DriveRight® Fleet Management Software

Database Selection Guide

Use this guide to help you select the right database to use with your DriveRight Fleet Management Software (FMS), and to help you perform any required database installation procedures before you run DriveRight FMS for the first time. DriveRight FMS supports the following databases:

- Single-User Databases:
 - MS Access (Microsoft Access, all required software included)
 - MSDE 2000 (Microsoft Desktop/Data Engine) (not supported in the Windows Vista operating system)
- Multi-User Databases:
 - MySQL
 - MS SQL Server (Microsoft SQL Server)
 - Oracle

When you first run DriveRight FMS, you will be required to select a database to use with the software. Each of the supported databases for DriveRight FMS have their advantages and disadvantages. First, we'll look at the selection considerations for each of the supported database types. Later in this document we present the installation procedure for each of the databases.

Selection Considerations: Single-User

Review the following considerations for each database and then select the best database for your situation.

MS Access Considerations

Of the supported databases, MS Access is the easiest to install and use.

- There is no additional software to buy if you use MS Access. DriveRight FMS automatically installs all the necessary components when you first run the program.
- MS Access does have limitations to the number of users connected simultaneously to the database, the size of the database, and reliability of the database.
- MS Access is only recommended for installations that have one user.
- Maximum database size for MS Access is 2 gigabytes.
- MS Access is only recommended for small fleets of five vehicles or less.
 Be aware that if you are logging GPS and vehicle speed data, the database size increases very rapidly since GPS and vehicle speed data is logged much more frequently than data from the DriveRight console. In such cases, if you decide to go with MS Access database, it is advised to backup your data at least once a month.

MSDE Considerations

MSDE stands for Microsoft Desktop/Data Engine, which is a scaled down version of the SQL Server. It is a basic database with Client/Server architecture from Microsoft.

- MSDE works well with a maximum of five simultaneous connections.
- MSDE is also recommended for single-user installations since DriveRight FMS software maintains more than one connection to the database server.
- In contrast to MS Access, MSDE runs as a Windows server. If your computer has performance issues, we recommend MS Access instead of MSDE.

Note: In our database performance tests, MS Access performed better than MSDE.

Active Database Size Recommendations

The recommendations displayed in the table below are based on tests and calculations made with these assumptions:

- 10 trips per day per vehicle.
- Trip duration is 1 hour (10 hours driving time per day per vehicle).
- GPS data logged every 10 seconds.

Scenario	Number of Vehicles	Active Data stored in Database	Remarks and Recommendations	
	25	Up to 1 year	Backup data once a month for application performance. Using backup options, you can set a maximum of 1 year of data in the active database.	
No GPS	50	Up to 9 months	Backup data once a month for application performance. Using backup options, you can set a maximum of 9 months of data in the active database.	
	100	Up to 6 months	Backup data once a month for application performance. Using backup options, you can set a maximum of 6 months of data in the active database.	
MSDE with GPS	5	Up to 1 month	Backup data once a month for application performance. Using backup options you can set a maximum of 1 month of data in the active database.	
MS Access with GPS	10	Up to 1 month	Backup data once a month for application performance. Using the backup options, you can set a maximum of 1 month of data in the active database.	

Note: If your fleet size exceeds the scenarios shown on the previous page, we recommend that you use a multi-user database. For multi-user databases, theoretically there is no fleet size limit. We recommend that you back up data once a month, keeping only the amount of data required for reporting purposes in the active database, typically 3-6 months.

Scenario	Number of Vehicles	Active Data stored in Database	Remarks and Recommendations
Multi-User Database with/with- out GPS	Unlimited	3-6 months	Backup data every month without GPS or once a week with GPS. Using the backup options, you can set a maximum of 6 months data in the active database.

Selection Considerations: Multi-User

Davis recommends using either MySQL, MS SQL Server, or Oracle if more than one user will be accessing the data at a time, if the fleet has more than five vehicles, or if you are logging GPS data for more than one vehicle.

MySQL, MS SQL Server & Oracle Considerations

MySQL, Oracle and MS SQL Server database servers are very powerful databases, which can support large amounts of data and multiple simultaneous connections with good performance.

