

AD/ADVANTAGE

MANTIS for Windows SQL Support for
SUPRA Administration Guide

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AD/Advantage[®] MANTIS for Windows SQL Support for SUPRA Administration Guide

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We welcome your comments

We encourage critiques concerning the technical content and organization of this manual. A [Reader Comment Sheet](#) is included at the end of the manual for your convenience.

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About this book

Using this document

MANTIS[®] is an application development system that consists of design facilities (e.g., screens and files) and a programming language. This version of MANTIS SQL Support is used to create MANTIS applications that access SUPRA. This manual contains an overview of how MANTIS SQL Support works and describes system administration considerations. It supplements *MANTIS for Windows Administration Guide*, P19-2304.

Instructions on coding MANTIS SQL Support applications appear in the *MANTIS for Windows SQL Support for SUPRA Programming Guide*, P19-2307.

Document organization

The information in this manual is organized as follows:

Chapter 1—Overview

Provides an overview of MANTIS and MANTIS SQL Support.

Chapter 2—System administration

Provides supplemental information to the installation information in *MANTIS for Windows Administration Guide*, P19-2304.

Appendix A—Programming messages

Lists MANTIS SQL Support programming messages.

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Convention	Description	Example
Braces { }	<p>Indicate selection of parameters. (Do not attempt to enter braces or to stack parameters.) Braces surrounding stacked items represent alternatives, one of which you must select.</p> <p>The example indicates that you must enter FIRST, LAST, or a value for <i>begin</i>.</p>	<pre>{ FIRST begin LAST }</pre>
<u>Underlining</u>	<p>Indicates the default value supplied when you omit a parameter.</p> <p>The example indicates that if you do not specify ON, OFF, or a row and column destination, the system defaults to ON.</p>	<pre>SCROLL [ON OFF [row] [,col]</pre>
	<p>Underlining also indicates an allowable abbreviation or the shortest truncation allowed.</p> <p>The example indicates that you can enter either PRO or PROTECTED.</p>	<pre><u>PROTECTED</u></pre>
Ellipsis points...	<p>Indicate that the preceding item can be repeated.</p> <p>The example indicates that you can enter (A), (A,B), (A,B,C), or some other argument in the same pattern.</p>	<pre>(argument, ...)</pre>
SMALL CAPS	<p>Represent a keystroke. Multiple keystrokes are hyphenated.</p>	<pre>ALT-TAB</pre>

Convention	Description	Example
UPPERCASE	<p>Indicates MANTIS reserved words. You must enter them exactly as they appear.</p> <p>The example indicates that you must enter CONVERSE exactly as it appears.</p>	CONVERSE <i>name</i>
lowercase	Indicates generic names of parameters for which you supply specific values as needed.	COMPOSE [<i>program-name</i>]
<i>Italics</i>	<p>Indicate variables you replace with a value, a column name, a file name, and so on.</p> <p>The example indicates that you can supply a name for the program.</p>	COMPOSE [<i>program-name</i>]
Punctuation marks	<p>Indicate required syntax that you must code exactly as presented.</p> <ul style="list-style-type: none"> () parentheses . , : ' ' single quotation marks 	$[\text{LET}]_v \begin{bmatrix} (i) \\ (i, j) \end{bmatrix} [\text{ROUNDED}(n)] = e1 [, e2, e3...]$

MANTIS documentation series

MANTIS is fourth-generation programming language used for application development. MANTIS is part of AD/Advantage[®], which offers additional tools for application development. The following list shows the manuals offered with MANTIS for Windows, organized by task. You may not have all the manuals that are listed here.

Getting started

- ◆ *MANTIS for Windows Administration Guide*, P19-2304*

General use

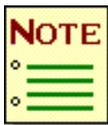
- ◆ *MANTIS for Windows Language Reference Manual*, P19-2302
- ◆ *MANTIS for Windows Facilities Reference Manual*, P19-2301
- ◆ *MANTIS for Windows Quick Reference*, P19-2303

SQL support

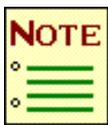
- ◆ *MANTIS for Windows SQL Support for SUPRA Programming Guide*, P19-2307
- ◆ *MANTIS for Windows SQL Support for SUPRA Administration Guide*, P19-2308*

Master user tasks

- ◆ *MANTIS for Windows Administration Guide*, P19-2304*
- ◆ *MANTIS for Windows SQL Support for SUPRA Administration Guide*, P19-2308*



Manuals marked with an asterisk (*) are listed twice because you use them for different tasks.



