>278</td>
</tr>
<tr>
<td>SEARCHING DESCRIPTION AND LONG DESCRIPTION FIELDS IN MAXIMO BUYER</td>
<td>280</td>
</tr>
<tr>
<td>SQL Server Users</td>
<td>280</td>
</tr>
<tr>
<td>Oracle Users</td>
<td>280</td>
</tr>
<tr>
<td>Considerations</td>
<td>281</td>
</tr>
<tr>
<td>Setup</td>
<td>281</td>
</tr>
<tr>
<td>SETTING UP MAXIMO BUYER TO USE LINKED DOCUMENTS</td>
<td>283</td>
</tr>
<tr>
<td>MAXIMO-Based Setup</td>
<td>283</td>
</tr>
<tr>
<td>Define Document Types</td>
<td>283</td>
</tr>
<tr>
<td>Register Documents</td>
<td>284</td>
</tr>
<tr>
<td>MXServer-Based Setup</td>
<td>284</td>
</tr>
<tr>
<td>Editing the Doclink.properties File</td>
<td>284</td>
</tr>
<tr>
<td>CHANGING THE DEFAULT SCHEMA OWNER</td>
<td>287</td>
</tr>
<tr>
<td>REGISTERING NEW MAXIMO BUYER USERS</td>
<td>287</td>
</tr>
<tr>
<td>CONFIGURING TOMCAT TO RUN WITH INTERNET INFORMATION SERVER (IIS)</td>
<td>288</td>
</tr>
<tr>
<td>Registry Changes</td>
<td>289</td>
</tr>
<tr>
<td>IIS Management Console Changes</td>
<td>292</td>
</tr>
<tr>
<td>Editing Files</td>
<td>306</td>
</tr>
<tr>
<td>APPENDIX A CROSSOVER FIELDS AND RESERVED FIELDS</td>
<td>309</td>
</tr>
<tr>
<td>APPENDIX B MAXIMO.INI</td>
<td>335</td>
</tr>
<tr>
<td>APPENDIX C MAXSCHED.INI</td>
<td>369</td>
</tr>
<tr>
<td>APPENDIX D MAXIMO LICENSE PROGRAM</td>
<td>373</td>
</tr>
<tr>
<td>APPENDIX E DELETING DATABASE RECORDS</td>
<td>379</td>
</tr>
<tr>
<td>INDEX</td>
<td>401</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

OVERVIEW

The MAXIMO® System Administrator’s Guide provides information on MAXIMO applications and other subjects that primarily concern the system administrator and database manager of MAXIMO. This guide includes thirteen chapters, five appendixes, and an index. A brief description of each chapter and appendix is given below.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>Describes the general contents of each chapter, discusses related documentation, system hardware requirements, and conventions used in the guide.</td>
</tr>
<tr>
<td>2. Security</td>
<td>Explains how to set up new users and assign privileges for specific MAXIMO applications, tabs, and options. It also describes the User Restrictions feature.</td>
</tr>
</tbody>
</table>
3. Object Nationalizer Screen Editor
   Describes how to customize MAXIMO screens using the Object Nationalizer screen editor.

4. Database Configuration
   Explains how to customize your database, including changing column definitions, creating or modifying SQL indexes, defining alternative names for database tables and columns, and specifying GL account formats.

5. Custom Applications
   Explains how to create your own database tables and application screens to supplement the MAXIMO applications.

6. Application Setup
   Describes how to customize the Main Menu; place restrictions on the kinds of records an application accesses (and the order in which they are supplied); specify various settings regarding work orders, equipment, inventory, purchasing, and locations; create and assign value lists for fields; clone an application; and set a number of miscellaneous options.

7. Hyperlink
   Describes how to set up MAXIMO screens so that, by clicking the Detail button or using the right mouse button, you can directly access (“launch”) other MAXIMO applications, as well as non-MAXIMO applications.

8. Validation and Formatting
   Discusses how numeric, date, time, and various other formats are defined, and how field validation with those formats is processed.
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Reports and Other Apps</td>
<td>Explains how to register reports and other applications (such as spreadsheet and graphics programs) so you can run them from MAXIMO. This chapter also describes how to set up and use report routing with printers, E-mail, and fax.</td>
</tr>
<tr>
<td>10. Chart of Accounts</td>
<td>Describes how to add and modify GL accounts, define financial periods, and designate specific accounts relating to inventory, companies, resource recovery, resource codes, and tax processing.</td>
</tr>
<tr>
<td>11. Database Administration</td>
<td>Discusses how to use the Archive application to archive and restore data. It also contains general information on database and system backups.</td>
</tr>
<tr>
<td>12. Verity Search Engine</td>
<td>Describes how to set up and work with the search engine that is used by the Self Service applications.</td>
</tr>
<tr>
<td>13. Self Service Applications</td>
<td>Describes various administrative matters regarding the browser-based MAXIMO Self Service applications.</td>
</tr>
<tr>
<td>Appendix A</td>
<td>Explains what crossover fields are and lists those available for customizing your system. It also lists reserved fields—those that are used by various integration products.</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Details the parameters used in MAXIMO.INI.</td>
</tr>
<tr>
<td>Appendix C</td>
<td>Details the parameters used in MAXSCHED.INI.</td>
</tr>
<tr>
<td>Appendix D</td>
<td>Describes how to enter a license modification using the MAXIMO License Program, and</td>
</tr>
</tbody>
</table>
explains a WIN.INI setting that references the security file.

Appendix E Describes some of the conditions and restrictions involved in deleting database records.

SYSTEM REQUIREMENTS

MAXIMO Release 4.1.1 is a client/server computerized maintenance management system. It runs on Intel-based workstations running Microsoft Windows 95, Microsoft Windows 98, Microsoft Windows NT Workstation 4.0, or Microsoft Windows 2000 Professional. MAXIMO is designed to run on a local area network (LAN), on an Oracle or Microsoft SQL Server database platform.

The basic hardware and network configurations that MAXIMO supports are described below. Your specific requirements may vary from the specified minimums. For additional configuration information, refer to the MAXIMO installation guide for your Oracle or Microsoft SQL Server database platform.

Client Workstation

Minimum Desktop Computer Configuration

- Intel-based Pentium 450 MHz processor.
- 64 MB of memory for Windows 95/98 or Windows NT Workstation 4.0. For Windows 2000 Professional, the memory requirement is 128 MB.
- 300 MB of free disk space if installing the application files on a local drive.
- SVGA, 1024 x 768 pixel, High Color (16 bit) display.
- CD-ROM drive (for initial software installation).
Recommended Desktop Computer Configuration

- Intel-based Pentium 600 MHz or higher processor.
- 96 MB of memory or greater for Windows 95/98 or Windows NT Workstation 4.0. For Windows 2000 Professional, the memory recommendation is 128 MB.
- 300 MB of free disk space if installing the application files on a local drive.
- SVGA, 1024 x 768 pixel, High Color (16 Bit) display.
- CD-ROM drive (for initial software installation).

Minimum Laptop Computer Configuration

- Intel-based Pentium 400 MHz processor.
- 96 MB of memory for Windows 95/98 or Windows NT Workstation 4.0. For Windows 2000 Professional, the memory requirement is 128 MB.
- 300 MB of free disk space if installing the application files on a local drive.
- SVGA, 1024 x 768 pixel, High Color (16 bit) display.
- CD-ROM drive (for initial software installation).

Recommended Laptop Computer Configuration

- Intel-based Pentium 600 MHz or higher processor.
- 128 MB of memory or greater for Windows 95/98 or Windows NT Workstation 4.0. For Windows 2000 Professional, the memory recommendation is 192 MB.
- 300 MB of free disk space if installing the application files on a local drive.
- SVGA, 1024 x 768 pixel, High Color (16 Bit) display.
- CD-ROM drive (for initial software installation).

Database Server

Refer to the MAXIMO installation guide for your database platform for information on database servers.
File Server (Optional)

You can install the MAXIMO applications on a network file server or on each client workstation’s local drive. The systems or network administrator can make this decision. You can use any network operating system that provides a DOS path, partition, or shared volume to the network drive.

Application Server for Business Components (for Self Service Applications)

If you have any of the Self Service Applications, you need to install and configure the Application Server for Business Components. The Application Server provides business logic and framework for the Self Service Applications. We recommend using a dedicated machine running Microsoft Windows NT Server 4.0, with Service Pack 5 or higher, Windows 2000 Server, or Windows 2000 Advanced Server.

MAXIMO uses The Apache Software Foundation Tomcat JSP Server for the Java Server Pages (JSP) technology. This webserver is used for accepting HTTP requests from client programs (Web Browsers) and for responding in HTML content. Whenever there is a client request for a JSP page, the JSP page is processed by the webserver and the result of the JSP page is sent back to the client in HTML content. Please refer to the http://java.sun.com/products/jsp/index.html link for more information on Java Server Pages Technology.

The current version of Tomcat JSP Server used by MAXIMO can operate in conjunction with Microsoft’s Internet Information Server (IIS). This setup is recommended if more than 40 users will be concurrently running Self Service Applications. For information on setting up your Tomcat JSP Server with IIS, refer to Chapter 13, “Self Service Applications.”
When setting up your Tomcat JSP Server and IIS, be certain that both do not use the same port. By default, both use port 80. The port assignment used by your Tomcat JSP Server may be changed as described in the MAXIMO Installation Guide.

The current version of MAXIMO supports SSL (Secured Socket Layer). If you use SSL, it must be done in conjunction with IIS.

Configuration requirements will vary according to site-specific variables such as Self Service applications employed, database platform, number of connecting client workstations, and desired performance levels. While MRO Software does not make any formal requirements relative to hardware/software specifications of the Application Server, we recommend at minimum employing a dedicated, Intel-based Pentium 600 MHz dual processor with 1 GB RAM.

**e-Commerce Server (for e-commerce transactions only)**

The e-Commerce Server complements the Application Server to provide e-commerce business-to-business communication. The e-Commerce Server uses the webMethods® B2B Server, version 3.6.

It is recommended that the webMethods B2B Server run on a separate dedicated machine.

Minimum system requirements:

- Intel-based Pentium 450 MHz processor
- 512 MB RAM

Recommended system requirements:

- Intel-based Pentium 600 MHz processor or greater
- 1 GB RAM
RELATED DOCUMENTATION AND HELP

The MAXIMO Help System

The MAXIMO Help system is the primary source of information for using MAXIMO. The Help file for each MAXIMO application contains a series of “How Do I …” topics that address many of the questions users may have. All dialog boxes now have Help buttons that connect the user to the appropriate topics. The user guides expand on the Help system, providing overviews, additional information on Help topics, and information on subjects not addressed in Help.

The MAXIMO System Administrator’s Guide should be used in conjunction with the Help system. Each chapter about an application includes an overview, information on the major functions of the application, and reference to the associated online Help topics. Some Help topics are repeated and covered in more detail in the System Administrator’s Guide.

The MAXIMO Documentation Set

The MAXIMO System Administrator’s Guide is part of the MAXIMO documentation set, which is provided in online Acrobat Reader format except as noted. The documentation set also includes the MAXIMO User’s Guide, the MAXIMO Scheduler User’s Guide (if that option is purchased), the MAXIMO Technical Reference Guide, and an Installation Guide (hard copy).

The MAXIMO User’s Guide is designed to be used with the online Help system, and can best be used to orient you in MAXIMO. It contains descriptions of the MAXIMO modules and applications, as well as general information about their use and relationships. Each chapter also contains a list of reports that can be generated from the module, and there is a chapter listing all the MAXIMO reports with instructions for their display, use, and distribution. For some topics, the guide does provide detailed information to supplement online Help. In general, however, the User’s Guide provides the introduction to MAXIMO, with online Help providing the detail.
The MAXIMO Scheduler User’s Guide describes how to use the MAXIMO® Scheduler™ to schedule work orders based on craft and labor availability.

The MAXIMO Technical Reference Guide provides information about the database, such as a listing of tables and columns, a comparison between the current and previous databases (useful for upgrades), and a list of the database indexes. It also includes a list of MAXIMO’s installed files and folders and other technical information.

The MAXIMO Installation Guide is specific to your database platform—Oracle or Microsoft SQL Server.

Users who sign up for MAXIMO training courses will be provided with the relevant MAXIMO course materials.

Depending on your database platform and the options you purchase, you may also receive third-party manuals and/or online documentation.

CONVENTIONS USED IN THIS GUIDE

**Bold text** indicates a new or important term, idea, or procedure. In addition, bold text used in instructions indicates the words or data to be typed in.

*Italics* are used for emphasis and to indicate variables in command lines.

**NOTE:** MAXIMO can be displayed with either of two different screen designs: the “4i” version (the default at installation) or the “standard” version (used in earlier releases). This guide uses the “4i” screen design for all screen figures.

The setting that specifies which screen design to use is in the [4iLook] section of MAXIMO.INI. Refer to Appendix B for more information.

Regardless of which screen design you use, the fields and basic configuration are the same.
CHAPTER 2

SECURITY

OVERVIEW

This chapter describes two kinds of security: Signature Security, and User Restrictions.

Signature Security controls access to specific MAXIMO functions. You designate by group which people can log in to MAXIMO, and which applications, tabs, and options they can use.

User Restrictions allow you to restrict individuals from accessing particular records. You specify the restrictions using SQLTalk.
SIGNATURE SECURITY

Overview

The Signature Security application controls which users have access to which MAXIMO functions. You specify privileges to establish both application security and database security.

NOTE: Make sure you are logged in to MAXIMO as user SYSADM (system administrator) before performing Signature Security tasks.

Using Signature Security, you can:

• Specify privileges for using MAXIMO applications, tabs, and menu options.
• Specify SQL privileges for accessing and modifying the application database tables.
• List, add, or drop groups and users.
• Reassign a user to another group.
• Change passwords and set a password expiration interval.
• Block users from logging in after a specified number of unsuccessful attempts.
• Set purchasing limits.
• Restrict access privileges to storerooms.
• Restrict access to labor information.
• Specify editing privileges for GL account code components.

NOTE: You must use Signature Security to specify privileges for accessing specific MAXIMO functions; you cannot use SQLTalk. You can, however, use SQLTalk to restrict a user to viewing specific records; see the last section in this chapter, User Restrictions.

Signature Security Tabs

• Application Security – To specify privileges for using MAXIMO applications, tabs, and menu options.
• **Database Security** – To specify SQL privileges for accessing and modifying the application database tables.

You use the Actions menu to perform some security functions, such as setting up groups and users. These menu items are accessible from both tabs.

**Groups, Users, and Security Privileges**

Signature Security grants privileges by **group**. Thus, a user’s privileges are defined by the group to which he or she belongs.

• Each user must be assigned to a group.
• Each user can be a member of one and only one group.

You can have a group with only one user, but the group’s name and the username must be different.

**Setting Up Groups and Users**

• First create a group, then add users.
• Use the Add Groups, Add Users, Reassign Users to Group, Drop Groups, and Drop Users options to set up and change groups and users.

**The DEFLT Group**

When MAXIMO is first installed, the only existing group is DEFLT (default). The DEFLT group initially has complete privileges for MAXIMO’s applications, tabs, and menus (except Set Field Defaults), but access-only privileges (not insert, update, or delete) for the database tables.

You can tailor the set of privileges in the DEFLT group, or you can create a new group based on the DEFLT group and then modify the new group’s privileges.
As you create additional new groups, you can base their privileges upon any existing group.

**NOTE:** The DEFLT group is meant to be used as a template; do not assign users to the DEFLT group.

### Usernames and Passwords

Each user in MAXIMO must be identified with a username and password and be assigned to a group. The username identifies who is logging in; the group specifies the user’s privileges.

Users can change their passwords unless the system administrator restricts this privilege. When MAXIMO is first installed, the password for the system administrator is SYSADM. You should change this password immediately, using Signature Security. You should change it periodically thereafter.

The MAXIMO Schema Administrator’s password is initially set to MAXIMO for both the MAXIMO and MAXDEMO databases.

### THE SIGNATURE SECURITY ACTIONS MENU

The Actions menu for both the Application and Database Security tabs includes the menu items listed below. The MAXIMO Help system includes detailed information on how to use these menu items and their associated dialog boxes. See the list of corresponding Help topics in the next section.

- **View Users** View lists of MAXIMO users by group.
- **Drop Users** Drop a selected user.
- **Drop Groups** Drop a selected group. Dropping a group drops its users as well, but MAXIMO first warns you if the group
Security

contains existing users. You can transfer users to other groups using the Reassign Users to Group option.

<table>
<thead>
<tr>
<th>Add Users</th>
<th>Add a new user to MAXIMO; the user must be assigned to an existing group.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Groups</td>
<td>Add a new group to MAXIMO.</td>
</tr>
<tr>
<td>Reassign Users to</td>
<td>Reassign users from one group to another.</td>
</tr>
<tr>
<td>Group</td>
<td></td>
</tr>
<tr>
<td>Change User Status</td>
<td>Change a user’s login status.</td>
</tr>
<tr>
<td>Change User Password</td>
<td>Change a user’s password.</td>
</tr>
<tr>
<td>Change MAXIMO</td>
<td>Change the password for the MAXIMO schema administrator.</td>
</tr>
<tr>
<td>Schema Administrator’s Password</td>
<td></td>
</tr>
<tr>
<td>Change System</td>
<td>Change the password for user SYSADM.</td>
</tr>
<tr>
<td>Administrator’s Password</td>
<td></td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Set Login Controls</strong></td>
<td>Set a time interval for how long passwords are to remain valid. Enable the login tracking feature. Specify a default group into which users are placed when they register themselves from the Self Service applications.</td>
</tr>
<tr>
<td><strong>Set Purchasing Limits</strong></td>
<td>Set limits by group on how large a purchase requisition or purchase order a user can issue.</td>
</tr>
<tr>
<td><strong>Authorize Access to Labor Information</strong></td>
<td>Specify which labor/craft codes a user can access information on.</td>
</tr>
<tr>
<td><strong>Authorize Access to Storeroom Information</strong></td>
<td>Specify which storerooms a user can access information on.</td>
</tr>
<tr>
<td><strong>Authorize Access to GL Component Information</strong></td>
<td>Specify by group which users have editing access to which GL account code components.</td>
</tr>
<tr>
<td><strong>Authorize Reassignment to User Groups</strong></td>
<td>Specify which users can assign new users to which groups when a new user registers from a self-service application.</td>
</tr>
</tbody>
</table>
MAXIMO Online Help

MAXIMO online Help for Signature Security includes the following “How Do I ...” topics, which provide information on the Actions menu items, as well as other subjects. Topics marked with an asterisk (*) are also discussed in this chapter. Please refer to Signature Security's online Help for information on topics not covered in this chapter.

How Do I …

- Set Application, Tab, and Menu Privileges *
- Add Groups
- Add Users
- Reassign Users Among Groups
- View Users
- View Groups
- Drop Users
- Drop Groups
- Change a User’s Password
- Change the MAXIMO Schema Administrator’s Password
- Change the System Administrator’s Password
- Change a User’s Login Status *
- Set Login Controls *
- Set Purchasing Limits
- Authorize Access to Labor Information
- Authorize Access to Storeroom Information
- Authorize Access to GL Component Information *
- Authorize Reassignment to User Groups *
- Set Field Defaults *
- Set SQL Database Privileges *
APPLICATION SECURITY TAB

Use the Application Security tab (Figure 2.1), to view and update privileges for using MAXIMO applications, tabs, and menu options. Use the Actions menu to set up users, groups, and passwords, and specify a number of other user privileges.

Privileges for the default group (DEFLT) are set to Y (Yes) for all applications, tabs, and menu options with one exception: Set Field Defaults under Menu Security is set to N (No) for all tabs. The system administrator restricts or grants Set Field Defaults privileges as appropriate.

NOTE: Make sure to log in as user SYSADM to perform Signature Security tasks.
Setting Application, Tab, and Menu Privileges

You set MAXIMO user privileges by group. You must log in as SYSADM.

To set or change a group’s application, tab, and menu privileges:

1. From the Application Security tab, choose View/Group List and select the group.

2. In the Application table window, select an application by clicking in its row. The application’s name appears in the Application field, and the Tab Security and Menu Security table windows list the application’s tabs and menu items.

3. To change the group’s privileges for the selected application, move the cursor to the relevant table cell and change the entry to Y or N as appropriate. Y (Yes) allows users in a group to perform the relevant action. N (No) denies this privilege. The three levels of security for an application are:
   - **Read**: To read (view) records
   - **Insert**: To insert records
   - **Delete**: To delete records

   If the Read column is set to N, the Insert and Delete columns automatically convert to N when you save the record, and the application will appear grayed out on the Main Menu and task bar.

4. To specify tab privileges, click in the relevant table cell of the Tab Security for Selected Application table window and change the entry to Y or N as appropriate. The two levels of security are:
   - **Read**: To read (view) records
   - **Write**: To edit records
If the Read column is set to N, the Write column automatically converts to N when you save the record, and the tab will appear grayed out on the selected application.

**NOTE:** If you set the Read privilege to N for the main tab of an application, then the entire application will be inaccessible, not just that tab. The application will not appear on the Main Menu. For example, if the “main” tab for the Equipment application has its Read privilege set to N, then the user will not be able to access any of the Equipment application tabs. For some applications the main tab is not called “main”; in those cases, it will be the leftmost tab on the application’s screen.

5. To specify menu privileges, change the Access column entry to Y or N as appropriate in the Menu Security for Selected Application table window. If the Access column for a menu choice is set to N, the menu item will appear grayed out.

6. Save the changes.

**NOTE:** You can grant a group access to individual tabs and menu options whether or not you’ve given the group access to the application as a whole. You can thereby pre-establish tab and menu option privileges, then turn the group’s access to the application on or off as needed.

**Login Tracking**

Login Tracking enhances security. If you enable login tracking, you can:

- Gain control of login attempts.
- Track login attempts.
- Block a user from logging in after a specified number of consecutive unsuccessful logins.
• View the current login status of users.

You enable login tracking and specify the maximum number of unsuccessful logins allowed by using the Set Login Controls dialog box, described later in this section.

If you enable login tracking, the following restrictions and requirements apply:

• User names can not be re-used.

• User names must be associated with a labor code.

**NOTE:** It is highly recommended that prior to using login tracking, you associate all user names with labor codes. This ensures that there is a record of the identity of each user name.

When login tracking is enabled, MAXIMO keeps track of all login attempts—successful and unsuccessful. After each successful login, the user again has the maximum allowed number of chances to log in. If the failures for a user reach the maximum number allowed, the user is prevented from logging in until the system administrator unblocks him. The example below illustrates how this works.

**Example**

**NOTE:** The example assumes the number of Login Attempts Allowed is set to 3.

A user forgets his password and attempts to log in four times using an incorrect password. After each of the first three attempts he receives an “Invalid username/password” message and tries to log in again. After the third failed attempt, MAXIMO changes his status to BLOCKED and when he tries to log in a fourth time, he receives the following message:

“You have been blocked from using MAXIMO. Please contact your MAXIMO System Administrator.”

The user can no longer log in to MAXIMO, even if he uses the correct password. He contacts his System Administrator.
The System Administrator goes to Signature Security, opens the Change User Status dialog box, and changes the user’s status from BLOCKED to ACTIVE.

The user once again has three chances to log in.

Setting Login Controls

You use the Set Login Controls dialog box (Figure 2.2) to enable or disable login tracking. (You also use the Set Login Controls dialog box to specify a password expiration value, and to specify a default user group for users who register from the self service applications; both functions are explained in the Help topic for this dialog box.)

![Figure 2.2 Set Login Controls Dialog Box](image)

To enable login tracking:

1. Check the Login Tracking Active check box (the default is unchecked).
2. In the Login Attempts Allowed field, enter the number of login attempts allowed before the user is blocked from logging in. The default is 3.
NOTE: If the Login Tracking Active check box is not checked, the Login Attempts Allowed field will be read-only.

Changing a User’s Login Status

Use the Change User Status dialog box (Figure 2.3) to view or change a user’s login status. For example, if Login Tracking is enabled, a user might forget his password and attempt to log in more times than the specified maximum. He would then be blocked from logging in until the system administrator changes his status.

![Change User Status Dialog Box](image)

To change a user’s login status:

1. Choose Actions/Change User Status to display the Change User Status dialog box. The dialog box displays all users. The Selection Criteria group box allows you to filter users by user name and/or status.
2. Select the row with the user whose status you want to change and click Change Status (you can select multiple rows). The Status column displays the changed status. You can enter a comment in the Memo column. Check marks indicate which rows have been changed since you last clicked Save.

3. Click Save, then Close.

**Online Verification**

Online verification is a customized type of login tracking that verifies that the user who is performing a task is the same user who initially logged into MAXIMO. For example, the system administrator might want to require password verification before a Work Order record can be saved.

Setting up online verification requires custom programming using the *MAXIMO 4i Software Developer’s Kit* (purchased separately). The kit includes a custom function (SysVerifyLogin) that allows you to program MAXIMO applications so that they require user name and password verification before specific procedures can be completed.

With online verification, the user is asked to re-enter the user name and password. If verification fails the maximum number of times specified in the Set Login Controls dialog box, MAXIMO is shut down and the user who attempted unsuccessfully to log in is blocked from using MAXIMO. The system administrator must unblock him.

**Authorizing Access to GL Component Information**

Use the Authorize Access to GL Component Information dialog box (Figure 2.4) to specify which groups are allowed to change GL account codes using the GL Account Navigator. You specify privileges separately for each component of the account code.
To authorize privileges for changing GL account codes using the GL Account Navigator:

1. Choose Actions/Authorize Access to GL Component Information to display the Authorize Access to GL Component Information dialog box.

2. Select an account code component from the GL Component drop-down list.

3. If you want all users to be able to edit this account code, leave the check in the All Groups Authorized to Change Component check box (the default). The rest of the dialog box will be disabled.

4. If you want to restrict privileges to specific groups, uncheck the All Groups Authorized to Change Component check box and specify the groups:
   - In the Unauthorized Groups list box, highlight the groups you want to grant privileges to, and click Add. The groups move to the Authorized Groups list box.
   - To take away group access privileges, highlight the groups in the Authorized Groups list box and click Remove. Remove All moves all groups back to the Unauthorized Groups box.
5. Select other account code components from the GL Component drop-down list and repeat the steps as needed. When you’ve finished making changes, click OK.

**NOTE:** To establish menu security for Chart of Account's GL Component Maintenance option, you use the Application Security tab.

You set up GL account code formats using the GL Account Configuration option in Database Configuration; the account codes themselves are set up in Chart of Accounts.

**Authorize Reassignment to User Groups Dialog Box**

When a new user registers from the Self Service applications, the user automatically goes into a default group specified in the Set Login Controls dialog box (Figure 2.2). Registration can trigger a workflow process (if implemented) by which a supervisor reviews the registration.

The Authorize Reassignment to User Groups dialog box (Figure 2.5) allows the system administrator to grant authorities to certain existing users so that they can reassign new users to other groups when the users register from the Self Service applications.
Basically, you use this dialog box to grant authorities to supervisory personnel. For example, suppose user Wilson approves work requests involving electrical and carpentry work submitted through the Self Service applications. You might want Wilson to be able to reassign new users from the default group to the ELECTRICIAN and CARPENTRY groups.

To grant a user the authority to reassign new users registering from the Self Service applications:

1. From Signature Security, choose Actions/Authorize Reassignment to User Groups.

2. Click the Detail button in the Username field and select the user to whom you want to grant authorities.

3. Click in the Group Name list box to show any groups already authorized. To add a new group, click Insert Row, then click the Detail button to select a Group.

4. Insert additional rows as needed to authorize the user to reassign new users to other groups.
5. Click Save.

**Parameter Login**

Parameter login, while not part of the Signature Security application, is described here because it involves passwords and logging into MAXIMO. Using parameter login you can set up your system so that MAXIMO starts up directly—bypassing the display of the Login dialog box and the necessity of entering values in the dialog box fields.

To have MAXIMO start up with direct login, go to Windows Explorer, click MAXMAIN.EXE, and select Create Shortcut from the File menu. Then click the shortcut icon with the right mouse button and select Properties/Shortcut. Click the Shortcut tab. In the Target field, add parameters specifying the database, username, password, and schema values to the command line. If any parameters are missing, values from the MAXIMO.INI file will be used, if available. The format for the parameters are:

```
-D database  -U username  -P password  -S schema
```

If you are not using multiple schemas with your database, ignore the -S schema parameter. The default schema parameter is MAXIMO. By default, the Schema field is hidden on the Login dialog box. To unhide it, see Modifying the Login Dialog Box for Multiple Schemas in Chapter 3, “Object Nationalizer Screen Editor.”

MAXIMO also allows you to use the old way of specifying parameters. In the shortcut target field, add parameters in the following format.

```
database:username/password
```

Text preceding the colon (:) represents the database; text between the colon and the slash (/) represents the username; text following the slash represents the password. The above parameters should be specified without any spaces. If you
are using multiple schemas, you would add a space and then the schema parameter:

\[ \text{database:username/password -Sschema} \]

If a parameter is specified without the colon or slash, it is taken as the username. If any parameters are missing, values from the MAXIMO.INI file will be used, if available.

To use parameters with an icon, edit the program item properties for that icon:

1. On the Windows Desktop, right-click the MAXIMO (or other) icon and choose Properties.
2. Click the Shortcut tab.
3. Edit the Command Line and click OK.

The following examples assume that MAXIMO resides in a MAX411 folder on the C: drive.

**Example**

On the Windows Desktop, right-click the MAXIMO icon and choose Properties. Click the Shortcut tab. The Command Line field reads:

\[ \text{C:\MAX411\MAXMAIN.EXE} \]

Edit the Command Line field so that it reads:

\[ \text{C:\MAX411\MAXMAIN.EXE -DMAXDEMO -UMAXIMO -PDEMO} \]

**OR**

\[ \text{C:\MAX411\MAXMAIN.EXE MAXDEMO:MAXIMO/DEMO} \]

Click OK.

When you next double-click the MAXIMO icon, you will be directly logged into the MAXDEMO database as user MAXIMO, password DEMO.
Example

The following parameters exist in the MAXIMO.INI file:

```
[SYSTEM]
Database=MAXDEMO
Username=MAXIMO
```

Edit the Command Line field for the MAXIMO program item so that it reads:

```
C:\MAX411\MAXMAIN.EXE -PDEMO
```

OR

```
C:\MAX411\MAXMAIN.EXE /DEMO
```

Click OK.

When you next double-click the MAXIMO icon, you will be directly logged into the MAXDEMO database as user MAXIMO, password DEMO. In this instance, the database name and username are taken from the MAXIMO.INI file.

If errors occur during logging in using parameters, an error message is displayed. After choosing OK, the login dialog box is displayed, allowing you to correct errors and log in.

If you are using the parameter login method, you may want to specify that the MAXIMO start-up messages not be displayed. This can be done via the DisableLoadMessages parameter in the MAXIMO.INI file. See Appendix B.

Automatic Start-Up of an Application

It is possible to have an application start up automatically whenever MAXIMO is started. This automatic start-up can be done either when starting MAXIMO via parameter login, as discussed above, or when starting MAXIMO via the standard Login dialog box method.
To start an application automatically when you are starting MAXIMO via parameter login, specify the application's executable file instead of MAXMAIN.EXE.

Example
To start MAXIMO via parameter login and to start Work Order Tracking automatically, edit the Command Line field for the MAXIMO program item so that it reads:

C:\MAX411\WOTRACK.EXE  -DMAXDEMO -UMAXIMO -PDEMO

OR

C:\MAX411\WOTRACK.EXE  MAXDEMO:MAXIMO/DEMO

To have an application start automatically when you use the Login dialog box, you must, as in the previous example, specify the application name in the Command Line field.

Example
To start MAXIMO via the Login dialog box and to start Work Order Tracking automatically, edit the Command Line field for the MAXIMO program item so that it reads:

C:\MAX411\WOTRACK.EXE

Setting Field Defaults
Setting field defaults is not part of the Signature Security application, but there are some security aspects. Setting a field default for a group is unrelated to granting a group the right to set their own field defaults.

Menu Security for Set Field Defaults
On the Application Security tab, Set Field Defaults is the only menu choice in the Menu Security table window for which the default Access setting is N (No).
Only the system administrator (user SYSADM) can set field defaults unless he or she extends this privilege to specific groups in Signature Security.

If you want to set the menu Access privilege to Y for specific groups and applications, follow the steps in Set Application, Tab, and Menu Privileges.

**Setting a Field Default**

You set field defaults so that specific values automatically appear in those fields each time you insert a new record. You can set field defaults for any fields you can normally enter data in, including in table windows. You cannot set field defaults for read-only fields.

To set a field default as the system administrator, log on to MAXIMO as user SYSADM and follow these steps:

1. Open the application and tab containing the field you want to set a default for, and place the cursor in the field.
2. Choose Setup/Set Field Defaults. The Set Field Defaults dialog box shows the current field default, if any.
3. Select User Default, System Date/Time, Current Username, or No Default. For User Default, enter the default in the accompanying field.
4. Click Groups to display the Choose Groups dialog box.
5. Select or deselect the groups you want to have this field default. You can set different defaults for different groups. The field will be blank for groups you do not select.
6. Click OK, Save, and Close.

*NOTE:* If you grant a group menu authority for Set Field Defaults (in Signature Security), then group members can access the Set Field Defaults dialog box and set or change a field default. If a group
member sets or changes a field default, the new default will be in effect for all members of the group. Only the user SYSADM can set field defaults for other groups because the Groups button does not appear when you are logged in as a regular MAXIMO user.

DATABASE SECURITY TAB

Use the Database Security tab (Figure 2.6) to grant or deny groups SQL privileges to the application database tables. Assigning these privileges controls users’ access to the tables via SQLTalk, SQR Report Writer, Crystal Reports Professional, and other applications outside of MAXIMO.

You can grant a group the ability to access, insert, update, and delete records for any table. MAXIMO users generally only need access privileges. Denying access privileges prevents users from accessing the table with SQLTalk and the Report Writer.

While MAXIMO users may need access to the database tables to assemble reports, for example, they typically do not need other database privileges. They make changes to the database by using MAXIMO applications (issuing a work order, for example). Only the system administrator is likely to enter the database directly to make changes using SQLTalk or other non-MAXIMO applications. Be cautious about assigning insert, update, and delete privileges.

The DEFLT group initially has access privileges for all tables, but not insert, update, or delete privileges. This configuration allows users to use SQL selects to run reports.

NOTE: Some reports perform updates; therefore, users who need to run those reports will require update privileges for the relevant tables.

You can access the same Actions menu items from the Database Security tab as from the Application Security tab. See the Application Security section for information on those items.
Setting SQL Database Privileges

To set or change a group’s database privileges:

1. From the Database Security tab, choose View/Group List or click the View List toolbar button and select a group.

2. In the Application table window, click in the row of the application for which you want to set privileges. The application’s name appears in the Application field and the Database Security table window displays a list of the application’s database tables.
3. Move the cursor to the relevant cell of the Database Security table window and change the entry to Y or N as appropriate. The security levels are:

- **Access** To select records
- **Insert** To insert records
- **Update** To update records
- **Delete** To delete records

4. Make changes as needed for other tables belonging to the selected application.

5. Save the changes.
USER RESTRICTIONS

The User Restrictions feature consists of a USERRESTRICTIONS table in the MAXIMO database that allows you to specify exactly what records are visible to a particular user. User restrictions are specified by user, not by group. You do not use this feature to restrict access to applications, tabs, and menus, or to prevent a user from entering data; those tasks are all done using Application Security.

The USERRESTRICTIONS table consists of four columns:

- module
- app
- username
- restrictions

You specify restrictions by updating the table, using SQLTalk.

Suppose, for example, you want to restrict the equipment records that a user named Willie can view to only those pieces of equipment with an equipment number beginning with 11 and located in BLDG3. You would enter the following statement at the SQL prompt:

```
SQL>UPDATE USERRESTRICTIONS
   2   SET RESTRICTIONS='(EQNUM LIKE "11%" AND
   3   LOCATIONS.LOCATION="BLDG3")'
   4   WHERE MODULE='EQUIPMNT' AND APP='EQUIPMNT' AND
   5   USERNAME='WILLIE';
```

Observe the following when specifying restrictions:

- Log in as the table’s owner when executing the user restrictions; in most cases the owner will be MAXIMO, not SYSADM.
- The parentheses around user restrictions are used for querying purposes within MAXIMO; you should always use them. You will notice the entire
string in the USERRESTRICTIONS table when you verify what you have entered.

- Two single quotes (not a double-quote symbol) are required around strings and numeric values in the restriction setting.

In addition, keep the following in mind:

- The WHERE clause needs to be accurate and the MODULE, APP, and USERNAME need to be valid names. Validation is not performed, but if you have not entered valid names, no rows will be updated.

- You can set up the WHERE clause in SQLTalk to make sure you see the result set you want; then place the clause in the Update Userrestrictions command.

- In hierarchical applications, such as Failure Codes and Equipment, if the restriction clause restricts viewing to records of a particular type (e.g., all pieces of equipment repaired by user X) and the equipment subassembly structure contains pieces of equipment repaired by someone other than user X, there is nothing prohibiting user X from viewing a piece of equipment that is under his or her domain and then traveling up or down the subassembly structure to view records under the domains of other users.

- User restrictions will not prevent a user from adding a record (not even from adding a record he could no longer view after saving it) unless that authority is denied using Signature Security.

- User restrictions can not be specified for several users at a time, or by group, as in Signature Security; they must be specified user by user.

- COMMIT; after executing the Update Userrestrictions.
CHAPTER 3

OBJECT NATIONALIZER SCREEN EDITOR

OVERVIEW

NOTE: Before you use the Centura Object Nationalizer screen editor to customize MAXIMO, execute the Iconbmp.exe file, a self-extracting ZIP file that is in your MAXIMO folder (the folder from which you are running MAXIMO). This file will extract the MAXIMO icons and bitmaps. You should extract the files to your MAXIMO folder or to the folder in which you will be modifying executables, if different from your MAXIMO folder.

MAXIMO uses Centura Object Nationalizer as its screen editor. Object Nationalizer replaces EditWindows, which was used in some previous releases.

NOTE: You do not use Object Nationalizer to edit browser-based application screens such as those in the Self Service applications. Please refer to the MAXIMO 4i JSP Screen Customization Guidelines document for information on editing browser-based screens.
You can use the Object Nationalizer screen editor to:

- customize toolbars, menus, screens, and dialog boxes.
- customize the toolbar by adding, removing, or repositioning push buttons, as well as changing push-button titles and images.
- modify the text that appears in pull-down menus, change the accelerator keys associated with menu selections, and change the order of menu selections.
- customize screen and dialog box layouts by adding, removing, or changing fields, titles, background text, and frame outlines.
- rearrange the location of objects on the screen, change the tabbing order, and hide fields for security purposes.
- customize the View List dialog box, dynamic value lists, and the Drilldown dialog box.
- Relabel, move, delete, and add tabs.

Many sites restrict the use of the screen editor to the system administrator and a few users. For more information on the Object Nationalizer screen editor, refer to Centura's *Localizing and Customizing Centura Applications* document.

**NOTE:** In order to modify MAXIMO .EXE files using Object Nationalizer, you must have write privileges for the .EXE files you want to change.

**CUSTOMIZATION**

To access Object Nationalizer, click the Utilities icon on the MAXIMO Main Menu or Application Bar and select Screen Editor.

**NOTE:** Make sure that no one is using the MAXIMO application you are customizing while you are customizing it. A protection error occurs if
you make changes to an .EXE file that is in use, and you will not be able to save the changes you make in Object Nationalizer. You can copy the .EXE file to a local folder, make your modifications, and then copy the file back to your production folder.

**NOTE:** Make sure to always save your changes before exiting Object Nationalizer.

### Accessing the Object to Customize

**NOTE:** MAXIMO can be displayed with either of two different screen designs, or “looks”: the new “4i” design, which is the default at installation, or the standard design of earlier releases. However, in Object Nationalizer, you can only view the standard design. Therefore, if you are using the 4i design, you must still edit screens in Object Nationalizer as they would appear in the standard design. The edits will apply to both screen designs when you run the application.

The setting that specifies which screen design to use is in the [4iLook] section of MAXIMO.INI. Refer to Appendix B for more information.

1. From the Object Nationalizer main screen, click File/Open and select the executable file (.exe) of the MAXIMO application you want to customize. The Object Nationalizer screen splits into left and right panes. The left pane contains a directory tree, much like in Windows Explorer. The right pane displays information related to the component you select in the directory tree.

**NOTE:** Do not use Resource or Text Resource files for customizing with Object Nationalizer.

2. Expand the directory tree in the left pane. You see an Application Text folder and a Windows folder.

The Application Text Folder allows you to edit the select statement for the View List and dynamic value list dialog boxes and to edit the information
displayed in the Equipment/Location Drilldown dialog boxes. These functions are discussed later in the chapter.

3. Expand the directory structure for the Windows folder. The directory tree lists the MAXIMO application and all its tabs and dialog boxes. You can expand the directory further to display toolbars.

On the directory tree, the MAXIMO application begins with the prefix "app", e.g., appCOMPANY. Dialog boxes begin with the prefix "dlg". Application tabs (often referred to as forms) have various name formats and appear at the bottom of the directory tree. To obtain the name of an application tab, select the app.Application icon on the directory tree and click the Layout tab at the bottom of the right window pane. You will see the application screen and its tabs. Click on the tab you want and the name used by Object Nationalizer is displayed below the form icon in the middle of the tab.

**Toolbar Customization**

1. Expand the app.Application tree (e.g., appCOMPANY), then expand its Tool Bar tree to display the list of toolbar buttons.

2. Right-click on the button you want to customize, and choose Properties. The MaxToolButton menu appears, listing a variety of options you can use to change the toolbar buttons.

   To remove a toolbar button, select Visible/No.

   To add a toolbar button that is presently hidden, click on the name of the button you want to add to the toolbar, select Visible Yes.

   To reposition a toolbar button, click on the app.Application item (e.g., appCOMPANY), then click the Layout tab at the bottom of the right window pane. The application screen appears and you can drag the tool button to reposition it.
If the message “Can’t load picture file: name.ICO” is displayed, the icon (picture) files displayed on the toolbar button cannot be found. You need to place the icon (.ICO) files in your MAXIMO folder.

3. Save your changes.

**Menu Customization**

1. Click on the app*Application* item (e.g., appCOMPANY) in the directory tree, then click the Layout tab at the bottom of the right window pane to display the application screen.

   **NOTE:** *If you do not want to view the application’s menu bar while you edit it, you can just right-click the appApplication item and choose Menu Editor, then go to step 4.*

2. From the Layout menu (top of the screen), choose Preview Window to enlarge the screen and view the menu bar.

3. Right-click in the space between the top of the tabs and the bottom of the toolbar and choose Menu Editor.

4. In the Menu Editor dialog box, select the menu item from the scroll box on the left. Hide or unhide it using the Hide check box, change its title in the Title field (the & character precedes the shortcut key), add an accelerator key, and so forth as needed. Hiding a menu item hides it on the application, but not in Object Nationalizer.

5. Click OK. Close the preview window (click the right mouse button and select Preview Window) and save your changes.
Tab and Dialog Box Customization

1. In the directory tree, click on the dialog box or tab you want to customize (see Accessing the Object to Customize, earlier in this chapter). Then, click the Layout tab at the bottom of the right window pane to display the object.

2. The Layout Menu at the top of the screen has a number of options. You can toggle Preview Window on and off to expand the layout to fill your screen and then reduce it again. You toggle Preview Window off by clicking the right mouse button and selecting Preview Window.

3. To unhide objects on the layout, select Show Hidden Windows from the Layout Menu. You can then drag the hidden objects (push buttons, fields, frames) to where you want them. To unhide the objects in the application, right-click the object, then choose Properties/Visible/Yes.

   Note that many hidden objects are positioned near the bottom of the form. Scroll down until you find the object and drag it to the position where you want it displayed.

4. You can also right-click the object and use the Properties menu to change titles, fonts, text color, etc. Field background color is set by MAXIMO.

   When customizing screens and dialog boxes many of the Object Nationalizer screen options, such as Align and Tab Order, become important. They are discussed later in this chapter, under Object Nationalizer Menu Choices.

Moving, Relabeling, Deleting, and Adding Tabs

**NOTE:** Choose Tools/Preferences to make sure that Use Customizer is selected in the Preferences dialog box.

1. From the directory tree, click the app.Application item (e.g., appCompany), then click the Layout tab at the bottom of the right window pane.
2. Right-click a tab and choose Properties/Tab Frame Properties to open the Tab Frame Properties dialog box.

3. Customize as needed:
   
   • To move a tab, select the tab in the list box and click Up or Down.
   
   • To relabel a tab, edit the label in the Tab Label column. There should be a space character before and after the label name.
   
   • To delete a tab, highlight the tab in the list box, click the Windows tab and record for possible future use the Window Name of the tab (e.g., frmCOMPANY or frmADDRESSES). Click the “Tabs” tab, then click Delete and OK.
   
   • You can only add a tab that was previously deleted. You can not simply add more tabs to an existing MAXIMO screen. To add a tab that was previously deleted, go to the Tab Frame Properties dialog box and from the Tabs tab, click New, then click the Windows tab. In the row for the new tab, click in the Window Name column and select the previously deleted window from the drop-down list. Edit the Label Name and Tab Name fields as desired. Click OK.

4. Save your changes.
Object Nationalizer Menu Choices

This section briefly describes some of the menu choices available from the Object Nationalizer layout window for customizing tabs and dialog boxes. Many of these menu items also have tool bar buttons. For additional information, refer to Centura's *Localizing and Customizing Centura Applications*.

### Menu Item Description

#### Layout Menu Items

- **Preview Window**
  You can toggle Preview Window on and off to expand the layout to fill your screen and then reduce it again. You toggle it off by clicking the right mouse button and selecting Preview Window.

- **Align to Grid**
  Aligns the selected object with nearest grid lines, even if Grid (described later) is turned off. You can align a single object or multiple objects.

- **Align Edges**
  Includes six choices for aligning edges of selected objects. Click on the first object and Shift + Click on the additional object(s). You must select at least two objects to enable this menu item. You align objects relative to the first object you select, which has a dark highlights.

  **NOTE:** You must set Grid off to obtain perfect alignment (see the Grid menu item later in this section).

  The six menu items align the edges of the selected objects as follows:

  - **Left:** aligns left edges with left edge of first object.
  - **Right:** aligns right edges with right edge of first object.
• Top: aligns top edges with top edge of first object.
• Bottom: aligns bottom edges with bottom edge of first object.
• Vert Center: aligns centers vertically with center of first object.
• HorizCenter: aligns centers horizontally with center of first object.

We recommend using alignment as one of the last steps in customization so that all text and fields are aligned neatly. Normally, text is aligned relative to the right edge and fields are aligned relative to the left edge. Fields along rows on a form are usually centered relative to the first object.

Space Evenly Includes two menu items to distribute space evenly between selected objects. You must select at least two objects. The two menu items evenly space the objects:

• Across: horizontally.
• Down: vertically.

Make Same Size Includes three menu items to size all selected objects to be the same as the first object you select. You must select at least two objects. The three menu items size the selected objects to be the same as the first object in:

• Width
• Height
• Both (width and height)

**NOTE:** Sizing does not affect the underlying length of a field. If a data item will not physically fit within a field, the field will scroll.

Grid You can toggle the displays of the grid pattern on and off. To disable grid alignment when you move an object,
you must also make sure that the Active box in the Preferences dialog box is unchecked. Choose Tools/Preferences to view the dialog box (you cannot be in Preview Window mode when you do this). We recommend turning the grid off and unchecking the Active box.

**Tab Order**

Lets you change the tab order of objects and button controls on a form window (i.e., the order in which fields are entered when using the Tab key). Selecting this menu item opens the Tab Order dialog box.

When you select Tab Order, the fields or buttons on the screen or dialog box you are customizing are displayed with their tab order numbers shown in small boxes. A Tab Order dialog box also appears. Set the tab order number you want by moving the cursor around and clicking on the objects in the tab order you want.

**Show Sample Text**

You can toggle between displaying and not displaying (the default) sample text in text fields.

**Show Design Scroll Bars**

You can toggle between displaying (the default) and not displaying the design scroll bar that enables you to scroll to the bottom of large forms.

Make sure to save your changes before exiting Object Nationalizer: close the Preview Window (if open) and choose File/Save.
Customizing View List Dialog Boxes

You can customize an application’s View List dialog box to show additional information by editing the select statement and unhiding hidden columns. To do this, perform the following steps:

1. From the Object Nationalizer main screen, choose File/Open and select the MAXIMO application.

2. Expand the directory structure in the left pane and click on the Application Text folder. The text editor opens in the right pane.

3. In the bottom right window, scroll horizontally so you can see the Identifier column. Resize the column so you can see the full text (click and drag between column headers).

4. Click in the Identifier column header to sort and alphabetize the identifiers (this takes a little time).

5. Scroll down to find the identifier for the View List dialog box. The identifier is generally of the form:

   Global Declarations.Constants.User.ovs\texttt{APPNAME\_SEL}

   where \texttt{APPNAME} is the name of the application (e.g., \texttt{...ovsLABOR\_SEL}).

   For some applications (such as Equipment) the identifier is:

   Global Declarations.Constants.User.ovs\texttt{OVERVIEWSELECT}

6. Scroll left and, in the Translated Text column, click on the identifier.

7. In the Translated Text frame, change the select statement to include the additional columns you want. You must add both the column name and the column number. For example, the default select statement for Labor is:

   Select \texttt{LABORCODE, NAME Into :cKEY, :c1 From LABOR}
To include Craft in the View List dialog box, edit the statement to read:

```
Select LABORCODE, NAME, CRAFT Into :cKEY, :c1, :c2 From LABOR
```

You can add up to 14 additional columns, c2 through c15. Make sure to include the colon (:).

8. Save your changes but do not exit.

9. You must now unhide the column(s) you added. Expand the directory tree for the application’s Windows folder and scroll down to find the dlgOverview branch. Click on it and then click the Layout tab at the bottom of the right pane.

10. From the toolbar, choose Layout/Preview Window, then choose Layout/Show Hidden Windows. A scroll bar appears at the bottom of the View List dialog box. Scroll to the right to see the additional columns.

11. Double-click in the column header of the column you want to add to the View List dialog box. From the MaxExtraColumn menu choose Visible/Yes. Then choose Object Title and edit the field to reflect the name you want (for example, change C2 to Craft). Click Done.

12. Resize the column as needed by placing the cursor on the line between column headers and click and drag. You can reposition a column by putting the cursor in the middle of a column header and then clicking and dragging it to the new position.