- Of these three powerful databases, MySQL is the most economical server. It
 is by far the easiest to set up and maintain and is also the only multi-user
 database used by DriveRight FMS that does not require the support of a
 database administrator. We strongly recommend MySQL for customers
 with large fleets and potentially large databases that do not already have a
 license for MS SQL Server or for Oracle.
- In the case of MySQL, most of the maintenance commands will be integrated through the DriveRight FMS software in the future, to eliminate any administrative overhead.
- MS SQL Server is a powerful database server from Microsoft. It is also easy to setup, but MS SQL Server is more expensive than MySQL.
- If you decide to go with MS SQL Server or Oracle, it is assumed that you have IT personnel who have knowledge to maintain these database servers.
- Though Oracle is a common database server among large applications, it is both expensive and difficult to maintain.
- In order to connect to an Oracle server with DriveRight FMS running on multiple machines, Oracle Client software must be installed on each machine. Each installation of Oracle Client software must be individually licensed

Multi-User Database Server Setup

Follow this sequence when setting up a multi-user database for DriveRight FMS:

- 1. Server Installation.
- 2. Client Installation.
- 3. Database Configuration.

Multi-User Database Client Setup

Follow this sequence when installing DriveRight FMS on a user's computer:

- 1. Client Installation.
- 2. Database Connection.

MS Access Installation

Of all the databases, MS Access is the easiest to setup. DriveRight FMS automatically installs all the required components for this database.

Server Installation

Not applicable. The server is automatically installed if it is selected during DriveRight FMS initial configuration.

Database Configuration

Not applicable. The database is automatically configured if it is selected during DriveRight FMS initial configuration.

Database Connection

Please refer to the "DriveRight Fleet Management Software Getting Started Guide" for DriveRight FMS installation and configuration instructions:

1. When you run DriveRight FMS, the **Select Database Type** dialog box displays. Select MS Access and click **OK**.



A dialog box is displayed with the path in which the database will be created. This defaults to the DriveRight FMS install directory.



- 2. If you want to change the directory used for the MS Access database, click **Browse** and select the desired directory.
- 3. To finish the database connection, click **Connect to Database**. DriveRight FMS creates a new database if the database doesn't exist, or it connects to the specified database if the database already exists.
- 4. If the database is empty when you connect, you are prompted to enter the location name and address to be associated with all data at your location. After entering the location name and address, click **OK** and the FMS software will start. We recommend that only one user at a time access the MS Access database.



MSDE Installation

The Microsoft SQL Server 2000 Desktop Engine (also known as MSDE 2000) is another database option. If using the MSDE Server, MSDE 2000 is required for FMS 3.7 or later.

Server Installation

- 1. Please refer to Microsoft MSDE installation documentation for instructions on installing and configuring your MSDE database.
- Make sure the MSDE Server is running. To do this go to: Start->All Programs->Startup->Service Manager. Press Start/Continue, the green arrow icon to start MSDE. When MSDE is running, you will see the green indicator in the MSDE icon on the task bar.



Database Configuration

Not applicable. Automatically configured when MSDE is selected during DriveRight FMS initial configuration.

Database Connection

1. When you run DriveRight FMS, the **Select Database Type** dialog box displays. Select SQLServer / MSDE and Click **OK**.



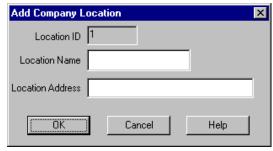
2. The **Database Connection** dialog box displays with the following fields after selecting MSDE as your database:



The **Database Connection** dialog box displays the following fields:

- **Server Name** Defaults to the local machine name. You may need to change this if you do not use the local machine name.
- **Database Name** Defaults to DriveRight_MSSQL but can be changed to any other database running on the server.
- **ODBC Driver** This will not need to be changed in most installations. If version 2.5 of the SQL Server driver is installed (unlikely), then you will need to edit it to look like {SQL Server}.
- 3. If the database is empty when you connect, you are prompted to enter the location name and address to be associated with all the data at your location.

4. After entering the location name and address, click **OK** and the DriveRight software will start.



5. It should be noted that the MSDE database server is optimized for a maximum of 5 simultaneous connections. Considering the fact that the DriveRight FMS software may keep more than one connection alive, it is advisable to limit the number of users to one at a time

MySQL Installation

MySQL is a database server developed by a company named 'MySQL AB' as an Open Source Project. It is considered fast, stable, and is easy to setup compared to database servers like Oracle. Also, it is by far the least expensive multi-user database server for use with the DriveRight FMS. For medium to large fleets, we strongly recommend MySQL server, especially if you do not already have a license for either Oracle or MS SQL server.