MANTIS educational material is available from your regional Cincom education department.

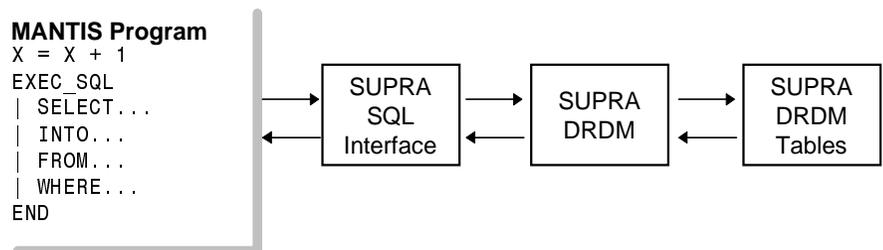
1

Overview

MANTIS is an application development system for developing, testing, executing, and documenting applications interactively. MANTIS SQL Support is an extended version of MANTIS for Windows that enables you to create MANTIS applications that access the SUPRA Server database system.

The presence of MANTIS SQL Support does not affect non-SQL MANTIS applications. MANTIS SQL programs can run side-by-side or in conjunction with non-SQL MANTIS programs, with neither affecting the other.

As each SQL statement is encountered, MANTIS transparently prepares and executes the statement. MANTIS interactively passes the requests to SUPRA, obtains the results, and passes them back to the MANTIS program in MANTIS host variables, as shown in the following example:



MANTIS passes SQL statements to the SUPRA SQL Interface, which formulates the necessary calls to the SUPRA DRDM routines which finally access SUPRA.

Embedding SQL in MANTIS SQL Support

You embed SQL statements in a MANTIS application program as standard MANTIS comments. The broken vertical bar (!) is the MANTIS comment character. Precede each SQL statement with an EXEC_SQL statement and follow it with an END statement. Data values are implicitly passed between SQL variables (SALARY and NAME below) and MANTIS variables. MANTIS variables used within an EXEC_SQL-END block (referred to as host variables in an SQL statement) must be preceded by a colon. In the following example, EMP NAME and EMP SAL are host variables:

```
4580 TEXT EMP_NAME(30)
4590 BIG EMP_SAL
4600 WHILE SQLCODE<>100
4610 EXEC_SQL
4620 .| SELECT SALARY
4630 .| INTO :EMP_SAL
4640 .| FROM EMPLOYEE_TABLE
4650 .| WHERE NAME = :EMP_NAME
4660 END
4670 DO BONUS_ROUTINE
```

Refer to the *MANTIS for Windows SQL Support for SUPRA Programming Guide*, P19-2307, for more information on embedding SQL statements.

Differences between SQL in MANTIS and SQL in C

SQL in MANTIS is essentially the same as its implementation in SQL in C. Some differences do exist between MANTIS SQL Support and SQL in C, mostly due to the interpretive, rather than the compiled, nature of MANTIS. These differences are discussed in detail in the *MANTIS for Windows SQL Support for SUPRA Programming Guide*, P19-2307. In brief, they are:

- ◆ In SQL in C, you must precompile, compile, and link-edit each program before you execute it. In MANTIS SQL Support, these steps are not necessary. You can input or modify a MANTIS program containing SQL statements and execute it immediately.
- ◆ In the SQL WHENEVER statement:
 - WHENEVER settings may have different effects when used with conditional statements than they would in SQL in C due to the interpretive nature of MANTIS.
 - The GOTO clause is replaced by a standard MANTIS DO statement, and STOP is replaced by FAULT.
 - The default for the condition SQLERROR is FAULT; in SQL in C, the default is CONTINUE.
 - WHENEVER settings may have different ranges of applicability than they would in SQL in C.

- ◆ SQLCA elements are accessed through the SQLCA function/statement, and need not be defined to the program.
- ◆ SQLDA elements are accessed through the SQLDA function/statement, and need not be defined to the program.
- ◆ In a MANTIS SQL application, messages come from three sources: the MANTIS nucleus, MANTIS SQL Support, and SUPRA. Refer to the *MANTIS for Windows SQL Support for SUPRA Programming Guide*, P19-2307, for information about MANTIS SQL support messages. Refer to the *MANTIS for Windows Facilities Reference Manual*, P19-2301, and *MANTIS for Windows Language Reference Manual*, P19-2302, for information about other MANTIS messages. Refer to the *SUPRA Server SQL Messages and Codes Reference Manual*, P26-0128, for information about SUPRA SQL messages.