13. Close the Preview Window, save your changes, and close Object Nationalizer. Open the relevant application and check to see that the View List dialog box reflects your changes.
**Customizing Dynamic Value List Dialog Boxes**

When you use a Select Value list in MAXIMO, you are using a dynamic value list, a list that depends on the data in the database. You can customize dynamic value list dialog boxes in much the same manner as with the View List dialog box. Select statements, defined in the application definitions, specify which columns of data are displayed in the Select Value dialog box. You can change these select statements in Object Nationalizer.

To customize a dynamic value list, perform the following steps:

1. From the Object Nationalizer main screen, choose File/Open and select the MAXIMO application.

2. Expand the directory structure in the left pane and click on the Application Text folder. The text editor opens in the right pane.

3. In the bottom right window, scroll horizontally so you can see the Identifier column. Resize the column so you can see the full text (click and drag between column headers).

4. Click in the Identifier column header to sort and alphabetize the identifiers (this takes a little time).

5. Scroll down to find the identifier for the dynamic value list you want to customize. The identifier is of the form:

   Global Declarations.Constants.User.dysDVNAME_SEL

   where $DVNAME$ is the name of the dynamic value list (e.g., ....dysLABOR_SEL).

6. Scroll left and, in the Translated Text column, click on the identifier.

7. In the Translated Text frame, change the select statement to include the additional columns you want. You can add up to 14 additional columns. For
example, in the Labor Reporting application the default select statement for
the Labor dynamic value list is:

    Select LABORCODE, NAME Into :cDyKEY, :cDyDESC From LABOR

This means that in Labor Reporting, when you click the Detail button in the
Labor/Craft field, the Select Value dialog box will display columns for
Labor/Craft Code and Name. To include Craft in the Select Value dialog box,
edit the statement to read:

    Select LABORCODE, NAME, CRAFT From LABOR

Note that you must remove the “Into” clause when you edit the Select
statement.

Unlike with the View List dialog box, you do not have to unhide the column.

8. Save your changes and exit Object Nationalizer. In the above example, if you
open Labor Reporting and click the Detail button in the Labor/Craft field, the
Select Value dialog box will now have columns for Labor/Craft Code, Name,
and Craft.

You must repeat this procedure for each application in which you want to have a
customized Select Value dialog box. For example, if you want the Select Value
dialog box for Labor to include Craft in other applications, such as with the
Reported By field in Work Order Tracking or the Supervisor field in Job Plans,
you must open those applications in Object Nationalizer and repeat the
procedure for the Global Declarations.Constans.User.dysLABOR_SEL
identifier

If you want to customize the layout of the dynamic value list dialog box, you
must edit the Sysdyna.apd file:

1. From Object Nationalizer, choose File/Open and, from the Files of Type drop
down list, select CTD Dynalib Files (*apd). Open the Sysdyna.apd file.
2. Expand the Sysdyna directory tree. Select the dlgDynaList item and click the Layout tab.

3. Customize the dialog as needed. See the Tab and Dialog Box Customization section, earlier in this chapter for specific instructions.

The layout of the dynamic value list dialog box is the same, regardless of which MAXIMO application accesses it. For example, you can modify the SELECT statement as described earlier to specify what data the Select Value dialog box displays in the second column when you access it from a particular application. But the width of the second column will be the same regardless of which application accesses the dialog box or what data is displayed.

### Customizing the Drilldown Dialog Box

You can customize the columns displayed by the Drilldown dialog box for both Equipment and Location. For each application that uses the Drilldown dialog box, Object Nationalizer has a customizable string for both equipment and locations. The string is formatted as a comma-separated list of columns from either the EQUIPMENT or LOCATIONS table. The defaults are:

- **Equipment**: DESCRIPTION,VENDOR
- **Locations**: DESCRIPTION,TYPE

To customize a Drilldown dialog box, perform the following steps:

1. From the Object Nationalizer main screen, choose File/Open and select the MAXIMO application.

2. Expand the directory structure in the left pane and click on the Application Text folder. The text editor opens in the right pane.

3. In the bottom right window, scroll horizontally so you can see the Identifier column. Resize the column so you can see the full text (click and drag between column headers).
4. Click in the Identifier column header to sort and alphabetize the identifiers (this takes a little time).

5. Scroll down to find the identifier for the Drilldown dialog box. There are separate identifiers for equipment and locations:

   Global Declarations.Constants.User.DRILLDOWN_EQPSTRING
   Global Declarations.Constants.User.DRILLDOWN_LOCSTRING

6. Scroll left and, in the Translated Text column, click the identifier you want to modify.

7. In the Translated Text frame, edit the string as needed. For example, to include PRIORITY in the equipment drilldown, you would edit the string to appear as follows:

   DESCRIPTION,VENDOR,PRIORITY

   You can list up to five columns in the string.

8. Save your changes and exit Object Nationalizer.

You must repeat this procedure for each application in which you want to have a customized Drilldown dialog box.

**Modifying the Login Dialog Box for Multiple Schemas**

If you set up your database with multiple schemas, you can modify the Login dialog box as follows:

1. From the Object Nationalizer main screen, choose File/Open and select Maxlogin.exe.

2. In the left pane, expand the directory structure by successively clicking the plus signs in front of Maxlogin, Windows, dlgLogin, and Child Windows.
3. Click the dlgLogin item, then click the Layout tab at the bottom of the right pane.

4. In the left pane, under Child Windows, right-click Schema and choose Properties/Visible/Yes/Done.

5. Right-click ctlSchema and choose Properties/Visible/Yes/Done.

6. Save your changes and exit Object Nationalizer.

7. Exit MAXIMO, then log back in to see the changes.

**When NOT to Use Object Nationalizer**

MAXIMO’s Database Configuration module (described later in this guide) is designed to help you customize your database. Although Object Nationalizer can be used to make screen modifications, such as making a field editable, you must use Database Configuration instead of Object Nationalizer when making the following formatting changes:

- Setting field formats
- Changing field lengths

We also recommend that you do not use Object Nationalizer to hide any mandatory fields. Changing these MAXIMO defaults could cause confusion when problems are reported to our Customer Support staff.

It is also inadvisable to use Object Nationalizer to change the format, input mask, or country profile for a field (these changes may not be handled properly by MAXIMO). The Windows Control Panel Regional Settings application should be used to change the format and country profiles of fields; see Chapter 8, “Validation and Formatting.” Note that changes you make using the Regional Settings application will affect all installed applications, not just MAXIMO.
Object Nationalizer can not be used to change background color or text color for fields. These items are controlled in the MAXIMO.INI file.

**Customizing Future MAXIMO Releases**

You should be able to save the changes you make and apply them to future versions of MAXIMO. The File/Save As option allows you to save your screens as resource files, which can later be imported using File/Apply.

**GUIDELINES FOR CONFORMING TO MAXIMO 4i SCREENS**

In using Object Nationalizer to customize MAXIMO screens, you may want to conform to general MAXIMO design specifications, and thus maintain the look and feel of standard MAXIMO screens. The design guidelines that MAXIMO developers used are shown below, along with some suggestions on how best to use them in creating new screens. You may, of course, prefer to use your own screen design.

**Frames**

All controls on tabs should be located within a frame except for subtabs.

**Settings**

- Corners: Square
- Border Style: Raised Shadow
- Border Thickness: 1

**Locations**

- Top Frame
  - Left: 0.10"
  - Top: 0.07"
Width  11.55” (maximum)
Height  varies

• Default Table Data Frames
  Title Top  Add 0.04” to Frame Top
  First Field Top  Add 0.3” to Frame Top
  Border Style:  Drop Shadow

• All Other Frames
  Title Top  Add 0.04” to Frame Top
  First Field Top  Add 0.3” to Frame Top
  Width  11.55” (maximum)
  Height  varies

• Frame titles should be centered and should have blue text.

• Distance Between Frames = 0.01”.
  For example, if the top of the upper frame is 0.07” and the height is 0.40”,
  then the top of the frame below the top frame should be 0.48”.

*Table Window within Frame or Subtab*
Left  0.25”
Top  Add 0.3” to Frame Top
Width  11.25”

*Subtab Location Under Uppermost Frames*
Left  0.1”
Top  bottom of frame above + 0.1”
Width  11.55”

**Field and Background Text Position and Alignment**

You can align fields and background text by using the Align options from the Object Nationalizer Layout menu. Once one field and its background text are positioned, all alignment except distance between fields can be done with the alignment tools.
Distance Between Data Fields

Vertical distance between data fields must be set manually.

- Add 0.25” to the top of the first field to determine the top of the next field.
- If desired, use 0.30” rather than 0.25” for extra space.
- Distance between Background Text and its associated Field = .05”

Alignment

**NOTE:** For the alignment tools to work properly you must disable the Align to Grid selection under the Object Nationalizer Layout menu.

Vertical (Left) Alignment of Fields

- Position one field as desired.
- Select the correctly positioned field by clicking on it with the left mouse button. Then, select the remaining fields by pressing [Shift] and clicking on them with the left mouse button. The correctly positioned field must be selected first.
- From the Layout menu select Align Edges, then choose Left.

Horizontal Alignment of Field and Background Text

- Position one field where desired.
- Select the correctly positioned field by clicking on it with the left mouse button. Then, select its associated background text by pressing [Shift] and clicking on it with the left mouse button. The correctly positioned field must be selected first.
- From the Layout menu select Align, then choose Vert Center.
Vertical (Right) Alignment of Background Text

- Position one background text correctly.
- Select the correctly positioned background text by clicking on it with the left mouse button. Then, select the remaining background texts by pressing [Shift] and clicking on them with the left mouse button. The correctly positioned background text must be selected first.
- From the Layout menu select Align, then choose Right.

Dialog Box Push Button Positions

OK Top 0.15”
Cancel Top 0.50”
Next Button Top 0.90”
Other Button Tops Add 0.35” if grouped; Add 0.40” between button groups

Align push buttons in the same manner as described above for fields.

Dialog Box Dimensions

1. Distance from left and right sides of the dialog box to the edge of the object (text, buttons etc.) should be 0.25”. Distance from top and bottom of the dialog box to the edge of the object (text, buttons etc.) should be 0.15”.

2. Distance between top of Group box and top of first Radio button or Check box should be 0.25”. Distance between radio buttons or check boxes should be 0.0”.

3. Distance other controls, such as between table and group box, table and field, etc. should be 0.10”.
Display Widths of Fields on Forms and in Dialog Boxes

Width specifications for commonly used fields on forms and dialog boxes are shown below.

<table>
<thead>
<tr>
<th>Field Type</th>
<th>Display Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptions</td>
<td>vary</td>
</tr>
<tr>
<td>Date and time</td>
<td>2.0”</td>
</tr>
<tr>
<td>Date only</td>
<td>1.4”</td>
</tr>
<tr>
<td>Key fields</td>
<td>1.4”</td>
</tr>
<tr>
<td>Amounts</td>
<td>1.4”</td>
</tr>
<tr>
<td>Most others</td>
<td>1.4”</td>
</tr>
</tbody>
</table>

Small Number Fields
- Duration, Priority: 0.75”
- Yes/No: 0.3”

The widths of commonly used columns in table windows are shown below. A slash through a title in the Column Title examples indicates that the title is to be split onto two lines.

<table>
<thead>
<tr>
<th>Column Type</th>
<th>Width (inches)</th>
<th>Column Title(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD FIELDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Descriptions</td>
<td>2.4</td>
<td>Description, Remark</td>
</tr>
<tr>
<td>Most other fields</td>
<td>1.4</td>
<td>Part</td>
</tr>
<tr>
<td>Part</td>
<td>1.4</td>
<td>Work Order</td>
</tr>
<tr>
<td>Work Order</td>
<td>1.4</td>
<td>Cost Center</td>
</tr>
<tr>
<td>Cost Center</td>
<td>1.4</td>
<td>Model</td>
</tr>
<tr>
<td>Model #</td>
<td>1.4</td>
<td>Status</td>
</tr>
<tr>
<td>Status</td>
<td>1.4</td>
<td>Type</td>
</tr>
<tr>
<td>Trans Type</td>
<td>1.4</td>
<td>Equipment</td>
</tr>
<tr>
<td>Equip #</td>
<td>1.4</td>
<td>Extension</td>
</tr>
<tr>
<td>Field</td>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Catalog Code</td>
<td>1.4</td>
<td>Catalog #</td>
</tr>
<tr>
<td>Packing Slip</td>
<td>1.4</td>
<td>Packing/Slip #</td>
</tr>
<tr>
<td>Invoice #</td>
<td>1.4</td>
<td>Invoice #</td>
</tr>
<tr>
<td>All Names</td>
<td>1.4</td>
<td>Requested/By, Entered/By, Received/By</td>
</tr>
<tr>
<td>All Dates</td>
<td>1.4</td>
<td>Date/Required, Vendor/Date, Date/Entered, Date/Received, Transaction/Date, Target/Start</td>
</tr>
<tr>
<td>Location</td>
<td>1.4</td>
<td>Location</td>
</tr>
</tbody>
</table>

NUMERICS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Field</th>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qty/Amts, etc.</td>
<td>1.0</td>
<td>Quantity, Qty/Received, Qty/Rejected, Qty/Reserved</td>
</tr>
<tr>
<td>Quantity</td>
<td>1.0</td>
<td>Units, Received/Unit</td>
</tr>
<tr>
<td>Reject Code</td>
<td>1.0</td>
<td>Reject/Code (note: not past tense)</td>
</tr>
<tr>
<td>Units</td>
<td>1.0</td>
<td>Units, Received/Unit</td>
</tr>
<tr>
<td>Category</td>
<td>1.0</td>
<td>Category</td>
</tr>
<tr>
<td>Cur Bal</td>
<td>1.0</td>
<td>Current/Balance</td>
</tr>
<tr>
<td>Phys Count</td>
<td>1.0</td>
<td>Count</td>
</tr>
<tr>
<td>Hours</td>
<td>1.0</td>
<td>Hours, Start, End</td>
</tr>
<tr>
<td>All Costs</td>
<td>1.0</td>
<td>Unit/Cost, Line/Cost, Received/Unit Cost, Received/Line Cost, Old/Cost, New/Cost</td>
</tr>
</tbody>
</table>

ALL Y/N COLUMNS

<table>
<thead>
<tr>
<th>Field</th>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxed</td>
<td>0.3</td>
<td>Taxed?</td>
</tr>
<tr>
<td>Issue Receipt</td>
<td>0.3</td>
<td>Issue on/Receipt?</td>
</tr>
<tr>
<td>Outside Cost</td>
<td>0.3</td>
<td>Outside?</td>
</tr>
</tbody>
</table>

VERY SMALL NUMBER COLUMNS

<table>
<thead>
<tr>
<th>Field</th>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO Operation</td>
<td>0.75</td>
<td>WO/Op</td>
</tr>
<tr>
<td>Conversion</td>
<td>0.75</td>
<td>Conv</td>
</tr>
<tr>
<td>Line Item</td>
<td>0.75</td>
<td>Line/Item</td>
</tr>
</tbody>
</table>
General Style Guidelines

- Do not end a title with a “#” unless it is said aloud that way (“What Model is it?”,” “What Catalog # is it?”). Do not end titles with a colon.

- Write words such as “Rejected,” “Reserved,” and “Received” in the past tense. “Reject Code” is an exception.

- End Yes/No titles with a “?” There is no space between the title and the “?”.

- Avoid abbreviations. If abbreviating is necessary, do not use punctuation.

- Place all fields and tables on forms into frames, grouped in a logical way.

- Assign all frames (except the uppermost) titles. Center the titles and use blue text.

- Write the keyword text in the uppermost frame in blue.

- Enter background text to the left of data fields.

- Do not use frames in subtabs.

- If a frame has more than one table in it, use table titles for all tables below the first table. Titles should be in blue and left-aligned.

- Specifying (in the Windows Control Panel Regional Settings application) that leading zeros be displayed in date/time fields will provide a more readable field display.
CHAPTER 4

DATABASE CONFIGURATION

OVERVIEW

You use Database Configuration to customize the database and perform related functions. You can:

• Change column definitions.
• Attach value lists to columns.
• Create and drop SQL indexes.
• Create, modify, and display views to define alternative names for database tables and columns.
• Specify GL account formats.
• Set the amount field format (in part; see note below).
• Update statistics on indexes to improve database performance.
• Specify whether or not to use the local data dictionary at startup.
• Enable searching on description and long description fields in the Self Service applications. Oracle only. (This search function is automatically available with SQL Server.)

NOTE: The display of date/time fields and numeric data, including some aspects of amount fields (such as currency settings), is specified using the Windows Control Panel Regional Settings application. See Chapter 8, "Validation and Formatting."
Database Configuration Tabs

- **Applications** – To select an application and table to modify.
- **Table Definitions** – To modify a table's column definitions.
- **Index Definitions** – To display, create, or modify indexes.
- **View Definitions** – To display, create, or modify SQL views and define column aliases.

THE DATABASE CONFIGURATION ACTIONS MENU

The Database Configuration Actions menu includes the items listed below. The Create and Drop Index menu items are only available from the Index Definitions tab. The MAXIMO Help system describes how to use these menu items and their associated dialog boxes. See the list of Help topics in the following section.

<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure Changes</td>
<td>Permanently implements the changes you’ve entered from all recent sessions.</td>
</tr>
<tr>
<td>Remove Changes</td>
<td>Removes all changes from prior editing sessions (changes you've saved but did not use to reconfigure the database).</td>
</tr>
<tr>
<td>Restore Backup Tables</td>
<td>Copies the data from the backup tables (created when you select Configure Changes) into the newly configured tables.</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Create Public Synonyms</td>
<td>Allows users to perform SQL operations on tables without having to specify the table owner. You cannot have public synonyms in a multi-schema environment.</td>
</tr>
<tr>
<td>Drop Public Synonyms</td>
<td>Drops the public synonym MAXIMO. When you access a table after dropping the public synonym, you must prefix the table name with the table owner's name, e.g., MAXIMO.WOTRACK.</td>
</tr>
<tr>
<td>Drop Backup Tables</td>
<td>Deletes the backup tables.</td>
</tr>
<tr>
<td>GL Account Configuration</td>
<td>Used to specify the GL account code format, including component field lengths and types, delimiters, and placeholders, and to specify the type of account code validation to be performed.</td>
</tr>
<tr>
<td>Amount Field Format</td>
<td>Used to view or change the amount field format (length and decimal precision).</td>
</tr>
<tr>
<td>Long Description Search Setup</td>
<td><em>Oracle only.</em> Enables long description searches in searching for Requests and Requisitions in the Self Service applications. For detailed information, see “Searching Description and Long Description Fields in MAXIMO Buyer” in Chapter 13, “Self Service Applications.”</td>
</tr>
<tr>
<td>Data Dictionary Quickload</td>
<td>Specifies whether or not to use the local data dictionary at startup.</td>
</tr>
<tr>
<td>Update Statistics</td>
<td>Improves database performance by reorganizing indexes based on existing data.</td>
</tr>
<tr>
<td>Create Index</td>
<td>Creates a new database index.</td>
</tr>
<tr>
<td>Drop Index</td>
<td>Drops a database index.</td>
</tr>
</tbody>
</table>
MAXIMO Online Help

The MAXIMO online Help for Database Configuration has information on using the Actions menu items, as well as other topics. These “How Do I ...” topics are listed below. Topics marked with an asterisk (*) are also discussed in this chapter. Please refer to Database Configuration's online Help for information on topics that are not included in this chapter.

**How Do I …**

- Perform a Database Configuration *
- Configure Changes
- Remove Changes
- Restore Backup Tables
- Drop Backup Tables
- Create Public Synonyms
- Drop Public Synonyms
- Specify the GL Account Configuration *
- Specify the Amount Field Format
- Enable Long Description Searches in Self Service applications (*Oracle only*)
- Specify Data Dictionary Quickload
- Update Statistics
- Create an Index *
- Drop an Index *
- Create Table Views and Column Aliases *

**THE APPLICATIONS TAB**

Use the Applications tab (Figure 4.1) to choose the application and table you want to modify. You can also use many of the Action menu items from this tab.
To select a table to modify:

1. Click on an application in the Application list box. This becomes the Current Application. The Tables list box displays the tables belonging to the Current Application.

2. Select a table from the Tables list box. This becomes the Current Table.

3. Select the appropriate tab to modify the table, index, or view definitions.
TABLE DEFINITIONS TAB

The Table Definitions tab (Figure 4.2) lets you customize individual database table columns.

You can change the data type that a column can accept, the column length (if data type is ALN, UPPER, LOWER, DECIMAL, or AMOUNT), the scale (if data type is DECIMAL or AMOUNT), and several characteristics relating to nulls and negative/positive values. You can also specify the name of a value list.

Figure 4.2 Table Definitions Tab
Use the Table Definitions tab to modify a table’s column definitions:

1. If applicable to your database, click the Detail button in the Database Storage Partition field and select a storage partition for the table.

   The Database Storage Partition field allows you to specify a specific storage area for a table. A database storage partition (“tablespace” in Oracle; “segment” in Sybase and MS SQL Server) is the physical location where a database object (e.g., table) is located on a disk. The value list DBSTORAGEPARTITION should be configured by the database administrator to include a valid list of tablespaces/segments available to MAXIMO. (For example, you would **not** want a table to be created in the SYSTEM tablespace.)

2. Go to the relevant cell of the table window and change the column definition as needed. Column definitions include:

   Name, Type, Length, Scale, Positive?, Nulls Allowed?, Null With Default?, Default Value, Value List Name, Value List Type, Remark, DynaList Column Title, and DynaList Sort Order.

   Refer to Field Help for information on these column definitions.

   **WARNING:** Do not change the WONUM column type to a numeric one.

3. Save your changes.

4. Configure the database and reset or restart MAXIMO. Make sure that no users are currently using MAXIMO when you configure the database.

   **NOTE:** Some columns are restricted to specific definitions by MAXIMO and cannot be changed; they are read-only. Some columns are read-only, depending on values in other cells.

   **NOTE:** If a column definition specifies that nulls are not allowed for a required field, you should **not** change the value of the “Nulls Allowed?” column to Y. This could result in several errors.
NOTE: All fields for an application’s main table are on the main tab. Fields from the main table that are also on other tabs are hidden on the main tab. If you make one of these fields required, you must make it visible on the main tab.

NOTE: The following columns are MRO Software reserved columns and should not be used as extra columns/fields.

Table WORKORDER: Columns WFID, WFACTIVE, PAGING_WFID, PAGING_WFACTIVE
Tables PR and PO: Columns WFID, WFACTIVE

Saving Your Changes

After you make changes to a Database Configuration tab or the GL Account Configuration dialog box, you must save the changes. However, the database changes do not take effect until after configuring the database. You can wait until after you have made changes to all the relevant tabs (or even after exiting and restarting MAXIMO) before configuring the database.

• “Saving” saves your changes in temporary database configuration tables but does not actually implement them in the database. If you save changes without configuring the database and close the Database Configuration application, you can later reopen it and resume your editing session without losing the prior changes.

• When you reopen Database Configuration, you will be prompted as to whether or not you want to continue configuring the database from where you left off. If you select Yes, the changes from the prior session will be retained and you can make additional changes if you want. Selecting No will cause all changes from prior sessions to be lost.

• To implement the changes that have been saved, choose Configure Changes from the Actions menu or use the Configure Database toolbar button. You
can also implement the changes when prompted to configure upon exiting the application.

**Performing a Database Configuration**

*WARNING:* Be sure you have made a backup of your database before configuring it.

To perform a database configuration:

**NOTE:** Make sure you are logged in as user MAXIMO, or as the schema owner if you have a multischema database.

1. From the Applications tab, select the application and table you want to modify.

2. Modify the currently selected table by making changes as needed on any of the Database Configuration tabs: Table Definitions, Index Definitions, and View Definitions. Save the changes.

   *NOTE:* You can cancel database changes, even after saving, by choosing Actions/Remove Changes. This removes database changes made since you last configured, including prior editing sessions.

   All backup tables from the previous configuration must be restored before you can configure the database again.

3. **Make sure that no users are currently using MAXIMO.** Select Actions/Configure Changes. A message asks you: "Configure the database now?" Click OK.

   Some changes require the table data to be backed up to temporary tables, and later restored to the newly configured tables.

   a. If you have not made changes requiring backing up the tables, the configuration proceeds directly. The status bar indicates when the
configuration is complete. You must either reset MAXIMO or exit and then restart MAXIMO before the changes will take effect. See Step 6.

4. The Altered Tables dialog box lists the tables (including their data) that will be dropped during configuration. Before configuring, MAXIMO copies the tables to backup tables of the form XX\{tablename\}. After configuring you will restore the data from the backup tables to the new tables. Click OK.

If, from a previous configuration, you have backup tables of the same name that were not dropped using the Drop Backup Tables option, you will be routed to the Drop Backup Tables dialog box (see Step 7). It indicates that "all backup tables listed below will be dropped."

**NOTE:** If you want to save old backup tables, you must copy them (or change their names) to tables not of the form XX\{tablename\} before configuring.

Click OK. The status line indicates when the database is successfully configured.

5. After configuring the database, select Actions/Restore Backup Tables. The Restore Backup Tables dialog box lists the backup tables created during configuration. You must copy their data into the newly configured tables. Select the tables individually or click Select All, then click Restore.

By default, MAXIMO drops the backup tables after restoring the data to the new tables. If you want to save the backup tables, click the Do Not Drop Backup Tables(s) radio button. Saving backup tables requires additional disk space (MAXIMO tells you how much when you click Restore).

6. When you exit Database Configuration, MAXIMO displays the message: "For these changes to take effect, MAXIMO must be reset. Would you like to do this now?" If you select No, you can continue working in MAXIMO, but
the changes will not take effect until you exit and reenter MAXIMO. It is recommended that you choose to reset now.

7. If you did not have MAXIMO automatically drop the backup tables after restoring, you can do so manually at any time to provide more disk space. From any Database Configuration tab, choose Actions/Drop Backup Tables to display the Drop Backup Tables dialog box. Click OK to drop all the XX{tablename} tables. You must drop all or none; you cannot select specific tables.
INDEX DEFINITIONS TAB

Use the Index Definitions tab (Figure 4.3) to create new SQL indexes for the selected table, and to display or drop existing indexes.

Indexes are used internally by MAXIMO to speed access to the database. They provide pointers, or quick references, to the location of frequently accessed data. You can create an index on the columns in a table that you frequently query. See Centura's SQL documentation for information about SQL indexes.
Use the Applications tab to select the table for which you want to create or drop an index, then click the Index Definitions tab. The Indexes list box shows the indexes associated with the table. The Columns list box shows the columns in the selected table.

To view an existing index definition, select the index from the Indexes list box. MAXIMO displays the columns included in the index in the Index Definitions table window.

You cannot redefine existing indexes. You must drop the index and recreate it with a new definition.

If applicable to your database, the Database Storage Partition field lets you select a storage partition for an index.

**Creating an Index**

Use the Create Index dialog box to create new indexes.

1. Use the Applications tab to select the table for which you want to create an index, then click the Index Definitions tab.
2. Choose Actions/Create Index to display the Create Index dialog box.
3. Enter a name for the new index and click OK. The new index appears in the Indexes list box and the Selected Index field.
4. If applicable to your database, click the Detail button in the Database Storage Partition field and select a storage partition for the index.
5. To add a column to the index, select a column in the Columns list box.
6. Click either Order Asc or Order Desc to indicate how you want the results ordered -- in ascending or descending order. The Index Definitions table window displays the column you just added. The order in which you add columns determines their sequence.
NOTE: For Oracle and SQL Server, it makes no difference whether you click Order Asc or Order Desc.

7. If you want each column in the index to be unique, put a check mark in the Enforce Uniqueness box.

8. For Sybase and SQL Server only: put a check in the Clustered Index box if you want to create a clustered index. You can have only one clustered index per table.

9. Save the record.

10. Configure the database and reset or restart MAXIMO. Make sure that no users are currently using MAXIMO when you configure the database.

**Dropping an Index**

Use the Drop Index dialog box to delete indexes.

1. Use the Applications tab to select the relevant table, then click the Index Definitions tab.

2. From the Indexes list box, select the index you want to drop.

3. Choose Actions/Drop Index.

4. Click OK to drop the index.

5. Save the record.

6. Configure the database and reset or restart MAXIMO. Make sure that no users are currently using MAXIMO when you configure the database.
VIEW DEFINITIONS TAB

Use the View Definitions tab (Figure 4.4) to create alternative table and column names.

You create a table view to assign an alternative name to a table. You create column aliases to assign alternative names to table columns. For example, you may want to assign column and/or table names in another language.
Once you enter a view name and column aliases, you can use those names with reports and with interactive SQL. See Centura's SQL documentation for more information about views.

**NOTE:** *To see a list of the current column names, you can print out an SQR5 report, LISTTABL.SQW, or a Crystal report, MAXCOLS.RPT, that lists the database tables.*

**Creating Table Views and Column Aliases**

To create table views and column aliases:

1. From the Applications tab, select the table for which you want to create a view.

2. Click the View Definitions tab.

3. In the View field, assign a view name to the table. The default is the standard MAXIMO name preceded by V_. Enter a new name as appropriate.

4. The standard column names are listed under both Column and Aliases. Replace any names in the Aliases column with names you want to use.

5. Save the record.

6. Configure the database and reset or restart MAXIMO. Make sure that no users are currently using MAXIMO when you configure the database.
GL ACCOUNT CONFIGURATION

GL Account Code Formats

Account Components

Each general ledger account code consists of a number of distinct components (also called segments). In Database Configuration, you define the account code format. In Chart of Accounts, you specify which components are valid for use in MAXIMO.

For easy identification, you can use delimiters to separate components when they are displayed on the screen. For example, you might use hyphens to separate components: 6100-400-SAF.

By default, MAXIMO writes account strings to the database in a concatenated format, without delimiters. However, if required by the accounting system to which you are exporting MAXIMO data, you can specify that delimiters be included. This needs to be decided before any accounts are entered in the database. Changing this setting with existing accounts in the database will cause the existing accounts to become invalid.

For any account code, you can:

- Define up to 20 components.
- Restrict a single component’s field length to a certain number of characters.
- Include a total of up to 254 characters/digits, not including delimiters (unless you choose to include the delimiters as part of the account code).

Component Sequence

Account components are displayed in a sequential format, with the leftmost component in the string representing the highest level. For example, in the MAXDEMO database, four component levels are defined:
Component 1 = Cost Center
Component 2 = Activity
Component 3 = Resource
Component 4 = Element

The fourth component in MAXDEMO is optional and no accounts have been assigned to it. Since account components are concatenated, with the highest level component at the left, the demo database account 6100-350-SAF can be represented as follows:

<table>
<thead>
<tr>
<th>component 1</th>
<th>component 2</th>
<th>component 3</th>
<th>component 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>6100</td>
<td>350</td>
<td>SAF</td>
<td></td>
</tr>
</tbody>
</table>

Cost Center  Activity  Resource  Element

The fourth component does not appear as part of the GL Account because it is an optional component and no values have been assigned to it in Chart of Accounts.

**Required Versus Optional**

A **required component** requires a value for the account to be fully defined. When you display an account on-screen, any unknown required components contain placeholder characters.

An **optional component** does not require a value in order for the account to be fully defined. When you display an account on-screen, any unknown optional components are not displayed at all. In the demo database, the fourth component is optional, and most of the account codes consist of just the first three components.

Your general ledger system has rules regarding whether an account is acceptable when partially defined, or whether it must be fully defined. A fully defined (or “fully specified”) account has no unknown values (placeholders) in required components. A partially defined (or “partially specified”) account contains placeholders in some required component(s). In the above example, 6100-350-
SAF is fully defined (the fourth component is optional and does not require any characters). The account 6100-???-SAF is partially defined; the required Activity component is not specified and therefore contains placeholder characters.

**Specifying the GL Account Configuration**

Use the GL Account Configuration dialog box (Figure 4.5) to specify the **format** of GL account codes.

See the previous section, GL Account Code Formats, for a general discussion of account code formats. Refer to the Chart of Accounts application for information on setting up individual GL accounts.

---

### Figure 4.5  GL Account Configuration Dialog Box

---

You must specifically grant dbd privileges for GL account components. Use the Authorize Access to GL Component Information option in Signature Security.
To specify the GL account code format:

1. Choose Actions/GL Account Configuration to display the GL Account Configuration dialog box.

2. In the Component Name column enter a name for each component of the account code. The sequence of the listed components determines the sequence of the components in the account code. You can define up to 20 components.

3. Specify a field length for each component.

   The entire account code is limited to 254 characters. This does not include delimiters unless you choose to store them in the database as part of the account code.

4. Specify whether the components' characters are numeric (INTEGER), or alphanumeric (ALN).

5. Specify whether the components are required (Reqd?=Y) or optional (Reqd?=N). Within an account code, a component may be required or optional, but optional components must come at the end of the sequence. For example, you cannot have the second component optional and the third component required. If you do, you will receive an error message when you save.

6. For each component, specify whether to use a screen delimiter to separate it from the next component in the sequence. A screen delimiter can be any keyboard character. You can use delimiters between some components and not others, and you can use different delimiters between different components.

7. Select the validation option(s) you want from the Validation group box.

   - **Disable GL Validation** -- MAXIMO is shipped with GL validation disabled, i.e., with a check in this box. This means that MAXIMO will not
validate any GL fields against Chart of Accounts, thus effectively disabling the general ledger feature even though you can still enter values in GL fields. In addition, a check in this box means that MAXIMO automatically disables the GL Account Navigator dialog box throughout all applications.

Therefore, to utilize MAXIMO’s GL accounting feature, you **must** enable GL validation by removing the check from this box. Removing the check mark also enables the following two options.

- **Validate Component Combinations** -- Leave the check mark in this box if you want MAXIMO to validate entire GL component combinations against Chart of Accounts. If this box is unchecked, GL validation will only validate individual components against Chart of Accounts; thus a user can enter a GL account code that does not match any one account in Chart of Accounts, but whose individual components are all valid.

- **Validate Financial Periods** -- Leave the check mark in this box if you want MAXIMO to validate that a transaction falls within an open, valid financial period as defined in the Financial Periods dialog box in Chart of Accounts. Remove the check mark if you do not want to validate against defined financial periods.

8. Choose a placeholder character. This character is used for alphanumeric (ALN) components. The placeholder for integer (INTEGER) components is the number nine (9). When MAXIMO displays an account code, placeholder characters fill the length of each missing required component.

**NOTE:** If the MAXIMO Chart of Accounts application is integrated with an existing accounting system, that accounting system probably already has a placeholder character defined. **Do not** specify a different placeholder character in MAXIMO.

9. Choose whether or not to write delimiter characters to the database. If you leave the Write Delimiter to Database box unchecked, MAXIMO will not
write delimiters to the database, and the account code can include the maximum 254 characters plus the delimiters.

If you check this box, the delimiters will become part of the account codes. The maximum number of characters will be 254, including delimiters.

10. Preview the account code. The Preview group shows how the account code will be displayed on-screen versus how it will be stored in the database. Click Refresh to preview the formats. Integer components are filled with the number 9, alphanumeric components with the placeholder character.

**NOTE:** If you change some aspects of an existing GL account format, such as field lengths, you must configure the database for the changes to take effect. MAXIMO displays a warning message when you make such a change.

**NOTE:** To specify user privileges for editing GL account components, use the Authorize GL Component Access option in Signature Security.

**SQLTIMEOUT SETTING (SQL Server only)**

The SQLTimeout setting in the MAXVARS table specifies the amount of time, in seconds, to wait when retrieving query results before issuing a SQL timeout error. The default SQLTimeout is 30 seconds. This parameter is applicable only to Microsoft SQL Server. Valid values are:

- 0 = infinite wait for lock
- any value between 1 and 1800 seconds

For example, to increase the timeout setting to 3 minutes (180 seconds), run the following SQL command:

```
update maxvars set varvalue='180' where varname='SQLTIMEOUT';
```
CHAPTER 5

CUSTOM APPLICATIONS

OVERVIEW

A custom application consists of a custom database table and its application interface. The Custom Applications feature lets you create your own database tables. MAXIMO then creates an application interface (a screen, with a tab titled Main) in which you can query, update, insert, and delete data just as you do with standard MAXIMO applications. MAXIMO automatically adds the names of new applications to the Custom Applications list on the Main Menu and the Quick Access bar.

You can create two basic types of custom application tables:

- A stand-alone custom application table, containing any type of information (general purpose)
- An extra table, associated with a specific MAXIMO application (for example, an extra Equipment table).
Custom Applications Tabs

Custom Applications has one tab:

- **Applications** – To create, modify, or delete custom application database tables.

**THE CUSTOM APPLICATIONS ACTIONS MENU AND ONLINE HELP**

The online Help for Custom Applications has information on using the Actions menu items, as well as other topics. These “How Do I ...” topics, most of which correspond directly to the Actions menu items, are listed below. Topics marked with an asterisk (*) are also discussed in this chapter. Please refer to Custom Application’s online Help for information on topics that are not included in this chapter.

**How Do I …**

- Create a Custom Application Table *
- Create an Extra Application Table *
- Drop a Custom Application Table *
- Launch a Custom Application *

Within each of the above Help topics on creating tables, there is a link to a topic that describes the table and its function.

**APPLICATIONS TAB**

The Applications tab (Figure 5.1) lets you create, modify, or delete your own custom application database tables. The tab displays a list of existing custom applications, including their Name, Description, and Application Type.
After you have created a custom application table, you can customize its visual layout in MAXIMO using the Screen Editor (Object Nationalizer). You specify column definitions for the new application when you create it, but you can subsequently modify them using Database Configuration.

Custom Applications tables can have up to 107 columns. The first column becomes the key to the table. You grant access privileges on these tables using Signature Security, as with standard application tables.

![Figure 5.1 Applications Tab](image)
Creating a Custom Application Table

You can create stand-alone custom application tables for storing and retrieving data that is not usually kept by MAXIMO. For example, you can retain information specific to your company or organization and update it as necessary.

Once you create a custom application table, MAXIMO automatically creates the application's user interface, with a tab titled Main. Use the Screen Editor (Object Nationalizer) to customize the tab to make it appear and function like a regular MAXIMO application. You specify column definitions when you create the table; you can also modify those definitions later using Database Configuration.

To create a custom application table:

1. Choose Actions/Create Custom Application to display the Create Custom Application Table dialog box (Figure 5.2).
2. Enter the name of the custom application in the Application field.

Enter a description of the application in the adjacent Description field. This description will be the screen title of the application and the name listed on the MAXIMO Main Menu, under Custom Applications.

If your system has a partitioned database, choose a Database Storage partition.

NOTE: Do not assign the new custom application table the same name as a non-MAXIMO .EXE file or an existing MAXIMO .EXE file. For example, don't name a custom application table CALENDAR, since that could conflict with the Microsoft Windows CALENDAR.EXE file.

3. In the Column Definitions table window, the first row corresponds to the first column of the custom application table.

Click the Insert Row button and enter the name of the custom application table's first column in the Name field. This will be the key to your custom application table.

Fill in the remaining fields as needed for this key column: Type, Length, Scale, Positive, Nulls Allowed?, Null with Default, Default Value, Value List Name, Value List Type, Remark, DynaList Column Title, DynaList Sort Order. Check the status bar to see which fields are required.

4. Click the Insert Row button again and enter the name, type, length, and other definitions as appropriate for the second column. This column is used for the long description field.

5. Continue inserting columns as needed. The maximum number of columns is 107. Use the Delete Row and Undelete Row buttons if you need to delete or undelete columns you have inserted.
NOTE: You cannot modify column names, change the column sequence, or add or delete columns after the table has been created. Plan carefully. You may want to add a few extra columns when you create the table; you can hide the fields for the extra columns until you need them.

6. Click OK when you are finished inserting columns. MAXIMO asks you if you want to proceed. Click OK again and MAXIMO creates a custom application table with the columns you have defined, and an application screen on which you can view, insert, update, and delete data from this table.

7. When you exit Custom Applications, a message tells you that MAXIMO must be reset for the changes to take effect. You can do this now, in which case all MAXIMO modules and screens will be closed, or you can wait until you exit and restart MAXIMO for the changes to take effect.

8. Use the Screen Editor (Object Nationalizer) to design the custom application screen's main tab. Object Nationalizer lets you arrange and label the fields on a tab. If you want to redefine any of the table's column definitions, use Database Configuration.

Creating an Extra Application Table

An extra application table is directly associated with the corresponding main table in the regular MAXIMO application. For example, an extra application table lets you maintain more information on an inventory item, a piece of equipment, a company, and so on, than is provided by the regular MAXIMO application.

You customize the extra application's on-screen interface, just as you do with a standard custom application. Each extra application table has the same key as the primary table in the associated application, enabling you to maintain records in the extra application that are directly related to MAXIMO records. When you display a record in MAXIMO, you can open the extra application, if one exists,
by choosing Navigate/Application Extra Form Window (e.g., Inventory Extra From Window).

You can create one extra application for most MAXIMO applications; you can create two for Equipment.

When you create an extra application table, MAXIMO automatically creates the application's user interface, with a tab titled Main. Use the Screen Editor (Object Nationalizer) to customize the tab to make it appear and function like a regular MAXIMO application. You specify column definitions when you create the table; you can also modify those definitions later using Database Configuration.

**To create an extra application table:**

1. Choose Actions/Create Extra Application to display the Create Extra Table dialog box.

2. Select the extra table to create, then click on OK to display a second Create Extra Table dialog box.

   The name of the extra application table appears in the Application field.

   Enter a description of the application in the adjacent Description field. This description will be the screen title of the application and the name listed on the MAXIMO Main Menu, under Custom Applications.

   If your system has a partitioned database, choose a Database Storage partition.

3. In the Column Definitions table window, the first row corresponds to the first column of the extra application table. It contains the key from the primary table for which you are creating the extra table. This row is read-only.

   Click the Insert Row button and enter the name for the second column, which is used as the description field, with long description functionality. Fill out the remaining fields as needed for this column: Type, Length, Scale, Positive,
Nulls Allowed?, Null with Default, Default Value, Value List Name, Value List Type, Remark, DynaList Column Title, DynaList Sort Order. Check the status bar to see which fields are required.

4. Continue inserting columns as needed. The maximum number of columns is 107. Use the Delete Row and Undelete Row buttons if you need to delete or undelete columns you have inserted.

NOTE: You cannot modify column names, change the column sequence, or add or delete columns after the table has been created. Plan carefully. You may want to add a few extra columns when you create the table; you can hide the fields for the extra columns until you need them.

5. Click OK when you are finished inserting columns. MAXIMO asks you if you want to proceed. Click OK again and MAXIMO creates an extra application table with the columns you have defined, and an extra application screen on which you can view, insert, update, and delete data from this table.

6. When you exit Custom Applications, a message tells you that MAXIMO must be reset for the changes to take effect. You can do this now, in which case all MAXIMO modules and screens will be closed, or you can wait until you exit and restart MAXIMO for the changes to take effect.

7. Use Centura the Screen Editor (Object Nationalizer) to design the extra application screen's main tab. Object Nationalizer lets you arrange and label the fields on a tab. If you want to redefine any of the table's column definitions, use Database Configuration.
Dropping a Custom Application Table

To drop a custom application table:

1. From Custom Applications, select the custom application you want to drop.
2. Choose Actions/Drop Custom Application to display the Drop Custom Application Table dialog box.
3. If you don't want to delete the application file along with the custom application table, uncheck the Delete Application File check box. The default is for the application file to be deleted.
4. **Verify** that you've selected the correct table to delete.
5. Click OK.
6. When you exit Custom Applications, a message tells you that MAXIMO must be reset for the changes to take effect. You can do this now, in which case all MAXIMO modules and screens will be closed, or you can wait until you exit and restart MAXIMO for the changes to take effect.

Launching a Custom Application

You can open or launch custom applications in several ways, depending on the type of application and where you are in MAXIMO.

**Launch any custom application from Custom Applications:**

- From the Applications tab, select the application you want to open and Choose Actions/Launch Selected Custom Application.

  OR

- Click the Detail button in the Name, Description, or Application Type field of the application you want to open.
Launch any custom application from within any MAXIMO application:

- Go to the Application Bar or MAXIMO Main Menu, click on Custom Applications, and choose the application you want to open.

Launch an extra table application from within its associated MAXIMO application:

- From the parent MAXIMO application, go to the Navigate menu and select the applicable Extra Form Window.

  If an extra table application does not exist, the Extra Form Window menu item is grayed out.
CHAPTER 6

APPLICATION SETUP

OVERVIEW

You use Application Setup to:

- Customize the MAXIMO Main Menu.
- Create and assign value lists.
- Set a variety of defaults for other MAXIMO applications.
- Specify which records an application can access, and in what order they are accessed.
- Clone an application.

Application Setup Tabs

- **Module** – To customize the Main Menu and clone an application.
- **Value Lists** – To create, edit, assign, and drop value lists.

Both tabs have items on the Actions menu for setting MAXIMO defaults for Work Order Tracking, Equipment, Inventory Control, and other applications.
THE ACTIONS MENU AND MAXIMO ONLINE HELP

Most of the Actions menu items open dialog boxes that are used to specify default settings in Work Orders, Inventory, Equipment, Purchasing, and other applications. For information on these menu items and how to use the dialog boxes, refer to the MAXIMO online Help for Application Setup. You can access a topic by selecting the appropriate “How Do I ...” topic or by clicking Help in the dialog box. In the “How Do I ...” lists below, the bulleted phrases represent the menu items.

Work Order Options: How do I specify ...
- Work Type Options
- Work Plan Save Options
- Work Priority Options
- Work Equipment and Location Options
- Work Plan Edit Options
- Problem Already Reported Options
- Actual Start Date Options

Inventory Options: How do I specify ...
- Default Costs
- Default ABC Breakpoints
- Reorder Options
- Lead Time Calculation
- Issues and Transfers Save Message
- Issues and Transfers Restrictions
- Item Assembly Structure Defaults

Other Application Options: How do I specify ...
- Currency Options
- Equipment Options
• Purchasing Options
• Invoice Options
• Location Options
• Preventive Maintenance Options
• Labor Reporting Options
• Meter Import Options
• Workflow Options
• AutoNumber Seeds
• Tax Options

**Actions Menu Items Discussed in This Chapter**

The following Actions menu items are discussed later in this chapter. They also have online help.

• Application Restrictions
• Order By Clause
• Move Application
• Show All Value Lists
• Create Value List
• Drop Value List
• Assign and Deassign Value Lists
• Change Value List Type

**MODULE TAB**

You use the Module tab (Figure 6.1) to customize the position of module icons and menu items on the MAXIMO Main Menu and the Application Bar. You also use it to clone MAXIMO applications. Using the Actions menu, you can set various MAXIMO defaults, restrict the records an application can access, and specify the order in which they are accessed.
NOTE: When you choose View/Module List or click the View List toolbar button, the View List dialog box displays the modules in MAXIMO. These include modules named HIDDEN and MXE, which are both hidden and do not appear on the Modules menu. HIDDEN is used for hiding applications, as described later in this chapter. MXE comprises a number of Java components used by MAXIMO that are related to regular MAXIMO applications. For example, there is a PO application in the Purchasing Module and a CPO Purchase Orders Component in the MXE module. In customizing MAXIMO, you should ignore the MXE module and the "component" applications it contains.

Figure 6.1 Module Tab
Changing Main Menu Icon Positions and Application Bar Module Sequence

The logic for defining module positions on the Application Bar derives from a row/column format used for the Main Menu with the older screen look. If you are using the “4i look” (the default), you can temporarily switch to the older look to see the relationships. To do this, edit the [4iLook] section of your MAXIMO.INI file so that ENABLE4iLOOK and DEFAULTMAINMENU are both set to 0; then restart MAXIMO. See the [4iLOOK] section of Appendix B for more information. Change the settings to 1 to return to the 4i look.

To change the position of a module icon on the Main Menu and its sequence on the Application Bar:

1. Choose View/Module List or click the View List toolbar button and select the module whose position you want to change.

2. Enter the new values in the Row and Column fields. Row 0 is the first row. Column 0 is the first column. You can add rows and columns beyond those appearing on the Main Menu when MAXIMO is installed. You cannot specify an icon position that is already occupied.

For example, if you want to switch the positions of the Work Orders and Equipment icons, you must first move one of them, e.g., Work Orders, to a fourth row or fifth column. You can then move Equipment to the former Work Orders position and Work Orders to the former Equipment position.

The Application Bar displays module icons in a top to bottom sequence corresponding to reading the Main Menu left to right, row by row: row/column 0/0, 0/1, 0/2, 0/3, 1/0, 1/1, etc. No gaps are displayed. If you hide a module (explained later in this chapter), the modules after it in the sequence each move one position to fill in the gap. However, their row/column values do not change.
For example, if you hid module 0/3, module 1/0 would move up and take its position in row 0 on the Main Menu even though its row/column value remained 1/0. The modules after 1/0 in the sequence would similarly each move one position in the display sequence. If you insert a fifth column by inserting a new module at 0/4, for example, then all the modules will move up in the display sequence to form rows of five modules. Therefore, you cannot assume a module’s row/column value by looking at the screen; you must look at the values on the Modules tab.

The gap closing behavior occurs even when modules are hidden automatically. A module is hidden automatically if your site is not licensed for any of the applications in that module, and also if, in Signature Security, users are not granted privileges for any of the applications in a module.

3. Save the record and close Application Setup. Choose to reset MAXIMO when prompted, or wait until you exit and restart MAXIMO for the changes to take effect.

**Customizing a Module Menu**

To change the position or name of an application on the pop-up menu of a Main Menu icon:

1. Choose View/Module List or click the View List toolbar button and select the module whose menu you want to change.

2. In the Menu Position column of the Applications table window, enter new sequence value for the application involved. The first line on a pop-up menu is position 0.

   You must initially give the first application you re-sequence a higher number than any existing ones. For example, to switch the position of the first two applications in a module with four applications, change 0 to 4, 1 to 0, then 4 to 1.
3. Edit the application's Description field as needed. MAXIMO uses the text in the Description field as the name of the application on the pop-up menu, and on the title bar of the application.

4. Save the changes and close Application Setup. Choose to reset MAXIMO when prompted, or wait until you exit and restart MAXIMO for the changes to take effect.

Creating a New Module

You can create new modules on the Main Menu to include new applications. To create a new module:

1. Choose Insert/New Module.

2. In the MAXIMO Module field, enter a name for the module. Press Tab and enter a description in the Description field. The description text will be the name used on the Main Menu and the Application Bar.

3. Fill in the Main Menu Row # and Column # fields to indicate where you want the new module to appear on the Main Menu.

4. In the Applications table window, create at least one application (see Cloning an Application for information).

5. Save the record and close Application Setup; choose to reset MAXIMO now or wait until you exit and restart MAXIMO.

To associate an icon with this module name on the MAXIMO Main Menu (not applicable if you are using the 4i Look), create or copy an existing bitmap file and place it in your MAXIMO folder— the folder from which you are running MAXIMO. Name the bitmap file the same as the new module, but with a .BMP extension. These steps are explained in greater detail below.