Server Installation

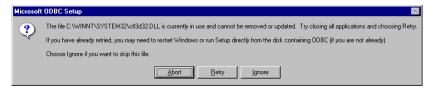
- If you don't already have a license for MySQL, you need to buy one from MySQL AB. MySQL Classic version is adequate for all DriveRight FMS applications.
- 2. Install MySQL Server. During installation of MySQL server, setting user names and passwords is optional.
- You need to make sure MySQL is running first. To do this go to Startup>Settings->Control Panel->Administrative Tools->Services. You will see a
 service name titled MySQL. If it is not running, select it and right click to
 start it.

Client Installation

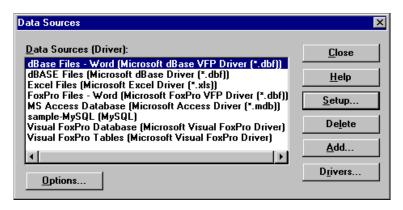
1. The client software, MySQL Connector/ODBC 2.50 or later, must be installed on all computers that will be running DriveRight FMS.

Note: MySQLConnector/ODBC3.51.21 is required for running DriveRight FMS on a Windows Vista operating system.

During the installation of the MySQL Connector/ODBC 2.50, the Microsoft ODBC Setup dialog box displays. Click Ignore.



Click Close in the Data Sources dialog box. You are finished installing the client software.

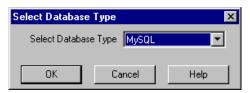


Database Configuration

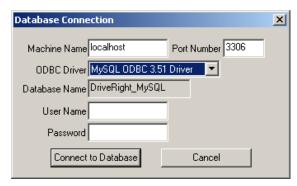
 With MySQL running, install and run the DriveRight FMS on the same machine as the database server. This is only required for database configuration. After the database is configured, remove DriveRight FMS from the server. When the database configuration is complete, you will be able to connect to the MySQL server from any PC on the local area network.

Note: If you are running MySQL on a non-Windows server, you need to manually execute the SQL scripts that configure your database with the necessary database tables manually. The scripts are located in the "mySQL TablesCreation.sql" file on the install CD.

When you run the DriveRight FMS, the Select Database Type dialog box displays. Select MySQL, and Click OK.



3. Click Connect to Database in the Database Connection dialog box.



4. If the database is empty when you connect, you are prompted to enter the location name and address to be associated with all the data at your location. After entering the location name and address, click **Add** and the DriveRight software will start.

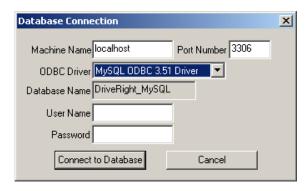


Database Connection on User's Computer

1. When you run DriveRight FMS for the first time, the **Database Type Selection** dialog box displays. Select **MySQL** and click **OK**.



2. The **Database Connection** dialog box displays. Enter the machine name of MySQL Server in the **Machine Name** text box. Contact your system administrator for the MySQL machine name.



3. Click **Connect to Database** to finish the database connection.

MS SQL Server Installation

MSDE and MS SQL Server are compatible databases developed by Microsoft. MSDE is a single-user database while MS SQL Server is a multi-user, server based database. MS SQL Server also requires the services of a database administrator to install and maintain.

Server Installation

- If you don't already have a license for MS SQL Server, buy one from Microsoft.
- 2. Install MS SQL Server.
- Run MS SQL Server. Go to: Start->Programs->Microsoft SQL Server->Service Manager. Press the green arrow "Start/Continue" button to start MS SQL Server. When the server is running, a green indicator in the MS SQL Server icon displays on the task bar.



Client Installation

Not applicable.

Database Configuration

The MS SQL server can be configured two ways, on the server itself or from a user's computer.

Note: The server can also be configured without installing DriveRight FMS on the server, by running the DBConfig_DriveRight_MSSQL.bat file. See "Appendix A: Configuring MS SQL Server Database Manually" on page 17.

To Configure the Database on the Server:

- With MS SQL Server running, install and run DriveRight FMS on the same machine as the database server. This is only required for the database configuration. After the database is configured you can uninstall the DriveRight FMS from the server. When the database configuration is complete, you will be able to connect to the MS SQL Server from any PC on the local area network.
- 2. When you run the DriveRight FMS for the first time, the **Select Database Type** dialog box displays. Select SQL Server / MSDE and Click **OK**.