Static and dynamic SQL

The following types of SQL exist:

- ◆ **Static SQL statements.** The following are static SQL statements:

- SELECT
- INSERT
- UPDATE
- DELETE
- FETCH

They are the easiest and most familiar statements to use and do not change during execution.

- ◆ **Dynamic SQL statements.** Used when the SQL statements can change during execution. For example, in a query application, which permits the user to input the SQL statement to be executed, the SQL statement changes constantly during execution.

The main dynamic SQL statements are as follows:

- **PREPARE.** Prepares an SQL statement (contained in a program variable) for execution. This preparation defines the SQLDA elements needed to process dynamic SQL.
- **DESCRIBE.** Returns information from the SQLDA about the data to be returned by SUPRA (data types, lengths, etc.).
- **EXECUTE.** Executes a previously prepared SQL statement. MANTIS SQL Support can execute both static and dynamic SQL statements. Both can be used in the same MANTIS program, if required.

Refer to the *MANTIS for Windows SQL Support for SUPRA Programming Guide*, P19-2307, for examples of SQL programs using both static and dynamic SQL to perform the same function.



Security in MANTIS SQL is handled through SUPRA. In order for static and dynamic SQL statements to work, the DBA must provide users with authorized access to the views they require.

2

System administration

The following information assumes that you have installed MANTIS for Windows. If you are installing MANTIS for the first time, or are adding MANTIS SQL Support, refer to the *MANTIS for Windows Administration Guide*, P19-2304. This chapter supplements that publication.

Update SQL options

As the Master User, you have certain facilities and information that are available only to you. When you sign on as Master User, the following Facility Selection menu displays:

M A N T I S			
FACILITY SELECTION			
RUN A PROGRAM BY NAME	..... 1	SIGN ON AS ANOTHER USER	.... 11
DISPLAY A PROMPTER	..... 2	TRANSFER FACILITY	..... 12
DESIGN A PROGRAM	..... 3	EDIT MANTIS MESSAGES	..... 13
DESIGN A SCREEN	..... 4	DIRECTORY FACILITY	..... 14
DESIGN A FILE PROFILE	..... 5	UPDATE CONFIGURATION FILE	.. 15
DESIGN A PROMPTER	..... 6	UPDATE PRINTER DEFINITION	.. 16
DESIGN A USER PROFILE	..... 7	UPDATE RESIDENT PROGRAM LIST	17
DESIGN AN INTERFACE	..... 8	UPDATE LANGUAGE CODES	..... 18
DESIGN A TOTAL FILE VIEW	... 9	MIGRATE FACILITY	..... 19
DESIGN AN EXTERNAL FILE VIEW	10	TERMINATE MANTIS	..... CANCEL
: :			

To update the SQL options, select the Update Configuration File option (15) from the MANTIS Facility Selection menu. The following screen displays:

```
                M A N T I S

          UPDATE CONFIGURATION FILE

GENERAL OPTIONS ..... 1
PROGRAM PARAMETER OPTIONS ..... 2
MEMORY USAGE OPTIONS ..... 3
LOGICAL TERMINAL OPTIONS ..... 4
TERMINAL KEY ASSIGNMENTS ..... 5
SQL OPTIONS ..... 6

LIBRARY FUNCTIONS ..... 10
TERMINATE THIS FACILITY ... CANCEL

          :      :
```

When you select SQL Options from the Update Configuration File menu, the following screen displays:

```

M A N T I S

SQL OPTIONS

DISCONNECT FROM DATABASES ON CHAIN STATEMENT ..... : N :
SQL WORK AREA EXPANSION INCREMENT (NUMBER OF SSN'S) ... : 50 :
SQLDA EXPANSION INCREMENT (NUMBER OF SQLVAR ENTRIES) ... : 10 :

(PRESS ENTER TO UPDATE OPTIONS, CANCEL TO EXIT)
```

DISCONNECT FROM DATABASES ON CHAIN STATEMENT

Description *Optional.* Specifies whether you want MANTIS to disconnect from SUPRA whenever a CHAIN statement is encountered.

Default N

Options Y Disconnect from SUPRA when a CHAIN statement is executed.
N Do not disconnect from SUPRA when a CHAIN statement is executed.

Consideration Entering N (No) reduces the number of connect and disconnect operations within MANTIS. MANTIS treats a CHAIN statement as a main program termination and performs several cleanup actions as a result. If the program being chained to connects to the same database, performance is improved by specifying N (No) for this option.

SQL WORK AREA EXPANSION INCREMENT (NUMBER OF SSN'S)

Description *Optional.* Provides the default number of entries to allocate when creating or expanding the SQL work area.