To incorporate a new bitmap with the standard MAXIMO button image, perform the following steps:
1. MAXIMO icon and bitmap files are contained in Iconbmp.exe, a self-extracting zip file in your MAXIMO folder. If you have not already done so, extract these files by double-clicking ICONBMP.EXE.

2. Make a copy of the BLANK.BMP file, put it in your MAXIMO folder, and rename it with the name of the new module, e.g., NEWMOD.BMP if the module is named Newmod.

3. Using MS Paint or another bitmap editor, open the renamed .BMP file. You will see two side by side images of a button—the left image for the button when it is not pressed, and the right for when it is pressed. Each image is 80 x 80 pixels. The buttons do not have icons on them.

4. Using your bitmap editor, paste in the image from a custom bitmap (or simply draw an image) onto both buttons. Save your changes. MAXIMO treats green (RGB value 0,255,0) as a transparent color, allowing the Main Menu image to show through; therefore use this color green only as a background color.

**NOTE:** You do not have to use the BLANK.BMP file. If you do not want the button image and simply use another .BMP file for the new module icon, the size of the bitmap must be no larger than 80 x 160 pixels, or it will be clipped. Furthermore, MAXIMO will display the left 80 x 80 pixels when the icon on the Main Menu is not pressed, and the right 80 x 80 pixels when it is pressed, so you may want to duplicate the icon within the bitmap.

You can set up a different path for the bitmap file by editing your MAXIMO.INI file. In the [system] section, insert a BITMAPPATH line with the different path name; for example: BITMAPPATH=C:\BITMAPS.

To associate an icon with the name of the new module on the Application Bar (not applicable if you are using the 4i Look):

1. Copy an existing icon (.ICO) file from wherever you placed your MAXIMO bitmap and icon files (see the preceding Step 1, above) and put it into your MAXIMO folder (the folder from which you are running MAXIMO).
NOTE: To create your own .ICO file you need a program such as MicroAngelo 98 by Impact Software.

2. Rename the .ICO file with the same name as the new module, e.g., NEWMOD.ICO.

NOTE: You cannot change the icon associated with a newly created application. It will be the same as for the application from which the new application was cloned.

Moving an Application to Another Module

Use the Move Application dialog box to move an application from one module to another.

1. Choose View/Module List or click the View List toolbar button and select the module that contains the application you want to move.

2. In the Applications table window, highlight the application and choose Actions/Move Application to display the Move Application dialog box.

3. Click the Detail button in the Move To field and select the module.

4. Click OK.

5. Close Application Setup. Choose to reset MAXIMO when prompted, or wait until you exit and restart MAXIMO for the changes to take effect.

Hiding and Unhiding Applications

When you hide an application, the name of the application does not appear on any pop-up menu on the Main Menu or Application Bar.

Choose View/Module List and you will see that one of the listed modules is named HIDDEN. This hidden module is not visible on the Main Menu.
To hide an application, move it to the HIDDEN module.

To unhide a hidden application, move it from the HIDDEN module to a visible module.

See Moving an Application to Another Module, above, for instructions on moving applications.

**Hiding and Unhiding Modules**

When you hide a module, the module icon does not appear on the Main Menu or Application Bar.

- You hide a module by assigning negative row and column positions to its icon. See Changing Main Menu Icon Positions, earlier in this chapter, for instructions on how to do this.

  Note that the HIDDEN module is assigned row -1 and column -1, so you cannot use that combination. For example, you can use row -1 and column -2.

- To unhide a module, assign it a row and column on the visible part of the screen.

  **WARNING:** Do not delete a module (Edit/Delete Module) unless you are certain you will never need the applications in the module. **MAXIMO** applications that are deleted with the module will no longer function properly or be registered correctly in Signature Security, even if the module is recreated. To remove modules and applications from the user interface, hide them as described above.
Cloning an Application

You can create a new application in MAXIMO by cloning an existing one. You can then modify the new one, using any of the customizing tools available with MAXIMO.

Cloning is, in general, nothing more than providing another way to access data from the original MAXIMO application. **The clone and the original application access the same database tables.** The clone has the same functionality as the original application because it accesses the same tables. The only difference is in how the system administrator modifies the screens and tabs, and whether or not there are restrictions on which records can be viewed. The tabs on the clone and the original can be modified to suit the needs of different groups of users.

**NOTE:** *You cannot clone non-MAXIMO applications.*

To create a new application by cloning:

1. From the Modules tab, click the View List toolbar button and select the module you want to contain the new application.

2. Insert a new row in the Applications table window. In the Name column, type in a database name for the new application.

3. Click the Detail button in the Original Application field and select the application you want to clone.

4. Type in a value in the Menu Position field to indicate the new application's position on the module's pop-up menu (used on the Main Menu and the Application Bar).

5. In the Description field, type in a description for the new application. The description will be the name used on the module's pop-up menu and on the new application's screen.
6. Save the changes and close Application Setup. Choose to reset MAXIMO now or wait until you exit and restart MAXIMO.

**WARNING:** Hiding fields in a cloned application that are visible in the original application can cause loss of data.

To improve performance on record retrieval, MAXIMO only retrieves database data for the visible fields on an application’s main tab. Hidden fields on that tab may contain no (NULL) data. However, when a record is saved, all fields are written to in the database, including the hidden fields with NULL values. Therefore, when cloning, you must be careful to prevent possible data loss as described below.

Both the clone and the original application use the same database tables. When you use a clone of an application, you may be retrieving and modifying existing records (records that have been entered in the original application). For example, in customizing the screen of a cloned application, you might hide fields in the cloned application but not hide them in the original application. When you save a record in the cloned application, hidden fields with NULL values will overwrite the existing data in the database saved by the original application.

To prevent this possible loss of data, you must add the fields you hide on the Main Screen in the cloned application to a special section in MAXIMO.INI with the heading [mainselect]. The following example shows how you would add three hidden fields (fEQ1, fEQ2, fEQ3) to the [mainselect] section of MAXIMO.INI for a clone of the Equipment application called EQCLONE:

```
[mainselect]
EQCLONE=+fEQ1, +fEQ2, +fEQ3
```

For more information on MAXIMO.INI and the [mainselect] section, see Appendix B.
Restricting the Records an Application Can Access

Use the Application Restrictions dialog box to enter a SQL WHERE clause to restrict the records an application can access.

You might use this feature, for example, to restrict the equipment records accessed by the Equipment application to those pieces of equipment at a particular site, e.g., BLDG1.

To restrict the records an application can access:

1. Choose View/Module List or click the View List toolbar button and select the module that contains the application.

2. In the Applications table window, highlight the application on which you want to place restrictions. Choose Actions/Application Restrictions or click the Application Restrictions toolbar button to display the Application Restrictions dialog box.

3. Enter a SQL WHERE clause in the dialog box. This is a multiline text field into which you type the appropriate information. The system automatically inserts the WHERE part of the clause, so you need not type in WHERE (if you do, the system ignores the repetition).

4. Click OK.

5. Save the changes and close Application Setup. Choose to reset MAXIMO when prompted, or wait until you exit and restart MAXIMO for the changes to take effect.

Specifying the Order in Which an Application Retrieves Records

Use the Order By Clause dialog box to enter a SQL ORDER BY clause to specify the order in which an application retrieves records.
You might use this feature, for example, to display equipment records in descending numerical order.

**To specify the order in which an application retrieves records:**

1. Choose View/Module List or click the View List toolbar button and select the module that contains the application.

2. In the Applications table window, highlight the application. Choose Actions/Order By Clause or click the Order By Clause toolbar button to display the Order By Clause dialog box.

3. Enter a SQL ORDER BY clause in the dialog box. This is a multiline text field into which you type the appropriate information. The system automatically inserts the ORDER BY part of the clause, so you need not type in ORDER BY (if you do, the system ignores the repetition).

4. Click OK.

5. Save the record and close Application Setup. Choose to reset MAXIMO when prompted, or wait until you exit and restart MAXIMO for the changes to take effect.

**Setting Up Multiple Base Currencies**

To use multiple base currencies in MAXIMO, you need to follow the setup guidelines below. This will ensure that all appropriate currencies and exchange rates will be in the system and that all affected applications will perform the correct calculations.

1. Go to the Currency Management application and enter new records as needed for the currency codes you plan to use for Base One and Base Two. For example, you might enter a new currency record for the euro (XEU), to be used for Base Two.
If you upgraded to this MAXIMO release, you already established a Base One Currency Code in a previous release or during the upgrade procedure, but you may need to create a new record for the currency you will use as Base Two.

**NOTE:** *An existing currency code can also be used as the Base Two Currency Code.*

2. Go to Application Setup, choose Actions/Currency Options. If you upgraded to this release, the Base One Currency Code should already be specified. Specify a Base Two Currency Code if not already specified.

   If you are a new MAXIMO user, specify both Base One and Base Two Currency Codes.

   Click the Help button on the Currency Options dialog box for more information.

3. In the Currency Management application bring up the record for the Base One Currency Code. In the exchange table window, enter the Base Two Currency Code in the Convert To column.

   For example, if FF is the Base One Currency Code and XEU (euro) is the Base 2 Currency Code: enter FF in the Convert From field, then enter XEU in the Convert To column. Enter valid active and expiration dates for XEU.

4. Exchange rates must be entered for each transaction currency to be converted to the Base Two Currency Code.

   For example, if Base One Currency Code is FF, Base Two Currency Code is XEU, and the transaction currency is DEM: retrieve the DEM record (so DEM is in the Convert From field), then enter XEU in the Convert To column in the table window. Enter valid active and expiration dates for XEU.
NOTE: You must enter the bilateral EMU exchange rate for conversion between EMU participating countries. These rates will have been irrevocably fixed on 1 January 1999.

NOTE: The bilateral exchange rate (cross-rate) between EMU participating countries will be entered in the EXCHANGE table in MAXIMO.

MAXIMO can now process transactions in two base currencies. You can create financial reports in both the Base One and Base Two Currencies.

VALUE LISTS TAB

You use the Value Lists tab (Figure 6.2) to create and maintain value lists and assign them to database table columns. A value list enables you to specify a list of valid values for a field. Using value lists saves data entry time and controls the data that users enter.

When you assign a value list to a table column, the corresponding field becomes a value list field in the application. Users display the value list by clicking the Detail button or using the right mouse button.
To view value lists:

- Choose View/Module List or click the View List toolbar button and select a module. By default MAXIMO displays the value lists associated with the first application in the module, including all its tables.

- You can click the Detail button in the Application field and choose another application, or click the Detail button in the Table field and select a single table. The Value Lists box displays the associated value lists.
• To see all the existing value lists in MAXIMO, choose Actions/Show All Value Lists. This option can be toggled on and off. A check mark appears in front of the menu item when MAXIMO is displaying all the value lists.

Click on a value list in the Value Lists box and MAXIMO displays the list in the Selected List field. The Type field shows the value list type (1, 2, 3, or 4). The Data Type, Length, and Scale fields show information about the list's column definition.

There are two kinds of value lists, standard and synonym. See Value List Types, below, for more information.

Most Actions menu items, referred to earlier, are also available from the Value Lists tab.

**Value List Types**

MAXIMO has two kinds of value lists: standard and synonym. For each kind, you can choose to show or not to show the description fields when you display the value list. MAXIMO categorizes these combinations into four "types."

Type 1: Standard, no description

Type 2: Standard, with description

Type 3: Synonym, no description

Type 4: Synonym, with description

To see the difference between standard and synonym value lists, look at a couple of examples. From the Value Lists tab, select any module, then choose Actions/Show All Value Lists.

• From the Value Lists box, select APPNAME. It fills just the left column of the box, and when you select it, the Values table window displays all the
values and descriptions, in this case the values for MAXIMO application names.

- Scroll down towards the end of the Values Lists box until you reach WOSTATUS. There are nine rows for the WOSTATUS synonym value list, each with a value to the right of WOSTATUS. The values, such as APPR, CAN, COMP, and WAPPR are used in reporting on the status of a work order. All synonym value lists are preset in MAXIMO.

You can create standard value lists (Types 1 and 2). See Creating a Value List, later in this chapter.

You cannot create synonym value lists (Types 3 and 4), but you can add synonyms for the values. Click on WOSTATUS CLOSE. The Values table window lists only CLOSE and its description. You can add synonyms for CLOSE by adding rows in the table window. See Adding Synonym Values to a Value List, later in this chapter, for more information.

### Showing All Value Lists

On the Value Lists tab, you must select a module (click the View List toolbar button) before MAXIMO displays any value lists. By default MAXIMO displays the value lists associated with the first application in the module, including all its tables.

You can click the Detail button in the Application field and choose another application, or click the Detail button in the Table field and select a single table. The Value Lists box displays the associated value lists.

**To see the complete set of MAXIMO value lists:**

- Choose Actions/Show All Value Lists. This option can be toggled on and off. A check mark appears in front of the menu item when MAXIMO is displaying all the value lists.
Creating a Value List

Use the Create Value List dialog box to create a new value list.

1. On the Value Lists tab, choose View/Module List or click the View List toolbar button and select any module.

2. Choose Actions/Create Value List to display the Create Value List dialog box.

3. Enter a name for the value list in the Value List field. Enter a description in the field to the right.

4. In the Type section, choose Type 1 to have the value list display only the values. Choose Type 2 to have it display values and descriptions. (You cannot create Type 3 or 4 value lists; they are supplied by MAXIMO.)

5. In the Data Type section, click the Detail button in the Data Type field and select a data type. Enter a Length and Scale as needed (depending on the data type, these may be preset). The data type must be the same as, and the length no longer than, the column to which you will assign the value list.

6. Click OK to return to the Value Lists tab. The Selected List field displays the name of the new value list.

7. In the Values table window, enter values and descriptions for the new list. Disregard the Default column.

8. Save the record.

See Assigning and Deassigning Value Lists, below, for instructions on assigning the value list to a table and column.
Assigning and Deassigning Value Lists

Use the Assign and Deassign Value Lists dialog box to specify the table columns (and thereby the fields) you want the value list to be used with. You can assign a value list to more than one column, and use it in multiple applications.

1. On the Value Lists tab, select a module and application.

2. Select the value list from the Value Lists box. You may need to choose Actions/Show All Value Lists to display the value list.

3. Choose Actions/Assign and Deassign Value Lists to display the Assign and Deassign Value Lists dialog box.

   The Value List field displays the selected list (you can select different value lists using the field’s drop-down list). The table window shows the tables and columns to which the selected list is currently assigned.

4. To **deassign** a value list, select the relevant table/column row and click Deassign.

5. To **assign** a value list, click Assign to display the Assign Value Lists dialog box, which lists tables and columns. You can filter by table: type in the name of a table in the MAXIMO Table field and click Refresh.

   Select the rows with the tables and columns you want and click OK. The tables and columns are now listed in the Assign and Deassign Value Lists dialog box. To add more tables and columns, click Assign again.

6. Click Save, then Close.
Changing a Value List Type

Use the Change Value List Type dialog box to change a value list so that it does or does not show the descriptions of the values.

1. On the Value Lists tab, select the value list from the Value Lists box. You may need to choose Actions/Show All Value Lists to display the value list.

2. Choose Actions/Change Value List Type to display the Change Value List Type dialog box.

3. If you selected a standard value list, click Type 1 (does not show the description) or Type 2 (shows the description).

   If you selected a synonym value list, click Type 3 (does not show the description) or Type 4 (shows the description).

You cannot change a standard value list (Types 1 and 2) to a synonym value (Types 3 and 4), or a synonym value list to a standard one.

See Value List Types, earlier in the chapter, for a discussion of the different types.

Adding Synonym Values to a Value List

You add a synonym value to provide an alternative term for a preset MAXIMO value. The synonym might be a translation, or it might be a term more appropriate for your facility. You can make the synonym the default. To add synonyms to a synonym value list (Types 3 and 4):

1. From the Value Lists tab, select the synonym value list from the Value Lists box.

   For example, if you select WOSTATUS CLOSE from the Value Lists box, CLOSE appears in the Values table window. Any existing synonyms for CLOSE would be listed below it in the table window.
2. Add synonyms by adding rows to the table window and entering the synonym values and descriptions. Enter Y or N (Yes/No) in the default columns. You can only have one default. To enter a Y you will have to change the Y to N for the previous default.

   **NOTE:** You cannot add synonym values to standard value lists (Types 1 and 2). You can add more values.

See Value List Types, earlier in the chapter, for a description of the different types.

### Dropping a Value List

Use the Drop Value List dialog box to delete a value list you have created. You cannot drop MAXIMO-defined value lists.

1. On the Value Lists tab, select a module and application.

2. Select the value list from the Value Lists box. You may need to choose Actions/Show All Value Lists to display the value list.

3. Choose Actions/Drop Value List to display the Drop Value List dialog box.

4. Check to make sure you selected the correct one, then click OK. MAXIMO warns you if the value list is still associated with columns. If you still want to drop it, click OK.
FIELD HELP

MAXIMO screens include context-sensitive, pop-up field help. You can customize screens, create new custom applications, and clone applications to fit your needs; and to accompany what you customize, you can design your own help.

When a user moves focus (places the cursor into a field and clicks) to a field and presses F1 or selects What’s This from the Right Mouse Button menu, a pop-up field help screen appears. Figure 6.3 shows the pop-up field help displayed for the Work Order field on the Work Order tab in Work Order Tracking.

To edit the current help, or to create new help for unhidden fields and for cloned and custom applications, you need to purchase the MAXIMO Help and Documentation Customization Kit. This kit includes the source files you will need to customize MAXIMO’s help.

The following is a summary of the steps involved:

1. Create a Help file. You can use a help authoring system or create Help directly in Microsoft .RTF files.

2. Using SQLTalk, modify the MAXHLP table in MAXIMO’s database to associate your help file with any or all of MAXIMO’s application screens or table windows.
Keep in mind the following if you create your own help:

- When you create the help file, the software you use should generate a map section in the project file, named `FILENAME.HPJ`. This section associates help topic context strings with a context number. You use this context number when you modify the MAXHLP table in the database.

- MAXIMO supplies field help for all visible fields. If you unhide fields using Object Nationalizer, you may want to include field help for them. In that case you could create an additional help file for just those fields you unhide.

The columns in the MAXHLP table are listed below:

- **APP** The executable file name of the application
- **WINDOW** The SQL.Windows name of the form. Use Object Nationalizer to find this name.
- **TWNAME** The child table window name (if applicable). Use Object Nationalizer to find this name.
- **CONTROL** The name of the object (field, push button, column, etc.) you want help for. Use Object Nationalizer to find this name.
- **HELPFILE** The file name of your help file. Do not use maxfield.hlp. It is the default.
- **TOPICNUM** The control number corresponding to the number in the .hpj file.
OVERVIEW

You use the Hyperlink application to create links between MAXIMO data fields and/or push buttons and other applications. You can then “launch” the other applications from within the MAXIMO application you are using. You can launch non-MAXIMO applications, referred to as user applications, as well as other MAXIMO applications.

In establishing a hyperlink, think in terms of the “launching” application and the “launched” application. The launching application is the MAXIMO application from which you set up the hyperlink to another application. The other application is “launched,” or opened, by the launching application.

If you create a hyperlink to one of your MAXIMO applications (including custom applications), you can copy data from a field on the launching application to a field on the launched application. Using Return With Selection, you can copy data from the launched application to the launching application.

If you hyperlink to a user application, you can copy data from the MAXIMO application to the user application. The user application is responsible for reading a command line and processing the data. You cannot automatically bring back data from user applications to MAXIMO applications.
Hyperlink Tabs

The Hyperlink application has one tab:

- **Hyperlink** – To set up the links between launching applications and the applications they launch.

**HYPERLINK TAB**

Use the Hyperlink tab (Figure 7.1) to establish the link between the application you want to launch and the MAXIMO application from which to launch it.

![Figure 7.1 Hyperlink Tab](image)

132
Creating a Hyperlink

To create a hyperlink, perform the following steps:

1. In the Hyperlink application, choose Insert/New Hyperlink. Click the Detail button in the MAXIMO Application field and select the application and tab from which you want to launch another application.

   **NOTE:** The database names for tabs generally use MAINSCREEN for an application's first tab. The list of applications includes some temporary ones that are being used for development of the MAXIMO Java product. These listed items have a C in front of a standard MAXIMO application name. For example, there is a Purchase Orders application listed (PO) and a Purchase Orders Component listed (CPO). Do not use the Java-related items beginning with “C.”

2. The launching object is the data field or push button from which you want to launch another application. In the Object Type group box, select Data Field or Push Button.

3. In the Object field, enter the name of the MAXIMO data field or push button. To obtain names, see the following section, Finding a Field or Push Button Name, which describes how to do this using Centura Object Nationalizer. You can launch Object Nationalizer by clicking the Detail button in the Object field.

   **NOTE:** To use a push button, you would first use Object Nationalizer to unhide it on the tab of the launching application, then position the button on the tab and change its name to indicate its function. See Chapter 3, “Object Nationalizer Screen Editor,” for more information.
4. Specify the Hyperlink type (the type of application you want to launch):

   - Click the MAXIMO Application radio button to launch one of your MAXIMO applications, including any you created using Custom Applications.

   - Click the User Application radio button to launch all other applications, e.g., word-processing, graphics, etc.

5. To use the hyperlink to launch one of your MAXIMO applications, fill in the appropriate items under MAXIMO Application:

   - Click the Detail button in the Application to Launch field and select the application you want to launch.

   **NOTE:** The list of applications in the table window includes some temporary ones that are being used for development of the MAXIMO Java product. These listed items include the word “component” or “context.” You should ignore them. For example, there is a Purchase Orders application listed and a Purchase Orders Component listed. Do not hyperlink to a “component” type application.

   - If you want to copy data from the launching application to the launched application, follow these steps:

     a. In the Source Data Field, type in the field name for the data field in the launching application.

     b. In the Target Data Field, fill in the field name of the data field in the launched application.

     To find field names, see the following section, Finding a Field or Push Button Name.

     If you do not want to copy data, leave the Source and Target Data Fields blank.
If you want to open the dynamic View List dialog box in the launched application, enter the complete SQL Select statement in the Value List SQL Statement box. This SQL statement will be executed when you launch the application.

For example, the select statement for opening the Preventive Maintenance dynamic View List dialog is:

```
Select PMNUM, DESCRIPTION Into :cDyKEY, :cDyDESC From PM
```

You can specify up to fourteen additional columns: cDyCOL1, cDyCOL2, cDyCOL3, etc. through cDyCOL14.

6. To use the hyperlink to launch a user application (i.e., a non-MAXIMO application), fill in the appropriate items under User Application:

- In the Application to Launch field, enter the path for the user application. To search for the executable, click the Detail button. Select the application executable and click Open to insert the path.

- Under Parameters, you can select Default, or User-Defined, or both. The default parameters are: database name, schema name, schema password, login user name, login password.

- If you choose User-Defined, fill in the parameters in the accompanying field. You can use text strings and/or refer to one or more data fields from the launching tab by using their field names (for example: fMSDSNUM".DOC"). Parameters other than field and column names must be enclosed in double quotes.

MAXIMO passes the Where clause and schema name to a .PRM file in the SQRSPool folder specified in MAXIMO.INI (SPL is the default). You can customize the user application so that it uses the Where clause data in the .PRM file to obtain the result set from the launching application. The schema parameter can be used to view a specific schema in the database.
7. Save your changes. You must reload the data dictionary before the new hyperlinks will function. Choose Actions/Reload Data Dictionary or wait until you exit and restart MAXIMO, when reloading is automatic. If you reload the data dictionary now, all MAXIMO applications will be closed.

After you reload the data dictionary, you can test your hyperlinks. If the Launching Object is a field without a Detail button, MAXIMO adds a Detail button that launches the application. If the Launching Object is a field with an existing Detail button, you must click in the field with the right mouse button and select Hyperlink.

**NOTE:** MAXIMO’s preset hyperlinks to key fields (unique identifiers) will insert the value into the key field and query it. Custom hyperlinks to key fields will insert the value but will not query the record.

**Finding a Field or Push Button Name**

**To Find a Field or Push Button Name Using Object Nationalizer:**

The quickest way to access Object Nationalizer (in the Utilities module) is to use the hyperlink on the Hyperlink tab:

1. Click the Detail button in the Object field to open Object Nationalizer's main window.

2. Choose File/Open, select the application containing the field or push button you want, and click Open.

3. In the left window, expand and scroll down the folder tree to display the items in the application's Windows folder. Most MAXIMO tabs in Object Nationalizer have the prefix frm (e.g., frmCOMPANY). Some do not (e.g., Work, for the Work Order tab).

4. Select the tab containing the field or push button you want, and click the Layout tab at the bottom of the right window. Object Nationalizer displays
the form in the right window. Use the Layout menu at the top of the screen for the following tasks:

- Choose Layout/Preview Window to display the whole form. Use the Right Mouse Button menu to turn Preview Window off.
- To find a hidden field or push button, choose Layout/Show Hidden Windows.

5. To find a field name or push button name, double-click the field or button and choose Object Name.

**To Find a Field Name Using the Set Field Defaults Dialog Box:**

1. Open the application and tab on which the field occurs.
2. Put the cursor in the field and choose Setup/Set Field Defaults. The Field Name field shows the name.

**NOTE:** Typically, only the system administrator (user SYSADM) has menu privileges for Set Field Defaults, unless he or she grants this privilege to other users in Signature Security.
CHAPTER 8

VALIDATION AND FORMATTING

OVERVIEW

In customizing your system, you will probably want to specify how MAXIMO displays certain kinds of data—such as date, time, and numeric values—that are controlled by Windows settings. This section describes what kinds of data are involved and what some of the options are. It also describes how MAXIMO validates entries, and it gives examples of what MAXIMO displays when data are entered.

Formatting of all data fields and columns is based on the MAXIMO data type as found in the data dictionary:

- DATE
- DATETIME
- TIME
- INTEGER
- SMALLINT
- FLOAT
- DECIMAL
- AMOUNT
- DURATION
- ALN
Formatting Configured in WIN.INI

Formatting information is maintained by the Control Panel’s Regional Settings application (CPRS). This information is stored in the Windows registry or the [Intl] section of WIN.INI.

Selecting the Regional Settings icon from the Control Panel displays the Regional Settings Properties dialog box, which includes the following tabs: Regional Settings, Number, Currency, Time, and Date. To change formats, click the appropriate tab to display the options. Specify the desired formats. Click Apply, then OK.

NOTE: Making changes using the Control Panel’s Regional Settings application affects all Windows applications, not just MAXIMO.

Formatting Configured in MAXIMO.INI

Some formatting characteristics specified in the Control Panel’s Regional Settings application can be overridden by entries in the [formats] section of MAXIMO.INI. In the current release, these are limited to date/time formatting characteristics.

Characteristics of Formatting

- Formats are global.

Except for formats defined in MAXIMO.INI, which apply only to MAXIMO, formatting for each data type defined in the Control Panel will be global and apply to every instance of that data type across all MAXIMO and other
Windows applications. This means, for instance, that if amount formats are configured to be displayed with the $ currency symbol, every amount field throughout MAXIMO will use this format. All Windows applications will be affected.

- Application formats and input masks are ignored.
- For the current version of MAXIMO, all formats and input masks specified through Centura Object Nationalizer will be ignored.
- Display formats vs. on-entry formats

Date, date/time, and all numeric formats are displayed differently depending on whether a field is the current field. In general, on-entry/input formats (the format displayed when the field is current, i.e., the cursor is in the field) are shorter in order to simplify input; display formats are expanded with such things as currency symbols, full month names, zero-padding, and so on.

### FORMATTING OF NUMERIC FIELDS

Numeric formatting is primarily based on entries set on the Number tab in the Control Panel’s Regional Settings application:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decimal symbol</td>
<td>A single character decimal separator; the default is “.”</td>
</tr>
<tr>
<td>No. of digits after decimal</td>
<td>MAXIMO does <strong>not</strong> use this setting for numeric fields. In MAXIMO the number of decimal digits for each decimal field is specified using Database Configuration. This allows different numbers of decimal digits for different fields.</td>
</tr>
<tr>
<td>Digit grouping symbol</td>
<td>The symbol used to separate digit groups: for example, the “,” in 1,000. Since we usually group</td>
</tr>
</tbody>
</table>
by thousands, we refer to this as a **thousands separator**.

- **No. of digits in group**
  - The number of digits you want grouped. The default, 3, groups by thousands. If you do not want a separator, choose 0.

- **Negative sign symbol**
  - The symbol used for negative numbers. The default is “-”.

- **Negative number format**
  - Five formats are available.

- **Display leading zeroes**
  - Specifies whether a leading zero is displayed for decimal values.

You can use Database Configuration to specify that particular numeric data fields in MAXIMO are positive. Range checking will verify that the input is positive.

The following sections discuss formatting and validation for the numeric data types used in MAXIMO.

### Integers and Smallints

Integers and Smallints are numbers with no fractional portion. Smallints are two-byte values, integers are four-byte values.

**On-Entry Format**

Enter digits and sign only; the thousands separators are not required, but may be entered.

**Display Format**

If a thousands separator is specified in the Control Panel’s Regional Settings application (CPRS), then values will be displayed with that separator.
Validation

If you enter a decimal and digit(s) to the right of the decimal, these values will be rounded.

Range Validation

SMALLINTS must be between -32768 and +32767

INTEGERS must be between -2147483648 and +2147483647

☑️ Examples

<table>
<thead>
<tr>
<th>CPRS Settings</th>
<th>Enter</th>
<th>After Leaving Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thousands Separator = ,</td>
<td>123456</td>
<td>123,456</td>
</tr>
<tr>
<td>Decimal Symbol = .</td>
<td>56.789</td>
<td>57</td>
</tr>
<tr>
<td>Thousands Separator = .</td>
<td>-123456</td>
<td>-123.456</td>
</tr>
<tr>
<td>Decimal Symbol = ,</td>
<td>56,789</td>
<td>57</td>
</tr>
</tbody>
</table>

Floats

Floats are numbers with fractional portions that have variable precision.

On-Entry Format

Enter digits, sign, and decimal symbol as specified in the CPRS. The thousands separator is not required, but may be entered. All trailing zeroes are dropped.

Display Format

Thousands separators and leading zeroes are added if specified in the CPRS. At least one digit to the right of the decimal is displayed. All other trailing zeroes are dropped.
Validation

If you enter more digits than the maximum precision allowed by the database, those digits will be rounded.

Range Validation

The absolute value of any float must be less than $10^N$ where $N =$ the maximum precision allowed by the database.

✓ Examples

<table>
<thead>
<tr>
<th>CPRS Settings</th>
<th>Enter</th>
<th>After Leaving Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thousands Separator = ,</td>
<td>1234</td>
<td>1,234.0</td>
</tr>
<tr>
<td>Decimal Symbol = .</td>
<td>-1.234</td>
<td>-1.234</td>
</tr>
<tr>
<td>Leading Zero = 1</td>
<td>.00200</td>
<td>0.002</td>
</tr>
<tr>
<td>Thousands Separator = .</td>
<td>1234</td>
<td>1.234,0</td>
</tr>
<tr>
<td>Decimal Symbol = ,</td>
<td>-1,234</td>
<td>-1,234</td>
</tr>
<tr>
<td>Leading Zero = 0</td>
<td>,00200</td>
<td>,002</td>
</tr>
</tbody>
</table>

Decimals

Decimals are numbers with an integer portion and a fractional portion that consists of a fixed number of digits called the *scale*. A database column defined as decimal (10,2) will have a scale of 2, meaning two digits to the right of the decimal and eight digits to the left.

On-Entry Format

Enter digits, sign, and decimal symbol as specified in the Control Panel’s Regional Settings application. The thousands separator is not required, but may be entered. All trailing zeroes are dropped.
**Display Format**

Thousands separators and leading zeroes are added, if they are specified in the CPRS. The value will be zero-padded to fill in additional digits to the right of the decimal, as specified by the field’s scale.

**Validation**

If you enter more digits to the right of the decimal than the column’s scale, those digits will be rounded.

**Range Validation**

Absolute values larger than can fit in the non-fractional portion will cause validation errors. For instance, in a field associated with a database column defined as decimal (6,2), only four digits to the left of the decimal are allowed—in this case, the number 12345 will not be valid.

**Examples**

The following examples assume a field defined as decimal (10,3).

<table>
<thead>
<tr>
<th>CPRS Settings</th>
<th>Enter</th>
<th>After Leaving Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thousands Separator = ,</td>
<td>1234</td>
<td>1,234,000</td>
</tr>
<tr>
<td>Decimal Symbol = .</td>
<td>-1.234</td>
<td>-1.234</td>
</tr>
<tr>
<td>Leading Zero = 1</td>
<td>.2</td>
<td>0.200</td>
</tr>
<tr>
<td></td>
<td>1.23456</td>
<td>1.235</td>
</tr>
<tr>
<td>Thousands Separator = .</td>
<td>1234</td>
<td>1,234,000</td>
</tr>
<tr>
<td>Decimal Symbol = ,</td>
<td>-1,234</td>
<td>-1,234</td>
</tr>
<tr>
<td>Leading Zero =0</td>
<td>,2</td>
<td>,200</td>
</tr>
<tr>
<td></td>
<td>1,23456</td>
<td>1,235</td>
</tr>
</tbody>
</table>
## Amounts

In MAXIMO, amounts are an extended data type. The database columns are defined as DECIMAL in Syscolumns and as AMOUNT in Maxsyscolumns. Like decimals, they have an integer portion and a fixed fractional portion (scale). Formatting information for AMOUNT fields is obtained from the entries on the Currency tab in the Control Panel’s Regional Settings application. In addition to format options for decimals and groupings (e.g., thousands separators), the Currency tab allows you to specify the currency symbol, the symbol position, and the format for negative amounts:

<table>
<thead>
<tr>
<th>Currency symbol</th>
<th>You can use up to five characters to define a currency symbol.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position of currency symbol</td>
<td>Example: Using $ as the symbol and 123.22 as the amount, one of the following:</td>
</tr>
<tr>
<td>$123.22</td>
<td>123.22$</td>
</tr>
<tr>
<td>123.22$</td>
<td>$ 123.22</td>
</tr>
<tr>
<td>$123.22</td>
<td>123.22 $</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative number format</th>
<th>Example: Using $ as the symbol and 123.22 as the amount, one of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>($123.22)</td>
<td>-$123.22</td>
</tr>
<tr>
<td>-$123.22</td>
<td>$-123.22</td>
</tr>
<tr>
<td>$123.22-</td>
<td>(123.22$)</td>
</tr>
<tr>
<td>$123.22-</td>
<td>-123.22$</td>
</tr>
<tr>
<td>-$123.22</td>
<td>123.22-$</td>
</tr>
<tr>
<td>123.22-$</td>
<td>$123.22-$</td>
</tr>
<tr>
<td>-123.22 $</td>
<td>-$ 123.22</td>
</tr>
</tbody>
</table>
**Validation and Formatting**

```
123.22 $-
$ 123.22-
$ -123.22
123.22- $
($ 123.22)
(123.22 $)
```

**On-Entry Format**

Enter digits, sign, and decimal symbol as specified in the CPRS; no thousands separators or currency symbols are required, but they may be entered. All trailing zeroes are dropped.

**Display Format**

Thousands separators, leading zero, and currency symbol are added as specified in the CPRS. The value will be zero-padded to fill in additional digits to the right of the decimal, as specified by the field’s scale. For positive amounts, the symbol placement is used. For negative amounts, the negative symbol placement is used.

**Validation**

Validation is the same as for a decimal field with the exception that extra digits to the right of the decimal cause validation errors.

**Examples**

The following examples assume an amount (10,2) field.

<table>
<thead>
<tr>
<th>CPRS Settings</th>
<th>Enter</th>
<th>After Leaving Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbol = $</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symbol Position = $123.22</td>
<td>1234</td>
<td>$1,234.00</td>
</tr>
<tr>
<td>Negative = ($123.22)</td>
<td>-1.23</td>
<td>($1.23)</td>
</tr>
<tr>
<td>Thousands Separator = ,</td>
<td>.2</td>
<td>$0.20</td>
</tr>
</tbody>
</table>
Decimal Symbol = . 1.234 invalid
Leading Zero = 1

Symbol = DM
Symbol Placement = 1 DM 1234 1.234,00 DM
Negative = -123.22 DM -1,23 -1,23 DM
Thousands Separator = . ,2 ,20 DM
Decimal Symbol = , 1,234 invalid
Leading Zero = 0

**NOTE:** Oracle and SQL Server allow a precision of over 30 digits (refer to product-specific documentation for exact limits).

**FORMATTING OF DATE/TIME FIELDS**

MAXIMO obtains date/time formats from the Date and Time tabs in the Control Panel’s Regional Settings application.

**Short Date and Long Date**

Short date formats and long date formats are specified on the Date tab in the Control Panel’s Regional Settings application. To see some of the possible formats, click on the drop-down arrows in the Short date style and Long date style fields. Consult Windows field help for these two fields for further explanation (place the cursor in the field and press the F1 key).

<table>
<thead>
<tr>
<th>✓ Examples</th>
<th>Short Date Format</th>
<th>Long Date Format</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3/7/01</td>
<td>Monday, March 7, 2001</td>
</tr>
<tr>
<td></td>
<td>3-7-01</td>
<td>Mon, Mar 07, 01</td>
</tr>
<tr>
<td></td>
<td>7/3/2001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>07-03-01</td>
<td></td>
</tr>
</tbody>
</table>
Date/Time Format Specifiers

Some of the date/time format specifiers are listed below. Consult Windows Field Help for the Date and Time tabs in the Control Panel’s Regional Settings application for more information (place the cursor in the field and press the F1 key).

<table>
<thead>
<tr>
<th>Specifier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>yy</td>
<td>Year: 2-digit</td>
</tr>
<tr>
<td>yyyy</td>
<td>Year: 4-digit</td>
</tr>
<tr>
<td>M</td>
<td>Month: 1-12 (without leading zero)</td>
</tr>
<tr>
<td>MM</td>
<td>Month: 01-12 (with leading zero)</td>
</tr>
<tr>
<td>MMM</td>
<td>Month: Jan-Dec (abbreviated name)</td>
</tr>
<tr>
<td>MMMM</td>
<td>Month: January-December (full name)</td>
</tr>
<tr>
<td>d</td>
<td>Day: 1-31 (without leading zero)</td>
</tr>
<tr>
<td>dd</td>
<td>Day: 01-31 (with leading zero)</td>
</tr>
<tr>
<td>ddd</td>
<td>Day: Sun-Sat (abbreviated name)</td>
</tr>
<tr>
<td>dddd</td>
<td>Day: Sunday-Saturday (full name)</td>
</tr>
<tr>
<td>h</td>
<td>Hour: 1-12 (12-hour clock)</td>
</tr>
<tr>
<td>hh</td>
<td>Hour: 01-12 (12-hour clock)</td>
</tr>
<tr>
<td>H</td>
<td>Hour: 1-24 (24-hour clock)</td>
</tr>
<tr>
<td>HH</td>
<td>Hour: 01-24 (24-hour clock)</td>
</tr>
<tr>
<td>mm</td>
<td>Minute: 00-59</td>
</tr>
<tr>
<td>ss</td>
<td>Second: 00-59</td>
</tr>
</tbody>
</table>

NOTE: Format specifiers are case-sensitive. MM-dd-yy (month, day, year) is not the same as mm-dd-yy (minutes, day, year).

YMD Order

The YMD order of a date format is the order in which the year, month, and day format specifiers occur. This corresponds to the order setting in the CPRS.
In determining the YMD order, MAXIMO ignores the format specifiers “ddd” and “dddd”, which specify spelled-out days of the week, e.g., Mon or Monday.

### RULES AND METHODS FOR DATE/TIME FORMATTING

#### Short Date Validation

During startup, the short date format in the Control Panel’s Regional Settings application is loaded into MAXIMO and validated as a legal Centura format. If the short date format is invalid, MAXIMO will give you a message, log the information, and abort initialization.

All date parsing depends on the short date format; therefore, it is necessary that this format be valid.

#### Long Date Validation

During startup, the long date format in the Control Panel’s Regional Settings application is loaded into MAXIMO and validated. If the entry is not a valid Centura date format, the short date format is used instead as the MAXIMO long date format.

(The default Finnish long date format is not considered a valid Centura date.)
On-Entry and Display Formats

MAXIMO uses separate on-entry and display date formats. By default, both the on-entry date format and the display date format are the short date format. You can specify the long date format as the default display date in MAXIMO.INI, as described in the next section.

Years 1999 and earlier are always displayed with four digits, regardless of how the short date or long date styles are specified in the CPRS.

Overriding Default Date Formats in MAXIMO.INI

Entries in the MAXIMO.INI [formats] section can be used to override the default date formats. This is done by adding DateOnEntry= and DateDisplay= entries, using one of the following predefined values:

- SHORTDATE
- LONGDATE
- YYMMDD

✓ Examples

CPRS Short Date Format = M/d/yy
CPRS Long Date Format = MMM d, yyyy

MAXIMO.INI Interpreted As

<table>
<thead>
<tr>
<th>[formats]</th>
<th>Interpreted As</th>
</tr>
</thead>
<tbody>
<tr>
<td>DateOnEntry=SHORTDATE</td>
<td>M/d/yy</td>
</tr>
<tr>
<td>DateDisplay=SHORTDATE</td>
<td>M/d/yy</td>
</tr>
</tbody>
</table>

MAXIMO.INI Interpreted As

[formats]
DateOnEntry=YYMMDD = yyMMdd
DateDisplay=LONGDATE = MMM d, yyyy

(LONGDATE may be used only for DateDisplay=)
In addition, any valid format whose YMD order matches the CPRS short date YMD order can also be used. For instance, the following formats are considered valid by MAXIMO:

CPRS Short Date Format = M/d/yy

MAXIMO.INI
[formats]
DateOnEntry=MM/dd/yy
DateDisplay=MMM dd yyyy

However, the following is not considered valid because the DateOnEntry format’s YMD order is different from the CPRS short date YMD order.

CPRS Short Date Format = M/d/yy

MAXIMO.INI
[formats]
DateOnEntry=d-M-yy

Whenever an invalid format is specified for either the DateOnEntry or DateDisplay format, a message is displayed (and logged), and the short date format is substituted.

These settings affect the display of all date and date/time fields across all MAXIMO applications.

Nonseparated German Format YYMMDD

There are special constraints regarding the nonseparated German format, YYMMDD, which apply to both DateOnEntry and DateDisplay formats. The short date format in the Windows Control Panel’s Regional Settings application must have the same general ordering as the format specified in MAXIMO.INI—yy-M-d or yyyy-M-dd, for example, but not M-d-yy. MAXIMO will then ignore the Regional Settings short date and use YYMMDD instead.
**Time Formats**

Time formats are obtained from the Time tab in the Control Panel’s Regional Settings application. The Time tab has fields for Time style, Time separator, and AM and PM symbols. Consult Windows Field Help for information on formats (place the cursor in the field and press the F1 key). A colon (:) is the default Time separator.

**Conditional Display of Minutes, Seconds, and Microseconds**

Conditional display of minutes, seconds, and microseconds is controlled in MAXIMO.INI. By default, only hours and minutes are displayed. By using the time_minutes, time_seconds, and time_microsecs entries in the MAXIMO.INI [formats] section, minutes, seconds, and microseconds can be enabled or disabled. These settings affect display of all times and date/times within MAXIMO.

**Examples**

To disable minute display:

```ini
MAXIMO.INI
[formats]
time_minutes=N
```

To enable microsecond display:

```ini
MAXIMO.INI
[formats]
time_seconds=Y
time_microsecs=Y
```

Seconds will be used only if minutes are enabled (minutes are enabled by default). Microseconds will be used only if seconds are enabled.
MAXIMO will interpret four-digit time input as hhmm and will interpret three-digit time values as hmm. A colon (:) is the default time separator.

**Time Suffixes**

The on-entry and display time formats are the same for 12-hour clocks—you must specify AM or PM to obtain the correct time.

**Date/Time Formats**

Date/time on-entry and display formats are built by concatenating the appropriate date and time formats.

**Two-Digit and Four-Digit Years**

MAXIMO stores dates internally with all four digits. It uses the “century method” to resolve the year 2000 problem of deciding the century when a two-digit year is entered. By this method, MAXIMO uses two pieces of information to determine the century: the two digits entered in the MAXIMO field, and the last two digits of the current year. It resolves the question as shown in the following table.

<table>
<thead>
<tr>
<th>Last two digits of current year</th>
<th>Two-digit entry in the MAXIMO field</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>00-49</strong></td>
</tr>
<tr>
<td><strong>00-49</strong></td>
<td>current century</td>
</tr>
<tr>
<td><strong>50-99</strong></td>
<td>next century</td>
</tr>
<tr>
<td></td>
<td>previous century</td>
</tr>
<tr>
<td></td>
<td>current century</td>
</tr>
</tbody>
</table>
During the year 2001, if you enter a two-digit year ranging from 50 to 99, MAXIMO will interpret the year as 1950 to 1999. If you enter digits ranging from 00 to 49, MAXIMO will interpret the year as 2000 to 2049.

MAXIMO displays all 1900 year dates with four digits.

✅ **Examples**  
CPRS Short Date Format = M/d/yy and the current year is 2001

```ini
MAXIMO.INI
[formats]
    DateOnEntry=SHORTDATE
    DateDisplay=SHORTDATE
```

<table>
<thead>
<tr>
<th>Enter</th>
<th>Redisplay</th>
<th>Actual Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/22/02</td>
<td>6/22/02</td>
<td>June 22, 2002</td>
</tr>
<tr>
<td>7/25/51</td>
<td>7/25/1951</td>
<td>July 25, 1951</td>
</tr>
<tr>
<td>8/29/48</td>
<td>8/29/48</td>
<td>August 29, 2048</td>
</tr>
</tbody>
</table>

**Partial Dates**

A single number in a date or date/time field is interpreted as that day of the current month and year. If two numbers are entered, the first is interpreted as the day, the second as the month of the current year. If the day and month name are entered, the current year is used. For date/time fields, the default time used is 12:00 AM (00:00).

✅ **Examples**  
The LongDate format is MMMM d, yyyy, DateDisplay=LONGDATE in MAXIMO.INI, and you enter the following dates on June 16, 2001.

<table>
<thead>
<tr>
<th>Enter</th>
<th>Date Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>June 1, 2001</td>
</tr>
<tr>
<td>14</td>
<td>June 14, 2001</td>
</tr>
</tbody>
</table>
### Validation and Parsing of Dates

Not every date that is entered can be parsed. For instance, assume the following format and entry:

<table>
<thead>
<tr>
<th>Entry</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Jun 12</td>
<td>M/d/y</td>
</tr>
</tbody>
</table>

In this entry it is not clear which number is the year and which is the day. It is important that validation correctly interpret the input; therefore, validation will fail in cases where the input is ambiguous.

### Plus and Minus Keys in Date and Date/Time Fields

Pressing the plus key (+) or the minus key (-) causes the date currently displayed in the field to be incremented or decremented. If the field is blank, the current date is displayed first. Pressing the equal key (=) will also increment the date, except in query mode, where the equal sign is used as a SQL operator.

### QUERY MODE VALIDATION

Data validation and formatting in Query mode are available in MAXIMO.

If you enter one of the following SQL operators, the data that follows to the right will be formatted according to the rules described earlier:

```plaintext
<=  =<  >=  =>  !=  <>  <  >  =
```
Examples

The following examples assume the Currency Symbol is "$", the decimal symbol is ".", the number of digits after the decimal is two, the LongDate format is MMMM d, yyyy, DateDisplay=LONGDATE in MAXIMO.INI, and the current date is June 16, 2001.

<table>
<thead>
<tr>
<th>Field Type</th>
<th>Input</th>
<th>Reformatted Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount</td>
<td>&gt; 1</td>
<td>&gt; $1.00</td>
</tr>
<tr>
<td>Decimal</td>
<td>&lt;&gt; 12</td>
<td>!= 12.00</td>
</tr>
<tr>
<td>Date</td>
<td>&lt; 6/16/01</td>
<td>&lt; June 16, 2001</td>
</tr>
<tr>
<td>Date</td>
<td>&gt; 1</td>
<td>&gt; June 1, 2001</td>
</tr>
</tbody>
</table>

Characteristics of Query Mode Validation

- When an application goes into Query mode, all fields are expanded to allow entry of operators. When going into any other mode from Query mode, the fields are reset to their proper database size.
- If you enter only an operator, the field is cleared when you leave it.
- You can use the plus and minus keys to increment and decrement date fields, but the equal key can only be used as an operator.
- When you go into Insert mode from Query mode, you may choose to keep the data that you have already entered. If fields contain SQL operators, the operators will be deleted.
- The WHERE clause constructed by the query uses the internal SQL formats for dates, date/times, and times.
- Only single operators are supported.
OVERVIEW

Use Reports and Other Apps to register report writers and other applications—to tell MAXIMO what report writers and other applications exist, and how MAXIMO should run them. You also register individual reports and other application files.

MAXIMO 4i Release 4.1.1 uses SQR as its primary report writer. In addition, MAXIMO 4i uses the Crystal Reports report writer. To run the Crystal reports that are included in Release 4.1.1, you must have Crystal Reports Professional v. 8.0 and the MAXIMO 4i Release 4.1.1 Crystal Integration.

NOTE: Although MAXIMO uses SQR and Crystal Reports as its default report writers, you can register other report writers for use with MAXIMO. MRO Software, Inc., however, does not provide technical support for other report writers. You must contact the appropriate vendor.
Reports and Other Apps provides flexibility in how you set up MAXIMO to interface with the other applications:

- When you register a new report writer or application, you can indicate whether it should be run from a particular MAXIMO application or from all MAXIMO applications.

- You can register reports so that they display information based on the current record only, or on all selected records. Most reports can be run either way.

- You can specify any DOS or Windows program to display the report after it finishes running. MAXIMO's default report setup uses SQR Viewer. However, you may designate your preferred editor. Some reports output their data in spreadsheet format. For those reports you can run a spreadsheet or graphics program.

- You can register other applications, such as graphics packages, with MAXIMO and pass information to them. For example, you can register an equipment drawing package so that you can display a drawing for an equipment record.

- SQR and Crystal Reports have already been registered with the MAXIMO applications.

**Reports and Other Apps Tabs**

Reports and Other Apps has one tab:

- **Application** – To register report writers and other applications, as well as individual reports and application files.
APPLICATION TAB

Use the Application tab (Figure 9.1) to register report writers and other applications, as well as individual reports and application files. The tab displays a single report writer or other application record at a time—SQR, Notepad, or Paintbrush, for example—along with the files, if any, that are attached to that application. Choose View/Application List or use the View List button to see the list of applications currently registered with MAXIMO; then select the application record you want to view.