3. When DriveRight FMS is run for the first time, the **Database Connection** dialog box displays after selecting SQL Server / MSDE as your database.



The **Database Connection** dialog box displays the following fields:

- **Server Name** Defaults to the local machine name. You may need to change this if you do not use the local machine name.
- **Database Name** Defaults to DriveRight_MSSQL but can be changed to any other database running on the server.
- **ODBC Driver** This will not need to be changed in most installations. If version 2.5 of the SQL Server driver is installed (unlikely), then you will need to edit it to look like {SQL Server}.
- 4. Once you have entered the pertinent information, click **Connect to Database.** DriveRight FMS launches and connects to the database.

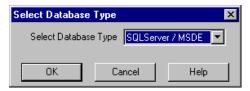
5. If the database is empty when you connect, you will be prompted to enter the location name and address to be associated with all the data at your location. After entering the location name and address, click **Add** and DriveRight FMS will start.



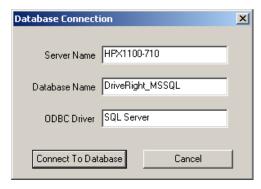
- 6. Once the software has been configured on the MSDE/SQL Server, give permissions to users to connect from multiple machines. This depends on how your SQL Server is setup. A simple approach would be to grant permissions to all Windows users to connect. In this case, the Windows Login/Password is used to authenticate. This can be setup by running SQL Server Enterprise Manager, going to Security->Logins and adding either individual users or domain users.
- From this point on, anyone who installs DriveRight FMS needs to enter the MS SQL Server machine name in the **Machine Name** edit box in the **Database Connection** dialog box. Contact your database administrator for the MS SQL Server machine name.

To Configure the Database on a User's Computer:

 When you run DriveRight FMS for the first time, the Database Type Selection dialog box displays. Select SQL Server / MSDE and click OK.



The **Database Connection** dialog box displays:



The **Database Connection** dialog box displays the following fields:

- **Server Name** Defaults to the local machine name. You may need to change this if you do not use the local machine name.
- Database Name Defaults to DriveRight_MSSQL but can be changed to any other database running on the server.
- **ODBC Driver** This will not need to be changed in most installations. If version 2.5 of the SQL Server driver is installed (unlikely), then you will need to edit it to look like {SQL Server}.
- 2. Once the information is entered, click **Connect to Database.** DriveRight FMS software launches and connects to the database.

Oracle Installation

Since Oracle server installation and administration are complicated, you will require an Oracle database administrator to use Oracle with DriveRight FMS.

Server Installation

- 1. If you don't already have a license for Oracle server, buy one from Oracle.
- 2. The DriveRight FMS software has been tested with the Oracle9i server and with Oracle9i client. Since the DriveRight FMS software executes only the standard SQL statements, the software should work with previous or later versions of Oracle server and client
- 3. Create the database *DRight* with SID, using the Database Configuration Assistant.
- 4. Create a Net Service Name called *DRight*, with the SID created in Step 3.
- Create a user name and password for DriveRight FMS users to connect to Oracle server.

Client Installation

The Oracle client must be installed on all computers running DriveRight FMS. Please check with your Oracle database administrator for client licensing.

Note: If you are running DriveRight FMS on a Windows Vista operating system, please contact your database administrator or Oracle for Oracle Client with Windows Vista support.

The following steps are for installing Oracle Client 9i. If you install a different version of Oracle Client, some steps may vary.

Note: Please follow these steps carefully and in the sequence in which they are written. Oracle installation is a time consuming process, and if you go wrong at some place you may have to reinstall the whole Oracle Client again.

Oracle Client 9i Installation:

- 1. Locate and run the Oracle Client CD. Click **autorun.exe**. The Oracle9i Client installation screen displays.
- 2. Click Install/Deinstall Products. The Welcome dialog box displays.
- 3. Click Installed Products. If the dialog box says you have no installed products, go to step 4. If an older version exists, a dialog box pops up with the details. Remove these before installing 9i. The dialog box displays the installed products as a tree structure. Expand the tree to display the check boxes. Expand and check all the shown items, and click Remove. Wait until every thing is uninstalled.
- 4. Now you are ready to install 9i Client. Click **Next**. In the **Next** dialog box, click **Next**. This step takes a few seconds.
- In the Installation Types dialog box, select Administrator and click Next.
- 6. In the **Summary** dialog box, click **Install**.
- If the installation is successful, the Oracle Net Configuration Assistant displays. This creates the Net Service Name, which is used during the creation of the DSN. Select No, I will create net service names... and click Next.
- 8. Select Oracle8i or later... and click Next.
- 9. Enter the Service Name as DRight and click Next.
- 10. Select **TCP** and click **Next**.
- 11. Enter your Oracle server IP address as the Host Name and click Next. Contact your database administrator for the Oracle server IP address. If this step takes more than 10 minutes, please skip the remaining steps and See "Creating Listener and Net Service Name Manually" on page 15.
- 12. Click Yes, perform a test and then click Next.
- 13. You will most likely see a success message. Click **Change Login** and change both user name and password to the user name and password given by your system administrator. Go back and click **Next**, it performs a test connection with the new user name and password.
- 14. Leave Net Service Name as it is and click Next.

- 15. When you are prompted to configure another Net Service Name, select **No** and click **Next.** Then click **Finish**.
- 16. Click **Exit**. The Oracle 9i client installation is finished. See "Creating and Configuring Oracle DSN" on page 16 for the next steps in the process.

Creating Listener and Net Service Name Manually

If you are in this section, you had problems creating a service name while creating Oracle Client. If everything worked fine in the previous section move on to the next section.

- 1. First close the present **Oracle Client Installation** dialog box. A message may display that states that some things are not installed correctly. Use the following steps to correct the process.
- 2. Go to Programs->Oracle-OraHome90->Configuration and Migration Tools->Net Manager.
- 3. Expand the directory to Local->Listeners. If LISTENER is displayed, a listener was created during the 9i Client installation. If so, see step 5 below.
- 4. Click on Listeners, and then click the '+' icon on the left side if LISTENER is not displayed. Leave the name as 'LISTENER'. Then click **Add Address** and leave the defaults alone.
- 5. Click **Add Address** again, and select **Protocol as IPC** from the **Protocol** drop down box. Enter the key as 'EXTPROC0' (The last character is a zero, and the character before C is capital letter O).
- 6. Expand **Service Naming**. If you see a child node, with a name similar to dright.davisnet.com, continue on to Step 9.
- Click Service Naming and then click the '+' icon. Add Net Service Name
 as 'DRight'. Click Next twice. In the Host Name, enter the Oracle server
 IP address. Click Next to continue.
- 8. Select Oracle8i or later, and enter DRight in the text box. Click Next.
- Click Test. If this step fails, please contact your database administrator. If this step succeeds, click Change Login and change both the user name and password to the user name and password provided by your database administrator.
- 10. Click **OK** and click **Test** again. Then close the dialog box.
- 11. Click Finish.
- 12. Expand **Service Naming**, select the child node which looks similar to: (DRight.your_company_name.com). Check for the parameters. Host Name should be the IP address of your Oracle server.
- 13. Close **Net Manager**, and click **Save** when it prompts you. See "Creating and Configuring Oracle DSN" on page 16 for the next steps in the process.

Creating and Configuring Oracle DSN

- 1. Go to Start->Settings->Control Panel.
- 2. Double click Administrative Tools, and select Data Sources.
- 3. In the **Data Sources** dialog box, select the **System DSN** tab.
- 4. Click **Add**, and in the list of drivers select **Oracle in OraHome90** (located almost at the bottom of the list) and click **Finish**.
- 5. In Data Source Name, enter DriveRightOracle. In TNS Service Name, select DRIGHT. Enter the user name and password provided by your database administer and click OK. The Connection Successful dialog box displays. If the Connection Successful dialog box does not display, check for any spelling mistakes and try again.
- 6. Click OK. The Data Source Name displays in the list of System Data Sources.

Database Configuration

 With the Oracle server running, install and run DriveRight FMS on the same machine. This is only required for database configuration. After the database is configured you will be able to connect to the Oracle Server from any PC on the local area network.

Note: The server can also be configured without installing DriveRight FMS on the server by running the DBConfig_DriveRight_Oracle.bat file. See "Appendix B: Configuring Oracle Database Manually" on page 18 for more information.

2. When you run **DriveRight FMS** for the first time, the **Database Type Selection** dialog box displays. Select **Oracle** and click **OK**.