Default 50

Format Value in the range 1–2000

SQLDA EXPANSION INCREMENT (NUMBER OF SQLVAR ENTRIES)

Description *Optional.* Provides the default number of repeating element (SQLVAR) entries to allocate when creating or expanding an SQLDA.

Default 10

Format Value in the range 1–300

Update User Profile

The MANTIS User Profile has been increased by one field, specifying the default DBTYPE. Specify "SUPRA" (default) in this field.

The default DBTYPE sets the user's current DBTYPE when the user signs on to MANTIS. The current DBTYPE always determines which SQL database system MANTIS uses.

Sign on to SUPRA

You can sign on to the SUPRA DRDM explicitly or implicitly. Explicit sign-on to SUPRA occurs through the SQL CONNECT statement, as shown in the following example:

```
CONNECT { user - name } IDENTIFIED_BY { password } [lock|timeout]
        { host - variable } { host - variable }
```

Both lock and timeout are extensions to the standard SQL CONNECT statement.

Implicit sign-on occurs when no CONNECT statement exists and when the first SQL statement is executed. For implicit sign-on, MANTIS for Windows supports three system environment variables:

```
DBUSER=SQL-user-name
DBPASS=SQL-user-password
DBNAME=SQL-data-base-name
```

If an implicit CONNECT also fails, MANTIS does not connect to the SUPRA DRDM and issues a fault message. You can use SQLCA("SQLCODE") to find the cause of the failure.

A

Programming messages

You can alter the text of the MANTIS SQL Support programming messages by using the Edit MANTIS Messages Facility. Refer to the *MANTIS for Windows Administration Guide*, P19-2304, for details. The following table lists the messages and is provided so that you can record any changes you make to the message text:

Message code	Message text	New message text
720	The SQLDA name is missing or incorrectly specified.	
721	The SQLDA element name is missing or incorrectly specified.	
722	The SQLDA variable index is missing or incorrectly specified.	
723	The SQLCA element name is missing or incorrectly specified.	
725	An embedded host variable indicator is not numeric.	
726	The SQLDA variable index is out of range.	
727	The specified host variable is not yet allocated.	
728	The SQLDA or SQLCA element is read-only.	

Message code	Message text	New message text
729	The value of the SQLDA or SQLCA element is the wrong data type.	
730	The value of the SQLDA element is out of range.	
731	The specified SQL DBTYPE is not supported.	
732	Substrings for output host variables are not supported in compatibility mode.	
733	The SQL session number is invalid.	
735	The DBNAME parameter is missing or incorrectly specified.	
737	A numeric session parameter is not valid when the DBTYPE is not "SUPRA".	
738	The cursor name is missing or incorrectly specified.	
748	There is no result table for the FETCH with auto-cursor.	
749	An embedded host variable is missing.	
750	SQLERROR:nnnn:#####...	
751	No SQL database name has been specified for connection.	
752	The SQL statement text is missing or incorrectly coded.	
753	The cursor has not been OPENED.	

Message code	Message text	New message text
754	The cursor name has not been DECLARED.	
755	The statement name has not been PREPARED.	
756	The named SQLDA has not been allocated.	
757	The BEGIN/END statement is incorrectly specified.	
758	The named SQLDA was created for a different DBTYPE.	
759	An embedded host variable data type is incorrect.	
760	The FROM clause is missing or incorrectly specified.	
761	The SQL statement specification is missing or incorrectly specified.	
762	The SQL statement name is missing or incorrectly specified.	
763	Failure on SQL COMMIT, attempting to ROLLBACK instead.	
764	The MANTIS SQL statement/cursor name limit has been exceeded.	
765	There is more than one result table row for the singleton SELECT (INTO).	
766	The WHENEVER condition is missing or incorrectly specified.	
767	The WHENEVER action is missing or incorrectly specified.	

Message code	Message text	New message text
768	The USING parameter is missing or incorrectly specified.	
769	The DECLARE CURSOR statement is incorrectly specified.	
770	The INTO clause is missing.	
771	The INTO parameter is missing or incorrectly specified.	
772	The host variable is incorrectly specified.	
773	The FETCH statement is incorrectly specified.	
775	One of NEW or QUIT keywords expected but not specified.	
778	The END statement is missing after the SQL statement text.	
779	The embedded SQL statement has a syntax error.	

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How long have you been using this product? Months Years

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Is the information easy to understand? Yes No Please comment.

Is the information adequate to perform your task? Yes No Please comment.

General comment: _____

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