![Figure 9.1 Application Tab](image-url)
If the MAXIMO Application field is blank, you can access the report writer or other application from all MAXIMO applications. You can restrict the individual reports or application files listed in the Attached Files table window to specific MAXIMO applications, even if the report writer or other application runs from all MAXIMO applications.

SQR and Crystal Reports have already been registered with MAXIMO applications.

**Registering a Report Writer or Other Application**

To register a report writer or other application with MAXIMO:

1. From the Application tab, click the New button to insert a new record. Type the name of the application in the Application field. Enter its descriptive name in the description field to the right.

2. If you want the application to be accessible from all MAXIMO applications, leave the MAXIMO Application field blank. If you want to restrict its use to a specific MAXIMO application, click the Detail button in the MAXIMO Application field and select the application.

   **NOTE:** If you want the application to run with more than one, but not all, MAXIMO applications, you must register a “new” application (create a new record) for each MAXIMO application you want it to run with. That is, duplicate the record, but type a different entry in the MAXIMO Application field.

3. Click the Detail button in the Type field and select Other Application or Report Writer.

4. Enter the executable file name (and parameters, if appropriate) in the Application Command Line field (for example, MSPAINT.EXE {P1}). You may use Substitution Variables (described later in this chapter) in the command line. You may also use User Prompts.
5. If you want to attach files to a report writer application, you can do so using the Attached Files table window.

6. Save the record.

Registering an SQR Report or Other Application File

To register an SQR report or other application file:

1. Choose View/Application List and select a report writer or other application.

2. Insert a new row in the Attached Files table window and enter the file name of the report or other file in the File Name column.

3. In the MAXIMO Application column, enter the name of the MAXIMO application from which you want to run the report or other file.
   - If you want to be able to run the report or other file from all MAXIMO applications, leave this column blank.
   - If you want to run the report or other file from some, but not all, MAXIMO applications, you must insert a table row for each MAXIMO application that you want to run it from (for example, SQR's WOPRINT report is registered to several applications).

4. In the Description column, enter the full name or description of the report.

5. Specify the appropriate information in the Command Line column:
   - For non-SQR report writers, enter the parameters associated with the file identifier.
   - For SQR reports, this command specifies the program you run to display the report when you preview it (if you choose preview on the Report Options dialog box when you run the report). Enter the command to be executed after the report runs. For example, the following command will
display the WOPRINT report output in SQR Viewer (the default for SQR reports):

\[
\text{SQRWV \{SPOOL\} WOPRINT.SPF}
\]

\{SPOOL\} is replaced with the SQRW_SPOOL parameter specified in your MAXIMO.INI file. Do not type a space between \{SPOOL\} and the output file name. You may use substitution variables (described later in this chapter). Some reports output their data in spreadsheet format. For those reports you can run a spreadsheet or graphics program.

6. You can specify user prompts (described later in this chapter) if desired. Select Actions/Specify User Prompts and specify up to four prompts. The report or other file must contain the code that references the prompts.

7. For SQR reports, you can specify some defaults using the Specify Report Preferences dialog box. Select Actions/Specify Report Preferences to set these defaults.

8. Save the record. You can now run the report or application from the MAXIMO application(s) you specified. You can change registration specifications as needed.

**NOTE:** To register a Crystal report, see “Registering Reports in Your Database” in the MAXIMO 4i Crystal Integration Installation/Upgrade Guide.

**Substitution Variables**

The Application Command Line field and the Command Line column can contain special control variables that are replaced by real values at run-time. These variables are easy to find because they are surrounded by braces. All are listed below.
### Variable Description

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>{KEY}</td>
<td>The value of the current unique identifier on the current screen.</td>
</tr>
<tr>
<td>{APP}</td>
<td>The name of the current application.</td>
</tr>
<tr>
<td>{PATH}</td>
<td>The folder containing SQR report files.</td>
</tr>
<tr>
<td>{SPOOL}</td>
<td>The folder where SQR output is sent.</td>
</tr>
<tr>
<td>{P1} ... {P4}</td>
<td>Parameter values solicited from the user prior to execution of the report or program.</td>
</tr>
<tr>
<td>{DBNAME}</td>
<td>The database name of the current session.</td>
</tr>
<tr>
<td>{MAXIMONAME}</td>
<td>The schema name.</td>
</tr>
<tr>
<td>{USERNAME}</td>
<td>The logged-in MAXIMO user name (not MAXIMO).</td>
</tr>
<tr>
<td>{USERPW}</td>
<td>The logged-in MAXIMO user's password (not MAXIMO's password)</td>
</tr>
<tr>
<td>{WHERE}</td>
<td>The Where section of the main select statement.</td>
</tr>
</tbody>
</table>

Some sample command lines using control variables are:

- **SQRWV {SPOOL}LISTWO.SPF**
  
  Runs SQR Viewer after a report is run to view the report's output on the screen.

- **PBRUSH {PATH}{KEY}.PCX**
  
  Runs Windows Paintbrush program and displays a picture (.PCX files are graphics display files). The picture file is to be found in the same folder as the reports and has a name equal to the key of the current record. For example, if the SQR reports are in C:\SQR5\Reports and the
current record is 11211, then the command line translates to PBRUSH C:\SQR5\Reports\11211.PCX.

**Specifying Report Preferences**

If you are registering an SQR or Crystal report, you can specify certain defaults for running the report.

To specify preferences:

1. Highlight the report in the Attached Files table window.

2. Choose Actions/Specify Report Preferences to display the Specify Report Preferences dialog box (Figure 9.2).

![Figure 9.2 Specify Report Preferences Dialog Box](image-url)

---

**Chapter 9**

166
3. Set defaults as needed for the following:

- **Command Line Parameters field**: You can use this field to pass additional run time parameters to SQR.

- **Output File Name field**: You can specify a different output file. SQR creates two output files, one text and one binary. The file name in this dialog box represents the name of the text file created by SQR. In most cases, this should have a .LIS file type. The file name specified in the Command Line column in the Attached Files table window specifies the binary file type (.SPF), as required by the SQR Viewer (SQRWV.EXE). For Crystal reports, use this line to specify a text file.

- **Input Range**: You can select an input range by clicking the appropriate radio button—No Input (all records), Current Record, Selected Records, or Current or Selected. If you choose Current or Selected, you can then specify the default in the Default Range group box.

- **Output File Contains Routing Information check box**: check this only if you are using report routing (described later in this chapter).

You can access the Specify User Prompts dialog box by clicking the Prompts button.

### Specifying User Prompts

User prompts request run-time parameters from users when they run a report or other application file. The report or other application file must contain the code that references the prompts.

To specify user prompts:

1. Highlight the report or other application file in the Attached Files table window.
2. Choose Actions/Specify User Prompts to display the Specify User Prompts dialog box.

3. Specify up to four prompts. Typical prompts for reports are Start Date and End Date.

4. Make certain the report or other file references these prompts.

Running a Report

You can run a report from the MAXIMO application to which it is registered, as well as from Reports and Other Apps.

To Run a Report From Its Registered MAXIMO Application:

1. Select File/Run Reports to display the Reports dialog box. The Reports dialog box lists all reports (for all report writers) registered to that MAXIMO application (e.g., equipment reports for the Equipment application), and also the reports registered to all MAXIMO applications.

2. Select the report you want to run and click Run.

3. A Report Options dialog box (Figure 9.3) allows you to specify certain information—whether to preview or print the report, send mail, or use automatic routing, and the input range (no input, current record, or selected records). Choose the appropriate options and click OK.
4. If the report requires user input, a Parameters dialog box prompts you for information. Fill in the information and click OK.

To Run a Report From Reports and Other Apps:

1. Retrieve the record for the relevant report writer application, e.g., SQRW.

2. Select the report file you want to run and choose Actions/Run Selected Item.

3. For SQR reports, a Report Options dialog box allows you to specify certain information—whether to preview or print the report, send mail, or use automatic routing, and the input range (no input, current record, or selected records). Choose the appropriate options and click OK.

4. If the report requires user input, a Parameters dialog box prompts you for information. Fill in the information and click OK.

NOTE: You can also start non-report writer applications from Reports and Other Apps. If there are no attached files, or if you want to run an existing file that is not attached, leave the cursor at the top of the screen and choose Actions/Run Selected Item.
E-MAILING REPORTS

If you have an e-mail utility installed, MAXIMO enables you to e-mail SQR reports to other MAXIMO users. This option is activated by selecting the Send Mail button on the Report Options dialog box, which is displayed when you choose Run from the report list dialog box of any MAXIMO application.

NOTE: If you set MailSPF=0 in the [REPORT] section of MAXIMO.INI, you can send reports as text files to anyone, not just MAXIMO users. If you set MailSPF=1, the SPF file will be sent and only users with the SQR Viewer installed on their machine will be able to open the report.

After the report runs, a dialog box lets you specify the MAXIMO user(s) you want to send the report to.

E-mail has been implemented for Lotus Notes and Microsoft Outlook. The MAIL entry is in the [SYSTEM] section of MAXIMO.INI. If this entry has no parameter specified, the Send Mail option will be disabled. Valid entries are:

    MAIL=MAPI      for Microsoft Outlook
    or
    MAIL=NOTES     for Lotus Notes Mail

Additionally, the [MAIL] section of the WIN.INI file should contain the entry MAPI=1 if Microsoft Outlook is enabled, or SMI=1 if Lotus Notes is enabled. This setting will most likely have been set when the e-mail product of choice was installed. If the necessary entry is missing, the Send Mail option will be disabled on the Report Options dialog box.
Setting Up to E-Mail SQR Reports

Perform the following steps in order to be able to e-mail SQR reports:

1. Make sure that either Lotus Notes (SMI), or Microsoft Outlook (MAPI) has been successfully installed on your PC.

2. Specify the appropriate parameter in the [SYSTEM] section of your MAXIMO.INI file:

   MAIL=NOTES
   or
   MAIL=MAPI

3. In your WIN.INI file, there should be a [MAIL] section (add it if necessary) and the appropriate parameter:

   [MAIL]
   SMI=1  (Lotus Notes)
   or
   MAPI=1  (Microsoft Outlook)

4. If using Lotus Notes, make sure your path statement refers to your Lotus NOTES folder and make sure your \windows\system subfolder contains these two files: vim32.dll and smi32.dll.

5. If necessary, restart Windows and restart MAXIMO.
E-Mailing an SQR Report

If you have an e-mail utility installed, MAXIMO enables you to e-mail SQR reports directly to other MAXIMO users. E-mail has been implemented for Microsoft Outlook and Lotus Notes. (With Crystal reports, you can manually e-mail reports from the report viewer.)

To e-mail an SQR report perform the following steps. These steps assume that Lotus Notes is being used; the steps are similar for Microsoft Outlook.

1. Select Run Reports from the relevant MAXIMO application's File menu to display the Reports dialog box.

2. Select a report, then choose Run.

3. On the Report Options dialog box, choose Send Mail. Change the Range setting if appropriate.

4. Click OK. You will be notified that the report is running.

5. When the Lotus Notes Login dialog box appears, enter your password; then click OK.

6. A Lotus Notes Message dialog box appears. Enter an e-mail address, a subject title and, if appropriate, an additional note to be included with the report; then click Send.

7. A Lotus Notes dialog box displays “Message submitted for delivery.” Click OK.
FAXING A REPORT

If you have installed WinFax PRO Version 9.0, you can use MAXIMO to fax SQR reports.

To fax an SQR report, run the report in the usual way, except:

1. On the Report Options dialog box, which opens when you run the report, click Printer and select your fax printer.

2. Under Options, choose Print.

3. Fill in the necessary fax information in the dialog box that opens after the report runs.

Consult the user’s guide to your fax product for more information.

REPORT ROUTING

Overview

Report routing allows you to send an SQR report to different destinations based on information stored within the report itself. You can design the report to reference particular MAXIMO fields and, based on the values in those fields, the report will automatically be sent to specific printers, fax numbers, or e-mail addresses.

For example, you might want a work order to be printed on one printer or another depending on the equipment location, the work type, or who the work is assigned to. You also may want to fax purchase orders directly to the fax numbers stored in the database.

NOTE: You cannot use report routing with Crystal reports.
Setting Up to Use Report Routing

The following is a brief outline of the tasks involved in setting up report routing. Each is described in greater detail in its own section later in this chapter.

You can use an existing SQR report or create a new one and register it. If the report destination will be a Printer, perform all three procedures listed below. If the report destination will be a fax or e-mail, perform only the second and third procedures.

- **Specify Printers** (only if the report destination is a printer)
  
  If the report destination will be a printer, use the Specify Printer Routing dialog box, described later in this chapter, to build a reference table of MAXIMO field values to be associated with specific printers.

- **Mark the Report for Routing**
  
  You “mark” the report for routing by checking a box in the Specify Report Preferences dialog box. See Marking the Report for Routing, later in this chapter.

- **Add Routing Commands to the SQR Report Script**
  
  You add routing commands to the report to inform MAXIMO where to send the report. There are separate routing commands for printing, e-mailing, and faxing. See Adding Routing Commands to the SQR Report Script, later in this chapter.
Using the Specify Printer Routing Dialog Box

Use the Specify Printer Routing dialog box (Figure 9.4) to route SQR reports to specific printers based on report output. Use this dialog box only if the report destination will be a printer (not a fax or e-mail).

Using the Specify Printer Routing dialog box, build a reference table of MAXIMO field values to be associated with specific printers:

1. Choose Actions/Specify Printer Routing to display the Specify Printer Routing dialog box.

2. Fill in the relevant data for each field in the Default Table Data group. Click the Detail buttons to select the values. Then click Insert Row to enter the row in the table window (you can also enter values directly in the table window).
3. In the Field Value column, click the Detail button and select the desired value. This is the field value that will trigger the printer routing when the report is properly coded. For example, if the Table, Column, and Field Value entries are WORKORDER, LOCATION, and BOILER, then the report will be sent to the specified printer whenever BOILER is the location on the work order.

Each column in a table row must be filled in. The dialog box must include the Table/Column/Field Value information for the first record that is selected when you run a report that uses printer routing.

After specifying the needed information, click OK.

NOTE: All the printers specified in a printer routing report must be installed on the workstation that runs the report. The port, printer, and driver specifications in the Specify Printer Routing dialog box must exactly match those set up for your workstation’s printer drivers. The easiest way to ensure that port, printer, and driver specifications match the printer driver entries is to use the Detail buttons to select from a list of installed printers. Choose a printer, and all three fields are filled in with the correct information for that printer.

Marking the Report for Routing

You mark the report for routing using the Specify Report Preferences dialog box:

1. In Reports and Other Apps, retrieve the SQRW record and select the SQR report.

2. Choose Actions/Specify Report Preferences to display the Specify Report Preferences dialog box (Figure 9.2).

3. Put a check mark in the Output File Contains Routing Information check box. This enables the Automatic Routing button on the Report Options dialog box and tells MAXIMO to interpret the embedded commands.
4. Click OK and save your changes.

**Adding Routing Commands to the SQR Report Script**

You add routing commands to the report to inform MAXIMO which destination to send the report to. After a report is run, the output file is parsed and broken up into sections. Sections are defined by the keywords [#BEGIN] and [#END]. Different destinations may be specified in a single report by coding the report to have multiple [#BEGIN] and [#END] sections. MAXIMO will parse each section to extract the destination from the report and send the text of the section to the specified destination.

**WinFax PRO**

Using a file named Maxfax.dll, MAXIMO 4i Release 4.1.1 supports WinFax PRO Version 9.0. If you use other fax software, you can create your own version of Maxfax.dll and replace the version that comes with the standard MAXIMO release. The Maxfax.dll file is described fully in the MAXIMO 4i Developer’s Kit. Contact your MRO Software representative for information on the Developer’s Kit.
Report Routing Commands

The flowcharts below illustrate the sequence of routing commands used in printer routing, e-mail routing, and fax routing. Descriptions of the commands are on the following pages.

Printer Routing Commands

BEGIN PRINT Report Body END

Mail Routing Commands

BEGIN MAILTO
MAILCC MAILSUBJECT MAILCOMMENT
Report Body END

Fax Routing Commands

BEGIN FAXNUMBER
FAXNAME  FAXCOMPANY  FAXTIME
FAXCOVERPAGE  FAXSUBJECT  FAXKEYWORDS  FAXDATE
FAXBILLINGCODE  FAXCOVERTEXT  Report Body END
General Command Syntax

• The report routing commands listed in this chapter are MAXIMO commands, not general SQR commands. You can only use them in the context of report routing in MAXIMO.

• The command must begin in column 1 in the report text. This means the left margin must be 0 (zero).

• Commands begin with an open bracket and pound sign and end with a closed bracket, e.g., [#Begin].

• You can use Include files to specify standard margins, fonts, etc.

• When using report routing, a .TMP file is generated in your spool (Spl) folder and the routing is actually done from that file. Therefore, you must associate the .TMP extension with a text editor (use Windows Explorer and choose View/Options/File Types). Edit the .TMP File type to include Open and Print actions, and for the Print action, include a space and /p after the executable. For example:

        C:\windows\notepad.exe /p
Printer Routing Commands

PRINT

Function

Causes the report section to be printed at the named printer.

Syntax

PRINT printer;driver;port

Argument

printer – The printer name used in registering the printer.

driver – The driver name for the printer

port – The port name used for the printer.

Description

Specifies the output printer. If the printer;driver;port has not been defined in the registry, the user will have the option of directing the output to the default printer or not sending that report section.

The document will not actually print until the report finds an [#END], [#BEGIN] or end of file marker. Any number of [#PRINT] commands are allowed per section; if multiple commands are specified, the report will be sent to multiple destinations.

**NOTE:** If you use the PRINTER table in the MAXIMO database, the printer name is stored in the DEVICE column.
Example

[#PRINT Optra 204;LEXPS;\MROI01\OPTRA_204]
[#PRINT Toshiba ExpressWriter 420;EXPRSS24;LPT1:]

See Also

See the COPIES command for information on how to print multiple copies.
COPIES

Function
Specifies the number of copies to be printed. *Optional.*

Syntax
COPIES number

Argument
number – The number of copies to be printed

Description
Specifies the number of copies that will be produced when the document is printed. If this keyword is omitted, the default is 1. The COPIES keyword is associated with the most recent PRINT keyword.

Example
[#COPIES 3]

See Also
See the PRINT command for information on specifying the report section to print.
E-Mail Routing Commands

MAILTO

Function

Directs the report output to an e-mail address.

Syntax

MAILTO name

Argument

name – The e-mail address to which the report is sent.

Description

Directs output via e-mail to name. If there is no current e-mail session open, the user is prompted for a name and password. This keyword can only be used once within a section. If it is used more than once, the last one is used.

Example

[#MAILTO m_reed@company.com]
MAILCC

Function

Directs a copy of the report output to an e-mail address. *Optional.*

Syntax

MAILCC name

Argument

name – The e-mail address to which the copy is sent.

Description

Directs a copy of the report to the *name* specified. This keyword can be used multiple times within a section. It is ignored if there is no MAILTO keyword.

Example

[#MAILCC a_chen@company.com]
MAILCOMMENT

Function

Adds textual comment to the report. Optional.

Syntax

MAILCOMMENT text

Argument

text – The text to be added to the report.

Description

Gives some textual comment to associate with the report. This keyword can only appear once within a section; if it appears more than once the last one is used. It is ignored if there is no MAILTO keyword.

Example

[#MAILCOMMENT Please process ASAP.]
MAILSUBJECT

Function

Adds text regarding the subject of the report. Optional.

Syntax

MAILSUBJECT text

Argument

text – The subject matter text to be added to the report.

Description

Gives the subject of the report to accompany the report. This keyword can only be used once within a section; if it appears more than once the last one is used. It is ignored if there is no MAILTO keyword.

Example

[#MAILSUBJECT Purchase Orders.]
Fax Routing Commands

FAXNUMBER

Function

Faxes the report output to the specified number.

Syntax

FAXNUMBER number

Argument

number – The recipient’s full fax number; limited to 47 characters.

Description

Directs output via fax to number. This keyword can appear multiple times per section if the same report should go to multiple recipients at different fax numbers. When FAXNUMBER is parsed, a new fax recipient record is created. All fields in the record are blank except for the fax number. This keyword is required to fax a report.

Example

[#FAXNUMBER 781-280-0207]
FAXTIME

Function

Specifies a specific time to fax the report. *Optional.*

Syntax

FAXTIME *hh:mm:ss*

Argument

*hh:mm:ss* – Hours:minutes:seconds. The fax time is limited to 8 characters.

Description

Directs WinFax PRO to fax the report at a specific time. This keyword is ignored if there is no FAXNUMBER keyword.

Example

[#FAXTIME 20:30:00]
FAXDATE

Function

Specifies a specific date to fax the report. Optional.

Syntax

FAXDATE mm/dd/yy

Argument

mm/dd/yy – Month/day/year. The fax date is limited to 8 characters.

Description

Directs WinFax PRO to fax the report on a specific date. This keyword is ignored if there is no FAXNUMBER keyword.

Example

[#FAXDATE 09/15/98]
FAXNAME

Function

Specifies the fax recipient’s name. Optional.

Syntax

FAXNAME name

Argument

name – Name of the fax recipient; limited to 31 characters.

Description

Directs the fax to the name specified. This keyword can be used multiple times within a section. It is ignored if there is no FAXNUMBER keyword.

Example

[#FAXNAME Peter D. Cooper]
FAXCOMPANY

Function

Specifies the name of the fax recipient’s company. Optional.

Syntax

FAXCOMPANY company

Argument

company – Name of the fax recipient’s company; limited to 42 characters.

Description

Specifies the fax recipient's company. This keyword is ignored if there is no FAXNUMBER keyword.

Example

[#FAXCOMPANY Paragon Maintenance Management Consultants]
FAXSUBJECT

Function

Specifies the subject of the fax. Optional.

Syntax

FAXSUBJECT subject

Argument

subject – Subject of the fax; limited to 79 characters.

Description

Specifies the subject of the fax. This keyword is ignored if there is no FAXNUMBER keyword.

Example

[#FAXSUBJECT Requested consulting dates and requirements]
FAXKEYWORDS

Function

Specifies WinFax PRO event keywords. *Optional.*

Syntax

FAXKEYWORDS *keywords*

Argument

*keywords* – The WinFax PRO keywords. The text for the event keywords is limited to 33 characters.

Description

Specifies WinFax PRO event keywords. This keyword is ignored if there is no FAXNUMBER keyword.
**FAXBILLINGCODE**

**Function**

Specifies a WinFax PRO event billing code. *Optional.*

**Syntax**

FAXBILLINGCODE *billingcode*

**Argument**

*billingcode* – The WinFax Pro event billing code; limited to 26 characters.

**Description**

Specifies a WinFax PRO event billing code. This keyword is ignored if there is no FAXNUMBER keyword.
FAXCOVERPAGE

Function

Specifies a WinFax PRO cover page. *Optional.*

Syntax

FAXCOVERPAGE *coverpage*

Argument

*coverpage*  – The WinFax Pro cover page—either the name of a .CVP file or the text "Quick Cover Page"

Description

Specifies which cover page to use. This keyword is ignored if there is no FAXNUMBER keyword.
FAXCOVERTEXT

Function

Specifies text to include on the WinFax PRO cover page. Optional.

Syntax

FAXCOVERTEXT covertext

Argument

covertext – Text to be entered on the WinFax Pro cover page. The number of characters cannot exceed the maximum length of the report file line or 150 characters.

Description

Specifies the text of the message to enter on the cover page. This keyword is ignored if there is no FAXNUMBER keyword.
Report Routing Examples

E-Mail Routing Example

The following example is a newly created report that illustrates the use of e-mail routing, as well as basic report structure. It is not a standard SQR report. The report is sent to the supervisor and lists the work orders approved during the past 24 hours. **Bold** text highlights the most important areas of the code.

! Example report for e-mail routing
! Sends supervisor an e-mail message containing a list of work orders which have been
! approved in the past 24 hours.

Begin-Setup

! Set up paper layout with 0 for left margin
Declare-Layout routing
   paper-size = (8.5,11)
   left-margin = 0
   right-margin = .37
   top-margin = .25
   bottom-margin = .25
   line-height = 12
   char-width = 7.2
End-Declare

! Select paper layout and line printer output
Declare-Report default
   layout=routing
   printer-type=LP
End-Declare

! Declare variable type
Declare-Variable
   date $date
End-Declare
! Columns and Layout
#define Supervisor 'Supervisor'
#define Workorder 'Workorder'
#define Priority 'Priority'
#define Location 'Location'
#define Equipment 'Equipment'
#define Description 'Description'
#define NoWorkordersSince 'No workorders have been approved since '
#define WorkordersSince 'Attached are workorders approved since '

! input prompts
#define Notusedprompt 'Parameter not used. Press enter to continue'
#define Schemaprompt 'Insert schema name'
#define Whereprompt 'Insert where clause'

! e-mail routing control strings
#define Begin '^[#BEGIN]'
#define End '^[#END]'
#define Mailto '^[#MAILTO '
#define MailSubject '^[#MAILSUBJECT Newly approved work orders]'
#define MailComment '^[#MAILCOMMENT '

! Columns
#define col01 1 !Workorder
#define col02 12 !Description
#define col03 40 !Priority
#define col04 50 !Equipment
#define col05 62 !Location

End-Setup

Begin-Program

!Begin selection and processing
  do select-supervisor

End-Program

!******************************************************** Select-Supervisor
! Selects supervisors on active work orders and having an e-mail
Begin-Procedure select-supervisor

!Get the input parameters from MAXIMO
input $where   {whereprompt)
input $p1     {notusedprompt)
input $p2     {notusedprompt)
input $p3     {notusedprompt)
input $p4     {notusedprompt)
input $schema  {schemaprompt)

Begin-Select distinct

wo.supervisor &supervisor_code
l.name &supervisor_name
l.pagepin &supervisor_email

do supervisor-output

from [$schema]workorder wo, [$schema]labor l
where wo.supervisor = l.laborcode and
l.pagepin is not null and
wo.status not in ('CLOSE') and
[$where]

End-Select

End-Procedure

!******************************** Supervisor Output
! Sends an email to each of the supervisors selected above

Begin-Procedure supervisor-output

let $email = {Mailto}||&supervisor_email||'\]

print {begin} (+1,1)
print $email (+1,1)
print {mailsubject} (+1,1)

do select-workorders
End-Procedure

!******************************** Select Workorders
!Selects workorder information and prints output as the body of the mail message

Begin-Procedure select-workorders
    let $dyna_supv = 'supervisor = ' || '''' ||&supervisor_code || '''
    let $date = dateadd(datenow(), 'day', -1)
    let #count=0

    Begin-Select
        ! Select workorders and create the output
        wo.wonum  &wonum
        wo.description  &description
        wo.eqnum  &eqnum
        wo.location  &location
        wo.wopriority  &priority

        let #count = #count + 1
        do workorder-output

        from workorder wo, wostatus ws
        where [dyna_supv] and [where] and
        wo.wonum = ws.wonum and
        ws.status = 'APPR' and ws.changedate >= $date
    End-Select

    if #count=0
        ! There were no workorders for this supervisor
        ! Put a comment line to that effect
        let $comment= {MailComment}||{NoWorkordersSince}||$date'
        print $comment (+1,1)
    end-if

End-Procedure
Begin-Procedure workorder-output

if #count = 1
   ! This is the first workorder for this supervisor. Put a
   ! comment line in the mail message
   let $comment = {Mailcomment}||{WorkordersSince}||$date||'
   print $comment (+1,1)

   ! This appears in the file attached to the message
   ! Also put column headings in the attached file
   print (Workorder) (+1,(col01))
   print (Description) (.,(col02))
   print (Priority) (.,(col03))
   print (Equipment) (.,(col04))
   print (Location) (.,(col05))
   print '=' (+1,(col01),70) fill

end-if

   ! This appears in the file attached to the message
   print &wonum (+1,(col01))
   print &description (.,(col02)) wrap 25 2 keep-top
   print &priority (.,(col03))
   print &eqnum (.,(col04))
   print &location (.,(col05))
   print ' ' (+1,1)

End-Procedure
**Printer Routing Example**

The following example is the standard WOPRINT SQR report modified for printer routing. **Bold** text indicates where lines were entered, deleted, commented out, or moved, along with explanatory comments. Vertical arrows (czeń) represent sections of the report that are unchanged from the original. You can print out or view the standard WOPRINT report to make a full comparison.

The example illustrates using printer routing to send work orders to different printers based on Operating Location.

```plaintext
!*********************************************************************
!     ***   MAXIMO REPORT  ***
!
! Description:
!
! *** Revision History ***
!
12/08/97 - BH Created this report.
12/18/97 - DW Modified to show 4.0 template usage
9/22/98 - SK/JB Modified to enable for Printer routing based on Operating Location
!
!*********************************************************************

!----------------- Setup Procedure Used in Report Compilation --------------------
begin-setup
ask TargetLanguage 'Enter target language (ENG,FRE,GER,SPA,POR,DUT,SWE): ' 
! localized text strings
#include 'woprint.{TargetLanguage}'

! localize paper size and font
#include 'paperfnt.{TargetLanguage}'
```

202
Declare-Layout routing

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>paper-size</td>
<td>(8.5,11)</td>
</tr>
<tr>
<td>left-margin</td>
<td>0</td>
</tr>
<tr>
<td>right-margin</td>
<td>.37</td>
</tr>
<tr>
<td>top-margin</td>
<td>.25</td>
</tr>
<tr>
<td>bottom-margin</td>
<td>.25</td>
</tr>
<tr>
<td>line-height</td>
<td>12</td>
</tr>
<tr>
<td>char-width</td>
<td>7.2</td>
</tr>
</tbody>
</table>

End-Declare

Declare-Report Default

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>layout</td>
<td>routing</td>
</tr>
<tr>
<td>printer-type</td>
<td>hp</td>
</tr>
</tbody>
</table>

End-Declare

! Definitions for the header size, footer size, and compiled file name

```c
#define HeaderLines 6
#define FooterLines 5
#define RepName 'WOPRINT.SQT for Printer Routing'
```

declare-variable
date $startdate $compdate
end-declare

date $startdate $compdate

---

! Standard Header

```c
#include 'HDFT.H'
```

! Input from PRM file

```c
#define p1type 'N/A'
```
begin-procedure get_wo

begin-select distinct

    print '[#BEGIN]' (+1,1) !ADD this Line

    wonum &wonum
    parent &parent
    description &wodesc
    jpnum &jpnum

    move &wonum to $wonum
    move &jpnum to $jpnum

    #if {sqr-database}=ORACLE
        to_char(targstartdate,{DateMask}) &targstartdate
        to_char(targcompdate,{DateMask}) &targcompdate
        to_char(schedstart,{DateMask}) &schedstart
        to_char(schedfinish,{DateMask}) &schedfin
        to_char(faildate,{DateMask}) &faildate
    #else
        targstartdate &targstartdate
        targcompdate &targcompdate
        schedstart &schedstart
        schedfinish &schedfin
        faildate &faildate
    #endif

    wosequence &wosequence
    status
    eqnum &eqnum
    !eqlocation &eqlocation
    leadcraft
    worktype &type
    wopriority &pri
    glaccount &glacc
    location &eqloc

    DO PRINTER_ROUTING !ADD this Line
contract  &contract
estdur
estlabhrs
estmatcost
estlabcost
esttoolcost
ldkey  &ldkey

move &ldkey to #ldkey

if $schedstart != "
    move {ScheduledStart} to $start
    move {ScheduledComp} to $finish
    move &schedstart to $startdate
    move &schedfin to $compdate
else
    move {WorkStart} to $start
    move {WorkComp} to $finish
    move &targstartdate to $startdate
    move &targcompdate to $compdate
end-if

move &pri to $pri {Number2}
do get_jp
move &wonum to $wonum
do wo_print_hd( $wonum, &wodesc, $schema )
do wo_print
move 3 to #jpcnt

!graphic (+1,1, {Width}) horz-line

!Comment this line OUT

print '________________'                (+2,6)
print '________________'                (.33)
print '________________'                (.60)
begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    !*********************************************************************
    !*********************************************************************
    begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    if #ops_count = 0 And &jobop != "" 
        !graphic (+1,1, {Width}) horz-line 
        !Comment this line OUT 
        print (Operations) (+2,{Column1}) bold underline 
        print (MeasurementPt) (,{Col18}) bold underline 
        print (Measurement) (,{Col19}) bold underline 
        
begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    if #ops_count = 0 And &jobop != "" 
        !graphic (+1,1, {Width}) horz-line 
        !Comment this line OUT 
        print (Operations) (+2,{Column1}) bold underline 
        print (MeasurementPt) (,{Col18}) bold underline 
        print (Measurement) (,{Col19}) bold underline 
        
begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    if #ops_count = 0 And &jobop != "" 
        !graphic (+1,1, {Width}) horz-line 
        !Comment this line OUT 
        print (Operations) (+2,{Column1}) bold underline 
        print (MeasurementPt) (,{Col18}) bold underline 
        print (Measurement) (,{Col19}) bold underline 
        
begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    if #ops_count = 0 And &jobop != "" 
        !graphic (+1,1, {Width}) horz-line 
        !Comment this line OUT 
        print (Operations) (+2,{Column1}) bold underline 
        print (MeasurementPt) (,{Col18}) bold underline 
        print (Measurement) (,{Col19}) bold underline 
        
begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    if #ops_count = 0 And &jobop != "" 
        !graphic (+1,1, {Width}) horz-line 
        !Comment this line OUT 
        print (Operations) (+2,{Column1}) bold underline 
        print (MeasurementPt) (,{Col18}) bold underline 
        print (Measurement) (,{Col19}) bold underline 
        
begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    if #ops_count = 0 And &jobop != "" 
        !graphic (+1,1, {Width}) horz-line 
        !Comment this line OUT 
        print (Operations) (+2,{Column1}) bold underline 
        print (MeasurementPt) (,{Col18}) bold underline 
        print (Measurement) (,{Col19}) bold underline 
        
begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    if #ops_count = 0 And &jobop != "" 
        !graphic (+1,1, {Width}) horz-line 
        !Comment this line OUT 
        print (Operations) (+2,{Column1}) bold underline 
        print (MeasurementPt) (,{Col18}) bold underline 
        print (Measurement) (,{Col19}) bold underline 
        
begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    if #ops_count = 0 And &jobop != "" 
        !graphic (+1,1, {Width}) horz-line 
        !Comment this line OUT 
        print (Operations) (+2,{Column1}) bold underline 
        print (MeasurementPt) (,{Col18}) bold underline 
        print (Measurement) (,{Col19}) bold underline 
        
begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    if #ops_count = 0 And &jobop != "" 
        !graphic (+1,1, {Width}) horz-line 
        !Comment this line OUT 
        print (Operations) (+2,{Column1}) bold underline 
        print (MeasurementPt) (,{Col18}) bold underline 
        print (Measurement) (,{Col19}) bold underline 
        
begin-procedure list_ops($wonumops, $schema)
    let $dyna_wonum6 = 'wonum = ' || '''' || $wonumops || ''''
    if #ops_count = 0 And &jobop != "" 
        !graphic (+1,1, {Width}) horz-line 
        !Comment this line OUT 
        print (Operations) (+2,{Column1}) bold underline 
        print (MeasurementPt) (,{Col18}) bold underline 
        print (Measurement) (,{Col19}) bold underline 
    !*********************************************************************
    !*********************************************************************
begin-procedure sub_workorders

let $subworkloc='Location:'
let $subworkeq = "Equipment:"
let $subworkwork = 'Work Order:'

!Comment this line OUT
print {subworkwork} (+2,{col55}) Bold

!*********************************************************************

! This procedure will check if the current wonum has hazard or not, if not, this section
! will not be listed. The reason to check it first is because of the nature of the
! layout requires it.
begin-procedure CountAndList_HM

begin-select distinct

!Comment this line OUT
print {HM} (+2,Column1) bold underline

!*********************************************************************

! print hazards and precautions
begin-procedure list_HaPre

  let $dyna_wonum9 = 'wosafetylink.wonum = ' || '''' ||$wonum || ''''
  let #tempcount = 0

begin-select distinct

  if #tempcount = 0
    !Comment this line OUT
    graphic (+1,1, {Width}) horz-line
    print (HP) (+2,{Column1}) bold !underline
  end-if

  add 1 to #tempcount

!*********************************************************************

begin-procedure list_Hazards

  let $dyna_wonum10 = 'wosafetylink.wonum = ' || '''' ||$wonum || ''''

  move 0 to #Hazards_count

  if #Hazards_count = 0 And &WOhazardid != ''
    !Comment this line OUT
    graphic (+1,1, {Width}) horz-line
    print (TOLO) (+2,{Column1}) bold !underline
  end-if

! **************************** Footer Procedure***************************

begin-procedure pre_footer


begin-procedure printer_routing  !ADD this entire Printer Routing procedure  
  let $dyna_eqloc = 'VALUE = ' || '''' || &eqloc || '''' 

begin-select 
  device   &device 
  driver   &driver 
  port     &port 

  from printer 
  where TBNAME = 'WORKORDER' 
  and  COLNAME = 'LOCATION' 
  and  [$dyna_eqloc] 

end-select 

  move '['#PRINT ' to $printer-routing-str 
  concat &device with $printer-routing-str 
  concat ';' with $printer-routing-str 
  concat &driver with $printer-routing-str 
  concat ';' with $printer-routing-str 
  concat &port with $printer-routing-str 
  concat ']' with $printer-routing-str 

end-procedure
**Fax Routing Example**

The following example is the standard POPRINT SQR report modified for fax routing. **Bold** text indicates where lines were entered, deleted, commented out, or moved, along with explanatory comments. Vertical arrows (↑) represent sections of the report that are unchanged from the original. You can print out or view the standard POPRINT report to make a full comparison.

The example illustrates using fax routing to automatically fax the purchase order to the vendor. The report retrieves the vendor fax number from the Companies table. This example of fax routing is for faxing one PO at a time, i.e., the Current Record.

```plaintext
!*****************************************************************************************
!
!                   ***   MAXIMO  REPORT  ***
!
! Description: The vendor, its address, the customer, its address, the purchase order information, and all of the items ordered are printed out, for the purchase order number selected
!*****************************************************************************************
!
!----------------- Setup Procedure Used in Report Compilation --------------------

begin-setup

ask TargetLanguage 'Enter target language (ENG,FRE,GER,SPA,POR,DUT,SWE): ' 

! localized text strings
#include 'poprint.{TargetLanguage}'

! localize paper size and font
#include 'paperfnt.{TargetLanguage}'
```
! Layout added for faxing
 Declare-Layout routing
 paper-size = (8.5,11)
 left-margin = 0
 right-margin = .37
 top-margin = .25
 line-height = 12
 char-width = 7.2
 max-lines = 10000
 End-Declare

Declare-Report Default
 layout=routing !Change from Layout =Default for Fax Routing
 printer-type=hp
 End-Declare

! Definitions for the header size, footer size, and compiled file name
#define HeaderLines  5
#define FooterLines  4
#define RepName 'POPRINT.SQT'

declare-variable
    text $orderunit-hold
    integer #unitcost-hold #ldkey-hold
end-declare

display

end-setup

!------------------------------------- Includes ----------------------------------

! Standard Head
! Standard header disabled for faxing
 !#include 'HDFT.H'

! PRM file
#define p1type 'N/A'
#define p2type 'N/A'
#define p3type 'N/A'
#define p4type 'N/A'
#include 'input.h'
Chapter 9

! Oracle specific date processing

#if (sqr-database)=ORACLE
#include 'nls.h'
#endif

!***********************************************************************
!* Header Procedures *****************************************************
!*----------------------------------------------------------------------
!*Header 2 disabled for faxing
!*begin-procedure header_part2
!* Called via the Heading (in HDTFT.H) after the default     !Disable this
!* standard header has been printed
!* print {PONum}      (+1,1)
!* print &ponum           (+1,1)
!*end-procedure

!***********************************************************************
!* Main Program *********************************************************
!*----------------------------------------------------------------------

!***********************************************************************
!* Get_PO Procedure ********************************************************
!*----------------------------------------------------------------------

begin-procedure get_po
    do build_array
    show $where

begin-select
    ! Line added for faxing
    print ['#BEGIN']  (+1,1)

    po.vendor &vendor
    po.status &status

!------------------------------------------------------------------

212
Reports and Other Apps

\[
\begin{align*}
\text{po.shipto} & \quad \&\text{shipto} \\
\text{po.ponum} & \quad \&\text{ponum} \\
\text{po.description} & \quad \&\text{podescription} \\
\text{po.contact} & \quad \&\text{contact} \\
\text{po.shiptoattn} & \quad \&\text{shiptoattn} \\
\end{align*}
\]

! Line added for faxing

move \&gonum to $\text{po-num}$
move \&vendor to $\text{vendor}$
move \&shipto to $\text{shipto}$

!Line added for faxing
do get_faxinfo
do get_vsinfo

! Lines added for faxing

let $\text{faxsubject} = \text{'[FAXSUBJECT Purchase order '||$ponum||']}$
let $\text{faxname} = \text{'[FAXNAME '||&contact||']}$

! Use contact fax info if available, otherwise use company fax number

if \#contact = 1

\[
\begin{align*}
\text{if isnull(&contactfax)} & \quad \text{let } \text{faxnumber} = \&\text{companyfax} \\
\text{else} & \quad \text{let } \text{faxnumber} = \&\text{contactfax} \\
\end{align*}
\]

end-if

else
    let $faxnumber = &companyfax
end-if

let $faxphone = '#FAXNUMBER '||$faxnumber||'"

print $faxphone (+1,1)
print $faxname (+1,1)
print $faxsubject (+1,1)

! End of lines added for faxing

do form
do get_po_detail

! Line added for faxing
print '#END' (+1,1)
do clear_array

! Line Removed for faxing
! new-page

from [$schema]po po
where [$where]
end-select
end-procedure

!*****************************************************************************************
begin-procedure form

! Lines added for faxing - these were in header 2
print {PONum} (+1,1)
print &ponum           (+1)
print &podescription   (+3)
! End of lines added for faxing

print (Vendor) (+1, {colvend})
print (ShipTo) (. {colshipto})

! Line altered for faxing
print {Tel} (+2, {colvtel})
print &vendphone (+1, {colvfax})

! Line altered for faxing
print $faxnumber       (+1)

! Line disabled for faxing
! graphic (+1, {colgraphic}, {Width}) horz-line

print {PURAGENT}       (+2, {colpagent})
print &purchaseagent   (. {colpuragent})
print {PAYMENTTERMS}   (. {colpaymt})
print &paymentterms    (. {colpterms})

! Line disabled for faxing
! graphic (+1, {colgraphic}, {Width}) horz-line

print (FOB)            (. {colfob})
print &fob             (. {colfobval})

! Line disabled for faxing
! graphic (+1, {colgraphic}, {Width}) horz-line

print (Line) (+2, {colline1})
print (Unit) (.{colunit1})
print (Line) (.{colline2})
!Lines altered for fax Disable Underline
print {Item} (+1,{colitem1}) !underline
print {Qty} (,{colqty}) !underline
print {Unit} (,{colunit2}) !underline
print {Item} (,{colitem2}) !underline
print {Description} (,{coldesc}) !underline
print {Price} (,{colprice}) !underline
print {Cost} (,{colcost}) !underline
!End of lines altered for fax

print ' ' (+1,{colblank})
end-procedure

!*****************************************************************************************
!
!
!

!*****************************************************************************************

!--------------------------------------------------------------------
! main function. this procedure will select data from poline table.
!--------------------------------------------------------------------
begin-procedure get_po_detail
    move 0 to #gtotal
    move 0 to #countpolines

    
    

print '_________' (+1,{coldrawline})

    print {TOTAL} (+2,{coltotvalue})
    print #gtotal (,{colgtotal}) edit {Number4}
! Lines disabled for faxing
! graphic (+1,1, {Width}) horz-line
! print {Authorize} (+3,{colauthoriz})
! print {Date} (,{coldate})
end-procedure

!*****************************************************************************************
!
!
!
!*****************************************************************************************
!

begin-procedure get_vsinfo
let $dyna_vendor = 'company = ' || '''' ||$vendor || ''''
let $dyna_shipto = 'company = ' || '''' ||$shipto || ''''
begin-select
name                    &vendname
address1                &vendaddr1
address2                &vendaddr2
address3                &v3
address4                &vendaddr4
phone                   &vendphone

! Line altered for faxing
fax   &companyfax

from [$schema]companies
where [$dyna_vendor]   ! company = &vendor
end-select

!*****************************************************************************************
!
!

!
begin-procedure pre_footer
    ! Called via the Footing (in HEADFOOT.H) before the default
    ! standard footer is printed
end-procedure

! Procedure Added for Faxing
begin-procedure get_faxinfo

let #contactcount = 0
let $dyna-vendor = 'COMPANY = '||''''||$vendor||''''
let $dyna-contact = 'CONTACT = '||''''||&contact||''''

begin-select
    faxphone &contactfax
    let #contactcount=1
from [$schema]compcontact where [$dyna-vendor] and [$dyna-contact]
end-select

end-procedure
Running a Report With Report Routing

To run an SQR report with report routing:

1. Run the report as usual from the appropriate MAXIMO application: choose File/Run Reports, select the report from the Reports dialog box, and click Run. (The report must be an SQR report that was modified for autorouting; you can not use an unmodified report.)

2. When the Report Options dialog box appears, choose Automatic Routing—the default when automatic routing is enabled.

   NOTE: Automatic Routing is only enabled when Output File Contains Routing Information is checked on the Specify Report Preferences dialog box.

3. Select a Range and click OK. The output will be automatically routed for printing, fax, or e-mail, based on the autorouting keywords in the report.

   NOTE: All the printers specified in a printer routing report must be installed on the workstation that runs the report.

   NOTE: If you are using e-mail routing, depending on your e-mail application, you may be asked to log in to complete the routing process.

In using report routing, please note the following:

- When a report is modified for report routing, you can still use the other options on the Report Options dialog box: Preview, Print, and Send Mail. However, the resulting output will contain embedded lines of routing code from the report script, such as [#BEGIN] and [#PRINT ...].

- You can run a report containing routing commands even if the Output File Contains Routing Information box is not checked in the Specify Report Preferences dialog box. However, routing will not take effect, and the output will contain routing commands.
Considering the above, you may want to duplicate certain reports and specify in their names or descriptions that one version is for routing, while the other can be used for general purposes.

INTEGRATING A GRAPHICS PACKAGE

Many graphics packages—such as Excel, Paintbrush, Designer, and various CAD packages—can be integrated with MAXIMO.

To integrate a graphics application with MAXIMO:

- Register the graphics application as described earlier in Registering a Report Writer or Other Application. In the Application Command Line field, enter a command in the format:

  GRAPHICS.EXE {PATH}{KEY}.DRW

  where GRAPHICS.EXE is the name of the executable for a graphics package, {PATH} is the name of the report path, and {KEY} is the current unique identifier (see Substitution Variables). Do not type a space between the path and key. For example, the following command generates a drawing for the current equipment number (11314) where the path is C:\REPORTS:\:

  GRAPHICS.EXE C:\REPORTS\11314.DRW

BAR CODING APPLICATIONS

MAXIMO is designed to support and be integrated with bar coding applications such as inventory tracking and labor reporting. Bar codes provide a highly accurate, flexible, and efficient means of entering data into the MAXIMO database.
Inventory bar coding allows your maintenance department to track parts and part usage. You can print bar code labels for use on inventory parts, equipment, and labor badges. You can bar code work order and inventory part numbers directly onto work orders, and bar code purchase order numbers onto purchase orders.

Bar code applications enable you, for example, to use a hand-held device to:

- Issue and return parts to inventory, updating quantities and locations.
- Track inventory parts issued and returned via work orders.

For information on setting up and using bar coding, contact your MRO Software representative.
CHAPTER 10

CHART OF ACCOUNTS

OVERVIEW

The Chart of Accounts application enables you to establish general ledger (GL) account fields in MAXIMO with definitions equivalent to those used within the rest of your financial data processing system. You configure MAXIMO to interface with an accounting system using the GL Account Configuration option in Database Configuration. The accounting system’s data can then be downloaded into MAXIMO, after which the two systems can work interactively.

NOTE: Please refer to the MAXIMO 4i Finance Manager's Guide for detailed descriptions of MAXIMO transaction types, general ledger accounts, financial processes, and account tracking.

Use the Chart of Accounts application to:

• Create general ledger account codes and components.
• View or modify current general ledger account codes.
• Set up financial periods.
• Establish default codes for inventory-related accounts, company-related accounts, and resource control accounts.
NOTE: You specify the format of GL account codes using the GL Account Configuration dialog box in Database Configuration.

You define tax codes, rates, and dates using the Tax Processing dialog box in Application Setup.

You establish user security for modifying GL accounts using the Authorize Access to GL Component Information dialog box in Signature Security.

Appendix A in the MAXIMO 4i Finance Manager’s Guide includes a table that lists MAXIMO’s GL database columns by application and table. The table also includes information such as whether an account must be fully defined for MAXIMO to validate it, or whether a partially defined account is acceptable.

Chart of Accounts Tabs

Chart of Accounts has one tab:

• GL Accounts – To view, create, or modify your GL accounts.

Tracking GL Accounts in MAXIMO

NOTE: Please refer to the MAXIMO 4i Finance Manager’s Guide for a detailed description of account tracking.

MAXIMO uses records to represent various things, such as items or services, throughout the system. For example, you create work order, equipment, and invoice records to track these things—the items or services.

MAXIMO also uses records to represent the combination of the item/service and any transaction used to track the costs incurred by ordering or receiving the item/service. You use the Chart of Accounts application to create general ledger chart of accounts records to track these combinations.
MAXIMO provides general ledger account fields (some are hidden by default) on the tabs used for creating these records:

- equipment
- locations
- labor
- tools
- inventory
- purchase requisition
- purchase order
- invoice
- work orders
- companies

To fully understand how Chart of Accounts works in MAXIMO, you should understand how account codes are configured in MAXIMO—how they are divided into components, whether they are required or not, how they use delimiters, etc. Please refer to the GL Account Configuration section in the Database Configuration chapter.

To establish user security for editing account codes, you use an option in Signature Security. Please refer to the Authorize GL Component Access section in the Security chapter.