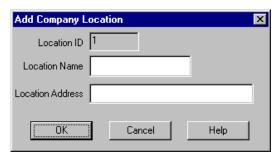


3. The **Database Connection** dialog box displays.



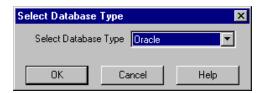
- 4. Enter the user name and password created in step 4 of the **Server Installation** procedure.
- 5. Click Connect to Database to finish or click Cancel to exit.

6. If the database is empty when you connect, you are prompted to enter the location name and address to be associated with all the data at your location. After entering the location name and address, click **OK** and the DriveRight FMS starts.



Database Connection on the User's Computer

1. When you run DriveRight FMS for the first time, the **Database Type Selection** dialog box displays. Select Oracle and Click **OK**.



2. The **Database Connection** dialog box displays:



- 3. Enter the user name and password provided by the database administrator.
- 4. Click Connect to Database to finish or click Cancel to exit.

Appendix A: Configuring MS SQL Server Database Manually

If a direct configuration of the database files on the MS SQL server can not be permitted, the database can be configured manually by using the following instructions. The OSQL command utility should be installed to run the script.

- 1. Go to Start->Run.
- 2. Type cmd and click OK. The DOS command window displays.

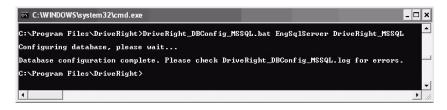
3. Change the directory by entering the following in the command line:

cd C:\Program Files\DriveRight

4. Enter the following in the command line:

DriveRight DBConfig MSSQL.bat YourServerName YourDatabaseName

YourServerName and YourDatabaseName should be replaced with your SQL server host name and database name (**DriveRight_MSSQL**) respectively. These parameters are used to connect to the MS SQL Server database.



5. Wait for the script to finish running and open the DriveRight_DBConfig_MSSQL.log file in the directory C:\Program Files\DriveRight to check if any errors occurred while the script ran. Report any errors to Davis Instruments.

Appendix B: Configuring Oracle Database Manually

If a direct configuration of the database files on the Oracle server can not be permitted, the database can be configured manually by using the following instructions. The SQLPlus command utility should be installed to run the script.

- 1. Go to Start->Run.
- 2. Type **cmd** and click **OK**. The DOS command window displays.
- 3. Change the directory by entering the following in the command line:

cd C:\Program Files\DriveRight

4. Enter the following in the command line:

DriveRight_DBConfig_Oracle.bat YourUserName YourPassword
YourServiceName

YourUserName, YourPassword, and YourServiceName should be replaced with your Oracle user name, your password and your TNS service name (**DRight.your_company_name.com**) respectively. These parameters are used to connect to the Oracle database.

```
C:\WINDOWS\system32\cmd.exe

C:\Program Files\DriveRight>\DriveRight_DBConfig_Oracle.bat dr36 dr36 dright.davisnet.com

Configuring database, please wait...

SQL*Plus: Release 9.0.1.3.0 - Production on Tue Apr 25 11:16:54 2006

(c) Copyright 2001 Oracle Corporation. All rights reserved.

Connected to:

Oyacle9i Release 9.0.1.1.1 - Production
JServer Release 9.0.1.1.1 - Production
Disconnected from Oracle9i Release 9.0.1.1.1 - Production
Disconnected from Oracle9i Release 9.0.1.1.1 - Production
Disconnected from Oracle9i Release 9.0.1.1.1 - Production
C:\Program Files\DriveRight>

C:\Program Files\DriveRight>
```

5. Wait for the script to finish and open DriveRight_DBConfig_Oracle.log file under the C:\Program Files\DriveRight directory to check for any errors. Report errors to Davis Instruments.

Contacting Davis Technical Support

If you have questions about DriveRight FMS, or encounter problems installing or using the software, please contact Davis Technical Support. Most questions can be answered while you're on the phone.

Sorry, we are unable to accept collect calls.

(510) 732-7814 – Monday through Friday, 7:00 a.m. to 5:30 p.m. Pacific Time.

(510) 670-0589 - Fax to Technical Support.

support@davisnet.com – E-mail to Technical Support.

info@davisnet.com – E-mail to Davis Instruments.

www.davisnet.com – Product documentation is available on the DriveRight Support section of our website. Watch for FAQs and other updates.

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Product Number: 8186 Part Number: 7395.195
DriveRight® Fleet Management Software Database Selection Guide Rev. G Manual (10/26/07)
This product complies with the essential protection requirements of the EC EMC Directive 89/336/EC.
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