**CHART OF ACCOUNTS ACTION MENU AND MAXIMO ONLINE HELP**

The MAXIMO online Help for Chart of Accounts has information on using the Actions menu items, as well as other topics. These “How Do I ...” topics are listed below. Topics marked with an asterisk (*) are also discussed in this chapter. Please refer to Chart of Account’s online Help for information on topics that are not included in this chapter. Unless otherwise noted, the name of the
menu item is part of the topic title, e.g., the Define Financial Periods topic explains the Financial Periods menu item.

“How Do I ...” Help Topics for Actions Menu Items

- Update the Database *
- Define Financial Periods *
- Create or Edit GL Components (menu item: GL Component Maintenance) *
- Set Up Inventory-Related Accounts
- Set Up Company-Related Accounts
- Set Up Internal Labor Control Accounts
- Set Up External Labor Control Accounts
- Set Up Internal Tools Control Accounts
- Set Up External Tools Control Accounts
- Define Labor Resource Codes
- Define Tool Resource Codes
- Define Inventory Resource Codes

Other “How Do I ...” Help Topics

- Create or Edit a GL Account Code *
- Use the Chart of Accounts Filter *
- Use the GL Account Navigator *

GL ACCOUNTS TAB

You use the GL Accounts tab (Figure 10.1) to add or modify GL accounts and account components, and to set up a variety of default accounts. Typically, GL accounts are downloaded from the general ledger chart of accounts established in your accounting system, but you can set them up in MAXIMO.

Because all components listed on or added to the GL Accounts tab must be valid according to the GL Component Maintenance dialog box, you may want to look
at the Creating or Editing GL Components section, later in this chapter, before continuing.

Figure 10.1 GL Accounts Tab

**Downloading Account Codes from an Accounting System**

MAXIMO provides a generic financial API (Application Programming Interface) and several product-specific APIs that allow MAXIMO to interface directly with financial software, such as Oracle Financials, PeopleSoft, and SAP. These APIs must be purchased separately. See your MAXIMO sales representative.
Creating your own API for your financial system is possible.

Creating or Editing GL Account Codes

You create GL account codes by linking together previously established component values. These component values have probably been downloaded from the accounting system. To create new component values in MAXIMO, or to modify existing ones, use the GL Component Maintenance dialog box, described later in this chapter.

To Create a New GL Account Code:

1. From the Chart of Accounts menu bar, choose Insert/New Row.

2. Click the Detail button in the GL Account field to display the GL Account Navigator (Figure 10.2). The GL Account field displays placeholder characters in all components.
Select a value for the first component from the Valid Values list box and click Select Value (or simply double-click the value). The GL Account field displays the value, and the Valid Values list box displays the values for the next component.

Select the next component and click Select Value. You must define all required components. After you select the last component, the Navigator closes and MAXIMO inserts the new account code in the GL Account field.
3. Enter a description in the Description field.

4. If your company uses account type codes, enter the appropriate code in the Type column. Type is a user-defined value; most accounting systems have type codes for assets, liabilities, expense, and income, at least. (Type does not refer here to the type of the data field, e.g., integer or alphanumeric.)

5. Save the record.

**NOTE:** You use the Disabled? column to prevent an account from being used. To disable an account, enter a Y (Yes) in the Disabled? field. The account can no longer be inserted in a new MAXIMO record, but no change is made to existing records. The default value is a hidden N (No). If you change a Y to an N, the N will disappear when you leave the field.

**To Edit an Existing GL Account Code:**

1. Click the Detail button in the relevant GL Account field to display the GL Account Navigator.

2. In the GL Account field, double-click the component you want to change (or highlight it and click Select) to display the list of valid values for the component.

3. Highlight a different component from the Valid Values list box and click Select Value (or just double-click the component). The Navigator closes and MAXIMO inserts the new value in the GL account code.

4. Edit the Description and Type fields as needed, then save the record.

In editing GL account fields, you can manually type in the codes instead of using the GL Account Navigator, but it is easier to make mistakes that way unless you are familiar with the GL accounts.
Depending on how you set up security, MAXIMO users may be able to access the GL Account Navigator by clicking the Detail button in a GL Account field on a particular tab, e.g., Work Order. If the Validate Component Combinations check box in the GL Account Configuration dialog box (in Database Configuration) is checked, they will only be able to enter accounts that are on the GL Accounts tab. If the box is not checked, the user may enter a GL account code that may not match any one account in Chart of Accounts, but whose individual components are all valid. See the GL Account Configuration section in the Database Configuration chapter.

**NOTE:** GL Account fields in user applications are by default not required fields. MAXIMO will validate entries in the field against Chart of Accounts, but a blank (null) field will be accepted. If you want to make GL account fields required, you must specify this on the Table Definitions tab in Database Configuration. Therefore, if you have an accounting interface that requires account information, you must set the Debit and/or Credit GL Account fields to Not Null in the affected applications.
Creating or Editing GL Components

Use the GL Component Maintenance dialog box (Figure 10.3) to define valid component values for GL account codes. These values are the ones you choose from the GL Account Navigator dialog box.

Figure 10.3  GL Component Maintenance Dialog Box

To Create a GL Component:

1. Choose Actions/GL Component Maintenance to display the GL Component Maintenance dialog box.

2. Select a component from the GL Component drop-down list.

3. Click Insert Row.

4. Enter a value in the Value field, a description in the Description field, and click OK. If you are inserting multiple rows and values, make sure you click OK before choosing another component from the GL Component drop-down list.
You can now access the value from the GL Account Navigator dialog box.

**NOTE:** You use the Disabled? column to prevent an existing component from being used. To disable a component, enter Y (Yes) in the Disabled? field. Disabling the component means it will no longer be listed in the Valid Values box in the GL Account Navigator. No change is made to existing records (for example, an existing work order that used that component is not changed). The default value is N (No), which is hidden. If you change a Y to an N, the N is hidden when you leave the field.

When you disable a component, all GL account codes with that component become disabled (if you close Chart of Accounts and reopen it, the GL Accounts tab will show a Y in the Disabled? column for those accounts). If you re-enable the component, you can again access the component with the GL Account Navigator, and you will be asked if you want to enable the account codes that were disabled when you initially disabled the component.

**To Edit a GL Component:**

1. Choose Actions/GL Component Maintenance to display the GL Component Maintenance dialog box.
2. Select a component from the GL Component drop-down list.
3. Edit the Value, Description, and Disabled? fields as needed and click OK.

**NOTE:** You can delete a component value by selecting the row and clicking Delete Row. The value will no longer be available from the GL Account Navigator. No change is made to existing records.
Using the GL Account Navigator

You use the GL Account Navigator dialog box to enter account codes in GL account fields.

1. To open the GL Account Navigator dialog box, click the Detail button in a GL account field.

   The Navigator displays the current account code in its GL Account Code field. The Component Sequence line shows the format of the account code, with 0's for integer values and X's for alphanumeric values.

   The Valid Values list box displays the valid values for the first undefined component (a component with placeholder characters, e.g., ??? in 6210-200-???). The name of the component appears above the box.

2. Select a value in the Valid Values list box for the first undefined component and click Select Value, or simply double-click the value. If other components remain undefined, the Valid Values list box displays values for the next one. After you define all required components, the Navigator closes and MAXIMO inserts the account code in the GL Account field.

   • To change the value of a component that is already defined, double-click the component in the GL Account Code field of the Navigator, then double-click on a new value in the Valid Values list box.

   • To access optional components, put the cursor at the end of the GL Account field, click Clear, then double-click on the optional component. If you select all the required components and the Navigator closes, click the Detail button again and the Navigator automatically opens to the optional components.

   • To replace a component value with placeholder characters, click the component in the GL Account Code field of the Navigator, then click Clear.
Using the Chart of Accounts Filter

Use the Define Filter dialog box to specify what account codes to display on the GL Accounts tab.

1. Choose Setup/Define Filter to display the Define Filter dialog box.

2. Select one of three choices:

   - **All Accounts** -- MAXIMO displays all the GL accounts in your system.
   - **No Accounts** -- MAXIMO displays no accounts. This clears the fields.
   - **Selected Accounts** -- If you choose Selected Accounts, you must specify selection criteria:

     To filter by **Components**, click the Detail button in the Components field to open the GL Account Navigator and select a component or combination of components.

     To filter by **Description** or **Type**, enter values in their corresponding fields. You can use SQL wildcards, i.e., the % and _ characters.

     **NOTE:** If you type in values in the Components field, they must appear just as if you used the GL Account Navigator. You must type in whole component values, and you must use placeholder characters for any components to the left of defined components. You cannot, for example, just type in the last component of an account code.

3. If you want to use the current selection choice as the default for the next time you open Chart of Accounts, put a check in the Save Settings check box.

4. Click OK.

   **NOTE:** If you have a very large number of accounts, you may not want to choose All Accounts as the default—opening the Chart of Accounts
application could take an inconveniently long time. Choosing No Accounts as the default may save opening time.

Updating the Database

Use the Update Database dialog box (Figure 10.4) to update your database after making changes in Chart of Accounts. You have a choice of three ways to handle existing accounts when you update.

![Update Database Dialog Box](image)

Figure 10.4 Update Database Dialog Box

To update your database:

1. Choose Actions/Update Database to display the Update Database dialog box.

2. Choose one of the three update criteria:

   - **Overwrite Blank Accounts Only.** Choose this option if you want the updated Chart of Accounts data to overwrite only those affected MAXIMO GL Account fields that are currently blank.

     For example, if you created a new account code for an existing item type’s GL account field, choosing this option would overwrite only the item's GL Account field where it is blank, but not where a GL account has already been entered.
• **Overwrite Accounts With Old Defaults.** Choose this option if you want the updated Chart of Accounts data to overwrite GL account fields that still have the previous GL account.

For example, suppose an item type had a GL account code associated with it in Chart of Accounts. This account code was inserted on item records where the item type was involved. On some records, the account code was subsequently changed to another one. Choosing the Overwrite Accounts With Old Defaults option will **not** update those records in which the account code was subsequently changed.

• **Overwrite All Accounts.** Choose this option if you want the modified Chart of Accounts data to overwrite all relevant GL Account fields in MAXIMO records.

For example, if an item type has a GL account code associated with it in Chart of Accounts, choosing this option will fill in blank GL Account fields for that item type and overwrite all existing GL Account fields for items of that type, including ones that were subsequently changed.

3. Click OK.

**NOTE:** Historical records will not be updated.

*Make sure that no one is currently using MAXIMO when you update the database.*
Defining Financial Periods

All MAXIMO transactions can be set up to have a financial period stamp when they are generated. This means they must occur during an open, valid financial period. The format of the financial period is determined by the requirements of the accounting system used with MAXIMO.

Use the Financial Periods dialog box (Figure 10.5) to define financial periods in MAXIMO.

To Define a New Financial Period:

1. Choose Actions/Financial Periods to display the Financial Periods dialog box. Financial periods are ordered sequentially by date, with the most recent period at the top.

2. Click the Insert Row button.
3. Enter values in the following required fields. For dates and times, enter the value directly or click the Detail button and use the Date/Time dialog box. By default, the time is set to 12:00 a.m. for each date you enter.

**Period**  
The name or number for the period.

**From**  
The period start date. MAXIMO automatically enters the date/time of the preceding To field.

MAXIMO prevents time gaps and overlaps between periods. For example, if you change the From date to a later one, MAXIMO automatically adjusts the To date in the preceding row. If you change the date of an existing period, MAXIMO resets surrounding dates.

**To**  
The period end date.

4. If you want, enter a date in the **Accounting Close Date** field. This is the date after which no further transactions can be charged to that accounting period.

For example, an Accounting Period “X” is from 2/1/98 to 3/1/98, with an Accounting Close Date of 3/15/98. A transaction can be charged to the period “X” even though the transaction is reported as late as 3/14/98. After that date, no further transactions can be charged to that period.

Do **NOT** fill in the Actual Close Date field at this time.

5. Repeat the above steps as needed to add more time periods, then click OK.

6. When it is time to close a financial period, enter a date in the **Actual Close Date** field. This date may be on or after the date in the Accounting Close Date field, but cannot precede it.

After a user enters an Actual Close Date, and the cursor moves out of the field, MAXIMO automatically inserts the name of the user in the **Closed By** field.
After you close a financial period by entering an Actual Close Date, MAXIMO will not accept any financial transactions that users attempt to log for that period.

NOTE: If you want MAXIMO to validate financial periods entered on records, make sure the Validate Financial Periods box is checked in the GL Account Configuration dialog box in Database Configuration.

Merging GL Accounts

There are instances when a GL account field may not be uniquely specified. For example, there may be a GL account for a location and a GL account for a piece of equipment. Generation of work orders and other kinds of transactions often require choosing among account component values, and MAXIMO invokes a set of rules on how to handle them.

When GL accounts are merged, they are merged component by component, and a defined component always supersedes an undefined component. For example, if the first component of one account code is 600 and the other is ??? (a placeholder), the resulting merged first component will be 600.

For many transactions, the merge must choose between defined components. Refer to the MAXIMO 4i Finance Manager’s Guide for detailed information on how GL accounts merge during transactions.

STANDARD ACCOUNTING FUNCTIONS

Chart of Accounts includes dialog boxes for setting up default GL accounts for a number of standard accounting functions. You can set up these accounts within MAXIMO so that they will correspond to accounts you already use in your external accounting system. When you update the database, these account codes are also updated, depending on which of the three update choices you select (see Updating the Database, earlier in the chapter).
The dialog boxes you use to set up these default GL accounts are listed below. You access them from the Actions menu, and they all have associated Help topics.

- Inventory-Related Accounts
- Company-Related Accounts
- Internal Labor Control Accounts
- External Labor Control Accounts
- Internal Tools Control Accounts
- External Tools Control Accounts
- Labor Resource Codes
- Tool Resource Codes
- Inventory Resource Codes

Refer to the MAXIMO General Ledger Accounts chapter in the *MAXIMO 4i Finance Manager's Guide* for more information on using these accounts.
CHAPTER 11

DATABASE ADMINISTRATION

OVERVIEW

This chapter contains three sections:

• **Archive**  — Describes the Archive application, which lets you remove and restore data from the MAXIMO database. Archiving data is necessary when your database becomes excessively large. Within the Archive application there are options to archive Purchase Orders, Purchase Requisitions, Measurements, and Work Orders.

• **General Database Administration**  — Reviews the general tasks involved in administering and maintaining a database, such as generating system and database backups. Procedures vary according to database platform and are not provided here. You must refer to documentation specific to your database platform—Oracle or Microsoft SQL Server—for specific instructions.

ARCHIVE

You use the Archive application to generate scripts to use for off-loading data from MAXIMO tables, and for restoring data back to those tables. You use SQLTalk to run the scripts.
Archiving lets you remove older data from tables and store it off-line. This prevents the database from growing too large and running out of disk space. You can restore the archived data back to your database as needed.

The applications that have archiving options are: Purchase Orders, Purchase Requisitions, Measurements, and Work Orders. The tables containing data from these applications keep growing with each new record added. When records are closed or no longer used, the data is not automatically removed from the tables. Archiving becomes necessary when the database becomes excessively large.

By modifying the SQL WHERE clause for the archive, you can specify the particular criteria by which records are to be archived. For example, to archive work orders, you can specify all work orders older than a certain date. See your SQL Language Reference documentation for information about constructing WHERE clauses. It is a good idea to create a folder in which to place all script files.

Use Archive to remove data from the following tables:

<table>
<thead>
<tr>
<th>Archive</th>
<th>Tables</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Orders</td>
<td>WORKORDER</td>
<td>Work Orders</td>
</tr>
<tr>
<td></td>
<td>WOSTATUS</td>
<td>Work Order Status</td>
</tr>
<tr>
<td></td>
<td>EQHIERARCHY</td>
<td>Equipment Hierarchy</td>
</tr>
<tr>
<td></td>
<td>EQHISTORY</td>
<td>Equipment History</td>
</tr>
<tr>
<td></td>
<td>TOOLTRANS</td>
<td>Tool Transactions</td>
</tr>
<tr>
<td></td>
<td>POINTWO</td>
<td>Measurement Points by Work Orders</td>
</tr>
<tr>
<td></td>
<td>WPOPERATION</td>
<td>Work Plan Operations</td>
</tr>
<tr>
<td></td>
<td>WPLABOR</td>
<td>Work Plan Labor</td>
</tr>
<tr>
<td></td>
<td>WPMATERIAL</td>
<td>Work Plan Materials</td>
</tr>
<tr>
<td></td>
<td>WPTOOL</td>
<td>Work Plan Tools</td>
</tr>
<tr>
<td></td>
<td>WOSAFETYPLAN</td>
<td>Work Order Safety Plan</td>
</tr>
<tr>
<td></td>
<td>WOHAZARD</td>
<td>Work Related Safety Hazard</td>
</tr>
<tr>
<td></td>
<td>WOPRECAUTION</td>
<td>Work Related Safety Precaution</td>
</tr>
<tr>
<td></td>
<td>WOHAZARDPREC</td>
<td></td>
</tr>
</tbody>
</table>
Database Administration

WOTAGOUT Work Order Tagout Procedure
WOTAGLOCK Tag Out Procedure Step
WOLOCKOUT Work Order Lock Out Operation
(Optional) MATUSETRANS Material Usage Transactions
(Optional) LABTRANS Labor Transactions
(Optional) FAILUREREMARK Failure Remark Information
(Optional) FAILUREREPORT Failure Report
(Optional) EQSTATUS Equipment Status (downtime)

Purchase Orders
PO Purchase Orders
POSTATUS Purchase Order Status
POLINE Purchase Order Line Items
(Optional) MATUSETRANS Material Usage Transactions
(Optional) MATRECTRANS Material Receipt Transactions
(Optional) SERVRECTRANS Service Receipt Transactions

Purchase Requisitions
PR Purchase Requisitions
PRLINE Purchase Requisition Line Items
PRSTATUS Purchase Requisition Status

Measurements
MEASUREMENT Measurement Results

Archive Tabs

Archive has one tab:

- **Archive History** – To select the type of data to archive, to generate the archive and restore scripts, and to keep a history of past archives and restores.

Archive History Tab

You use the Archive History tab (Figure 11.1) to select the type of data to archive and to generate the archive and restore scripts. The following types of data can be archived: purchase orders, purchase requisitions, measurements (from the Condition Monitoring application), and work orders.
Each time you request data to archive, MAXIMO creates two scripts: an archive script and a restore script. You run the scripts in SQLTalk. The archive script copies the data to temporary archive tables, then deletes the selected data from the original MAXIMO tables. The restore script restores archived data from temporary tables to the original MAXIMO tables. You use database tools specific to your database platform to export the data from the temporary tables to a storage area, and to import the data back to temporary tables before running the restore script.

You must archive and restore each type of data separately. For purchase orders, you have the option of archiving the corresponding inventory transactions (material receipt and service receipt transactions). For work orders, you have the
option of archiving the data from the corresponding material usage transactions, failure, labor reporting, and/or downtime.

The Archive History table window displays the history of archives and restores in chronological order, with the most recent activities listed first. MAXIMO inserts a history entry each time you run a script, not when you generate it.

**WARNING:** The database administrator must ensure that another archive for the same table is not generated before the first archive procedure is completed and the data is exported. Otherwise, the second archive will overwrite the first, resulting in lost data.

**Types of Archive**

The Actions menu has the following menu items:

- **Archive Purchase Orders**
  Displays the Archive Purchase Orders dialog box; creates the archive and restore scripts for selected purchase orders and, optionally, for material and receipt transactions.

- **Archive Purchase Requisitions**
  Displays the Archive Purchase Requisitions dialog box; creates the archive and restore scripts for selected purchase requisitions.

- **Archive Measurements**
  Displays the Archive Measurements dialog box; creates the archive and restore scripts for selected measurements.

- **Archive Work Orders**
  Displays the Archive Work Orders dialog box; creates the archive and restore scripts for selected work orders and, optionally, for data on material usage transactions, failure data, labor reporting, and downtime.
Generating the Archive and Restore Scripts

Archiving Purchase Orders

Use the Archive Purchase Orders dialog box (Figure 11.2) to generate the archive and restore scripts for archiving purchase orders.

Figure 11.2  Archive Purchase Orders Dialog Box

1. Choose Actions/Archive Purchase Orders to display the Archive Purchase Orders dialog box.

2. In the Path field, specify the path and folder in which to store the scripts.

   NOTE: You can specify a default archive folder in MAXIMO.INI. In the [Archive] section, uncomment the ARCHPATH=C:\ARCHIVE line. Specify a default folder different from C:\ARCHIVE if you want.

3. In the Archive File field, enter the name of the archive script file. The default is POARCH.WTS. You receive an error message if the script already exists.

4. In the Restore File field, enter the name of the restore script file. The default is POREST.WTS. You receive an error message if the script already exists.
5. By default, material receipt transactions and service receipt transactions are archived along with purchase orders. If you do not want to archive these supplementary tables, uncheck the appropriate checkboxes.

6. In the Query box, modify the WHERE clause as needed. The default WHERE clause specifies that all records before the current date (sysdate) will be selected. You can add other criteria to the WHERE clause to narrow the selection.

7. Click OK. MAXIMO generates the scripts and saves them in the specified folder.

8. To actually archive the data, you must execute the scripts using SQLTalk. See Running an Archive Script, later in this chapter.

Archiving Purchase Requisitions, Measurements, and Work Orders

The procedures for generating the scripts for archiving Purchase Requisitions, Measurements, and Work Orders are essentially the same as for Purchase Orders. Please refer to MAXIMO online Help for the Archive application for specific instructions on these types of archives. You can access the help topics from the dialog box Help button or from the How Do I ...? button.

Running an Archive Script

After you generate an archive script, you use SQLTalk to execute the script. The steps are outlined below. Use the appropriate tools for your database platform to perform the export and backup parts of the procedure.

1. Open SQLTalk for Windows (from the MAXIMO Main Menu, click the Utilities icon and select Interactive SQL). Log on as the database schema owner (for example, MAXIMO).

2. Execute the archive script. The script:
   - Drops previously created temporary tables.
Chapter 11

• Creates temporary archive tables in the MAXIMO database.
• Copies data to the temporary archive tables.
• Deletes data from the original tables.
• Inserts a record into the Archive History table window.

3. Exit MAXIMO.

4. Using the appropriate tool for your database platform, export the data from the temporary archive tables. Refer to your database platform's documentation for instructions on how to do this. The list of tables to be exported can be found in the archive or restore script. Enter the list of tables when prompted for table name by the export utility.

5. After you have archived data, you must back up the export files from hard disk to tape or other storage medium so that you do not overwrite the data in a future archive. Conversely, the export files must be copied to hard disk at the appropriate location before you can restore data.

**NOTE:** The Archive script deletes data, which may result in fragmented space in your database. Therefore, after exporting the data from the temporary archive tables, you should use the appropriate tool for your database platform to consolidate your MAXIMO database.

**Example**

To run a Work Order archive script on the Maxdemo database (with the script residing in the C:\ARCHIVE folder):

Open SQLTalk for Windows.

Select Session, then Connect. In the Connect dialog box enter the Database, User Name, and Password.

- Database: MAXDEMO
- Username: MAXIMO
- Password: DEMO (or whatever you’ve set it to be)

Click on Connect and you are returned to the Input window.
(Instead of choosing Sessions/Connect, you can enter a direct command in
the Input window in the form: CONNECT database username password;
and press [Ctrl] + [Enter]. In this example you would enter:
CONNECT MAXDEMO MAXIMO DEMO; )

In the Input window enter: RUN C:\ARCHIVE\WOARCH.WTS;

Execute the script (e.g., press [Ctrl] + [Enter]).

Exit SQLTalk.

The data is now in the temporary archive tables. You must use the
appropriate tool for your database platform to export or unload the data
from the temporary tables.

Restoring Archived Data

You restore archived data in the same manner in which you run an archive script.
The steps to perform are outlined below. Use the appropriate tools for your
database platform to perform the import.

1. Using the appropriate tool for your database platform, import the exported
data to the temporary archive tables in the MAXIMO database. Refer to your
database platform's documentation for instructions on how to do this. The list
of tables to be imported can be found in the restore script. Enter the list of
tables when prompted for table name by the import utility.

2. Open MAXIMO.

3. Open SQLTalk for Windows (from the MAXIMO Main Menu, click the
Utilities icon and select Interactive SQL). Log on as the database schema
owner (for example, MAXIMO).

4. Execute the restore script. The script:

   - Copies data from the temporary archive tables to the original MAXIMO
tables.
• Inserts a record into the Archive History table window.

✓ Example  RUN C:\ARCHIVE\WOREST.WTS;

Archived Data and Configuring Your Database

If, after archiving data, you configure your database to change column data type or length, you will not be able to restore the data. If you need to reconfigure your production database, you can maintain the integrity of the archived data in a couple of ways.

You can maintain a separate database to contain only archived data. After you export data from your production database, use the restore script to import it into the archive database. Whenever you configure your production database, perform the same configuration changes on your archive database.

Another method is to restore all archived data to your production database before configuring. After configuring, archive the data again.

NOTE: You cannot simply restore archived data from a previous MAXIMO Release to a new release when the new release contains database changes. You must restore data from a previous release to the version from which it was archived, then perform an upgrade. Call Support for specific information. There are two strategies in dealing with upgrades:

1) Restore the archived data to the MAXIMO version and configuration that created it. The database can then be upgraded to the new MAXIMO version. You can then archive the data back to an archive file compatible with your current MAXIMO version.

2) Create an Archive database of the same version and configuration as your production database. This database will contain the shell structure of the database tables. The archive data can then be loaded into this history database. You can then upgrade this history database to the new version of MAXIMO when you upgrade your production database.
GENERAL DATABASE ADMINISTRATION

To maintain database integrity, to enhance database performance, and to insure against accidental loss of data, you need to perform a number of basic tasks. Procedures vary according to database platform. You must consult the documentation for your database platform—Oracle or Microsoft SQL Server—to obtain the specific procedures and commands.

Running a SQLTalk Session

1. Make sure your database server is up and running.

2. From the Start menu, choose Programs/MAXIMO Release 4.1.1/Interactive SQL.

   OR

   From a client workstation, using Windows Explorer, go to the folder into which you installed MAXIMO and double-click on SQLTALK.EXE.

   OR

   From the Modules list on the MAXIMO Main Menu, click Utilities and select Interactive SQL. Do NOT use this method when performing backups.

3. Connect to the database. You can choose Sessions/Connect and use the Connect dialog box, or you can enter a direct command in the Input window in the form: CONNECT database username password; and press Ctrl + Enter.

   For example, to connect to the MAXDEMO database as user MAXIMO with password MAXIMO, you would enter:

   CONNECT MAXDEMO MAXIMO MAXIMO;
For database administration, we recommend that you log in to your database as user MAXIMO. The default MAXIMO password is “MAXIMO.” For security reasons, you should change this when MAXIMO is first installed.

4. Once you’ve logged on to your database through SQLTalk you can enter SQL statements or special SQLTalk commands. Remember to end each command with a semicolon to instruct SQLTalk to process your command.

5. To exit SQLTalk, enter the command: **exit**;

### Backing Up and Restoring

Your MAXIMO software and database must be backed up periodically. Backups are used to recover from any event that damages or unintentionally alters the software and/or database.

Backup procedures can vary depending on the size of your database as well as the type of operation you are running. The procedures listed in this chapter are recommendations. There are several other methods that can be used.

You can perform a backup to any type of archive media: a hard disk drive, a tape unit, a CD, or diskettes. Hard disk drive backups offer the best performance and allow you to restore your system quickly. Tape drive unit backups are slower but allow you the convenience of keeping multiple sets (tapes) of your backups. Backing up to diskettes is the least convenient due to their limited capacity; however, they can be useful when backing up smaller databases, archive files, or specific executable files. Tape drive systems usually come with their own backup software. Consult your tape drive software documentation for assistance.

Your backups should be stored in a different location from your production database and application files.

As MAXIMO system administrator, you should schedule and regularly perform two types of backups: **system backups** and **database backups**.
System Backups

A backup that creates a complete copy of the MAXIMO software is called a system backup. A system backup lets you restore your entire MAXIMO system to its original state, including any customized applications and reports.

The frequency of performing a system backup is up to you. If you make changes to your system often, then you should perform a system backup often.

System backups should include the following folders, any subfolders below them, and any additional MRO Software programs you may have installed:

- Program files\your MAXIMO folder (where your MAXIMO folder may be Max411, or whatever was specified during installation)
- SQR5
- CRYSTAL (if installed)

If you installed programs to other folders, make sure to include them. For example, the MAXIMO Scheduler (if installed) is by default installed in a MAXSCHED subfolder under the default MAXIMO folder, but may be placed in its own folder.

**WARNING:** On LAN systems, system backups should be performed with all users logged out of MAXIMO.

Database Backups

Database backups copy only the database(s).

Because your data is being updated daily, you should perform database backups more frequently than system backups. A good general guideline for database backups is to do one once a day. This will ensure full recovery of data no more than one day old.
Database backups should be performed:

- after any long data entry session
- at the end of accounting and reporting periods
- before any critical event, such as an outage or plant turnaround
- before and after configuring the database

**Off-Line Backups**

You should perform off-line database backups with all users logged out of MAXIMO and the database server down. Copies of the database that are made while the server is up and users are connected may result in unrecoverable backups. If you are running MXServer (Application Server for business components), shut it down before performing the backup. You must restart both the database server and MXServer after performing the backup.

**Online Database Backups**

In addition to the standard system and database backups, you can perform online database backups. Online database backups can be carried out without bringing the database server down, allowing MAXIMO users to continue using the software while the backup is taking place. Online backups are more time-consuming than a standard (off-line) backup, but can be useful if you have a 24-hour operation and downtime needs to be kept to a minimum.

**Restoring System and Database Backups**

Test your restore procedure. Just because your backup procedure appears to be working properly does not mean a restore attempt will be successful. It is imperative that you verify and are familiar with the restore procedure prior to actually performing it.
Update Statistics

Perform the Update Statistics procedure (Analyze Table in Oracle) to ensure that selectivity factors have been updated when there have been significant changes to an index. We recommend performing an Update Statistics on a daily basis, especially if large amounts of data have been inserted, updated, or deleted. You can execute Update Statistics from the Actions menu in Database Configuration, or you can use a database-specific command.

Database Integrity

Verify the integrity of your database with commands specific to your database platform.
OVERVIEW

If your site uses the browser-based MAXIMO Buyer module, you use the Verity search engine to search for items.

The Verity search engine, a product from Verity, Inc., enables you to perform fast text-based searches against vast amounts of data. The search engine is independent of any database. It maintains data that needs to be searched in collections (the concept of a collection is similar to a database). If there are any updates to the database, the collection needs to be updated immediately to reflect the changes.

The Verity search engine has been tightly integrated with the Application Server for Business Components to search against a vast spectrum of inventory items. The integration process automatically updates MAXIMO database information in the Verity collections whenever a modification is made to the MAXIMO database. Consequently, the Verity collections are always up-to-date.

The Application Server uses two Verity collections to facilitate your search criteria:

- Item collection - used to search for items and to display the items found.
• Category collection - used to search for items and to display a list of categories in which the items are found.

In the Verity collections, each record is treated like a document. So most of the time, new documents are either being inserted, modified, or deleted from the collections.

The Verity search engine product provides a program, K2server, to facilitate client programs to access information from the collections. The Application Server makes use of this program to search against the collections.

VERITY CONFIGURATION

During the installation of MAXIMO 4i Release 4.1.1, a VERITY folder is automatically created under the MXSERVER folder, along with other subfolders, namely, Collections, Defaultsytles, and K2220.

To start using the Verity search engine, you need to perform the following steps:

1. Build collections.
2. Run Verity as a Windows NT service.
3. Update the collections.

Building Collections

Building a collection means copying all the data from the database into the Verity collections.

Whenever a collection needs to be created, Verity requires a set of style files to dictate the rules associated with the collection. The default style files used for the Item and Category collections are itemstyles (for item styles) and catstyles
(for category styles), respectively, and are kept under the <MXSERVER ROOT>\VERITY\DEFAULTSTYLES folder.

We recommend that you do not make any modifications to the catstyle file, because in most cases, it doesn’t need them. You may, however, modify the itemstyle file to include specific item fields that you would like to use for the search. For details on adding new styles, refer to Adding New Fields to the Item Collection, later in this section.

To build the Verity collections, perform the following steps from the command prompt in the <MXSERVER ROOT> folder:

- Run the BULKLOADITEMS.BAT file to build the item collection with data from the database.
- Run the BULKLOADCATEGORIES.BAT file to build the category collection with data from the database.

These two batch files reside in the <MXSERVER ROOT> folder and create the collections under the <MXSERVER ROOT>\VERITY\COLLECTIONS folder by default. If you want to create the collections in a folder other than the default, then appropriate arguments should be passed to the batch files. Open the batch files using Notepad and take a look at the usage.

To access the collections after you build them, you must stop the searcheserverservice (if you are currently using it) and restart it.

**Adding New Fields to the Item Collection**

A GENERATEITEMSTYLES.BAT file is provided to add new fields to the item style file.

From the <MXSERVER ROOT> folder, go to the command prompt and run the GENERATEITEMSTYLE.BAT file and pass the following three arguments:
1. Specify the path where the common item style files are present. The folder is PSDI/SEARCH/COMMON and the common item style files are itemstyle (the item style files) and catstyle (the category style files).

2. Specify the destination folder name where you want the new style files to be stored.

3. Specify the name of the properties file (in this case MXSERVER.PROPERTIES). The MXSERVER.PROPERTIES file contains information about the fields that you want in the Verity collections. The property that needs to be modified is “mxe.verity.bulkload.field1”, followed by the values for the item name and the column name from the ITEM table in the database. You can keep adding new fields but all of them need to be in continuous incremental order. For example, mxe.verity.bulkload.field1, mxe.verity.bulkload.field2, etc. After you have added the new item styles, specify the total number of new styles you created by entering the count in the property “mxe.verity.bulkload.totalfieldcount=1”. By default, it is 1. For example, if you have added five new item styles, the property should read “mxe.verity.bulkload.totalfieldcount=5”.

### Modifying Synonym Lists

Synonym lists in Verity are lists of words that are treated as synonyms (words that mean the same) by the search engine. When you run a search on one word, Verity automatically searches on not just that word, but also on all the other words specified as synonyms. For example, if “tubing,” “pipe,” and “hose” are listed as synonyms, Verity will look for all of those words when you run a search on any one of them.

To modify the synonym lists, you perform the following steps:

1. Back up your current synonym file.

   Make a copy of the synonym file, mrothesaurus.sydict (located in the verity\thesaurus folder) and place it in another folder.
2. Create an ASCII file from the synonym file.

Use the `mksyd` command (located in the `verity\k2220\nti40\bin` folder in the install folder) to create the ASCII file. Go to the `<MXSERVER ROOT>` folder and run the command:

```
verity\k2220\nti40\bin\mksyd -dump -syd verity\thesaurus\mrothesaurus.syd -f synonyms.txt
```

where `synonyms.txt` is the name of the ASCII file you create.

3. Edit the ASCII file.

The ASCII file will be in the form of the following example:

```
$control:1
synonyms:
{
  list: "6 POINT,WRENCH,SOCKET"
  list: "ABRASIVE,WHEEL"
  list: "ABSORBER,ABSORBENT"
}
$$
```

Note that “list” is a keyword and each line of synonyms is “circular,” meaning that each word on a line will match all others on the same line. For example, if you query on “wrench,” the query will expand to also search for “socket” and “6 point.”

Edit the file by inserting comma-separated entries on existing lines or adding new lines of the same format.

4. Create a binary file from the ASCII file.

You create a binary version of the edited ASCII file and this becomes the new `mrothesaurus.syd` file. Use the `mksyd` command to create the binary file. Go to the `<MXSERVER ROOT>` folder and run the command:
verity\k2220\_nti40\bin\mksyd -f synonyms.txt -syd verity\thesaurus\mrothesaurus.syd

where synonyms.txt is the name of the ASCII file you edited.

5. Stop and restart the K2server if you are currently using it as a service. The new synonyms will then take effect.

Running Verity as a Windows NT Service

You can set up Verity to run as a Windows NT service. From the command prompt in the <MXSERVER ROOT> folder, type the command searchserverservice -install. To start the service, go to the Control Panel, click on Services, select the Verity Service and click on Start.

To start Verity without running it as a Windows NT service, go to the command prompt in the <MXSERVER ROOT> folder and run the K2SERVER.BAT file. This file takes information from the <MXSERVER ROOT>\K2SERVER.INI file. The K2SERVER.INI file provides the K2Server information about what collections need to be searched by the client programs.

NOTE: Your screen will show the words "Pinging localhost:9900->Dead." This is not an error message; it indicates the Verity server is running.

Updating the Collections

Once the Verity collections are built, the application server maintains the collections through a scheduled task. The scheduled task program keeps the Verity collections up to date with the data in the database.

The following property in the MXSERVER.PROPERTIES file specifies the time interval for running the scheduled task:

mxe.cronTask.psim.server.VeryCollectionSubmitCronTask=10m
For example, the above property indicates that the scheduled task should run every 10 minutes. You can specify any time interval at which you want the scheduled task to run.

Whenever the application server is started, the application server program looks for this property in the properties file and starts the appropriate scheduled task program. The scheduled program checks for any updates made to the item table and appropriately changes the Verity collections data.

Whenever changes are made to the item table, the database triggers update the VERITYACTION table with the appropriate information. The scheduled task program reads information from the VERITYACTION table and appropriately updates the Verity collections.

**Setting Verity Commodity Restrictions**

*NOTE: A general discussion of commodity restrictions and how to set them up in the MAXIMO database is in Chapter 13, Self Service Applications.*

Commodity Restrictions can be applied on the Item and Category Verity Collections so that members of a particular MAXIMO user group can only see a subset of the entire collection.

Perform the following steps to set up the MAXIMO Verity Commodity Restrictions.

1. Decide which MAXIMO user group(s) you want to authorize or restrict.

2. Using SQLTalk, modify the MAXGROUPS and COMMODITYAUTH database tables to specify which user groups to restrict or authorize, and to specify which commodity categories are involved. For detailed instructions, see the Setting Up Commodity Restrictions section of Chapter 13, Self Service Applications.
3. From the command prompt in the `<MXSERVER ROOT>` folder, run the `generateCommodityRestrictions.bat` file.

4. Shut down the K2Server and edit the K2Server.ini file. Uncomment the `topicset` setting for Item and Category Collection.

5. Restart the K2Server.

6. Edit the MXServer.properties file. Change the `mxe.verity.useCommodityRestriction` setting to `true`:

   ```
   mxe.verity.useCommodityRestriction=true
   ```

7. Restart the MXServer (and JSPServer, if the JSPServer is started separately).

Once you have set up the K2Server to use Commodity Restrictions (as described above), you do not have to shut it down to apply additional changes to the MAXIMO database regarding user groups and commodity categories (the MAXGROUPS and COMMODITYAUTH tables). After making the database changes, run the `generateCommodityRestrictions` batch file, located in the `<MXSERVER ROOT>` folder. The K2Server will automatically detect the changes.
CHAPTER 13

SELF SERVICE APPLICATIONS

OVERVIEW

This chapter describes some administrative matters regarding the browser-based MAXIMO Self Service Applications, such as Buyer Requisitions and Work Requests, which you may have at your site. In the context of this chapter these browser-based applications will be collectively referred to as MAXIMO Buyer. Information on using these applications is provided in their online Help.

Some of the administrative procedures described in this chapter require using SQLTalk to modify the database directly, and some procedures require modifying .JSP files. The instructions assume you are familiar with viewing, inserting, and modifying records with SQLTalk, and with editing .JSP files.

The administrative topics covered here include:

- Setting default vendors for items
- Generating autonumbers for special order items
- Changing the automatic time-out periods
- Setting up commodity restrictions
• Specifying how categories are displayed
• Receiving and managing electronic invoices
• Searching Description and Long Description fields
• Setting up to use linked documents
• Changing the default schema owner
• Registering new MAXIMO Buyer users
• Configuring Tomcat to run with IIS (Microsoft’s Internet Information Server)

SETTING A DEFAULT VENDOR FOR AN ITEM

Within the Inventory application, you can set a default vendor for an item. This allows you to specify the preferred vendor for an item being ordered by a requisitioner in MAXIMO Buyer when that item is not being ordered from a storeroom. You may, for example, want to specify a default vendor for some nonstocked items. (The Buyer user can change the default vendor if he or she wants.)

The procedure for specifying a default vendor for an item ordered via MAXIMO Buyer involves two parts. Each is later described in detail.

• Unhiding the Default Vendor? field in the Reorder Details table window in the Inventory application.
• Specifying the vendor for the item, and setting the associated Default Vendor? field to Y in the Reorder Details table window in Inventory.
Unhiding the Default Vendor? Field in Reorder Details

1. Open the Screen Editor (Object Nationalizer).
2. Open Inventor.exe.
3. Open the Windows folder and double-click on frmReorderDet (the Reorder Details form).
4. From the Tools menu, choose Preferences; then click Use Customizer, then click OK.
5. Click the Layout tab at the bottom of the right pane.
6. From the Layout menu, choose Show Hidden Windows.
7. Scroll in the table window to the column titled Default Vendor?. Right-click on Default Vendor?, and choose Properties/Visible/Yes.
8. Save your changes and exit Object Nationalizer.

Setting a Default Vendor for an Item

1. Open the Inventory Control application.
2. Display the record of the item for which you want to set a default vendor.
3. Click the Reorder Details tab.
4. If necessary, in the Vendor field in the table window, enter the vendor you want used as the default vendor.
5. Scroll to the Default Vendor? field for that vendor row, and change the N to Y.
6. Save the record.
Now, whenever a user of MAXIMO Buyer requisitions an item for which you have specified a default vendor, and the Storeroom field on the Buyer requisition line is not filled in, the default vendor will be listed in the Vendor field.

**GENERATING AUTONUMBERS FOR SPECIAL ORDER ITEMS**

“Special order items” are items that you do not normally carry in inventory, which therefore have no inventory item number. When you order one, it is a special order, and you need to order it by description. The item description is generally sufficient for ordering and tracking purposes for special order items.

However, you may want special order items to have item numbers generated for them.

To specify that item numbers be automatically generated for special order items:

1. Use SQLTalk to access the MAXVARS database table.

2. Insert a record in MAXVARS where VARNAME = AutoGenSpecOrdItem and VARVALUE = Y (or whatever the YES VARNAME is defined as):

   INSERT INTO MAXVARS (VARNAME, VARVALUE) VALUES ('AUTOGENSPECORDITEM', 'Y');

If the VARNAME record is either not there at all or is set to N, then no item number will be automatically generated for special order items.

**CHANGING THE AUTOMATIC TIME-OUT PERIODS**

A default setting has been set on MAXIMO Buyer to log off a user’s browser session after 30 minutes of inactivity. You can change the default value for the automatic time-out period.
To change the time-out period for using MAXIMO Buyer, change the parameter `session.setMaxInactiveInterval(1800)` to a different number. The default is 1800 and the field is in seconds. For example, replacing 1800 with 3600 would increase the time-out period from 1800 seconds (30 minutes) to 3600 seconds (60 minutes). Change the setting to an identical new value in these three files:

- `/jsp/common/system/login.jsp`
- `/jsp/app/dr/localinventory.jsp`
- `/jsp/app/dr/reviewreq.jsp`

To change the time-out period in place for MAXIMO Buyer while a user is using marketplace, change `session.setMaxInactiveInterval(7200)` to a different value in this file:

- `/jsp/common/ecatalog/main.jsp`

**SETTING UP COMMODITY RESTRICTIONS**

Commodity restrictions can be put in place in order to restrict requisitioning of certain commodities (classifications of inventory items) to specified user groups. For example, you may want to allow electrical equipment to be ordered only by users in the electricians' groups.

Establishing commodity restrictions is dependent upon using the Asset Catalog Setup application to classify your inventory items. Only items placed in a classification system can be specifically designated as available or unavailable for requisitioning by a user group. Items that are not classified are always available for requisitioning by all users.

Commodity restrictions are set up in the MAXIMO database, outside of the MAXIMO and MAXIMO Buyer applications, via SQLTalk.
How to Set Up Commodity Restrictions

You can set up commodity restrictions by accessing the MAXIMO database via SQLTalk. You should be familiar with the MAXIMO database tables and using SQLTalk to query and update database table and record information.

Approach

The default setting for all MAXIMO user groups is that they have no commodity restrictions—all items in all categories are available to be requisitioned.

If you want to limit the classifications users can order from, you first need to identify the group or groups for which you want to specify authorizations or restrictions. Authorizations or restrictions are done by group, and by item classifications (which are set up via the Asset Catalog Setup application). Note that any items not classified are available to be ordered by all users.

There are two basic approaches:

Authorize  Select a user group and identify the only item classifications from which group members can order. Use this approach when the list of classifications or commodities you want to make available is shorter than the list of unavailable classifications; e.g., if a group can order from only two of the 20 inventory classifications. Any classification that is not specifically authorized is therefore restricted—not available for ordering from.

Restrict Select a user group and identify the item classifications from which members cannot order. Items in all other classifications would remain available to be requisitioned. Use this approach when the list of classifications or commodities you want made unavailable is shorter than the list of available classifications; e.g., if the group can order from all but four of the 20 inventory classifications.
For any one group you can only specify a list of available classifications, or a list of unavailable classifications. You cannot list some as available for ordering from, and others as unavailable.

**Steps**

Restricting groups' requisitioning rights involves making changes to two tables: MAXGROUPS and COMMODITYAUTH. You may also need to refer to other tables; for example, the CLASSSTRUCTURE for class structure ID information, i.e., the identifier of the classification or commodity.

Follow the steps below to authorize a group to requisition only the specified commodities (item classifications).

1. Start SQLTalk.
2. Display the MAXGROUPS table. The USECOMMODITYAUTH column for all groups is initially set to N, no.
3. Update the USECOMMODITYAUTH column to Y for the group(s) whose users you want to either restrict or authorize access to commodities. For example, if you want to restrict or authorize a group named PURCH3:
   
   ```
   update maxgroups set usecommodityauth='Y' where grpname='PURCH3';
   ```

4. If you want to **authorize** commodities, leave the COMMAUTHINCLUDE column set to Y, the default. If you want to **restrict** commodities, update the COMMAUTHINCLUDE column to N, no. For example, to restrict commodities:
   
   ```
   update maxgroups set commauthinclude='N' where grpname='PURCH3';
   ```

5. Display the COMMODITYAUTH table.
6. Insert or update rows in the COMMODITYAUTH table as needed. Each row includes a GRPNAME and a single CLASSSTRUCTUREID; therefore you
need multiple rows to restrict or authorize multiple item classifications for a single group. Do this based on the Y or N setting in the COMMAUTHINCLUDE column in MAXGROUPS; if set to Y, items in the classification IDs you list can be requisitioned; if set to N, the classifications you list will be unavailable for requisitioning.

For example, if you are setting up restrictions for the first time for the group PURCH3 and you want members of PURCH3 to be able to requisition only items classified as PUMP or BEARING, you would set USECOMMODITYAUTH to Y in step 3, leave COMMAUTHINCLUDE set to Y in step 4; then insert the following in the COMMODITYAUTH table:

```
insert into commodityauth (grpname, classstructureid) values ('PURCH3', 'PUMP');
insert into commodityauth (grpname, classstructureid) values ('PURCH3', 'BEARING');
```

To allow members of PURCH3 to be able to requisition items from any classifications except PUMP and BEARING, you would do exactly the same except that in step 4 you would set COMMAUTHINCLUDE to N.

**NOTE:** If you are using the Verity Search Engine, you must perform some additional steps to enable it to use commodity restrictions. See the Setting Verity Commodity Restrictions section of Chapter 12, "Verity Search Engine."

Once the database tables are updated as outlined above, the restrictions are in place. When a user submits a requisition with a restricted item on it, an error message is displayed noting that the line item cannot be submitted due to lack of user authorization.
SPECIFYING HOW CATEGORIES ARE DISPLAYED

When you click Create/View Requisition on the Main Menu, the Requisition Screen is displayed. To begin searching catalogs, click the Search Catalogs tab.

Depending on your site's configuration, you can choose to search local inventory, or external supplier catalogs, or the MRO Hosting Center. If you choose to search local inventory and your site has categorized its inventory, you can use two methods to search for items and services: Keyword Search and Category Drilldown.

A line at the top of the Category Drilldown area shows the letters of the alphabet and the word All. You can click on any letter to display top-level categories beginning with that letter, or click on All to display all top-level categories.

The default display for the Category Drilldown is to show all top-level categories. MAXIMO Buyer provides two other options for initial display of inventory item categories:

- Display the top-level categories for items beginning with a specific letter.
- Do not display category drilldown information.

You can change the category display setting in the LOCALINVENTORY.JSP file, in the /jsp/app/dr folder. The parameter name is cddConfig (for "category drilldown configuration"). The three acceptable values are: none, all, and a letter from A-Z.

none Prevents the Category Drilldown section on the Search for Items and Services to Requisition screen from being displayed.

all The Category Drilldown section initially displays all top-level categories (the default setting).
A-Z  The Category Drilldown section initially displays all top-level categories that begin with the specified letter.

If your site categorizes inventory via the Asset Catalog application and has many top-level categories, you may want to initially display a top-level category starting with a specific letter. In this case you would specify the letter, e.g., P if you wanted Pump to be displayed by default.

If your site does not use the Asset Catalog application to categorize inventory, you may not want to see the Category Drilldown section at all, since there are no categories to display. In this case you would specify none.

E-COMMERCE CAPABILITY USING MAXIMO

The browser-based Self Service applications, along with supporting technology, make electronic commerce (e-commerce) possible in MAXIMO.

To engage in e-commerce transactions, both your company and the supplier need to be e-commerce enabled. E-commerce suppliers will have their catalog available at the mroHosting Center or an external website. Both the supplier and the buyer may have relationships approved and accounts set up with each other.

Users generate requisitions via the browser-based Self Service applications, which include searching and requisitioning screens. Your site can be set up to automatically generate approved POs from these requisitions, and route them directly to an e-commerce enabled supplier. Or the requisitions can be routed through Workflow to the purchasing agent or other appointed individuals in your company. Once a requisition has become an approved PO, the PO is sent to the supplier via an OAG XML transaction. Further transactions and notifications regarding the PO and its status can be handled electronically, with no paperwork involved.
The e-commerce transactions that can occur between the buyer and the supplier include the following:

- **Buyer initiated transactions**
  - PO Transaction – this transaction sends the PO to the supplier and is the first transaction sent to the supplier.
  - Cancel PO – this transaction sends the PO cancellation notice to the supplier.

- **Supplier initiated transactions**
  - Acknowledge PO – this transaction confirms that the PO was received by the supplier and is the first transaction received back from the supplier.
  - Vendor Order Status – this transaction is generated once the PO information has been reviewed by the supplier and relays any issues related to the order to the buyer and requisitioner.
  - Advance Ship Notice (ASN) – this transaction provides information detailing the intent to transport a specific quantity of items from a supplier to a single destination.
  - Invoice – this transaction provides invoicing information on items shipped.

For supplier companies you regularly do business with, you will want to create a Companies record in MAXIMO and fill out its E-commerce Details section. Refer to the online help in the Companies application for more information.

Purchasing agents may want to create a Labor record in MAXIMO. Creating a Labor record gives them the ability to receive transaction e-mail notifications, like Vendor Order Status or Advance Ship Notice. The system administrator can also set this record up for them. The requisitioner can receive these same notifications, if they also select the TRANSEMAILELECTION in the Profile Page of MAXIMO Buyer.
Receiving and Managing Electronic Invoices

The ability to receive electronic invoices and, optionally, to have the receipt of the invoice automatically initiate a Workflow process, can be configured in your MAXIMO application.

Setting Up to Receive Electronic Invoices

To set up to receive electronic invoices from a company:

1. Go to the Companies application and display the company record.

2. In the E-Commerce Details section of the Company tab, make sure the E-Commerce Enabled field is set to Y. Refer to Companies Help for information about these e-commerce fields.

3. Set the Vendor Sends Invoice field to Y.

   NOTE: If E-Commerce Enabled is set to Y but Vendor Sends Invoice is set to N, then the company must send a manual invoice.

When an electronic invoice is received, it creates a new record in the Invoices application, populating the INVOICE and INVOICELINE tables.

Setting Up to Have an Electronic Invoice Initiate a Workflow Process

In addition to receiving an electronic invoice, you can have the receipt of the invoice initiate a Workflow process. This assumes that a Workflow process has been created to handle the electronic invoice—for example, sending the invoice to someone to be approved.

To have the electronic invoice initiate a Workflow process:

1. Change the EINVOICEAPPRPROC setting in the MAXVARS table from N (the default) to Y. This procedure is described in detail later in this section.
2. On the Company tab, set the Auto Approve Invoice field to Y.

The MAXVARS setting enables automatic initiation of the Workflow process, and the Auto Approve Invoice field allows you to specify by Company whether you want to utilize that procedure.

If both settings are set to Y, the electronic invoice creates a new Invoice record and initiates a Workflow approval process.

If an electronic invoice is received and the EINVOICEAPPRPROC setting in MAXVARS is Y, but there is no active Workflow process, then an e-mail message will be sent to the system administrator identified in the MXServer.properties file, under Workflow Related Properties. The e-mail will state: “The Invoice Approval Process is unable to be started because no active workflow process exists for Invoice. Either start a Workflow Process, or change the EINVOICEAPPRPROC Flag to N.”

Regardless of what action the system administrator takes, the electronic invoice data will still be inserted into the INVOICE and INVOICELINE tables.

**Changing the MAXVARS Setting**

To change the EINVOICEAPPRPROC setting in the MAXVARS table:

1. Open SQLTalk.

2. View the current Workflow initiation setting:

   ```sql
   SELECT * FROM MAXVARS WHERE VARNAME='EINVOICEAPPRPROC';
   ```

3. To change the status, issue the following command, inserting Y or N for the VARVALUE as appropriate:

   ```sql
   UPDATE MAXVARS SET VARVALUE='Y' WHERE VARNAME='EINVOICEAPPRPROC';
   ```
Chapter 13

SEARCHING DESCRIPTION AND LONG DESCRIPTION FIELDS IN MAXIMO BUYER

MAXIMO Buyer provides the ability to search for items, requisitions, and work requests based on text in the Description fields and in the Additional Comments (long description) fields. Description and Additional Comments have been added as search fields to the Search for Items, Search for Work Requests, and Search for Requisitions screens.

Searching on the Description fields is available upon installation. Searching long description fields requires a brief setup procedure for Oracle users.

NOTE: Searching on the Additional Comments (long description) fields is available in the MAXIMO Buyer self-service applications only; it is not available in the other MAXIMO applications.

SQL Server Users

If your site uses the Microsoft SQL Server database, no setup is needed. Searching on the Additional Comments (long description) fields, as well as the Description fields, is available immediately upon installation of MAXIMO Buyer.

Oracle Users

If your site uses the Oracle database platform, you must decide whether you want to make the ability to search on the Additional Comments fields available to your users. Upon installation, this feature is not available, as it requires reconfiguration of the database. You should consider the pros and cons discussed below in the Considerations section. If you want to make searching via long description fields available, follow the procedures covered in the Setup section.
Considerations

The Oracle data type (longvarchar) associated with MAXIMO long description fields cannot be searched by SQL. The new Database Configuration option discussed below allows you to change the long description field data type to varchar; this data type is searchable, but can hold less data than longvarchar.

In deciding whether or not to use the option to convert your Oracle long description fields’ data type, you need to weigh the advantages versus possible disadvantages. The advantage is enhanced querying ability. The disadvantage is a limit on the amount of data long description fields can hold, and the loss of any existing data that exceeds the limit. You need to consider whether you have any, or many, long descriptions that contain more than 2K (if you use Oracle 7) or 4K (Oracle 8) of data. Data exceeding 2K or 4K will be truncated in the long description fields’ data type conversion.

If you do not want to enable searching on Additional Comments fields, do nothing.

Setup

If you do want to enable searching Additional Comments (long description) fields, follow the steps below. Be aware that the conversion will reduce the size of long description fields to 2K for users of Oracle 7 up to Oracle 8, and to 4K for users of Oracle 8 and above.

To enable the ability to perform SQL searches on long description fields in MAXIMO Buyer:

1. In MAXIMO, open the Database Configuration application.
2. Choose Actions/Long Description Search Setup.
3. Check the Enable Long Description Searches check box.
4. Click OK.

If your data will be truncated, you receive a warning message noting that any long descriptions exceeding 2000 bytes (Oracle 7) or 4000 bytes (Oracle 8) will be truncated. Click OK to continue. Database Configuration automatically shuts down and the Data Dictionary is reloaded.

If your data will not be truncated, you receive no message and Database Configuration shuts down, as above.

5. Configure your database to complete the conversion of the long description fields' Oracle data type.

For users of Oracle 8 and above, long description fields will be changed to varchar, 4K characters. For users of Oracle 7i to Oracle 8, long description fields will be changed to varchar, 2K characters.

You can now search on text in the Description and Additional Comments fields in the self service applications.

NOTE: If you do not use the Long Description Search Setup action, users attempting to search on the Additional Comments fields in MAXIMO Buyer will receive a message noting that the field is not currently searchable.
SETTING UP MAXIMO BUYER TO USE LINKED DOCUMENTS

MAXIMO-Based Setup

There are two general steps you need to take within MAXIMO in order to set up MAXIMO Buyer so that linked documents can be used. You need to define document types for MAXIMO Buyer, then register documents with the MAXIMO Buyer application so that they are available from within MAXIMO Buyer.

Define Document Types

1. Open any MAXIMO application that has the Linked Documents tab (e.g., Work Orders or Purchase Orders).

2. Display a record (e.g., a work order or PO).

3. Click the Linked Documents tab.


5. Select MAXIMO Buyer from the Owner Application drop-down menu.

6. Enter a name in the Document Type field and provide a description.

7. In the Default Path field, enter the path and directory that all documents of this type will be stored in when the document is attached to a requisition line for access from a browser.

You can create as many document types as you need for documents within MAXIMO Buyer. These are the document types that will appear in the Document Type field and the Document Types drop-down menu on the MAXIMO Buyer Linked Documents screen.
Register Documents

Documents can be registered to the MAXIMO Buyer (Desktop Requisitions) application so that they are available from within MAXIMO Buyer for linking to requisition lines. These documents will be displayed in the Document Library on the MAXIMO Buyer Linked Documents screen. You register documents via the Document Registration option on the Insert menu of MAXIMO applications that contain the Linked Documents tab.

A “document” can be either a file or a website URL. The File tab is used primarily for documents such as CAD drawings and .PDF files located on your network. The WWW tab is used to attach a URL address from the Internet. Both will be displayed in the Document Library by document type.

A copy of all registered documents that you want available for use in MAXIMO Buyer must be located in the default directory as specified for that document type in MAXIMO.

MXServer-Based Setup

You also need to do some setup work within the root directory of the MXServer machine.

Editing the Doclink.properties File

*NOTE:* Directory and file names are case sensitive; they must match exactly for the web server to find them. This is true for both doclink properties and for server.xml entries.

In the MXServer directory there is a file called doclink.properties, which maps the locations of the files as specified in MAXIMO (see above) to a location accessible by MXServer. You need to edit the doclink.properties file.
Specifying the Paths for Your Document Types

The paths for your document types (which you set up in MAXIMO) need to be specified in this file. You must enter the document type paths so that the MXServer can locate the documents in order to display them in your browser.

Example: In MAXIMO, you specified the location of a CAD file as: S:\DOCLINKS\CAD\cad1.doc. MXServer is running on a machine named MAXBUYER1.

The following entry must be made to the doclink.properties file:

S<PATH>\DOCLINKS\CAD=http://MAXBUYER1/DOCLINKS/CAD

The text to the left of the equals sign must match what you entered in MAXIMO, with double back slashes instead of single. Note that "<PATH>" replaces the colon after the drive letter.

You should make a similar entry for each document type location you specified in MAXIMO. You can also specify the location without drive letters:

\DOCLINKS\CAD=http://MAXBUYER1/DOCLINKS/CAD

Specifying the Default Path for Storing Newly Linked Documents

The doclink.properties file is also used to specify the default path for storing documents that are linked via MAXIMO Buyer.

If, in MAXIMO, you created a document type, but failed to specify the document path, then this default path is the location that will be used for saving documents attached via MAXIMO Buyer.

You should edit the path specified to the right of the equals sign in the example default path listed in doclink.properties (mxe.doclink.doctypes.defpath=…).
Example: In MAXIMO, you created a document type, PERMITS, but failed to specify a default path. In MAXIMO Buyer, when you attach a document of type PERMIT to a requisition line, it will be stored in the directory specified by mxe.doclink.doctypes.defpath=.

You might specify this entry as mxe.doclink.doctypes.defpath=S:\\DOCLINKS\\MISCELLANEOUS.

Editing the MXServer\conf\server.xml File

The \MXServer\conf\server.xml file will also have to be modified so that the Web server can find the doclink directories if they are outside of the \MXServer folder. The <Context> entries in the jpsserver.xml must coincide with those entries in the doclink.properties file.

Example: If documents reside in the S:\DOCLINKS\CAD and S:\DOCLINKS\PERMITS directories, the following entries should be made in server.xml:

```xml
<Context path="/DOCLINKS/CAD" docBase="S:/DOCLINKS/CAD" debug="0" reloadable="true" />

</Context>

<Context path="/DOCLINKS/PERMITS" docBase="S:/DOCLINKS/PERMITS" debug="0" reloadable="true" />

</Context>
```
CHANGING THE DEFAULT SCHEMA OWNER

If you change the default schema owner of MAXIMO to another username, you must also change the following files to reflect the new schema owner's username and password:

- The username and password in the LOGINHEADER.JSP file. This file is located in the JSP\APP\USERREG subfolder of the MXSERVER folder.
  
  In the following example, \textit{username} and \textit{password} have each replaced maximo:

  
  Authenticator.setUserName("username");
  Authenticator.setPassword("password");

- The mxe.db.user and mxe.db.password properties in the MXSERVER.PROPERTIES file.

REGISTERING NEW MAXIMO BUYER USERS

MAXIMO Buyer users can register themselves, as described in MAXIMO Buyer online Help. Thus, you do not have to individually add those new users to MAXIMO.

- Using the Set Login Controls dialog box in Signature Security, you can specify the default group into which self-registered new users are placed.

- Using the Authorize Reassignment to User Groups dialog box in Signature Security, you can grant supervisory personnel the authority to reassign self-registered users from the default group to other groups.
The current version of Tomcat JSP Server used by MAXIMO can operate in conjunction with Microsoft's Internet Information Server (IIS). This setup is recommended if more than 40 users will be concurrently running self-service applications or if additional security is desired.

You must use IIS 4 or higher.

Configuring the Tomcat JSP Server to run with IIS involves three Tomcat redirector entities:

- ISAPI_REDIRECT.DLL – The IIS server plugin. This file is in the <mxserver root>\conf folder.

- WORKERS.PROPERTIES – A file that describes the host(s) and port(s) used by the workers (Tomcat processes). A sample workers.properties can be found under the <mxserver root>\conf folder.

- URIWORKERMAP.PROPERTIES – A file that maps URL-Path patterns to workers. A sample uriworkermap.properties can be found under the <mxserver root>\conf folder as well.

To configure the Tomcat JSP Server to run with IIS, you must fully complete the instructions contained in all three sections of this chapter:

- Registry Changes (page 289) – This section describes how to edit, if necessary, the IIS-TOMCAT.REG file and how to place this file into your registry.

- IIS Management Console Changes (page 292) – This section describes how to create two new virtual directories to your IIS web site.
• Editing Files (page 306) – This section describes detailed edits required for the SERVER.XML, WORKERS.PROPERTIES, and URIWORKERMAP.PROPERTIES files.

Registry Changes

The following section describes how to edit (if necessary) the IIS-TOMCAT.REG file, located in the APACHE folder of your CD, and how to place this file into your registry.

1. Copy the IIS-TOMCAT.REG file, found on either the Release 4.1.1 Self-Service Requisitions CD or Release 4.1.1 Self-Service Work Requests CD, to the C:\temp folder where C is the letter on your local drive.

2. Right-click on the IIS-TOMCAT.REG file in your C:\temp folder. Click Edit.

   If you installed Self-Service Requisitions and/or Self-Service Work Requests to the default MXSERVER folder (in bold), no editing changes are necessary. Go directly to step 4.

   [HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Jakarta Isapi Redirector\1.0]

   "extension_uri"="/jakarta/isapi_redirect.dll"
   "log_file"="c:\mxserver\logs\isapi.log"
   "log_level"="info"
   "worker_file"="c:\mxserver\conf\workers.properties"
   "worker_mount_file"="c:\mxserver\conf\uriworkermap.properties"

3. If you installed Self-Service Requisitions and/or Self-Service Work Requests to any folder other than the default MXSERVER folder, you must edit the IIS-TOMCAT.REG file as shown below.

   In the following example, mxserver411 (in bold) has been substituted for mxserver. You should substitute your folder name for MXSERVER411.

   [HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Jakarta Isapi Redirector\1.0]
"extension_uri"="/jakarta/isapi_redirect.dll"
"log_file"="c:\\mxserver411\\logs\\isapi.log"
"log_level"="info"
"worker_file"="c:\\mxserver411\\conf\\workers.properties"
"worker_mount_file"="c:\\mxserver411\\conf\\uriworkermap.properties"

4. Click File, Save.

5. Update your registry by either double-clicking on the IIS-TOMCAT.REG file or right-clicking on the file and selecting MERGE.

6. Your Registry, opened to the 1.0 folder, should now look like Figure 13.1. Some of your Data values may differ from this example, depending on the location of mxserver.
7. Close the Registry.
IIS Management Console Changes

Perform the following steps, which include creating two new virtual directories to your IIS web site.

1. Open the IIS Internet Service Manager Console.

2. Expand the folder tree of the Internet Information Server until you reach the Default Web Site.
3. Select the Default Web Site folder. Choose Action/New/Virtual Directory to start the New Virtual Directory Wizard. Follow the onscreen prompts to add a virtual directory for where isapi_redirect.dll is located:
a. For the Alias, the name **MUST** be Jakarta. Click Next.
b. For the Physical Path, enter the path to the folder where isapi_redirect.dll was installed (in our example it is `c:\mxserver\conf`). Click Next.
c. For Access privileges, check Allow Execute Access (Read and Script Access should also be checked by default). Click Finish.
4. Select the Default Web Site folder again and choose Action/New/Virtual Directory to start the New Virtual Directory Wizard. Add a virtual directory for where mxserver is located:

![New Virtual Directory Wizard](image)

a. For the Alias, enter any name (e.g., mxserver411). Be certain to note the name you have used, as it will need to be re-entered in the next section.

Click Next.
b. For the Physical Path, enter the path to mxserver (in our example, c:\mxserver). Click Next.
c. For access privileges, check Allow Execute Access (Read and Script Access should also be checked by default). Click Finish.
5. Add a document to the web server (Default Web Site):

![Default Web Site Properties Dialog Box](image)

a. Right-click the Default Web Site folder and choose Properties, then the Documents tab.
b. Click the Add button to open the Add Default Document dialog box. In the Default Document Name field, enter \texttt{index.html} and click OK.
6. Add the redirect file isapi_redirect.dll as a filter in your IIS web site:

![Default Web Site Properties Dialog Box](image)

- Right-click the Default Web Site folder, choose Properties, then the ISAPI Filters tab.
b. Click Add to open the Filter Properties dialog box. Enter a Filter Name. The name of the filter should reflect its task (for example, the name mxserver).

c. In the Executable field, enter the path to the redirect file (in our example, c:\mxserver\conf\isapi_redirect.dll).

7. Click OK. Click Apply. Click OK.
8. Stop, then start the IIS service.

If using Windows NT, from the Control Panel, click Services, and select IIS Admin Service.

If using Windows 2000, from the Control Panel, click Administrative tools, click Services, and select IIS Admin Service.

Click Stop to see what other services have been stopped.

Note what other services are automatically stopped, as you will have to restart them as well.
9. After restarting the IIS service, redisplay the ISAPI Filters tab and check to make sure that the jakarta filter is marked with a green up-pointing arrow. If a red, down arrow is displayed, highlight it as indicated in Figure 13.15 and click Remove.
Editing Files

In order to complete this configuration, the following files must be edited as described in this section:

- SERVER.XML (step 1 and step 2)
- WORKER.PROPERTIES (step 3)
- URIWORKERMAP.PROPERTIES (step 4)

1. In the SERVER.XML file in the `<mxserver root>`\conf folder, change the number of the default port Tomcat uses. The default is 80.

   The following shows the section from this file (under Connectors) where you will change the port. The bold text indicates the changed value from 80 to another number (e.g., 8080).

   ```xml
   <!-- Normal HTTP -->
   <Connector
       className="org.apache.tomcat.service.PoolTcpConnector">
       <Parameter name="handler" value="org.apache.tomcat.service.HttpConnectionHandler"/>
       <Parameter name="port" value="8080"/>
   </Connector>
   ``

2. Also in the SERVER.XML file, edit the Context path line as indicated below. The default for this line contains no value (<Context path= "/">). The bold text indicates the inserted value that must agree with the alias entered in Figure 13.7.

   ```xml
   <Context path="/mxserver411" docBase="/" crossContext="gsldrz" debug="0" reloadable="true" trusted="false"/>
   ```

   enter the exact same value (e.g., mxserver411) as the alias entered in Figure 13.7
3. Edit the WORKERS.PROPERTIES file in the <mxserver root>\conf folder. Define the workers and assign each context with its own worker. The lines below show entries from the relevant parts of the file. The bold text shows where you would edit in new values (using our mxserver example).

```
workers.tomcat_home=c:\mxserver
workers.java_home=c:\mxserver\jre
worker.ajp12.host =hostname
worker.ajp13.host=hostname
```

where hostname is the name of the server running IIS and mxserver.

4. In the URIWORKERMAP.PROPERTIES file (in the <mxserver root>\conf folder). Make the lines in your file match the two edited lines shown here in bold.

```
# Simple worker configuration file
#
#
# Mount the servlet context to the ajp12 worker
/servlet/*=ajp12

# Mount the examples context to the ajp12 worker
#/examples/*=ajp12

/mxserver411/*.jsp=ajp12    # add comment symbol (#)

# Advanced mount of the examples context
#/examples/servlet/*=ajp12   # delete comment symbol (#)
and replace "examples" with the exact same value
as the alias (e.g., mxserver411) as entered in Figure 13.7

# Advanced mount of the examples context
#/examples/servlet/*=ajp12
```

5. Copy <mxserver root>\dynamic.jar to the IIS Home directory (e.g., c:\inetpub\wwwroot).
6. Stop, then start the IIS service again. After restarting the IIS service, go to the ISAPI Filters tab, as you did earlier, and verify that the jakarta filter is marked with a green up-pointing arrow.

You can now run the Tomcat JSP Server with IIS.

To run the Self Service applications from your browser, enter the name of the Application Server as the URL. For example:

http://appsrvr/virtual

where appsrvr is the name of the server running the Application Server and virtual is the name of the virtual directory you created earlier, where mxserver is located.
MAXIMO application tabs include hidden fields which can be used to customize an application for a company’s specific needs. Using the Object Nationalizer screen editor (discussed in Chapter 3), you can make these hidden fields visible and move them to an appropriate location on the tab.

**NOTE:** In Object Nationalizer, hidden field titles are by default the same as the database column names. The object name for a field is the column name preceded by “f” or a combination of “f” and another prefix, depending on the form. To view a field’s object name in Object Nationalizer, right-click the field and choose Properties/Object Name. To change a field’s title, right-click the field title, choose Properties/Object Title, and edit the title.

The hidden fields listed in the following Crossover Tables have been programmed to be linked to other hidden fields on other tabs. These hidden fields are **crossover fields**.

Crossover fields allow you to link data between certain applications. For example, when you enter an equipment record on the Work Order tab, the data in hidden fields EQ1 through EQ12 on the Equipment tab will automatically be
transferred to hidden fields WOEQ1 through WOEQ12 on the Work Order tab. Using this linkage, you might customize your system so that the data in a field which you have added to the Equipment tab by unhiding it (e.g., EQ5) is transferred and displayed in a field you have unhidden on the Work Order tab (e.g., WOEQ5).

**Reserved fields** are hidden fields (regular and crossover) that may be needed to integrate additional MAXIMO products. As explained later in this appendix, you should not use reserved fields to customize MAXIMO unless you are certain you will not subsequently need them for an integration product.

**THE CROSSOVER TABLES**

The following tables list the **database tables** and **columns** that MAXIMO uses for crossover fields. The arrow symbol indicates the direction in which data is transferred.

Some crossover fields have intermediate links, indicated in the tables by *italics*. For example, hidden field EQ9 on the Equipment tab is linked to WOEQ9 on the Work Order tab and, if there is a PM, to PMEQ1 on the PM tab. The linkage works in this way: when you create a work order and insert an equipment number, field WOEQ9 receives data from EQ9. If the work order is generated from a PM, WOEQ9 receives the data from PMEQ1 instead of EQ9 (PMEQ1 always receives data from EQ9). The PMEQ1 stage is contingent upon there being a PM—you do not need to create a PM to create a work order. If a PM does exist, the data in field PMEQ1 can be modified and this will be the data that WOEQ9 accesses.

Similarly, there are intermediate crossover fields involving job plans and purchase requisitions; they become part of the crossover sequence only when a job plan or purchase requisition exists (a work plan does not require a job plan, and a purchase order does not require a purchase requisition).
When adding fields to any of your tabs, you can look over these tables to see if there are particular hidden fields—crossover fields—that may be useful in terms of linking data to other applications, or that you may want to avoid.

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>WORKORDER</th>
<th>LABTRANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ1</td>
<td>WOEQ1</td>
<td></td>
</tr>
<tr>
<td>EQ2</td>
<td>WOEQ2</td>
<td></td>
</tr>
<tr>
<td>EQ3</td>
<td>WOEQ3</td>
<td></td>
</tr>
<tr>
<td>EQ4</td>
<td>WOEQ4</td>
<td></td>
</tr>
<tr>
<td>EQ5</td>
<td>WOEQ5</td>
<td></td>
</tr>
<tr>
<td>EQ6</td>
<td>WOEQ6</td>
<td></td>
</tr>
<tr>
<td>EQ7</td>
<td>WOEQ7</td>
<td></td>
</tr>
<tr>
<td>EQ8</td>
<td>WOEQ8</td>
<td></td>
</tr>
<tr>
<td>EQ10</td>
<td>WOEQ10</td>
<td>LTWO1</td>
</tr>
<tr>
<td>EQ11</td>
<td>WOEQ11</td>
<td>LTWO2</td>
</tr>
<tr>
<td>EQ12</td>
<td>WOEQ12</td>
<td>LTWO3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>PM</th>
<th>WORKORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ9</td>
<td>PMEQ1</td>
<td>WOEQ9</td>
</tr>
<tr>
<td>EQ23</td>
<td>PMEQ2</td>
<td>WOEQ13</td>
</tr>
<tr>
<td>EQ24</td>
<td>PMEQ3</td>
<td>WOEQ14</td>
</tr>
<tr>
<td>PR</td>
<td>PO</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>PR1</td>
<td>&gt; PO1</td>
<td></td>
</tr>
<tr>
<td>PR2</td>
<td>&gt; PO2</td>
<td></td>
</tr>
<tr>
<td>PR3</td>
<td>&gt; PO3</td>
<td></td>
</tr>
<tr>
<td>PR4</td>
<td>&gt; PO4</td>
<td></td>
</tr>
<tr>
<td>PR5</td>
<td>&gt; PO5</td>
<td></td>
</tr>
<tr>
<td>PR6</td>
<td>&gt; PO6</td>
<td></td>
</tr>
<tr>
<td>PR7</td>
<td>&gt; PO7</td>
<td></td>
</tr>
<tr>
<td>PR8</td>
<td>&gt; PO8</td>
<td></td>
</tr>
<tr>
<td>PR9</td>
<td>&gt; PO9</td>
<td></td>
</tr>
<tr>
<td>PR10</td>
<td>&gt; PO10</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PR</th>
<th>RFQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR1</td>
<td>&gt; RFQ1</td>
</tr>
<tr>
<td>PR2</td>
<td>&gt; RFQ2</td>
</tr>
<tr>
<td>PR3</td>
<td>&gt; RFQ3</td>
</tr>
<tr>
<td>PR4</td>
<td>&gt; RFQ4</td>
</tr>
<tr>
<td>PR5</td>
<td>&gt; RFQ5</td>
</tr>
<tr>
<td>PR6</td>
<td>&gt; RFQ6</td>
</tr>
<tr>
<td>PR7</td>
<td>&gt; RFQ7</td>
</tr>
<tr>
<td>PR8</td>
<td>&gt; RFQ8</td>
</tr>
<tr>
<td>PR9</td>
<td>&gt; RFQ9</td>
</tr>
<tr>
<td>PR10</td>
<td>&gt; RFQ10</td>
</tr>
</tbody>
</table>
### Crossover Fields and Reserved Fields

<table>
<thead>
<tr>
<th>PRLINE</th>
<th>RFQLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RL1</td>
<td>RFQL1</td>
</tr>
<tr>
<td>RL2</td>
<td>RFQL2</td>
</tr>
<tr>
<td>RL3</td>
<td>RFQL3</td>
</tr>
<tr>
<td>RL4</td>
<td>RFQL4</td>
</tr>
<tr>
<td>RL5</td>
<td>RFQL5</td>
</tr>
<tr>
<td>RLIN1</td>
<td>RFQLIN1</td>
</tr>
<tr>
<td>RLIN2</td>
<td>RFQLIN2</td>
</tr>
<tr>
<td>RLIN3</td>
<td>RFQLIN3</td>
</tr>
<tr>
<td>RLIN4</td>
<td>RFQLIN4</td>
</tr>
<tr>
<td>RLIN5</td>
<td>RFQLIN5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RFQLINE</th>
<th>QUOTATIONLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFQL1</td>
<td>QL1</td>
</tr>
<tr>
<td>RFQL2</td>
<td>QL2</td>
</tr>
<tr>
<td>RFQL3</td>
<td>QL3</td>
</tr>
<tr>
<td>RFQL4</td>
<td>QL4</td>
</tr>
<tr>
<td>RFQL5</td>
<td>QL5</td>
</tr>
</tbody>
</table>
### Appendix A

<table>
<thead>
<tr>
<th>PRLINE</th>
<th>POLINE</th>
<th>MATRECTRANS/MATUSETRANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RL1</td>
<td>PL1</td>
<td>IT1</td>
</tr>
<tr>
<td>RL2</td>
<td>PL2</td>
<td>IT2</td>
</tr>
<tr>
<td>RL3</td>
<td>PL3</td>
<td>IT3</td>
</tr>
<tr>
<td>RL4</td>
<td>PL4</td>
<td>IT4</td>
</tr>
<tr>
<td>RL5</td>
<td>PL5</td>
<td>IT5</td>
</tr>
<tr>
<td>RL6</td>
<td>PL6</td>
<td>IT6</td>
</tr>
<tr>
<td>RL7</td>
<td>PL7</td>
<td>IT7</td>
</tr>
<tr>
<td>RL8</td>
<td>PL8</td>
<td>IT8</td>
</tr>
<tr>
<td>RL9</td>
<td>PL9</td>
<td>IT9</td>
</tr>
<tr>
<td>RL10</td>
<td>PL10</td>
<td>IT10</td>
</tr>
</tbody>
</table>

### POLINE

<table>
<thead>
<tr>
<th>POLINE</th>
<th>INVOICELINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLIN1</td>
<td>INVOICELIN1</td>
</tr>
<tr>
<td>PLIN2</td>
<td>INVOICELIN2</td>
</tr>
<tr>
<td>PLIN3</td>
<td>INVOICELIN3</td>
</tr>
<tr>
<td>PLIN6</td>
<td>INVOICELIN6</td>
</tr>
<tr>
<td>PLIN7</td>
<td>INVOICELIN7</td>
</tr>
<tr>
<td>PLIN8</td>
<td>INVOICELIN8</td>
</tr>
<tr>
<td>PLIN9</td>
<td>INVOICELIN9</td>
</tr>
</tbody>
</table>
### Crossover Fields and Reserved Fields

<table>
<thead>
<tr>
<th>POLINE</th>
<th>SERVRECPREV</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLIN1</td>
<td>SSPL1</td>
</tr>
<tr>
<td>PLIN2</td>
<td>SSPL2</td>
</tr>
<tr>
<td>PLIN3</td>
<td>SSPL3</td>
</tr>
<tr>
<td>PLIN6</td>
<td>SSPL4</td>
</tr>
<tr>
<td>PLIN7</td>
<td>SSPL5</td>
</tr>
<tr>
<td>PLIN8</td>
<td>SSPL6</td>
</tr>
<tr>
<td>PLIN9</td>
<td>SSPL7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INVOICELINE</th>
<th>INVOICECOST</th>
<th>SERVRECPREV</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVOICELIN1</td>
<td>ICT1</td>
<td>SSPL1</td>
</tr>
<tr>
<td>INVOICELIN2</td>
<td>ICT2</td>
<td>SSPL2</td>
</tr>
<tr>
<td>INVOICELIN3</td>
<td>ICT3</td>
<td>SSPL3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INVOICELINE</th>
<th>INVOICECOST</th>
<th>MATRECPREV/MATUSECPREV</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVOICELIN1</td>
<td>ICT1</td>
<td>ITIN1</td>
</tr>
<tr>
<td>INVOICELIN2</td>
<td>ICT2</td>
<td>ITIN2</td>
</tr>
<tr>
<td>INVOICELIN3</td>
<td>ICT3</td>
<td>ITIN3</td>
</tr>
</tbody>
</table>
NOTE: The ACCOUNT columns on the PM and WORKORDER tables were renamed to PM17 on the PM table and WOPM6 on the WORKORDER table.

The SUBACCOUNT columns on the PM and WORKORDER tables were renamed to PM18 on the PM table and WOPM7 on the WORKORDER table.

Any data previously entered in the ACCOUNT and SUBACCOUNT columns will be retained in the new PM and WORKORDER columns.

<table>
<thead>
<tr>
<th>PM</th>
<th>WORKORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM6</td>
<td>WOPM1</td>
</tr>
<tr>
<td>PM7</td>
<td>WOPM2</td>
</tr>
<tr>
<td>PM8</td>
<td>WOPM3</td>
</tr>
<tr>
<td>PM9</td>
<td>WOPM4</td>
</tr>
<tr>
<td>PM10</td>
<td>WOPM5</td>
</tr>
<tr>
<td>PM17</td>
<td>WOPM6</td>
</tr>
<tr>
<td>PM18</td>
<td>WOPM7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>JOBOperation</th>
<th>WPOperation</th>
</tr>
</thead>
<tbody>
<tr>
<td>JO1</td>
<td>WPO1</td>
</tr>
<tr>
<td>JO2</td>
<td>WPO2</td>
</tr>
<tr>
<td>JO3</td>
<td>WPO3</td>
</tr>
<tr>
<td>JO4</td>
<td>WPO4</td>
</tr>
<tr>
<td>JO5</td>
<td>WPO5</td>
</tr>
<tr>
<td>JO6</td>
<td>WPO26</td>
</tr>
<tr>
<td>JO7</td>
<td>WPO27</td>
</tr>
<tr>
<td>JO8</td>
<td>WPO28</td>
</tr>
</tbody>
</table>
### CROSSOVER FIELDS AND RESERVED FIELDS

#### JOBPLAN

<table>
<thead>
<tr>
<th>JOBPLAN</th>
<th>PM</th>
<th>WORKORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP6</td>
<td>PMJP1</td>
<td>WOJP1</td>
</tr>
<tr>
<td>JP7</td>
<td>PMJP2</td>
<td>WOJP2</td>
</tr>
<tr>
<td>JP8</td>
<td>PMJP3</td>
<td>WOJP3</td>
</tr>
<tr>
<td>JP9</td>
<td>PMJP4</td>
<td>WOJP4</td>
</tr>
<tr>
<td>JP10</td>
<td>PMJP5</td>
<td>WOJP5</td>
</tr>
<tr>
<td>JP11</td>
<td>PMJP6</td>
<td>WOJP6</td>
</tr>
<tr>
<td>JP12</td>
<td>PMJP7</td>
<td>WOJP7</td>
</tr>
<tr>
<td>JP13</td>
<td>PMJP8</td>
<td>WOJP8</td>
</tr>
<tr>
<td>JP14</td>
<td>PMJP9</td>
<td>WOJP9</td>
</tr>
<tr>
<td>JP15</td>
<td>PMJP10</td>
<td>WOJP10</td>
</tr>
</tbody>
</table>

#### LABOR

<table>
<thead>
<tr>
<th>LABOR</th>
<th>JOBLABOR</th>
<th>WPLABOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>JL1</td>
<td></td>
<td>WPL1</td>
</tr>
<tr>
<td>JL2</td>
<td></td>
<td>WPL2</td>
</tr>
<tr>
<td>JL3</td>
<td></td>
<td>WPL3</td>
</tr>
<tr>
<td>LA11</td>
<td>JL4</td>
<td>WPL4</td>
</tr>
<tr>
<td>LA12</td>
<td>JL5</td>
<td>WPL5</td>
</tr>
<tr>
<td>LA13</td>
<td>JL6</td>
<td>WPL6</td>
</tr>
<tr>
<td>JL7</td>
<td></td>
<td>WPL7</td>
</tr>
<tr>
<td>JL8</td>
<td></td>
<td>WPL8</td>
</tr>
<tr>
<td>JL9</td>
<td></td>
<td>QPL9</td>
</tr>
</tbody>
</table>
### LABOR | LABTRANS
---|---
LA14 | LTL1
LA15 | LTL2
LA16 | LTL3

### LABOR | WORKORDER
---|---
LA17 | WOL1
LA18 | WOL2
LA19 | WOL3
LA20 | WOL4
LABORCODE | WOLABLNNK

### LABOR | MR | PR
---|---|---
LA21 | MRLA1 | PRLA1
LA22 | MRLA2 | PRLA2
LA23 | MRLA3 | PRLA3
LA24 | MRLA4 | PRLA4
LA25 | MRLA5 | PRLA5

### MRLINE | PRLINE
---|---
MRLALN1 | PRLALN1
MRLALN2 | PRLALN2
MRLALN3 | PRLALN3
MRLALN4 | PRLALN4
MRLALN5 | PRLALN5
Crossover Fields and Reserved Fields

<table>
<thead>
<tr>
<th>PRLINE</th>
<th>POLINE *</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRLALN1 &gt;</td>
<td>POLALN1</td>
</tr>
<tr>
<td>PRLALN2 &gt;</td>
<td>POLALN2</td>
</tr>
<tr>
<td>PRLALN3 &gt;</td>
<td>POLALN3</td>
</tr>
<tr>
<td>PRLALN4 &gt;</td>
<td>POLALN4</td>
</tr>
<tr>
<td>PRLALN5 &gt;</td>
<td>POLALN5</td>
</tr>
</tbody>
</table>

* The PRLINE to POLINE crossovers occur when the PRLINE extra field is not null.

<table>
<thead>
<tr>
<th>PR</th>
<th>POLINE **</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRLA1 &gt;</td>
<td>POLALN1</td>
</tr>
<tr>
<td>PRLA2 &gt;</td>
<td>POLALN2</td>
</tr>
<tr>
<td>PRLA3 &gt;</td>
<td>POLALN3</td>
</tr>
<tr>
<td>PRLA4 &gt;</td>
<td>POLALN4</td>
</tr>
<tr>
<td>PRLA5 &gt;</td>
<td>POLALN5</td>
</tr>
</tbody>
</table>

** The PR to POLINE crossovers occur when the PRLINE extra field (PRLALN1 through 5) is null.

<table>
<thead>
<tr>
<th>WOASSIGNMNTQUEUE</th>
<th>WORKORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>WQ1              &gt;</td>
<td>WOWQ1</td>
</tr>
<tr>
<td>WQ2              &gt;</td>
<td>WOWQ2</td>
</tr>
<tr>
<td>WQ3              &gt;</td>
<td>WOWQ3</td>
</tr>
</tbody>
</table>
### Appendix A

<table>
<thead>
<tr>
<th>ITEM</th>
<th>JOBMATERIAL</th>
<th>WPMATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>JM1</td>
<td>&gt;</td>
<td></td>
</tr>
<tr>
<td>JM2</td>
<td>&gt;</td>
<td></td>
</tr>
<tr>
<td>JM3</td>
<td>&gt;</td>
<td></td>
</tr>
<tr>
<td>IN16</td>
<td>&gt;</td>
<td>JM4 &gt;</td>
</tr>
<tr>
<td>IN17</td>
<td>&gt;</td>
<td>JM5 &gt;</td>
</tr>
<tr>
<td>IN18</td>
<td>&gt;</td>
<td>JM6 &gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PRLINE</th>
<th>POLINE</th>
<th>MATRECTRANS/MATUSETRANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN19</td>
<td>&gt;</td>
<td>RLIN1</td>
<td>&gt; PLIN1 &gt; ITIN1</td>
</tr>
<tr>
<td>IN20</td>
<td>&gt;</td>
<td>RLIN2</td>
<td>&gt; PLIN2 &gt; ITIN2</td>
</tr>
<tr>
<td>IN21</td>
<td>&gt;</td>
<td>RLIN3</td>
<td>&gt; PLIN3 &gt; ITIN3</td>
</tr>
<tr>
<td>IN22</td>
<td>&gt;</td>
<td>RLIN4</td>
<td>&gt; PLIN4</td>
</tr>
<tr>
<td>IN23</td>
<td>&gt;</td>
<td>RLIN5</td>
<td>&gt; PLIN5</td>
</tr>
<tr>
<td>IN24</td>
<td>&gt;</td>
<td>RLIN6</td>
<td>&gt; PLIN6 &gt; ITIN4</td>
</tr>
<tr>
<td>IN25</td>
<td>&gt;</td>
<td>RLIN7</td>
<td>&gt; PLIN7 &gt; ITIN5</td>
</tr>
<tr>
<td>IN26</td>
<td>&gt;</td>
<td>RLIN8</td>
<td>&gt; PLIN8 &gt; ITIN6</td>
</tr>
<tr>
<td>IN27</td>
<td>&gt;</td>
<td>RLIN9</td>
<td>&gt; PLIN9 &gt; ITIN7</td>
</tr>
</tbody>
</table>
### Crossover Fields and Reserved Fields

<table>
<thead>
<tr>
<th>TOOL</th>
<th>JOBTOOL</th>
<th>WPTOOL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>JT1</td>
<td>WPT1</td>
</tr>
<tr>
<td></td>
<td>JT2</td>
<td>WPT2</td>
</tr>
<tr>
<td></td>
<td>JT3</td>
<td>WPT3</td>
</tr>
<tr>
<td>TL6</td>
<td>JT4</td>
<td>WPT4</td>
</tr>
<tr>
<td>TL7</td>
<td>JT5</td>
<td>WPT5</td>
</tr>
<tr>
<td>TL8</td>
<td>JT6</td>
<td>WPT6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPANIES</th>
<th>INVVENDOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO11</td>
<td>IVCO1</td>
</tr>
<tr>
<td>CO12</td>
<td>IVCO2</td>
</tr>
<tr>
<td>CO13</td>
<td>IVCO3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPANIES</th>
<th>INVOICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO14</td>
<td>INVOICE6</td>
</tr>
<tr>
<td>CO15</td>
<td>INVOICE7</td>
</tr>
<tr>
<td>CO16</td>
<td>INVOICE8</td>
</tr>
<tr>
<td>CO17</td>
<td>INVOICE9</td>
</tr>
<tr>
<td>CO18</td>
<td>INVOICE10</td>
</tr>
</tbody>
</table>
### Appendix A

<table>
<thead>
<tr>
<th>MEASUREPOINT</th>
<th>MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP6</td>
<td>MSMP1</td>
</tr>
<tr>
<td>MP7</td>
<td>MSMP2</td>
</tr>
<tr>
<td>MP8</td>
<td>MSMP3</td>
</tr>
<tr>
<td>MP9</td>
<td>MSMP4</td>
</tr>
<tr>
<td>MP10</td>
<td>MSMP5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOCOPER</th>
<th>WORKORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLO1</td>
<td>WOLO1</td>
</tr>
<tr>
<td>FLO2</td>
<td>WOLO2</td>
</tr>
<tr>
<td>FLO3</td>
<td>WOLO3</td>
</tr>
<tr>
<td>FLO4</td>
<td>WOLO4</td>
</tr>
<tr>
<td>FLO5</td>
<td>WOLO5</td>
</tr>
<tr>
<td>FLO6</td>
<td>WOLO6</td>
</tr>
<tr>
<td>FLO7</td>
<td>WOLO7</td>
</tr>
<tr>
<td>FLO8</td>
<td>WOLO8</td>
</tr>
<tr>
<td>FLO9</td>
<td>WOLO9</td>
</tr>
<tr>
<td>FLO10</td>
<td>WOLO10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSETATTRIBUTE</th>
<th>CLASSESPEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA01</td>
<td>CS01</td>
</tr>
<tr>
<td>AA02</td>
<td>CS02</td>
</tr>
<tr>
<td>AA03</td>
<td>CS03</td>
</tr>
<tr>
<td>AA04</td>
<td>CS04</td>
</tr>
<tr>
<td>AA05</td>
<td>CS05</td>
</tr>
</tbody>
</table>
### Crossover Fields and Reserved Fields

<table>
<thead>
<tr>
<th>CLASSSPEC</th>
<th>LOCATIONSPEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS01</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS02</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS03</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS04</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS05</td>
<td>&gt;</td>
</tr>
<tr>
<td>LS01</td>
<td></td>
</tr>
<tr>
<td>LS02</td>
<td></td>
</tr>
<tr>
<td>LS03</td>
<td></td>
</tr>
<tr>
<td>LS04</td>
<td></td>
</tr>
<tr>
<td>LS05</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CLASSSPEC</th>
<th>EQUIPMENTSPEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS01</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS02</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS03</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS04</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS05</td>
<td>&gt;</td>
</tr>
<tr>
<td>ES01</td>
<td></td>
</tr>
<tr>
<td>ES02</td>
<td></td>
</tr>
<tr>
<td>ES03</td>
<td></td>
</tr>
<tr>
<td>ES04</td>
<td></td>
</tr>
<tr>
<td>ES05</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CLASSSPEC</th>
<th>ITEMSPEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS01</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS02</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS03</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS04</td>
<td>&gt;</td>
</tr>
<tr>
<td>CS05</td>
<td>&gt;</td>
</tr>
<tr>
<td>IS01</td>
<td></td>
</tr>
<tr>
<td>IS02</td>
<td></td>
</tr>
<tr>
<td>IS03</td>
<td></td>
</tr>
<tr>
<td>IS04</td>
<td></td>
</tr>
<tr>
<td>IS05</td>
<td></td>
</tr>
<tr>
<td>HAZARD</td>
<td>WOHazard</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>HAZ01</td>
<td>HAZ01</td>
</tr>
<tr>
<td>HAZ02</td>
<td>HAZ02</td>
</tr>
<tr>
<td>HAZ03</td>
<td>HAZ03</td>
</tr>
<tr>
<td>HAZ04</td>
<td>HAZ04</td>
</tr>
<tr>
<td>HAZ05</td>
<td>HAZ05</td>
</tr>
<tr>
<td>HAZ06</td>
<td>HAZ06</td>
</tr>
<tr>
<td>HAZ07</td>
<td>HAZ07</td>
</tr>
<tr>
<td>HAZ08</td>
<td>HAZ08</td>
</tr>
<tr>
<td>HAZ09</td>
<td>HAZ09</td>
</tr>
<tr>
<td>HAZ10</td>
<td>HAZ10</td>
</tr>
<tr>
<td>HAZ11</td>
<td>HAZ11</td>
</tr>
<tr>
<td>HAZ12</td>
<td>HAZ12</td>
</tr>
<tr>
<td>HAZ13</td>
<td>HAZ13</td>
</tr>
<tr>
<td>HAZ14</td>
<td>HAZ14</td>
</tr>
<tr>
<td>HAZ15</td>
<td>HAZ15</td>
</tr>
<tr>
<td>HAZ16</td>
<td>HAZ16</td>
</tr>
<tr>
<td>HAZ17</td>
<td>HAZ17</td>
</tr>
<tr>
<td>HAZ18</td>
<td>HAZ18</td>
</tr>
<tr>
<td>HAZ19</td>
<td>HAZ19</td>
</tr>
<tr>
<td>HAZ20</td>
<td>HAZ20</td>
</tr>
</tbody>
</table>
### Crossover Fields and Reserved Fields

<table>
<thead>
<tr>
<th>PRECAUTION</th>
<th>WOPRECAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREC01</td>
<td>&gt; PREC01</td>
</tr>
<tr>
<td>PREC02</td>
<td>&gt; PREC02</td>
</tr>
<tr>
<td>PREC03</td>
<td>&gt; PREC03</td>
</tr>
<tr>
<td>PREC04</td>
<td>&gt; PREC04</td>
</tr>
<tr>
<td>PREC05</td>
<td>&gt; PREC05</td>
</tr>
<tr>
<td>PREC06</td>
<td>&gt; PREC06</td>
</tr>
<tr>
<td>PREC07</td>
<td>&gt; PREC07</td>
</tr>
<tr>
<td>PREC08</td>
<td>&gt; PREC08</td>
</tr>
<tr>
<td>PREC09</td>
<td>&gt; PREC09</td>
</tr>
<tr>
<td>PREC10</td>
<td>&gt; PREC10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TAGOUT</th>
<th>WOTAGOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAG01</td>
<td>&gt; TAG01</td>
</tr>
<tr>
<td>TAG02</td>
<td>&gt; TAG02</td>
</tr>
<tr>
<td>TAG03</td>
<td>&gt; TAG03</td>
</tr>
<tr>
<td>TAG04</td>
<td>&gt; TAG04</td>
</tr>
<tr>
<td>TAG05</td>
<td>&gt; TAG05</td>
</tr>
<tr>
<td>TAG06</td>
<td>&gt; TAG06</td>
</tr>
<tr>
<td>TAG07</td>
<td>&gt; TAG07</td>
</tr>
<tr>
<td>TAG08</td>
<td>&gt; TAG08</td>
</tr>
</tbody>
</table>
### TAGLOCK

<table>
<thead>
<tr>
<th>TAGLOCK</th>
<th>WOTAGLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL01</td>
<td>TL01</td>
</tr>
<tr>
<td>TL02</td>
<td>TL02</td>
</tr>
<tr>
<td>TL03</td>
<td>TL03</td>
</tr>
<tr>
<td>TL04</td>
<td>TL04</td>
</tr>
<tr>
<td>TL05</td>
<td>TL05</td>
</tr>
<tr>
<td>TL06</td>
<td>TL06</td>
</tr>
<tr>
<td>TL07</td>
<td>TL07</td>
</tr>
<tr>
<td>TL08</td>
<td>TL08</td>
</tr>
<tr>
<td>TL09</td>
<td>TL09</td>
</tr>
<tr>
<td>TL10</td>
<td>TL10</td>
</tr>
</tbody>
</table>

### LOCKOUT

<table>
<thead>
<tr>
<th>LOCKOUT</th>
<th>WOLOCKOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCK01</td>
<td>LCK01</td>
</tr>
<tr>
<td>LCK02</td>
<td>LCK02</td>
</tr>
<tr>
<td>LCK03</td>
<td>LCK03</td>
</tr>
<tr>
<td>LCK04</td>
<td>LCK04</td>
</tr>
<tr>
<td>LCK05</td>
<td>LCK05</td>
</tr>
<tr>
<td>LCK06</td>
<td>LCK06</td>
</tr>
<tr>
<td>LCK07</td>
<td>LCK07</td>
</tr>
<tr>
<td>LCK08</td>
<td>LCK08</td>
</tr>
<tr>
<td>LCK09</td>
<td>LCK09</td>
</tr>
<tr>
<td>LCK10</td>
<td>LCK10</td>
</tr>
<tr>
<td>SAFETYLEXICON</td>
<td>WOSAFETYLINK</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>SL01</td>
<td>WOSL01</td>
</tr>
<tr>
<td>SL02</td>
<td>WOSL02</td>
</tr>
<tr>
<td>SL03</td>
<td>WOSL03</td>
</tr>
<tr>
<td>SL04</td>
<td>WOSL04</td>
</tr>
<tr>
<td>SL05</td>
<td>WOSL05</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAFETYPLAN</th>
<th>WOSAFETYPLAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP01</td>
<td>SP01</td>
</tr>
<tr>
<td>SP02</td>
<td>SP02</td>
</tr>
<tr>
<td>SP03</td>
<td>SP03</td>
</tr>
<tr>
<td>SP04</td>
<td>SP04</td>
</tr>
<tr>
<td>SP05</td>
<td>SP05</td>
</tr>
<tr>
<td>SP06</td>
<td>SP06</td>
</tr>
<tr>
<td>SP07</td>
<td>SP07</td>
</tr>
<tr>
<td>SP08</td>
<td>SP08</td>
</tr>
<tr>
<td>SP09</td>
<td>SP09</td>
</tr>
<tr>
<td>SP10</td>
<td>SP10</td>
</tr>
<tr>
<td>SP11</td>
<td>SP11</td>
</tr>
<tr>
<td>SP12</td>
<td>SP12</td>
</tr>
<tr>
<td>SP13</td>
<td>SP13</td>
</tr>
<tr>
<td>SP14</td>
<td>SP14</td>
</tr>
<tr>
<td>SP15</td>
<td>SP15</td>
</tr>
</tbody>
</table>
ROUTE_STOP | WORKORDER
---|---
RTS1 | WORTS1
RTS2 | WORTS2
RTS3 | WORTS3
RTS4 | WORTS4
RTS5 | WORTS5

RESERVED FIELDS

Reserved fields are hidden fields whose database columns are used by various MAXIMO application programming interfaces (APIs). For example, there are APIs that enable you to integrate MAXIMO with Oracle Financials, PeopleSoft, and SAP business applications. Reserved fields may be regular fields or crossover fields.

We strongly recommend that you do not use reserved fields to customize MAXIMO unless you are certain you will not need those fields in the future for integration with another product. For example, if you are committed to Oracle Financials, you could use IN5 to customize MAXIMO, but not IN11, which is required by the Oracle Financials API. If you use a reserved field for customizing, and you subsequently purchase an integration API product that uses it, you will have to move the reserved field’s data to another column before implementing the API.

The following table lists reserved fields by database table and by product. The table lists all crossover fields, but you should refer to the Crossover Fields section, earlier in this appendix, to see the crossover relationships.

The Ariba integration is not listed in this table. It uses one field in the COMPANIES table: MNETECOMNUM1.
The fields listed under Oracle are for integrating with Oracle Financials, except those followed by an asterisk (*), which are for Oracle Projects. Fields with two asterisks (**) are used for integrating with both Oracle products. Fields listed under PeopleSoft followed by an asterisk (*) are for PeopleSoft Projects.

<table>
<thead>
<tr>
<th>TABLE</th>
<th>Oracle</th>
<th>SAP</th>
<th>PeopleSoft</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPANIES</td>
<td>CO1</td>
<td></td>
<td>CO1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CO2</td>
</tr>
<tr>
<td></td>
<td>CO12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CO13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EQUIPMENT</td>
<td>EQ10 *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INVBALANCES</td>
<td>IB1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INVENTORY</td>
<td>IL1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IL2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IL3 **</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IL10</td>
</tr>
<tr>
<td>INVOICE</td>
<td></td>
<td></td>
<td>INVOICE1</td>
</tr>
<tr>
<td>INVOICELINE</td>
<td>INVOICELIN1</td>
<td></td>
<td>INVOICELIN2</td>
</tr>
<tr>
<td></td>
<td>INVOICELIN2 *</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>INVOICELIN3</td>
<td></td>
<td>INVOICELIN3</td>
</tr>
<tr>
<td>TABLE</td>
<td>Oracle</td>
<td>SAP</td>
<td>PeopleSoft</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>-----</td>
<td>------------</td>
</tr>
<tr>
<td>INNVENDOR</td>
<td>IVCO2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IVCO3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITEM</td>
<td></td>
<td>IN1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN11</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN13</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN14</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN19</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IN20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN21</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN22</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IN23</td>
<td></td>
</tr>
<tr>
<td>LABOR</td>
<td></td>
<td>LA16*</td>
<td></td>
</tr>
<tr>
<td>LABTRANS</td>
<td></td>
<td>LT8*</td>
<td></td>
</tr>
<tr>
<td>TABLE</td>
<td>Oracle</td>
<td>SAP</td>
<td>PeopleSoft</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------</td>
<td>-----</td>
<td>------------</td>
</tr>
<tr>
<td>MATUSETRANS/MATRECTRANS</td>
<td></td>
<td>IT1</td>
<td></td>
</tr>
<tr>
<td>IT2 *</td>
<td></td>
<td>IT2</td>
<td></td>
</tr>
<tr>
<td>IT3 *</td>
<td>IT3</td>
<td>IT3</td>
<td></td>
</tr>
<tr>
<td>IT4</td>
<td>IT4</td>
<td>IT4</td>
<td></td>
</tr>
<tr>
<td>IT5</td>
<td>IT5</td>
<td>IT5</td>
<td></td>
</tr>
<tr>
<td>ITIN1</td>
<td></td>
<td>ITIN2</td>
<td></td>
</tr>
<tr>
<td>ITIN3</td>
<td></td>
<td>ITIN3</td>
<td></td>
</tr>
<tr>
<td>PO</td>
<td></td>
<td>PO1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PO3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PO5</td>
<td></td>
</tr>
<tr>
<td>PO6</td>
<td></td>
<td>PO5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLINE</td>
<td></td>
<td>PL1</td>
<td></td>
</tr>
<tr>
<td>PL2 *</td>
<td></td>
<td>PL2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PL3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PL4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PL5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PL5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PLIN2</td>
<td></td>
</tr>
<tr>
<td>TABLE</td>
<td>Oracle</td>
<td>SAP</td>
<td>PeopleSoft</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>-----</td>
<td>------------</td>
</tr>
<tr>
<td>PLIN3</td>
<td>PLIN3</td>
<td></td>
<td>PLIN3</td>
</tr>
<tr>
<td>PLIN4</td>
<td>PLIN4</td>
<td>PLIN4</td>
<td>PLIN4</td>
</tr>
<tr>
<td>PLIN5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR</td>
<td></td>
<td>PR1</td>
<td></td>
</tr>
<tr>
<td>PR6</td>
<td></td>
<td>PR3</td>
<td></td>
</tr>
<tr>
<td>PR7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRLINE</td>
<td>RL1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RL2</td>
<td></td>
<td>RL2</td>
<td></td>
</tr>
<tr>
<td>RL3</td>
<td>RL3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RL4</td>
<td>RL4</td>
<td>RL4</td>
<td></td>
</tr>
<tr>
<td>RL5</td>
<td>RL5</td>
<td>RL5</td>
<td></td>
</tr>
<tr>
<td>RLIN1</td>
<td></td>
<td>RLIN2</td>
<td></td>
</tr>
<tr>
<td>RLIN3</td>
<td>RLIN3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RLIN4</td>
<td>RLIN4</td>
<td>RLIN4</td>
<td></td>
</tr>
<tr>
<td>RLIN5</td>
<td></td>
<td>RLIN4</td>
<td></td>
</tr>
<tr>
<td>TABLE</td>
<td>Oracle</td>
<td>SAP</td>
<td>PeopleSoft</td>
</tr>
<tr>
<td>--------------</td>
<td>--------</td>
<td>-----</td>
<td>------------</td>
</tr>
<tr>
<td>QUOTATIONLINE</td>
<td>QL1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>QL2</td>
<td>QL3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>QL4</td>
<td>QL4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>QL5</td>
<td>QL5</td>
<td></td>
</tr>
<tr>
<td>RFQ</td>
<td>RFQ1</td>
<td>RFQ2</td>
<td>RFQ3</td>
</tr>
<tr>
<td>RFQ6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFQ7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFQ8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFQ9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFQLINE</td>
<td>RFQL1</td>
<td>RFQL2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RFQL3</td>
<td>RFQL3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RFQL4</td>
<td>RFQL4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RFQL5</td>
<td>RFQL5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RFQLIN1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### FIELDS

<table>
<thead>
<tr>
<th>TABLE</th>
<th>Oracle</th>
<th>SAP</th>
<th>PeopleSoft</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVRECTRANS</td>
<td>SSPL1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SSPL2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SSPL3</td>
</tr>
<tr>
<td>TOOL</td>
<td>TL3 *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOOLTRANS</td>
<td>TT2 *</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TT3 *</td>
</tr>
<tr>
<td>WORKORDER</td>
<td>WO7 *</td>
<td></td>
<td>WO7 *</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WOEQ10 *</td>
</tr>
</tbody>
</table>
THE MAXIMO.INI FILE

The file MAXIMO.INI contains parameters that affect the operation of MAXIMO. Its format is the basic Microsoft Windows parameter file format. The file is divided into sections. Each section name is displayed with square brackets around it. The following sections are present:

```
[SYSTEM]      system-wide parameters
[4iLOOK]      4i screen display parameters
[APPSERVER]   settings for the Application Server
[ARCHIVE]     archiving MAXIMO data parameters
[AUCTION]     online RFQ parameters
[COLORS]      field color parameters
[DDESERVER]   DDE server parameters
[DMS]         document management system parameters
[DRILLDOWN]   drilldown parameters
[FORMATS]     validation format parameters
[INVOICE]     invoicing parameters
[JAVA]        Java parameters
[LINKEDDOCUMENTS] Linked Documents tab parameters
[MAINSELECT]  selection parameters
[MAXSCHED]    MAXIMO scheduler parameters
```
Parameters are listed under each section name. For example, the section label for Work Manager is `[WorkMan]` and two of the parameters underneath it are `ShiftStartOffset` and `ShiftEndOffset`. Section labels and parameters may be specified in upper- or lowercase letters, or mixed.

By default, MAXIMO looks for the MAXIMO.INI file in the folder where MAXIMO is installed. When running on a network, it can be useful to have different MAXIMO.INI files for different users. To customize a file, you need to copy the network file to your local workstation, and then add the following lines to your WIN.INI file:

```
[MAXIMO]
maxini=x:\path
```

where `x:\path` is the drive and path where your MAXIMO.INI file is located.

The MAXIMO.INI parameters are described below. Unless otherwise specified, all parameters are listed with their default values. If a parameter is not present in MAXIMO.INI, its default value will be used.

Parameters that can be represented as True/False, Yes/No, or Enabled/Disabled use the values 1 and 0, where 1 means True/Yes/Enabled and 0 means False/No/Disabled. For example, `ToolTips = 1` means that the tooltips option is enabled. (You can also use the values Y and N instead of 1 and 0 if you prefer.)
[SYSTEM]
Items in this section define system-wide parameters.

Database=MAXIMO
Specifies the value displayed in the Database field of the Login dialog box. Any valid database name may be used.

Username=MAXIMO
Specifies the value displayed in the User field of the Login dialog box. Any valid user name may be used. If there is no entry in MAXIMO.INI, there will be no default user name during database login.

IconFont=SMALL,BOLD
Specifies the font used for text under the icons on the Main Menu. Valid values are SMALL, MEDIUM, LARGE, and BOLD. Values may be combined together in a comma-separated list.

Logfile=maximo.log
Specifies the file to which MAXIMO error diagnostics are written. Any valid DOS file name may be used. If no folder is specified, the current working folder is used.

DeleteLogfile=1
Indicates whether the previous log file should be deleted each time MAXIMO is started. If the log file is not deleted at start-up, diagnostics from the current MAXIMO session are appended to the log file. Valid values are 0 and 1.

FullErrors=0
Indicates whether MAXIMO should display complete SQL error messages whenever a SQL error is encountered. If full errors are not displayed, only the error number and a brief error description are given when an error occurs. If full errors are displayed, the offending piece of SQL code is displayed along with the error number and a brief description of the problem. Valid values are 0 and 1.
MessageFile=maximo.msg
Specifies the name and location of the MAXIMO message file. Any valid DOS file name may be entered. The file must be accessible from the user’s path if a full path is not entered.

SkipReadonly=1
Indicates whether read-only fields should be skipped when tabbing through fields on MAXIMO screens. Valid values are 0 and 1.

SkipEnteredFieldsOnInsert=0
Specifies whether read-only fields are skipped when advancing through fields in Insert mode. In table windows, if there are no blank columns before or after the current column, the current row is highlighted and the next tab takes the focus away from the table window to the next control.

Timeout=60
Indicates the number of seconds to wait before logging off an inactive user. Valid values are -1 and any number greater than or equal to 10. If -1 is entered inactive users will not be logged off.

DisableLoadMessages=0
Indicates whether start-up messages should be disabled. Valid values are 0 and 1. The default is 0. If the value is 1, MAXIMO will be started in a minimized state and start-up messages will not be displayed. Setting the value to 1 is primarily intended for use when you have set the Windows option for automatic (via parameters) MAXIMO login.

DisableMainMenuIcons=0
Indicates whether the disabled bitmap should be placed over Main Menu icons when modules are disabled. Valid values are 0 and 1.

DisableSmartLookup=0
Specifies whether a value list of valid choices is displayed when you attempt to exit a field containing invalid data. The default is 0.
DataDictionaryPath=c:\maximo
Specifies the path to the local data dictionary (.DD) file. The default is the folder that contains the MAXIMO DLL. DDQuickLoad must be enabled through Database Configuration in order for this to work.

IconPath=c:\maximo
This parameter applies to icons assigned to modules and applications in the Application Bar and the Status Bar. The IconPath parameter specifies the folder that contains the MAXIMO icon files. This parameter is necessary only if you modify standard MAXIMO icons. The default folder is the folder where MAXIMO is installed.

MAXIMO checks the folder for an icon that matches the name of the application's or the module's executable file. If the bitmap is found in the folder, it is used. Otherwise, MAXIMO uses the icon that is compiled into the application.

BitmapPath=c:\maximo
Specifies the folder that contains the MAXIMO bitmap files. This parameter applies to bitmaps assigned to modules and applications in the Main Menu. The default is the folder where MAXIMO is installed.

MAXIMO checks the specified folder for a bitmap that matches the name of the application’s or the module’s executable file. If the bitmap is not found in the folder, MAXIMO uses the bitmap that is compiled into the application.

CaseSensitiveQuery=UPPERONLY
Specifies which query type to use when retrieving records from the database. Case insensitivity is implemented such that the system runs an uppercase function on both the contents of the fields being used in the query and on the fields in the database. Using this method, the screen fields and the database fields are changed to uppercase before being compared.

Doing a case-insensitive query is the most flexible way of querying the database since you don’t have to know how the data was entered (uppercase, lowercase, or mixed case) in order to query the data. One important thing to remember is
that if there is an index on a field being used in the query and the uppercase function is performed on it, the index is not used when the database is searched. There are, therefore, some performance tradeoffs that must be considered in determining which query type to use. The default query type is UPPERONLY. Valid values are:

ALL – performs a case-sensitive search for all fields. The uppercase function is not run on any of the fields. This is the fastest way to perform a search if case does not matter to your application.

NONE – performs case-insensitive searching. The uppercase function is run on all the fields. This is the most flexible way to search for data.

UPPERONLY – performs case-sensitive searching for uppercase fields only. The uppercase function is run on all fields except the ones with a type of UPPER (such as key fields). This works the same as NONE as long as all UPPER type fields have uppercase data in them (which would be so if they were entered through MAXIMO). This choice provides the most searching flexibility with improved performance.

CaseSensitiveFilter=0
Indicates whether the Key Filter field entries on dialog boxes are case sensitive. Valid values are 0 and 1. The default is 0.

Doublebyte=0
Specifies whether to use the SYSTEM font on the MAXIMO Main Menu buttons and on the MDI window status bar. This option should only be used with double-byte operating systems (e.g., Japanese Windows). Valid values are 0 and 1.

Autotabs=0
Specifies whether automatic tabbing to the next field should occur when a field has been filled with data. This applies only to data fields on forms. Valid values are 0 and 1.
-Mail=0
Specifies the Mail software system MAXIMO uses to mail reports. Valid values are 0 for no mail, and NOTES for Lotus Notes. The default is 0.

-MAXIMOBarSize=72
Specifies the width, in pixels, of the Application Bar. The default size is set to 72 pixels. The Application Bar size has a minimum size of 10 pixels and a maximum size of 200 pixels. If you enter a pixel size less than 0, the Application Bar does not appear by default. If the Application Bar size is less than 10, the default size of 72 is used. If the size is greater than 200, then the default maximum size of 200 is used.

-MaxAutoRetries
Specifies the maximum number of attempts that MAXIMO will make to automatically retry deadlocked transactions. If the transaction cannot be retried, the standard error dialog box will be displayed. N must be greater than 0 to enable the Auto Retry feature. The recommended setting is 3.

Note that all MAXIMO errors, including deadlocks, are written to MAXIMO.LOG.

-Schema
Specifies whether multiple MAXIMO databases can be created by authorized users (assuming they have all necessary authority) other than MAXIMO. To use this setting, you must first unhide the Schema field in the Login dialog box. The Schema field contains a value that represents the user who created the database that you are connecting to. When you log into MAXIMO, the system reconnects as the Schema Owner instead of as MAXIMO. The default schema is MAXIMO.

This section was added for those clients running on MS SQL Server or Oracle who want to have multiple MAXIMO databases on a single server but have problems when changing the MAXIMO password. When there are multiple MAXIMO databases on a single server, only the maxencrypt table of the current connected database gets updated. Anyone who tries to log in to other databases
cannot because the decrypted MAXIMO password does not match the MAXIMO login password.

**NOTE:** When you create a shortcut for an application in MAXIMO, you can bypass having MAXIMO display the login dialog box by entering the following command line parameters for your shortcut:

```
-D{database name} -U{username} -P{password} -S{schema}.
```

*For example, -DMAXDEMO -UMAXIMO -PDEMO -SMAXIMO.*

**FaxLibrary=MAXFAX.DLL**
Specifies the DLL file and/or path that will be used as the MAXIMO FAX routing library. The default library is MAXFAX.DLL in the folder where MAXIMO is installed. MAXFAX.DLL enables MAXIMO to work with Symantec’s WinFax PRO.

**FaxRouting=1**
Indicates whether FAX routing within a report is enabled. Valid values are 0 and 1 (the default). If this setting is set to 0 and a report is later found to contain FAX routing instructions, an error message will be displayed and the routing process will be halted.

**ForeignClick=0**
Determines the action when a user clicks on the Detail button in a foreign key field. Valid values are 0 (for a dynamic value list) and 1 (for true foreign keying). The default is 0.

**Tooltips=1**
Indicates whether tooltips will be displayed. Valid values are 0 and 1.
[4iLOOK]
The following options enable the new 4i Look & Feel. (To set color options for
the old Look, refer to the [COLORS] section in this appendix.)

DEFAULTMAINMENU=1
The default; enables the new 4iLook for the Main Menu (except for the menu
bar). Specify 0 to use the older client/server Look.

ENABLE4iLOOK=1
The default; enables the new 4iLook for applications and for the menu bar at the
top of the Main Menu. Specify 0 to use the older client/server Look.
Customizing options are listed below (not applicable if ENABLE4iLOOK=0).

NOTES: Color values R,G, B represent color codes: R=Red, G=Green, and
B=Blue. Parameters that can be represented as True/False, Yes/No, or
Enabled/Disabled use the values 1 and 0, where 1 means
True/Yes/Enabled and 0 means False/No/Disabled.

Menu Options:
(used only if ENABLE4iLOOK=1)
MENUBACKGROUNDCOLOR=69,68,65 Menu background
MENUIITEMHILIGHTCOLOR=255,255,255 Highlighted menu item
MENUIITEMCOLOR=255,255,255 Menu item
MENUIITEMSEPARATORCOLOR=255,255,255 Menu item separator
MENUIITEMDISABLECOLOR=150,150,150 Submenu indicator
SUBMENUINDICATORCOLOR=255,255,255

MENUFBONTBOLD=0 Bold
MENUFBONTITALIC=0 Italic
MENUFONTHEIGHT=12 Height
MENUFONTWIDTH=6 Width
MENUFONNAME=MS Sans Serif Font name.
Window Options:
FORMBACKGROUND=222,222,222
TABFRAMEBACKGROUND=224,218,200

ACTIVETABBACKGROUND=150,150,150
ACTIVETABTEXTCOLOR=255,255,255
DISABLEDTABTEXTCOLOR=192,192,192
FRAMETITLEBACKGROUND=150,150,150
FRAMETITLETEXTCOLOR=255,255,255
TABLEBACKGROUND=252,246,224
DIALOGBACKGROUND=224,218,200

Colors used for:
Forms
Frame surrounding the Tab window.
Active Tab
Selected Tab text
Disabled Tab text
Frame and groupbox title
Frame title text
Table window background
Dialog background

4iQuickAccessBar Options
4iQuickBarSize=80

4iAPPBARBACKGROUNDCOLOR=252,246,224
4iQCKBARMODULETEXTCOLOR=0,0,0
4iQBARMODULEBACKGROUNDCOLOR=224,218,200
4iQBARBACKGROUNDCOLOR=252,246,224

4iQCKBARAPPITEMHILIGHTCOLOR=255,91,1
4iQCKBARAPPITEMCOLOR=0,0,0
4iQCKBARITEMCOLOR=0,0,0
4iQCKBARITEMHILIGHTCOLOR=255,91,1

4iQCKBARMODULEFONTNAME=Verdana
4iQCKBARMODULEFONTITALIC=0
4iQCKBARMODULEFONTHHEIGHT=12
4iQCKBARMODULEFONTWIDTH=8
4iQCKBARFONTNAME=Verdana

Colors used for:
Entire 4iQuickAccessBar
Module text
Module background
Module bar, displaying all modules
Selected application item
Application items
Module items
Highlighted module items

Font characteristics:
Font name used for Module text
Italic font for Module text
Font height of Module text
Font width of Module text
Font name used for 4iQuickAccessBar
**SHOWCAPTION=1**
The default; specifies that window title bars appear in applications and on the Main Menu. SHOWCAPTION=0 disables the window title bars only when ENABLE4iLOOK=1. Customizing options are listed below (not applicable if SHOWCAPTION=0).

**SHOWCAPTION (Caption Bar) Options**
- **CAPTIONTEXTCOLOR=255,255,255** Text color
- **CAPTIONTEXTSHADOWCOLOR=128,128,128** Text shadow

**Font characteristics:**
- **CAPTIONFONTBOLD=1** Bold
- **CAPTIONFONTITALIC=1** Italic
- **CAPTIONFONTHHEIGHT=15** Height
- **CAPTIONFONTWIDTH=8** Width
- **CAPTIONFONTNAME=MS Sans Serif** Font Name

**[APPSERVER]**
Items in this section list application server database settings for the MAXIMO application server. If MXServer is connected to the same database as MAXIMO, there should be an entry under [AppServer].

<database>=<hostname>/<mxserver name>

For example: **nto3=qantserver8/MXServer**
[ARCHIVE]
This section defines parameters used when running Archive.

ArchPath=c:\archive
Specifies the folder used to load and unload archive data. Archived data is sent to this folder. Data is read from this folder during a restore. Any valid DOS path may be entered. The default is the root of the current drive.

[AUCTION]

FilePath =C:\MAX411\AuctionXML
Specifies the folder location where the RFQ offering XML files are stored.

MailServer = your mail server
Identifies your mail server.

Browser =C:\Program Files\Internet Explorer\IEXPLORE.EXE
Specifies the folder location of the internet browser to be invoked when connecting to the world wide web.

LibPath = C:\MAX411\bin;C:\maximo\lib
Specifies the folder location of the Java auction library files.

OfferingNotify =C:\MAX411\AuctionClasses\OfferingNotify.txt
Specifies the folder location of the user-modifiable offering notification e-mail letter. This text message will be e-mailed to each company contact displayed in the Vendors tab of an RFQ being posted online.

PrivateNotify =C:\MAX411\AuctionClasses\PrivateNotify.txt
Specifies the folder location of the user-modifiable private offering notification e-mail letter. This text message will be e-mailed to each company contact displayed in the Vendors tab of an RFQ being posted online.
Classpath = C:\MAX411\bin; C:\MAX411\lib; C:\MAX411\lib\rt.jar; C:\MAX411\webmethods\client.zip; C:\MAX411\AuctionClasses
Specifies the folder location of the Java auction classes.

[COLORS]
Items in this section define the colors used in MAXIMO fields and in the MAXIMO screen list for the 4.x Look.

Colors may be specified using the predefined colors in the list that follows, or an RGB value. Predefined colors and RGB values can be mixed (e.g., COLOR_RDONLY = GREEN, 0 100 100, BLUE).

WHITE = 255 255 255
BLACK = 0 0 0
RED = 255 0 0
GREEN = 0 255 0
BLUE = 0 0 255
CYAN = 0 255 255
MAGENTA = 255 0 255
YELLOW = 255 255 0
GRAY = 128 128 128
LTGRAY = 192 192 192

Each entry in this section specifies three colors:

1. Text color when the field is not active (i.e., the cursor is not in the field)
2. Background color when the field is active (i.e., the cursor is in the field)
3. Text color when the field is active (i.e., the cursor is in the field)

NOTE: When a field is not active (i.e., the cursor is not in the field), its background color is always white.
Fields with multiple attributes, e.g., read-only and required fields, are evaluated in the following order for color determination:

1. Read-only
2. Long Description fields—includes long description fields on screens and in long description dialog boxes
3. Required fields
4. Standard fields

You can specify colors for only those fields whose defaults you want to override. That is, you can define colors for required fields only, and the default colors will still be used for all other fields. Evaluation order, though, will not change.

If fewer than three color choices are entered, only those entered take effect. For example, if you only specify the color for the inactive text, only that value overrides the default.

**NOTE:** Not all colors can be used for text display. Windows will approximate the nearest color. Also, colors may not be represented the same on different monitors.

**COLOR_RDONLY=BLUE, BLUE, YELLOW**
**COLOR_RDONLY=0 0 255, 0 0 255, 255 255 0**
Colors used in read-only fields. The defaults are BLUE inactive text, BLUE active background, and YELLOW active text.

**COLOR_STANDARD=BLACK, GRAY, WHITE**
**COLOR_STANDARD=0 0 0, 128 128 128, 255 255 255**
Colors used in standard editable fields. The defaults are BLACK inactive text, GRAY active background, and WHITE active text.

**COLOR_LONGDESC=BLACK, WHITE, BLACK**
**COLOR_LONGDESC=0 0 0, 255 255 255, 0 0 0**
Colors used in long description fields. The defaults are BLACK inactive text, WHITE active background, and BLACK active text.
COLOR_REQUIRED=BLACK, GRAY, WHITE
COLOR_REQUIRED=0 0, 128 128 128, 255 255 255
Colors used in required fields. The defaults are BLACK inactive text, GRAY active background, and WHITE active text.

[DDESERVER]
Items in this section define parameters used to set up the MAXIMO DDE server. DDE (dynamic data exchange) is a message protocol that allows Windows applications to exchange data. The standard MAXIMO setup does not need the DDE server enabled.

Enabled=0
Specifies whether the DDE server should be loaded. Valid values are 0 and 1. The default is 0. If the DDE server is not loaded, MAXIMO will have no DDE server functionality.

Library=C:\MAXIMO\MXDDESRV.DLL
Specifies the DLL file and/or path that will be used as the MAXIMO DDE server. The default library is MXDDESRV.DLL in the folder where the main MAXIMO DLL file (MLIBnnnn.DLL) is located.

[DMS]
Items in this section define parameters used to set up a third party document management system that can be used with MAXIMO. To enable a DMS, you must provide the name and path of the MAXIMO document management library and the third party DMS.

The Library parameter points to the .DLL that is used by MAXIMO to connect to the DMS; the DMSLibrary enables print control for the DOCS OPEN v3.7 package. The DMSLibrary parameter does not apply to other document management systems.
**Enabled=0**
Specifies whether the DMS will be loaded. The default value is 0; no DMS will be used.

**Library=C:\MAXIMO\MAXDMS.DLL**
Specifies the location and name of the MAXIMO DMS library. If there is no parameter, the DMS library is assumed to be in the folder where MAXIMO is installed.

**DMSLibrary=C:\DOCSOPEN\PROGS\DOCSAP32.DLL**
Specifies the full path to the third party DMS library. If you created your own MAXDMS.DLL, you can omit this entry.

**[DRILLDOWN]**
Items in this section define parameters that control the character used as a delimiter in the outline section of the equipment or location drilldown. Usually, you change these parameters only if you are using a multibyte version of Windows (e.g., Japanese, Korean, or Chinese).

**DelimiterType=173**
Specifies the ASCII value of the character used as a delimiter in the outline section of the equipment or location drilldown. Valid values are any numbers between 1 and 255. The default is 173 (an ASCII em-dash). For example, in the following drilldown entry, the characters between the equipment number and the location, and the location and the description, are controlled by the DelimiterType:

```
11430—BR430—Centrifugal Pump 100GPM/60FT HD
```

If you are using a multibyte version of Windows, this parameter should be changed to a character whose ASCII value is less than 128. Some multibyte versions of Windows assume that any byte with an ASCII value of 128 or higher is the first byte of a multibyte character.
**DelimiterNumber=3**
Specifies the number of DelimiterType characters used in the delimiter in the outline section of the equipment or location drilldown. The default is 3.

**[FORMATS]**
The items in this section define the different validation formats used throughout MAXIMO.

**DateOnEntry=SHORTDATE**
Defines the date format used when a user enters a field, either by clicking on the field or tabbing to the field. The valid values are:

- **SHORTDATE**—refers to the short date format specified in the Windows Control Panel’s Regional Settings application. MAXIMO will use this format to display the date.
- **YYMMDD**—nonseparated German format. The short date format in the Windows Control Panel’s Regional Settings application must have the same general ordering—yy-M-d or yyyy-M-dd, for example, but not M-d-yy. MAXIMO will then ignore the Regional Settings short date and use YYMMDD instead.
- Any other format that uses the same ordering for the date as the short date format specified in the Windows Control Panel’s Regional Settings application. For example, if the short date order is set to M-d-y, DateOnEntry could be MM-dd-yy, MM-dd-yyyy, or MMM-d-yyyy, but not yy-MM-dd.

**DateDisplay=SHORTDATE**
Defines the date format used when focus is not in the field, i.e., the cursor is not in the field. The valid values are:

- **SHORTDATE**—refers to the short date format specified in the Windows Control Panel’s Regional Settings application. MAXIMO will use this format to display the date.
LONGDATE—refers to the long date format specified in the Windows Control Panel’s Regional Settings application. MAXIMO will use this format to display the date.

YYMMDD—nonseparated German format. The short date format in the Windows Control Panel’s Regional Settings application must have the same general ordering—yy-M-d or yyyy-M-dd, for example, but not M-d-yy. MAXIMO will then ignore the Regional Settings short date and use YYMMDD instead.

Any other format that uses the same ordering for the date as the short date format specified in the Windows Control Panel’s Regional Settings application. For example, if the short date order is set to M-d-y, DateDisplay could be MM-dd-yy, MM-dd-yyyy, or MMM-d-yyyy, but not yy-MM-dd.

Time_Minutes=1
Specifies whether minutes should be displayed in MAXIMO time fields. Valid values are 0 and 1.

Time_Seconds=0
Specifies whether seconds should be displayed in MAXIMO time fields. Valid values are 0 and 1.

Time_Microsecs=0
Specifies whether microseconds should be displayed in MAXIMO time fields. Valid values are 0 and 1.

[INVOICE]
Items in this section define parameters used when working with Invoices in MAXIMO.

PrintApprovalForm=0
Specifies whether or not a check mark appears in the Print Approval Form(s) check box in the Wait Approval dialog box. A value of 1 means the box will be checked and the approval form(s) will be printed. A value of 0 (the default)
means the box will not be checked and the approval form(s) will not be automatically printed.

**CreateUnapprovedReceipt=0**
Specifies whether or not a check mark appears in the Create Unapproved Receipt check box in the Wait Approval dialog box. A value of 1 means the box will be checked and an unapproved receipt will be created. A value of 0 (the default) means the box will not be checked and an unapproved receipt will not be created.

**AutoTrial=1**
If the Materials Receipts button is selected by default when the Copy PO Lines to Invoice dialog box is invoked, a trial match will automatically be created. This is the default behavior and must explicitly be turned off. Valid values are 0 and 1.

**UpdateInventory**
During the invoice approval process, both service and material receipts may be created. For rotating equipment that is on a “charge to store” line, the system needs to carry charges through to the piece of equipment so that it can be valued correctly in inventory. If the equipment is in inventory (i.e., the location is a storeroom), the price (of the inventory item that is on the equipment record) also needs to be updated. This is the default behavior and must be explicitly turned off. Valid values are 0 and 1. The default is 1. If Update Inventory is equal to 0, the system will write any price or currency differences (INVOICETRANS records) to the variance accounts associated with the storeroom.
This section enables the Centura applications to communicate with the Java Application Server (MXServer). The Java parameters are written to the MAXMO.INI file whenever a customer installs add-on functions that need to communicate with the Java Application Server (e.g., Workflow).

**NOTE:** Because you installed MAXIMO application files before you installed the Application Server, you might not have been able to specify the correct URL or drive mapping of the Application Server when prompted for it during the MAXIMO installation.

The parameters are described below:

- **ClassPath=**
  The Java Class Path from where the Java virtual machine can find any additional classes.

- **JavaParameters=**
  -Djava.security.policy=maxlib.policy -cp .;

  If the Application Server code can be downloaded by default via HTTP, make sure that “codebase=” in the “JavaParameters=” line is set to the actual HTTP URL, with the trailing slash (/) at the end of the URL.

  **NOTE:** -Djava.security.policy=maxlib.policy is the security policy that indicates what type of security is enforced on the Centura Workflow application.

- **DefaultJavaHome=**
  Directory where the default Java machine is installed. If a default is not specified, the directory is set to the JRE folder under the MAXIMO directory.

- **DefaultJavaRuntimeLibrary=**
  Specifies the complete path to the Java Runtime library, including the library file name.
[LINKEDDOCUMENTS]
These parameters set the buttons on the Web browser tool bar to go to the specified URL.

HomePage=www.mro.com
SearchPage=http://www.yahoo.com

[MAXIMO.INI]

[MAINSELECT]
Allows the default processing for building an application’s main select statement to be overridden and gives you the ability to specify whether a hidden field will be destroyed. This is particularly necessary for customized applications that rely on data in hidden fields. Under normal circumstances, when an application starts up any fields that are hidden and optional are destroyed. Later, when the main select statement for the application is built, data is not selected into these fields.

This option is particularly necessary for Application Cloning, where fields in the cloned application are hidden but need to be included in the main select.

Each entry includes the hidden application name and a list of field names. A plus sign (+) before a field prevents it from being destroyed and includes it in the main select; a minus sign (-) excludes it from the main select. The field names can be obtained from EditWindows. Entries can be added for any MAXIMO application or clone. There are no defaults for this parameter.

The above is an example of how to include some fields in the main select for the Job Plans application. In this example, fJP1 and fJP2 would be included and not destroyed if hidden, and fJP3, fJP4, and fJP5 would not be included in the main select which fills the Job Plans screen.
Items in this section define parameters used when running the MAXIMO Scheduler.

**MSPath=C:\MAXSCHD**
The location of the MAXIMO Scheduler software. Any valid DOS path may be entered. *NOTE: The path entered does not end with a backslash (/).*

**DaysToSched=10**
Defines the initial value of the number of days to schedule forward in the Set Schedule Information dialog box. Any positive integer may be entered. The default is 10 days.

**MSReverseCalendars=0**
Changes how equipment availability is calculated. When this parameter is set to 0, MAXIMO uses the equipment’s calendar to define when a piece of equipment is in operation and cannot have work done on it (this is the normal way MAXIMO uses calendars). When set to 1, MAXIMO uses the equipment’s calendar to define when a piece of equipment is *not* in operation and *can* have work done on it. Valid values are 0 and 1.

**MSDefRD=1**
Specifies the default remaining duration (RD) if the calculated remaining duration is negative or zero. Any positive integer value may be entered. The default is 1.

**MSEquipAvail=100**
The resource availability assigned to the resources used to limit work on equipment requiring downtime. Any positive integer may be entered. The default is 100.

**UpdateEstDur=0**
Determines whether or not to return work order durations altered in the Scheduler back to MAXIMO. When this parameter is set to 0, work order durations are not returned to MAXIMO. When set to 1, changed durations are written back to the work order’s estimate duration field. A work order duration
may be changed in the Scheduler due to resource leveling or may be changed by a planner while manipulating the schedule data. The default is 0. Generally, only the scheduled start and finish dates of the work orders are returned to MAXIMO from the Scheduler.

[MOREINFO]
Parameters in this section are used to control the usage and appearance of the “more information” symbol. By default, a red dot in the upper right corner of a field or table window cell indicates the presence of additional information “behind” that field. This additional information can be accessed by clicking the Detail button in the field or cell.

The following entries are used system-wide for all fields and table window cells:

**Enabled=ALL**
Specifies whether or not red dots will be displayed in fields and table cells. Valid values listed below. The default is ALL.

- **ALL** – Red dots are enabled for both fields and table window cells.
- **FIELDSONLY** – Red dots are enabled for fields only. Table window cells will not show red dots.
- **NONE** – Red dots are disabled.

**ColHdrHeight=-1**
The height in pixels of a table window column header. Enter -1 to have MAXIMO calculate a value based on the table window font. The default is -1.

**RowHdrWidth=-1**
The width in pixels of a table window row header. Enter -1 to have MAXIMO calculate a value based on the table window font. The default is -1.

**RowHeight=-1**
The height in pixels of a table window row. Enter -1 to have MAXIMO calculate a value based on the table window font. The default is -1.
**TwCellRightOffset=-1**
For table window cells, the offset in pixels from the cell right border where the red dot will be displayed. Enter -1 to have MAXIMO calculate a value based on the table window font. The default is -1.

**TwCellTopOffset=-1**
For table window cells, the offset in pixels from the cell top border where the red dot will be displayed. Enter -1 to have MAXIMO calculate a value based on the table window font. The default is -1.

**ShowAllRows=1**
Specifies whether red dots are shown for all rows of table windows or only in the focus row. Valid values are 0 (focus row only) and 1 (all rows). The default is 1.

**[MOREINFO.APPNAME]**
Parameters in this section are used to control the usage and appearance of the “more information” symbol. By default, a red dot in the upper right corner of a field or table window cell indicates the presence of additional information “behind” that field. This additional information can be accessed by clicking the Detail button in the field or cell.

The following entries are used to set red dot preferences on a per-table window basis. The “AppName” in the section name will be the executable name of the MAXIMO application whose table window “more information” processing you wish to control. The “TableName” in the parameter name is the internal name of the specific table window you wish to control. Use EditWindows to determine the names of table windows.

Examples of setting the “more information” symbol for specific applications and table windows follow:

```
[MoreInfo.JOBPLAN]
tblJP.Enabled=1
tblJP.RowHeight=22
```
[MoreInfo.PR]
PRLines.Enabled=1
PRLines.ShowAllRows=0

**TableName.ColHdrHeight=-1**
The height in pixels of the table window column header. Enter -1 to have MAXIMO calculate a value based on the table window font. The default is copied from the ColHdrHeight setting in the [MoreInfo] section.

**TableName.Enabled=1**
Specifies whether or not red dots will be displayed in the table window cells. Valid values are 0 and 1. The default is 1 if [MoreInfo]Enabled=ALL, and 0 if [MoreInfo]Enabled=FIELDSONLY or NONE.

**TableName.RowHdrWidth=-1**
The width in pixels of the table window row header. Enter -1 to have MAXIMO calculate a value based on the table window font. The default is copied from the RowHdrWidth setting in the [MoreInfo] section.

**TableName.RowHeight=-1**
The height in pixels of a table window row. Enter -1 to have MAXIMO calculate a value based on the table window font. The default is copied from the RowHeight setting in the [MoreInfo] section.

**TableName.ShowAllRows=1**
Specifies whether red dots are shown for all rows of the table window or only in the focus row. Valid values are 0 (focus row only) and 1 (all rows). The default is copied from the ShowAllRows setting in the [MoreInfo] section.

**TableName.TwCellRightOffset=-1**
For table window cells, the offset in pixels from the cell right border where the red dot will be displayed. Enter -1 to have MAXIMO calculate a value based on the table window font. The default is copied from the TwCellRightOffset setting in the [MoreInfo] section.
**TableName.TwCellTopOffset=-1**
For table window cells, the offset in pixels from the cell top border where the red dot will be displayed. Enter -1 to have MAXIMO calculate a value based on the table window font. The default is copied from the TwCellTopOffset setting in the [MoreInfo] section.

**[PRELOADSTRINGS]**
This section is included so that the strings can be localized by international clients.

**NOTE:** To ensure the most current messages are used, English versions of MAXIMO should not have the PRELOAD strings. English versions of the messages are stored in the DLL.

The parameters in this section are strings that can be accessed before the standard MAXIMO message file has been read. Defaults are listed below.

- STR1 = Loading Message File
- STR2 = Unable to load message file!
- STR3 = MAXIMO - ERROR
- STR5 = Duplicate entries in message file. See log file for more information.
- STR6 = MAXIMO - WARNING
- STR7 = MAXIMO
- STR8 = Unable to load DDE DLL!
- STR9 = An error occurred when mapping the system file.
- STR 11 = Version mismatch between MAXLIB.DLL and MAXIMO application.
[PURCHASING]
Items in this section define parameters used when working in purchasing-related areas of MAXIMO.

**BillTo=company**
Specifies the default “Bill To” company name used in the Purchasing module. The value must be an existing entry in the Companies table. If there is no entry in MAXIMO.INI, there will be no default “Bill To” company name.

**ShipTo=company**
Specifies the default “Ship To” company name used in the Purchasing module. The value must be an existing entry in the Companies table. If there is no entry in MAXIMO.INI, there will be no default “Ship To” company name.

**VendorAnalysisRange=365**
Specifies the number of days over which to calculate vendor analysis. Any number greater than 1 may be entered, or the word ALL to indicate that the vendor’s entire history should be calculated. The default is 365 days.

[REPORT]
This section defines parameters used when running reports from inside MAXIMO.

**REPORT_TYPE**
Specifies the type of report you run as a default in MAXIMO: SQRW or CRW. For the SQR report writer, use **SQRW**. For the Crystal Report Writer use **CRW**. For example, if you want SQRW reports to be the default when running hard coded reports in MAXIMO, you should have the following lines in your [Report] section:

;Report_Type=CRW
Report_Type=SQRW
CRW_REPPATH
Specifies the name of the folder containing the Crystal report file. A user can have separate entries for each database server type to maintain report files in different folders.

CRW_SPOOL
Specifies the folder where the Crystal report output file will be sent.

CRW_ORACLE_TNS
Specifies the database alias and the TNS name. If you have an Oracle database, you can find this information in the SQL.INI file, in the [ORAGTWY] section.

Example:
- CRW_ORACLE_TNS:{MAXIMO Database Alias}={TNS Connect String}

CRW_SQLSERVER_ODBC
Specifies the datasource name (DSN) for a specific database. If you have a SQL Server database, you must create an ODBC DSN entry for the MAXIMO database that is being used. Otherwise, you will not be able to run the report.

Example:
- CRW_SQLSERVER_ODBC:{MAXIMO database name}={ODBC Data Source Name}

MailSPF
Specifies the type of files you are e-mailing. To mail text files, set MAILSPF to 0. To mail SPF files, set MAILSPF to 1, the default. File Send also uses this parameter.
**SQRW_REPPATH**
Specifies the folder where SQR5 report files are stored. You may enter any valid DOS path. This item must be set in order to run SQR5 reports from inside MAXIMO.

Examples:
- `SQRW_REPPATH:ORACLE={PATH to SQR5 reports for ORACLE}`
- `SQRW_REPPATH:SQLSERVER={PATH to SQR5 reports for SQL Server}`

**SQR5.ORACLE_TNS**
If you are using an ORACLE database, you can find this information in the SQL.INI file, in the [ORAGTWY] section.

Example:
- `SQR5.ORACLE_TNS:{MAXIMO Database Alias}={TNS Connect String}`

**SQR5_SQLSERVER_ODBC**
Specifies the SQL Server database name and the datasource name that SQR5 connects to when you run reports in MAXIMO. The latest version of SQR5 that MAXIMO supports has SQL Server connectivity through ODBC. Enter the SQL Server database name you are using followed by an equal sign (=), and then the DNS entry.

Example:
- `SQR5_SQLSERVER_ODBC:{MAXIMO database name}={ODBC Data Source Name}`
**SQRW Path**
Specifies the folder where the SQR executables are located.

Examples:
- SQRW_PATH:ORACLE={PATH to SQR5 for ORACLE}
- SQRW_PATH:SQLSERVER={PATH to SQR5 for SQLSERVER}

**SQRW Spool**
Specifies the folder where the SQR5 report output file will be created. You can enter any valid DOS path. This item must be set in order to run SQR reports from inside MAXIMO.

**[TABLEWINDOWSIZE]**
Parameters in this section allow the user to limit the number of line items a dynamic table window can have. Dynamic table windows have a default limit of 2000 line items. The larger the number, the slower the performance.

Each section entry includes a form or dialog box name and a size. Every dynamic table window on the form or dialog box will use the maximum size value. The name used is the internal name. Use EditWindows to determine the internal name. Examples of setting table window sizes follow:

PAForm=200
dlgGLCompMaint=1000

**[TWDATERANGE]**
This section contains parameters that indicate the date range for transactions listed in the table window displayed on the specified screen. Any number greater than 0 or the word ALL may be entered. Specifying ALL indicates that all transactions should be displayed in the table window. The default for each table window is 30 days.
currency=30
Indicates how many days prior to the current date that exchange rates should be listed in the Currency Management application’s Exchange Rate table window.

invtrans=30
Indicates how many days of transactions should be listed in the Inventory Transactions table window.

labrep=30
Indicates how many days of transactions should be listed in the Labor Reporting table window.

wotrack=30
Indicates how many days of transactions should be listed in the Work Orders and Quick Reporting table windows.

[WORKMAN]
This section contains parameters used in managing work. For example, the shift offset parameters are designed to help ensure that all work being done by labor on a shift will appear and be accounted for in the Labor List, even if the work began prior to the start of the shift, or continues beyond the shift change.

DaysToSplit=1
Specifies the number of additional days over which you can split work assignments using the Split Planned Assignment dialog box. For example, if DaysToSplit is set to 4, a planner preparing work on a Monday can split Monday's assignments through Friday. The default setting is 1.

When the number of days to split an assignment is reached, or hours cannot be assigned due to a limit of the calendar, remaining hours become an unassigned work requirement, and have a status of WAITASGN.

ElapsedHours=24
Indicates to Work Manager how often to refresh the labavail table. The default time frame is 24 hours. When you have a large number of users who are
scheduling assignments concurrently, it is beneficial to define a short time frame such as an hour.

You can also refresh the labavail table by checking the Force Database Refresh check box in the Define Filter, Labor List tab, and then pressing OK.

This functionality is the same as pressing OK on the Define Filter dialog box to refresh

**ShiftStartOffset=−4**

Specifies the number of hours prior to the start of the specified shift (specified on the Labor Selection Criteria or Work Selection Criteria dialog box) that MAXIMO should check for work assigned to the current (i.e., specified) shift’s labor and not reported as completed. Thus, labor on work begun but not finished prior to the specified shift will be included for display in the Labor List.

The default value of minus four (−4) means that any work order’s planned hours that were begun in the 4 hours prior to the start of the specified shift, and not reported as finished by the shift change, would be used in calculating the available hours for the labor code.

**NOTE:** Specify a negative number to include hours prior to the start of the shift.

**ShiftEndOffset=8**

Specifies the number of hours after the end of the specified shift (specified on the Labor Selection Criteria or Work Selection Criteria dialog box) that MAXIMO should check for work orders not reported as completed. Thus, labor on work begun but not finished during the specified (current) shift will still be included for display in the Labor List.

The default value of 8 means that the planned time on any work orders that start within 8 hours of the end of the specified shift would be used in calculating the available hours for the labor code.
**CompleteOnFinishOrDelete=0**
Specifies whether to set the status of a work order to complete (COMP) or closed (CLOSE) when all outstanding labor assignments are finished or deleted. Valid values are 0 and 1. One (1) means the default setting in the Work Order group box on the Finish Assignment dialog box and Delete Assignment dialog box will be Complete. Zero (0) means the default setting will be Close. The default is 0.

**LaborRequired=0**
Specifies whether work orders created or modified in Work Order Tracking and/or Work Manager must have at least one labor requirement or work plan labor entry specified in order to be saved. A one (1) for this parameter also affects Job Plans; no job plan could be saved without an entry for planned labor. The default is 0, meaning work orders and job plans can be saved without labor requirements or planned labor specified. Specifying 1 for this parameter is not recommended for most users.

**[WORKORDERS]**
This section contains a parameter that specifies whether a report is generated when a work order is initiated.

**PrintOnInit=1**
Specifies whether a work order report is generated when a work order is initiated. Valid values are 0 and 1.
THE MAXSCHED.INI FILE

Purpose

The MAXSCHED.INI file allows a site administrator to configure the MAXIMO Scheduler for users to skip any or all of the login steps during start-up of the Scheduler. It also allows for certain database-specific options such as array size, which processes multiple SQL statements for better network performance. There is also a toolbar section that controls which windows are called by the buttons on the toolbar.

The MAXSCHED.INI file must reside in the user’s Windows folder, e.g., C:\Windows.

Main Section

[PSDI MAXIMO Scheduler] (Required)

DefaultDirectory (Required) Path to where the Scheduler is installed
### Appendix C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQLArraySize=20 (Optional)</td>
<td>Size of database array to be processed</td>
</tr>
<tr>
<td>ConnectString (Optional)</td>
<td>Indicates which database to use, following the ODBC specification for datasourcename (DSN)</td>
</tr>
<tr>
<td>DataLibraryPrompt (Optional)</td>
<td>Flag to indicate whether or not to display the data library dialog in startup</td>
</tr>
<tr>
<td>ProjectLibrary1 (Optional)</td>
<td>Name of the table owner of primary project data</td>
</tr>
<tr>
<td>ProjectLibrary2 (Optional)</td>
<td>Name of the table owner of secondary project data</td>
</tr>
<tr>
<td>ResourceLibrary (Optional)</td>
<td>Name of resource library</td>
</tr>
<tr>
<td>ConfigLibrary (Optional)</td>
<td>Name of configuration library</td>
</tr>
<tr>
<td>Autoproject_Startmenu=1115,1045,1088</td>
<td>Startup options; do not modify. Sets automated outlining and scheduling of records in the Gantt chart display when the Scheduler is launched from MAXIMO.</td>
</tr>
<tr>
<td>DisplaySuccessWithInfo (Optional)</td>
<td>Some database operations return information to the user even when they are completed successfully. Setting this value to “N” blocks these messages. Options are Y or N. Use N to block messages returned by successful database operations. Used for SQL Server.</td>
</tr>
</tbody>
</table>
Example for Oracle

[PSDI MAXIMO Scheduler]
DefaultDir=K:\MAXSCHED
Connectstring=DSN=QEOracle;SRVR=MXDBS_A714
DataLibraryPrompt=NO
ProjectLibrary1=MAXIMO
ConfigLibrary=MAXIMO
ResourceLibrary=MAXIMO
Autoproject_Startmenu=1115,1045,1088

Example for Microsoft SQL Server

[PSDI MAXIMO Scheduler]
DefaultDir=K:\MAXSCHED
SQLArraySize=20
Connectstring=DSN=INTER SOLV SQLSERVER;DB=MAXDEMO;
SRVR=SERVER1
DataLibraryPrompt=NO
ProjectLibrary1=MAXIMO
ConfigLibrary=MAXIMO
ResourceLibrary=MAXIMO
Autoproject_Startmenu=1115,1045,1088

Toolbar Section (Default Settings)

[Toolbar]
BITMAP_1024=350 New NEW.BMP
BITMAP_1026=351 Open OPEN.BMP
BITMAP_1027=366 Close CLOSE.BMP
BITMAP_1120=352 Save SAVE.BMP
SPACE=Blank
BITMAP_1040=357 Resources RESOURCE.BMP
Appendix C

BITMAP_1038=358 Activities ACTIVITY.BMP
BITMAP_1042=359 Assignments ASSIGN.BMP
BITMAP_1039=360 Logic LOGIC.BMP
SPACE=Blank
BITMAP_1115=355 CPM Schedule CPM.BMP
BITMAP_1116=369 Resource Schedule RESLEVEL.BMP
BITMAP_1073=353 Sort SORT.BMP
BITMAP_1072=354 Select SELECT.BMP
BITMAP_1118=368 Sort and Select SORTSEL.BMP
SPACE=Blank
BITMAP_1048=374 Plan Options PLANOPT.BMP
BITMAP_1045=370 Plan SHOWPLAN.BMP
BITMAP_1088=373 Outline OUTLINE.BMP
BITMAP_1051=371 Collapse SHOWLEVEL.BMP
BITMAP_1052=372 Expand SHOWALL.BMP
BITMAP_1117=356 Redraw Histogram CALCHIST.BMP
SPACE=Blank
BITMAP_1122=361 Help HELP.BMP
SPACE=Blank
BITMAP_1041=365 Update and Return WORETURN.BMP
BITMAP_1094=364 Return MAXFOCUS.BMP
APPENDIX D

MAXIMO LICENSE PROGRAM

USING THE MAXIMO LICENSE PROGRAM

Your license agreement specifies which MAXIMO applications are enabled, the maximum number of users allowed, and other information about platform, etc.

You use the MAXIMO License Program (MAXAUTHW.EXE) to view your current license status and to upgrade an existing license agreement (e.g., enable applications, extend expiration dates, add users). License data is stored in the MAXMAST.OUT file.

To upgrade your license agreement perform the following steps:

1. Obtain a license key from MRO Software; contact your customer service representative for more information. (You do not need a license key to simply view your current license status.)

2. Run the MAXIMO License Program: choose Run from the Start menu and enter MAXAUTHW.EXE with its path name, or go to your MAXIMO folder in Windows Explorer and double-click on MAXAUTHW.EXE.

   The MAXIMO License Program screen (Figure D.1) opens and displays information about your current license.
3. To view information about individual MAXIMO applications, choose Actions/Application Information. This opens the Application Information dialog box (Figure D.2), which lists the MAXIMO applications, their status (enabled, disabled, or production), and their expiration date.
4. To upgrade your license agreement, choose Actions/Enter License Key to open the Enter License Key dialog box (Figure D.3).
5. Type in the license key number obtained from MRO Software and click OK.

6. Close the MAXIMO License Program. The new authorities will be enabled when you next start up MAXIMO.

**MAXIMO User WIN.INI Settings**

```
[MAXIMO]
maxmastpath=
maxini=
```

You use the `maxmastpath=` setting when the location of the MAXIMO .DLL file (MAXLIB.DLL) is different from the location of the security file, MAXMAST.OUT. This setting should point to the location (logical drive and folder path) of the MAXMAST.OUT file. This setting is optional if the .DLL file and MAXMAST.OUT are in the same folder.

The reason you might want a single copy of the security file (MAXMAST.OUT) on a network is that it makes upgrades easier; only one file needs to be upgraded, rather than many.
Example  The MAXMAST file is not located on the same server as the MAXIMO .DLL and .EXE files. It is installed on the logical M: drive in the apps\max411 folder. The [MAXIMO] section of WIN.INI would look like this:

[MAXIMO]
maxmastpath=m:\apps\max411

You use the maxini= setting when you are running on a network and you want to have different MAXIMO.INI files for different users. To customize a file, you need to copy the network MAXIMO.INI file to your local workstation and then specify the drive and path where the MAXIMO.INI file is located.

Example  If the MAXIMO.INI file is copied to the MAXIMO folder on the C: drive, the [MAXIMO] section of WIN.INI would look like this:

[MAXIMO]
maxini=c:\maximo
APPENDIX E

DELETING DATABASE RECORDS

OVERVIEW

When a user tries to delete a MAXIMO record, MAXIMO initiates a series of database checks to see if that record is allowed to be deleted. If the key field information in the record to be deleted is required by other tables/records, then the record cannot be deleted unless that information is first removed for those other tables/records. For example, you cannot delete a Companies record if the company is used in the Vendor field on an equipment record and delete or change the vendor information.

The deletion rules vary by application. They can be evaluated in terms of the screens and fields involved, or in terms of the database checks performed by MAXIMO. Where applicable, this document presents the information from both viewpoints: the Record Deletion sections specify the fields or table window columns on the screens involved for particular records; the Database Checks sections list the tables and columns involved.

The ability to delete records can also be affected by security privileges. For example, a user with access to only some storeroom locations will not be able to delete an item from the master item table.
The modules and applications listed below follow the order in which they appear on the Main Menu. In the Record Deletion sections below, the name of record equated with the name of the screen used for creating that record; e.g., “Equipment record” implies Equipment screen.

WORK ORDERS

Work Order Tracking and Other Work Order Applications

Work orders can never be deleted. They can be canceled or archived. Records from Planned Labor, Planned Materials, Planned Tool, and Job Plan Operations can be deleted, depending on how the Edit Work Plan Options are set in Application Set Up. Which is also dependent on what the status of the work order is.

PM

Preventive Maintenance

There are no restrictions on deleting Preventive Maintenance records.
INVENTORY

Inventory Control

Record Deletion

An Inventory Control record (i.e., an inventory item) cannot be deleted if the item

- is used in the Item column on a Work Plan Materials record
- is used in the Item column on a PO Line Items Record
- is used in the Item column on a PR Line Items record
- is used in the Item column on a Job Plans Material Estimates record
- is used in the Item column on a Rotating Equipment record
- is used in the Item column on a Subassemblies and Spare Parts record
- is used in the Item Assembly Structures record

An Inventory Control record (i.e., an inventory item) should not be deleted if the item

- is used in the Item column on an RFQ

Items may be allocated to zero, one, or multiple storerooms. Depending on how you bring up the record (using the ‘Define Filter’ Criteria option), the item may or may not be associated with a particular storeroom. If the conditions described above are not met, the item will be deleted from all storeroom locations and from the item master record. You have the option of deleting all Inventory transactions for that item. A workaround would be to set the item as a non-stock item and then remove non-stock items from that storeroom.
Appendix E

**Database Checks**

An Inventory Control record, i.e., an inventory item, cannot be deleted if the item is used in any of the following table/column combinations:

<table>
<thead>
<tr>
<th>Table</th>
<th>Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVRESERVE</td>
<td>ItemNum</td>
</tr>
<tr>
<td>POLINE</td>
<td>ItemNum</td>
</tr>
<tr>
<td>PRLINE</td>
<td>ItemNum</td>
</tr>
<tr>
<td>JOBMATERIAL</td>
<td>ItemNum</td>
</tr>
<tr>
<td>SPAREPART</td>
<td>ItemNum</td>
</tr>
<tr>
<td>EQUIPMENT</td>
<td>ItemNum</td>
</tr>
<tr>
<td>ITEMSTRUCT</td>
<td>ItemNum</td>
</tr>
<tr>
<td>RFQ</td>
<td>ItemNum</td>
</tr>
</tbody>
</table>

If the conditions described above are met, you still have the option of deleting the item from only the INVENTORY table (storeroom location data) or from the master ITEM table.

- If a location is not specified when you delete the record or if a location is specified, the item will be dropped from both the INVENTORY and ITEM tables. You will be prompted as to whether you want to delete the item from transaction.

**Issues and Transfers**

Issues and Transfers transaction records cannot be deleted.

**Item Assembly Structures**

There are no restrictions on deleting an Item Assembly Structure.
Asset Catalog Setup

A Class Structure record can be deleted but *should not* be if

- it is attached to an item, equipment, or location.

**EQUIPMENT**

**Equipment**

**Record Deletion**

An Equipment record cannot be deleted if the equipment is used:

- in the Equipment field on an open Work Order record

When the equipment record is

- the parent on an equipment hierarchy
- in the Equipment field on a Preventative Maintenance record
- in the Equipment field on a Service Contracts record

then, a dialog appears, giving the user the ability to check any combination of the following options:

- Sever All Subassembly Relationships
- Delete All Associated PM’s
- Delete All Associated Service Contracts
- Delete Equipment Move History
- Delete Up/Down Status History

When any of those options are checked, the equipment will be deleted from the table.
Database Checks

An Equipment record cannot be deleted if the equipment is used in any of the following table/column combinations.

<table>
<thead>
<tr>
<th>Table</th>
<th>Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORKORDER</td>
<td>EqNum</td>
</tr>
<tr>
<td>EQUIPMENT</td>
<td>EqNum</td>
</tr>
<tr>
<td>PM</td>
<td>EqNum</td>
</tr>
<tr>
<td>SERVICECONTRACT</td>
<td>EqNum</td>
</tr>
</tbody>
</table>

Operating Locations

Record Deletion

An Operating Locations record cannot be deleted if the location is listed:

- in the Location field on a Equipment record
- in the Location field on a Preventive Maintenance record
- in the Work Location field on a Labor record
- in the Location field on an Inventory Control record and the Location Type is equal to Operating Location OR the location is associated with a piece of rotating equipment.
- in the Location field on a Companies record when a storeroom has been added in Inventory and the user responded Yes to adding the storeroom as a vendor
- in the Location field on an open Work Order record

A system with locations cannot be deleted until all of the locations have been removed.
Deleting Database Records

If the location is the parent of other locations in a system you can delete the location, but you will receive a warning that the location has children and that by deleting the location may change the system type.

**Database Checks**

An Operating Location record cannot be deleted if the operating location is used in any of the following table/column combinations.

<table>
<thead>
<tr>
<th>Table</th>
<th>Column</th>
<th>AND</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPANIES</td>
<td>Location</td>
<td>In LOCATIONS, TYPE = Storeroom</td>
</tr>
<tr>
<td>EQUIPMENT</td>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>INVENTORY</td>
<td>Location</td>
<td>Locations Type = Operating or Equipment is rotating</td>
</tr>
<tr>
<td>LABOR</td>
<td>WorkLocation</td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>WORKORDER</td>
<td>Location</td>
<td></td>
</tr>
</tbody>
</table>

**Failure Codes**

A Failure Code record can be deleted but *should not* be, if the failure code is

- on an open work order
- on a location record
- on an Equipment record
Condition Monitoring

Record Deletion

A Measurement record should not be deleted if

• on an open work order, the work plan references a measurement point
• on a job plan

Routes

A Route record should not be deleted if

• it has been applied to a work order/PM

PURCHASING

Purchase Requisitions

Purchase requisitions can never be deleted. They can be canceled or archived.

Request For Quotation (RFQ)

RFQs can never be deleted. They can be canceled or archived.

Purchase Orders

Purchase orders can never be deleted. They can be canceled or archived.
Deleting Database Records

Invoices

An Invoice record can only be deleted if its status is ENTERED, WAPPR, or CANCEL and there are no unapproved service receipts written by the invoice.

Currency Management

Record Deletion

A currency record cannot be deleted if

- it is used in Companies
- it is used on a PO
- it is used on a PR
- it is used on an Invoice
- it is used on an RFQ

Database Checks

<table>
<thead>
<tr>
<th>TABLE</th>
<th>COLUMNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPANIES</td>
<td>CurrencyCode</td>
</tr>
<tr>
<td>PO</td>
<td>CurrencyCode</td>
</tr>
<tr>
<td>PR</td>
<td>CurrencyCode</td>
</tr>
<tr>
<td>RFQVENDOR</td>
<td>CurrencyCode</td>
</tr>
<tr>
<td>INVOICES</td>
<td>CurrencyCode</td>
</tr>
<tr>
<td>INVOICETRANS</td>
<td>CurrencyCode</td>
</tr>
<tr>
<td>MATRECTRANS</td>
<td>CurrencyCode</td>
</tr>
<tr>
<td>MATUSETRANS</td>
<td>CurrencyCode</td>
</tr>
<tr>
<td>SERVRECTRANS</td>
<td>CurrencyCode</td>
</tr>
</tbody>
</table>
JOB PLANS

Job Plans

Record Deletion

A Job Plan record cannot be deleted if the job plan is used:

- in the Next Job Plan field on a Preventive Maintenance record
- on a Preventive Maintenance Job Plan Sequence record
- in the Job Plan field on a Work Order

Database Checks

A Job Plan record cannot be deleted if the job plan is used in any of the following table/column combinations.

<table>
<thead>
<tr>
<th>Table</th>
<th>Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>JpNum</td>
</tr>
<tr>
<td>PMSEQUENCE</td>
<td>JpNum</td>
</tr>
<tr>
<td>WORKORDER</td>
<td>JpNum</td>
</tr>
</tbody>
</table>

Safety Plans

There are no restrictions when deleting a safety plan record.

Safety Hazards

Record Deletion

A Safety Hazard record cannot be deleted if

- it has a safety precaution record associated with the hazard
Database Checks

A Safety Hazard record cannot be deleted if the hazard is used in any of the following table/column combinations.

<table>
<thead>
<tr>
<th>TABLE</th>
<th>COLUMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZARDPREC</td>
<td>HAZARDID</td>
</tr>
<tr>
<td>SAFETYLEXICON</td>
<td>HAZARDID</td>
</tr>
</tbody>
</table>

Safety Precautions

Record Deletion

A Safety Precaution record cannot be deleted if

- it is associated with a safety hazard record

Database Checks

A Safety Precaution record cannot be deleted if the safety precaution is used in any of the following table/column combinations.

<table>
<thead>
<tr>
<th>TABLE</th>
<th>COLUMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZARDPREC</td>
<td>PrecautionID</td>
</tr>
</tbody>
</table>

Lock Out / Tag Out

Lock Out/Tag Out records cannot be deleted if

- a lock out/tag out record is on an equipment record
- a lock out/tag out record is on a location record
- has Lock Out Operations
LABOR

Labor

Record Deletion

A Labor record cannot be deleted if the labor code is used:

- used in a Craft or Labor Code field in the Work Manager when in the Assignment table window
- used in the Labor/Craft field on a Labor Reporting record that includes daily attendance information
- used in the Labor/Craft column of a Job Plan Labor Estimates record
- used in the Supervisor or Lead Craft field on a Job Plans record
- used in the Labor/Craft field on a Labor Reporting record
- used in the Lead Craft or Supervisor field on a Work Order record
- used in the Labor Code column on a Work Plan Labor record

A Labor record should not be deleted if the labor code is used:

- in the Issue To field on an Issues and Transfers record

Database Checks

A Labor record cannot be deleted if the labor code is used in any of the following table/column combinations.

<table>
<thead>
<tr>
<th>Table</th>
<th>Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSIGNMENT</td>
<td>Craft</td>
</tr>
<tr>
<td>ASSIGNMENT</td>
<td>LaborCode</td>
</tr>
<tr>
<td>ATTENDANCE</td>
<td>LaborCode</td>
</tr>
<tr>
<td>JOBLABOR</td>
<td>LaborCode</td>
</tr>
<tr>
<td>JOBPLAN</td>
<td>Supervisor</td>
</tr>
</tbody>
</table>
Table | Column
---|---
JOBPLAN | LaborCode
LABTRANS | Craft
LABTRANS | LaborCode
MATRETRANS | IssueTo
MATUSETRANS | IssueTo
WORKORDER | LeadCraft
WORKORDER | Supervisor
WPLABOR | LaborCode

Crafts

Record Deletion

A Craft record cannot be deleted if the craft code is used

- used in a Craft or Labor Code field on a Work Manager Record
- used in the Labor/Craft column of a Job Plans Labor Estimates record
- used in the Lead Craft field on a Job Plans record
- used in the Labor/Craft field on a Labor Reporting record
- used in the Lead Craft field on a Work Order record
- used in the Labor Code column on a Work Plan Labor record

A Craft record *should not* be deleted if the craft code is used

- used in the Issue To field on an Issues and Transfers record

Database Checks

A Craft record cannot be deleted if the craft code is used in any of the following table/column combinations.
### Labor Reporting

No records can ever be deleted from Labor Reporting.

### Labor Groups

**Record Deletion**

A Labor Group record *should not* be deleted if

- a labor group is on a work order
Database Checks

<table>
<thead>
<tr>
<th>TABLE</th>
<th>COLUMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORKORDER</td>
<td>WOASSIGNMENTQUEUEID</td>
</tr>
</tbody>
</table>

**CALENDARS**

**Calendars**

**Record Deletion**

A Calendars record cannot be deleted if the calendar is used:

- in the Calendar field on an Equipment record
- in the Calendar field on a Labor record
- in the Calendar field on a Operating Location record

Within Calendars you cannot delete a shift if it refers to a calendar

**Database Checks**

A Calendars record cannot be deleted if the calendar is used in any of the following table/column combinations.

<table>
<thead>
<tr>
<th>Table</th>
<th>Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQUIPMENT</td>
<td>CalNum</td>
</tr>
<tr>
<td>LABOR</td>
<td>CalNum</td>
</tr>
<tr>
<td>LOCOPER</td>
<td>CalNum</td>
</tr>
</tbody>
</table>
RESOURCES

Companies

Record Deletion

A Company record cannot be deleted if the company is used:

- in the Vendor field on an Inventory record
- in the Manufacturer field on an Inventory record
- in the Vendor, Bill To, or Ship To fields on a Purchase Requisition
- in the Vendor field on a Service Contract
- in the Vendor field on the Work Plan Materials screen
- In the Vendor field on an Invoice
- In the Vendor field on the Job Plan Materials screen
- in the Vendor, Ship To, or Bill To field on a Purchase Order

**NOTE:** This is true even for closed purchase Orders. Therefore, to delete a Company record when the company still appears on closed Purchase Orders, you must first archive the closed Purchase Orders.

A Company record should not be deleted if the company is used:

- in the Vendor column on an Vendors record
- on an RFQ Line and RFQ Vendor tab

Database Checks

A Company record cannot be deleted if the company is used in any of the following table/column combinations.

<table>
<thead>
<tr>
<th>Table</th>
<th>Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQUIPMENT</td>
<td>Vendor</td>
</tr>
<tr>
<td>EQUIPMENT</td>
<td>Manufacturer</td>
</tr>
</tbody>
</table>
Deleting Database Records

<table>
<thead>
<tr>
<th>Table</th>
<th>Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVOICES</td>
<td>Vendor</td>
</tr>
<tr>
<td>INVENTORY</td>
<td>Vendor</td>
</tr>
<tr>
<td>INVENTORY</td>
<td>Manufacturer</td>
</tr>
<tr>
<td>INVVENDOR</td>
<td>Vendor</td>
</tr>
<tr>
<td>JOBMATERIAL</td>
<td>Vendor</td>
</tr>
<tr>
<td>PO</td>
<td>Vendor</td>
</tr>
<tr>
<td>PO</td>
<td>ShipTo</td>
</tr>
<tr>
<td>PO</td>
<td>BillTo</td>
</tr>
<tr>
<td>PR</td>
<td>Vendor</td>
</tr>
<tr>
<td>PR</td>
<td>BillTo</td>
</tr>
<tr>
<td>PR</td>
<td>ShipTo</td>
</tr>
<tr>
<td>SERVICECONTRACT</td>
<td>Vendor</td>
</tr>
<tr>
<td>WPMATERIALS</td>
<td>Vendor</td>
</tr>
</tbody>
</table>

**Tools**

**Record Deletion**

A Tools record cannot be deleted if the tool is used

- in the Tool column of a (Job Plans) Tool Estimates record

Tools record *should not* be deleted if the tool is used

- in the Tool column of a (Work Order Tracking) Work Plan Tools record
Database Checks

A Tool record cannot be deleted if the tool is used in any of the following table/column combinations.

<table>
<thead>
<tr>
<th>Table</th>
<th>Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOBTOOL</td>
<td>ToolNum</td>
</tr>
<tr>
<td>WP TOOL</td>
<td>ToolNum</td>
</tr>
</tbody>
</table>

Service Contracts

Record Deletion

A Service Contract record may be deleted when

- a service contract is associated with a work order

Database Checks

A Service Contract record cannot be deleted if the service contract is used in any of the following table/column combinations.

<table>
<thead>
<tr>
<th>TABLE</th>
<th>COLUMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORK ORDER</td>
<td>CONTRACT</td>
</tr>
</tbody>
</table>

CUSTOM APPS

Custom Applications

Custom applications are dropped by selecting Drop Custom Application from the Actions menu.
**SETUP**

**Reports and Other Apps**
There are no restrictions on deleting a Report and Other Apps record.

**Chart of Accounts**

In Chart of Accounts, no database checks are made when you delete a GL account code. It would be too time consuming of a process for MAXIMO to check all possible occurrences of a GL account. Therefore, a GL account code deleted from Chart of Accounts can still exist on previously created records; work orders, purchase orders, etc.

*WARNING:* *Deleting a GL account code may cause problems with your GL accounting system.*

**Signature Security**

**Deleting a User**

If you try to delete a user, you are prompted to verify that you really want to drop the user. If you do drop the user:

- Table access privileges are revoked from the user.
- Associated LABORAUTH records are deleted.
- Associated LOCAUTH records are deleted.
- Associated USERRESTRICTIONS records are deleted.
- Associated MAXUSERGROUPS records are deleted.
Deleting a Group

If you try to delete a group, you are prompted to verify that you really want to drop the group. If you do drop the group, a check is performed to see if there are existing users in the group. If there are existing users in the group, you are told that they will be deleted as well, and you are asked if you want to continue. If you continue:

- All existing users in the group will be dropped as described under Deleting a User.
- The group is dropped from the database as detailed above under Deleting a User.
- Associated MAXUSERAUTH records are deleted.
- Associated MAXUSERGROUPS records are deleted.
- Associated MAXGROUPS records are deleted.

Database Configuration

Deleting records is not applicable to the Database Configuration application.

Application Setup

You are given a warning when you delete applications.

Hyperlink

There are no restrictions on deleting Hyperlink records.
Workflow Designer

You cannot delete a Workflow process once it has been enabled.

Before it has been enabled, you can click the row that contains the Workflow process that you want to delete. The selected row will appear highlighted. Select Delete Workflow Process from the Edit menu. The record is deleted.

UTILITIES

Archive

Deleting records is not applicable to the Archive application.

Workflow Inbox

Deleting records is not applicable to Workflow Inbox.

SYSTEM RELATED RECORDS

- Users cannot delete a record from the AUTOKEY, DESKTOPDEFAULTS, DUMMY_TABLE, FIELDDEFAULTS, MAXHLP, or USERPREFS tables using MAXIMO.
- There is no check done when a record is deleted from the QUERY table.
- When a user deletes a long description, the text for the long description is deleted only if it is not used elsewhere.
INDEX

---A---

Accounts. See GL accounts
Actual Start Date Options menu item, 106
Add Groups menu item, 25, 27
Add Users menu item, 25, 27
Aliases for column names
  creating, 76, 88
Altered Tables dialog box, 82
Amount Field Format menu item, 75, 76
Amount fields, 146–48
  format, 75, 76
Application Bar
  specifying width, 341
Application Launching. See Hyperlink
Application Restrictions menu item, 107, 117
Application security, 28–36
Application Security tab, 28–36
  figure, 28
Application Server
  Java parameters in MAXIMO.INI, 354
  settings in MAXIMO.INI, 345
Application Setup, 105–27
  Actions menu and online Help, 106–7
  actual start date options, 106
  adding synonyms to a value list, 126–27
  application restrictions, 107, 117
  assigning/deassigning value lists, 125
  AutoNumber seeds, 107
  changing Main Menu icon positions, 109–10
  changing value list types, 126
  cloning applications, 115–16
  creating a value list, 124
  creating new modules, 111–12
  currency options, 106, 118–20
  customizing a module’s pop-up menu, 110–11
  default (Inventory) costs, 106
  default ABC breakpoints, 106
  dropping value lists, 127
  editing application's title bar, 111
  equipment options, 106
  hiding/unhiding applications, 113–14
  hiding/unhiding modules, 114
  invoice options, 107
  issues and transfers restrictions, 106
  issues and transfers save message, 106
  item assembly structure defaults, 106
  labor reporting options, 107
  lead time calculation, 106
  location options, 107
  meter import options, 107
  moving an application to another module, 113
  ORDER BY clause, 107, 117–18
  overview, 105
  preventive maintenance options, 107
  problem already reported options, 106
  purchasing options, 107
  reorder options, 106
  restricting access to records, 117
  setting up multiple base currencies, 118–20
  showing all value lists, 123
  specifying display order of records, 117–18
  tax options, 107
  value list types, 122–23
Index

Value Lists tab, 120–22
work equipment and location options, 106
work plan edit options, 106
work plan save options, 106
work priority options, 106
work type options, 106
Application startup, automatic, 40
Application tab (Reports and Other Apps), 161–62
figure, 161
Applications
cloning, 115–16
hiding and unhiding, 113–14
registering, 162–63
registering files, 163–64
restricting access to records, 117
specifying display order of records, 117–18
upgrading license for, 373–76
Applications tab (Custom Applications), 96–97
figure, 97
Applications tab (Database Configuration), 76–77
figure, 77
Archive application, 243–52
Archive History tab, 245–47
archiving measurements, 247, 249
archiving purchase orders, 247, 248–49
archiving purchase requisitions, 247, 249
archiving work orders, 247, 249
generating archive/restore scripts, 248–49
how configuring database affects archived data, 252
restoring archived data, 251
specifying archive path in MAXIMO.INI, 248
tables involved in archiving, 244–45
types of archive, 247
Archive History tab, 245–47
figure, 246
Archive path
specifying in MAXIMO.INI, 346
Archive scripts
generating, 248–49
running, 249–51
Assign and Deassign Value Lists menu item, 107, 125
Auction parameters
in MAXIMO.INI file, 346
Authorities. See Privileges
Authorize Access to GL Component
Information menu item, 26, 27, 34–36
Authorize Access to Labor Information menu item, 26, 27
Authorize Access to Storeroom Information menu item, 26, 27
Authorize Reassignment to User Groups menu item, 26, 27
Automatic application startup, 40
Automatic login, 38–41
Automatic tabbing
MAXIMO.INI setting, 340
AutoNumber Seeds menu item, 107
Backups, 254–56
database, 255–56
frequency, 255, 256
restoring, 256
system, 255
Bar codes
bar coding applications, 220–21
Bill To fields
specifying default in MAXIMO.INI, 361
Bitmap files
specifying directory in MAXIMO.INI, 339
Index

C

Case sensitivity
  MAXIMO.INI setting for dialog box fields, 340
  MAXIMO.INI setting for queries, 339–40
Change MAXIMO Schema Administrator's Password menu item, 25, 27
Change System Administrator's Password menu item, 25, 27
Change User Password menu item, 25, 27
Change User Status menu item, 25, 27, 33
Change Value List Type menu item, 107, 126
Chart of Accounts, 223–41
  company-related accounts, 226, 241
  creating or editing a GL account code, 226, 228–31
  creating or editing GL components, 226, 232–33
  default GL accounts, 240–41
  defining financial periods, 226, 238–40
  defining the filter, 235–36
  disabling accounts, 230
  external labor control accounts, 226, 241
  external tools control accounts, 226, 241
  GL Account Navigator, 226, 234
  GL Accounts tab, 226–27
  internal labor control accounts, 226, 241
  internal tools control accounts, 226, 241
  inventory resource codes, 226, 241
  inventory-related accounts, 226, 241
  labor resource codes, 226, 241
  merging GL accounts, 240
  online Help, 225–26
  overview, 223–25
  specifying which accounts to display, 235–36
  tool resource codes, 226, 241
  updating the database, 226, 236–37
  using the Chart of Accounts filter, 226, 235–36
Cloning applications, 115–16
  building the main select statement, 355
Colors
  specifying in MAXIMO.INI, 347–49
Column aliases
  creating, 76, 88
Command lines
  substitution variables, 164–66
Commodity restrictions
  setting up, 271–74
  setting up in Verity search engine, 265
Company-Related Accounts menu item, 226, 241
Configure Changes menu item, 74, 76, 81–83
Configuring the database, 76, 81–83
Create Custom Application menu item, 96
Create Custom Application Table dialog box, 98
Create Extra Application menu item, 96, 100
Create Index menu item, 75, 76, 85–86
Create Public Synonyms menu item, 75, 76
Create Value List menu item, 107, 124
Crossover fields, 309–34
  intermediate links, 310
  linkage sequence, 310
  tables, 311–28
Crystal report writer
  MAXIMO.INI parameters, 361–64
Currencies
  setting up multiple base, 118–20
Currency Options menu item, 106
Custom application tables. See Custom Applications
Custom Applications, 95–104
  Applications tab, 96–97
  creating a custom application table, 96, 98–100
creating an extra application table, 96, 100
dropping a custom application table, 103
dropping a custom applications table, 96
launching (opening) custom applications, 96, 103–4
overview, 95–96
privileges, 97
Customization. See also Object Nationalizer
screen editor
hidden crossover fields, 309–11

—D—

Data
formatting. See Formatting
types, 139–40
Data dictionary
data types, 139–40
reloading, 136
setting path to in MAXIMO.INI, 339
Data Dictionary Quickload menu item, 75, 76
Database
column aliases, 87–88
configuring. See Database Configuration
GL account columns, reference to list, 224
indexes, 84–86
table views, 87–88
updating with new GL account information, 236–37
Database administration, 253–57
archiving data, 243–52
backing up and restoring, 254–56
database backups, 255–56
how configuring database affects archived data, 252
restoring archived data, 251
restoring backups, 256
system backups, 255
update statistics procedure, 257
Database Configuration
Actions menu, 74–75
amount field format, 75, 76
Applications tab, 76–77
configuring changes, 74, 76, 81–83
creating an index, 75, 76, 85–86
creating column aliases, 76, 88
creating public synonyms, 75, 76
creating table views, 76, 88
data dictionary quickload, 75, 76
dropping an index, 75, 76, 86
dropping backup tables, 75, 76
dropping public synonyms, 75, 76
enabling long description searches in the Self Service applications, 75
Index Definitions tab, 84–86
online Help, 76
overview, 73–74
performing a database configuration, 76, 81–83
removing changes, 74, 76
restoring backup tables, 74, 76
saving changes, 80–81
specifying GL account format, 75, 76, 89–94
Table Definitions tab, 78–79
updating statistics, 75, 76
View Definitions tab, 87–88
Database field
Login dialog box MAXIMO.INI setting, 337
Database Security tab, 43–45
figure, 44
Database tables
custom application tables, 96, 98–100
customizing columns, 78–79, 81–83
extra application tables, 96, 100
listing column names, 88
Date format
specifying in MAXIMO.INI, 351–52
Date range for table window transactions
specifying in MAXIMO.INI, 364–65
Date/time fields, 148–56
  overriding default date format, 151–52
  validation, 150
DDE server
  MAXIMO.INI file parameters, 349
Deadlocked transactions
  specifying maximum number of times
  MAXIMO will retry, 341
Decimal fields, 144–45
  scale, 144
Default ABC Breakpoints menu item, 106
Default Costs menu item, 106
Define Filter menu item
  Chart of Accounts, 235–36
  DEFLT group, 23
Description fields
  searching in Self Service Applications, 280–82
Dialog boxes
  customizing, 54–55
Display formats
  specifying in MAXIMO.INI, 351–52
Document Management System (DMS)
  parameters set in MAXIMO.INI for third-party, 349
Drilldown dialog box
  customizing, 63–64
  parameters set in MAXIMO.INI, 350–51
Drop Backup Tables menu item, 75, 76
Drop Custom Application menu item, 96, 103
Drop Groups menu item, 24, 27
Drop Index menu item, 75, 76, 86
Drop Public Synonyms menu item, 75, 76
Drop Users menu item, 24, 27
Drop Value List menu item, 107, 127
Dynamic value list dialog boxes
  customizing, 61–63

---E---
E-Commerce
  capability with Self Service Applications, 276–79
  electronic invoices, 278–79
EditWindows. See Object Nationalizer
screen editor
Electronic invoices
  receiving and managing, 278–79
E-mail, 170–72
  e-mailing SQR reports, 172
  MAXIMO.INI Mail parameter, 170
  routing commands, 183
  routing example, 197–201
  setting up to mail reports, 171
  specifying mail software in
  MAXIMO.INI, 341
Equipment Options menu item, 106
Error diagnostics
  log file specification in MAXIMO.INI, 337
External Labor Control Accounts menu
item, 226, 241
External Tools Control Accounts menu
item, 226, 241
Extra application tables, 96, 100
  creating, 100–102
  launching the application, 103–4

---F---
Fax routing
  MAXIMO.INI library setting, 342
  MAXIMO.INI setting for reports, 342
Faxing reports, 173
  fax routing commands, 187–96
  fax routing example, 210–18
Field help
  customizing help files, 128–29
Field names
finding, 136–37
Fields
amount, 146–48
changing tab order, 58
crossover, 309–34
data types, 139–40
date/time, 148–56
decimal, 144–45
display formats, 141
float, 143–44
hidden, 309–11
integer, 142–43
MAXIMO.INI parameter affecting read-only fields, 338
numeric, 141–48
on-entry formats, 141
red dot (MAXIMO.INI parameters), 357–60
setting defaults for, 27, 41–43
smallint, 142–43
specifying colors, 347–49
time, 153–54
Financial periods, 238–40
closing, 239
defining, 226, 238–40
validating, 93
Financial Periods menu item, 226, 238–40
figure of dialog box, 238
Float fields, 143–44
Foreign key fields
specifying Detail button action, 342
Formatting. See also individual field types
characteristics, 140–41
date/time fields, 148–56
display formats, 141
numeric fields, 141–48
on-entry formats, 141
time fields, 153–54
4i Look
specifying in MAXIMO.INI, 343–45
4i/4.x Looks
enabling/disabling in MAXIMO.INI, 343

G—
General ledger accounts. See GL accounts
GL Account Configuration dialog box, 91–94
figure, 91
GL Account Configuration menu item, 75, 76, 91–94
GL Account Navigator, 226, 234
figure, 229
GL Account Navigator dialog box
enabling/disabling display of, 93
GL accounts
and accounting systems, 223, 226, 227, 231, 240
cOMPANY-related accounts, 226, 241
cOMPONENT delimiters, 89, 92, 93
cOMPONENT format, 89
cOMPONENT sequence, 89
cOMPONENT validation, 93
creating or editing accounts, 228–31
creating or editing components, 232–33
default, 240–41
defining valid components, 232
disabling, 230
downloading from an accounting system, 227
enabling/disabling GL accounting, 92
financial period validation, 93
fully defined, 90–91
fully/partially defined, reference to table, 224
GL Account Navigator, 234
inventory resource codes, 226, 241
inventory-related accounts, 226, 241
lABOR control accounts, 226, 241
lABOR resource codes, 226, 241
list of database columns, reference to, 224
making GL account fields required, 231
merging, 240
optional components, 90–91
overwriting account codes, 236–37
partially defined, 90–91
placeholders, 93
required components, 90–91
specifying format, 91–94
tool resource codes, 226, 241
tools control accounts, 226, 241
type codes, 230
updating database with new GL information, 236–37, 236–37
validation, 92–93
GL Accounts
specifying format, 75, 76
GL Accounts tab, 226–27. See also Chart of Accounts
figure, 227
GL component information authorizing access to, 26, 27, 34–36
GL Component Maintenance menu item, 232–33
figure of dialog box, 232
Graphics applications integrating with MAXIMO, 220
Groups
adding, 25, 27
default group, 23
dropping, 24, 27
reassigning users to, 26, 27
viewing, 27

H
Hardware/software requirements, 14–17
Help
customizing help files, 128–29
Hidden crossover fields, 309–11
Hiding/unhiding screen objects. See Object Nationalizer screen editor
Hyperlink, 131–37
creating a hyperlink, 133–36
data exchange, 131, 134–35
Detail button, 136
finding field and push button names, 136–37
Hyperlink tab, 132
launching a non-MAXIMO application, 135
launching MAXIMO applications, 134
launching object, 133
opening a View List dialog box, 135
overview, 131–32
passing Where clause to user application, 135
Reload Data Dictionary menu item, 136
Hyperlink tab, 132
figure, 132

I
Icons. See MAXIMO icons
Index Definitions tab, 84–86
figure, 84
Indexes
creating, 75, 76, 85–86
dropping, 75, 76, 86
Integer fields, 142–43
Internal Labor Control Accounts menu item, 226, 241
Internal Tools Control Accounts menu item, 226, 241
Internet Information Server (IIS)
running with Tomcat JSP Server, 288–308
Inventory Resource Codes menu item, 226, 241
Inventory-Related Accounts menu item, 226, 241
Invoice Options menu item, 107

Invoices
  MAXIMO.INI parameters, 352–53

Issues and Transfers Restrictions menu item, 106

Issues and Transfers Save Message menu item, 106

Item Assembly Structure Defaults menu item, 106

—J—

Java parameters
  in MAXIMO.INI, 354

—L—

Labor information
  authorizing access to, 26, 27

Labor Reporting Options menu item, 107

Labor Resource Codes menu item, 226, 241

Launch Selected Custom Application menu item, 103

Launching applications. See Hyperlink

Lead Time Calculation menu item, 106

License key/program. See MAXIMO License Program

Linked documents
  in Self Service Applications, 283–86

Linked Documents
  specifying URLs for Web browser buttons, 355

LISTTABL.SQW report, 88

Location Options menu item, 107

Log file
  MAXIMO.INI settings, 337

Logging off inactive users, 338

Login dialog box
  bypassing, 38–41

Database field setting in MAXIMO.INI, 337

modifying for multiple schemas, 64–65

User field setting in MAXIMO.INI, 337

Login status
  changing, 33

Login tracking, 30–34
  enabling, 26, 27, 32
  online verification, 34

Long Description Search Setup menu item, 75, 281

—M—

Mail. See E-mail

Main Menu
  changing icon positions, 109–10
  creating new modules, 111–12
  customizing module pop-up menus, 110–11
  disabling icons, 338
  icon text settings in MAXIMO.INI, 337

Main select statement
  overriding, 355

MAXIMO bitmap files
  specifying directory in MAXIMO.INI, 339

MAXIMO Buyer. See Self Service Applications

MAXIMO icons
  specifying directory for icon files in MAXIMO.INI, 339

MAXIMO License program
  figure, 374

MAXIMO License Program, 373–76
  application information, 374–75
  entering a license key, 375–76
  purpose, 373

MAXIMO Scheduler
  MAXIMO.INI parameters, 356–57
  MAXSCHED.INI file, 369–72
MAXIMO Schema Administrator
changing password, 25, 27
MAXIMO.INI file, 335–67, 377
archive parameters, 346
auction parameters, 346
case sensitivity in dialog box fields, 340
case sensitivity in queries, 339–40
colors parameters, 347–49
customizing, 336
date/time formatting, 140
DDE server parameters, 349
default Bill To company name, 361
default Ship To company name, 361
delete log file setting, 337
directory, 336
disabling Main Menu icons, 338
disabling start-up messages, 338
display format parameters, 351–52
displaying value list when leaving field containing invalid data, 338
DMS (Document Management System) parameters for third-party system, 349
double-byte setting, 340
drilldown parameters, 350–51
enabling/disabling 4i/4.x Looks, 343
enabling/disabling fax routing for reports, 342
enabling/disabling tooltip display, 342
foreign key field Detail button action, 342
Invoices parameters, 352–53
Java parameters, 354
log file settings for error diagnostics, 337
Login dialog box settings, 337
Mail parameter, 170
Main Menu icon text settings, 337
main select statement processing, 355
MAXIMO Application Server settings, 345
MAXIMO Scheduler parameters, 356–57
message file settings, 338
more information field parameters, 357–60
overriding default date format, 151–52
path to local data dictionary, 339
preload strings parameters, 360
Purchasing parameters, 361
red dot field parameters, 357–60
report parameters, 361–64
sections, 335–36
skipping read-only fields when tabbing, 338
specifying .DLL file or path for fax routing, 342
specifying automatic tabbing, 340
specifying colors, 347–49
specifying date format, 351–52
specifying date range for transactions in table windows, 364–65
specifying directory for MAXIMO bitmap files, 339
specifying directory for MAXIMO icon files, 339
specifying display formats, 351–52
specifying mail software, 341
specifying maximum number of times MAXIMO will retry deadlocked transactions, 341
specifying path for archive data, 346
specifying path for archive directory, 248
specifying schema parameters, 341
specifying table window line item limits, 364
specifying the 4i Look, 343–45
specifying time field display, 352
specifying URLs for Linked Documents Web browser buttons, 355
specifying width of Application Bar, 341
SQL error message display setting, 337
system-wide parameters, 337–42
table window date range parameters, 364–65
time display, 153–54
timeout setting (inactive users), 338
vendor analysis date range, 361
Work Manager parameters, 365–67
Work Orders parameters, 367
MAXMAST.OUT file, 376
MAXSCHED.INI file, 369–72
specifying path to Scheduler, 369
specifying which windows are called by
toolbar buttons, 369, 371–72
Measurements
archiving, 247, 249
Menu security, 29–30
Menus
customizing, 53
Message file
specifying name and location in
MAXIMO.INI, 338
Meter Import Options menu item, 107
Module tab (Application Setup), 107–8
figure, 108
Modules
creating new, 111–12
customizing pop-up menus, 110–11
hiding and unhiding, 114
moving applications between, 113
Move Application menu item, 107, 113

—O—

Object Nationalizer screen editor
accessing the object to customize, 51–52
aligning objects, 56–57
changing tab order, 58
conforming changes to MAXIMO design
specifications, 66–72
customizing dialog boxes, 54–55
customizing dynamic value list dialog
boxes, 61
customizing menus, 53
customizing tabs, 54–55
customizing the Drilldown dialog box,
63–64
customizing toolbars, 52–53
customizing view list dialog boxes, 59–
60
menu choices, 56–58
modifying the Login dialog box for
multiple schemas, 64–65
obtaining field and push button names
from, 136
sizing objects, 57
spacing objects, 57
when not to use, 65–66
Order By Clause menu item, 107, 117–18

—N—

Numeric fields, 141–48
amounts, 146–48
decimals, 144–45
floats, 143–44
formatting, 141–48
integers, 142–43
smallints, 142–43
validation, 141–48

—P—

Parameter login, 38–41
Passwords
MAXIMO schema administrator, 25, 27
setting expiration intervals, 26, 27
system administrator, 24, 25, 27
user, 25, 27
Preventive Maintenance Options menu item,
107
Printer routing. See Report routing
Index

Privileges
  access, 45
  application, tab, and menu, 27, 29
  database, 27, 43–45
  delete, 29, 45
  for specific records, 46–47
  insert, 29, 45
  read, 29
  restricting access to application records, 117
  update, 45
  write, 29
Problem Already Reported Options menu item, 106
Purchase orders
  archiving, 247
Purchase Orders
  archiving, 248–49
Purchase requisitions
  archiving, 247, 249
Purchasing
  MAXIMO.INI parameters, 361
  setting limits, 26, 27
Purchasing Options menu item, 107
Push button names
  finding, 136–37

—Q—
Queries
  specifying case sensitivity in
    MAXIMO.INI, 339–40
Query mode
  data validation, 156–57

—R—
Read-only fields
  MAXIMO.INI setting for skipping when tabbing, 338
Reassign Users to Group menu item, 25, 27
Records
  restricting access, 46–47, 117
  specifying display order, 117–18
Red dot fields
  application-specific MAXIMO.INI parameters, 358–60
  enabling/disabling in MAXIMO.INI, 357
  global MAXIMO.INI parameters, 357–58
  MAXIMO.INI parameters, 357–60
Reload Data Dictionary menu item, 136
Remove Changes menu item, 74, 76
Reorder Options menu item, 106
Report Options dialog box, 168
  Automatic Routing button, 176
Report routing, 173–220
  adding routing commands, 177–218
  command flowchart, 178
  e-mail routing commands, 183–86
  e-mail routing example, 197–201
  fax routing commands, 187–96
  fax routing example, 210–18
  general command syntax, 179
  marking reports for routing, 176–77
  overview, 173–74
  printer routing commands, 180–82
  printer routing example, 202–9
  running a report with routing information, 219–20
  setting up overview, 174
  Specify Printer Routing menu item, 175–76
Report writers
  registering, 162–63
Reports
  e-mailing, 170–72
  faxing, 173
  MAXIMO.INI parameters, 361–64
  registering, 163–64
  routing. See Report routing
  running, 168–69

411
specifying preferences, 166–67
specifying user prompts, 167–68
substitution variables, 164–66
Reports and Other Apps application
Application tab, 161–62
integrating graphics packages, 220
overview, 159–60
registering report writers and other applications, 162–63
registering reports and other application files, 163–64
running a report with report routing, 219–20
running reports, 168–69
Specify Printer Routing menu item, 175–76
specifying report preferences, 166–67
specifying user prompts, 167–68
Restore Backup Tables menu item, 74, 76
self service application
Self Service Application
electronic invoices, 278–79
Self Service Applications
changing automatic time out periods, 270–71
changing default schema owner, 287
e-commerce capability, 276–79
generating autonumber for special order items, 270
linked documents, 283–86
searching Description and Long Description fields, 280–82
setting up a default vendor for an item, 268–70
setting up commodity restrictions, 271–74
Set Field Defaults menu item, 27, 41–43
Set Login Controls menu item, 26, 27, 32
Set Purchasing Limits menu item, 26, 27
Ship To fields
specifying default in MAXIMO.INI, 361
Show All Value Lists menu item, 107, 123
Signature Security, 22–45
Actions menu, 24
adding groups, 25, 27
adding users, 25, 27
Application Security tab, 28
authorizing access to GL component information, 26, 27, 34–36
authorizing access to labor information, 26, 27
authorizing access to storeroom information, 26, 27
authorizing some users to reassign other users to user groups, 26, 27
authorizing some users to reassign others users to user groups, 36–38
changing a user's login status, 25, 27, 33
changing MAXIMO schema administrator's password, 25, 27
rights. See Privileges
Schema owner
changing default in Self Service Applications, 287
Schema parameters
specifying in MAXIMO.INI, 341
Screen editor. See Object Nationalizer screen editor
Screen list
specifying colors used, 347–49
Screens
customizing. See Object Nationalizer screen editor
Search engine. See Verity search engine searches
on long descriptions in Self Service applications, 75
changing system administrator’s password, 25, 27
changing user passwords, 25, 27
Database Security tab, 43–45
DEFLT group, 23
dropping groups, 24, 27
dropping users, 24, 27
group/user relationship, 23
overview, 22
reassigning users to groups, 25, 27
setting application, tab, and menu privileges, 27, 29
setting login controls, 26, 27, 32
setting purchasing limits, 26, 27
setting SQL database privileges, 27
viewing groups, 27
viewing users, 24, 27
Smallint fields, 142–43
Software requirements. See Hardware/software requirements
Special order items
generating autonumbers, 270
Specify Printer Routing menu item, 175–76
Specify Report Preferences menu item, 166–67, 176–77
Specify User Prompts menu item, 167–68
SQL error messages
display setting in MAXIMO.INI, 337
SQLTalk
ending a session, 254
running a session, 253–54
use in database administration, 253–54
SQLTimeout setting, 94
SQR report writer
MAXIMO.INI parameters, 361–64
Start-up messages
enabling/disabling in MAXIMO.INI, 338
Storeroom information
authorizing access to, 26, 27
Substitution variables, 164–66
SYSADM. See System administrator
System administrator
changing password, 25, 27
password, 24
System requirements, 14–17

—T—

Tab order
changing, 58
Tab security, 29–30
Tabbing between fields
skipping read-only fields in Insert mode, 338
Table Definitions tab, 78–79
figure, 78
Table views
creating, 76, 88
Table windows
line item limits in MAXIMO.INI, 364
specifying date range for transactions in MAXIMO.INI, 364–65
Tabs
customizing, 54–55
Tax Options menu item, 107
Time fields, 153–54. See also Date/time fields
specifying display format in MAXIMO.INI, 352
Time out periods
changing automatic in Self Service Applications, 270–71
Timeout settings (MAXIMO.INI)
MAXIMO, 338
Tomcat JSP Server
running with IIS, 288–308
Tool Resource Codes menu item, 226, 241
Toolbars
customizing, 52–53
Tooltips
enabling/disabling in MAXIMO.INI, 342
Index

—U—
Update Database menu item (Chart of Accounts), 226, 236–37
figure of dialog box, 236
Update Statistics menu item, 75, 76
Update statistics procedure, 257
User field
Login dialog box MAXIMO.INI setting, 337
User Restrictions, 46–47
defined, 21
Users
adding, 25, 27
changing login status, 33
changing number of licensed, 373–76
changing passwords, 25, 27
dropping, 24, 27
names, 24
reassigning to groups, 25, 27, 36–38
viewing, 24, 27

—V—
Validation
date/time fields, 150
numeric fields. See individual data field types
Query mode, 156–57
Value list dialog boxes, dynamic
customizing, 61–63
Value lists, 120–27
adding synonym values, 126–27
assigning and deassigning, 125
automatic display when leaving fields containing invalid data, 338
changing type, 126
creating, 124
dropping, 127
showing all, 123
standard, 122–23
synonym, 122–23
types, 122–23
Value Lists tab, 120–27
figure, 121
Vendor
default in Self Service Applications, 268–70
Vendor analysis
date range setting in MAXIMO.INI, 361
Verity search engine, 259–65
adding new fields to item collection, 261
building collections, 260
configuration, 260
modifying synonym lists, 262
running as a Windows NT service, 264
setting commodity restrictions, 265
updating collections, 264
View Definitions tab, 87–88
figure, 87
View List dialog boxes
customizing, 59–60
View Users menu item, 24, 27
Views
creating, 76, 88

—W—
WHERE clause
Application Restrictions menu item, 117
WIN.INI file
and MAXIMO.INI file, 336
formatting information, 140
Mail section, 170
MAXIMO section, 376–77
Work Equipment and Location Options menu item, 106
Work Manager
MAXIMO.INI parameters, 365–67
Work orders
archiving, 247, 249
MAXIMO.INI parameters, 367
specifying that work order is printed when initiated (MAXIMO.INI), 367
Work Plan Edit Options menu item, 106
Work Plan Save Options menu item, 106
Work Priority Options menu item, 106
Work Type Options menu item, 106