Liant Software Corporation

Relativity[®]

Data Client for UNIX Installation Guide

Second Edition

LIANT

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Preface

This section of the *Relativity Data Client for UNIX Installation Guide* provides an introduction to the Relativity Data Client for UNIX component and fundamental concepts of the ODBC (Open Database Connectivity) environment and the relationship of Relativity Data Client for UNIX to the various ODBC components, including UNIX Driver Managers. Other topics in the Preface describe related documentation, define conventions used in the documentation, and point out registration and technical support options.

About this Guide

The *Relativity Data Client for UNIX Installation Guide* is intended for a System Administrator and describes the following topics:

Chapter 1: Installation and Verification of Relativity Data Client for UNIX. This chapter describes the installation procedures for the Relativity Data Client for UNIX including system and setup requirements, how to create data sources, the verification procedure, and the uninstall procedure. It also details how to customize the installation process.

Chapter 2: Utility Programs. This chapter describes the utility programs that are supplied with the Relativity Data Client for UNIX. These utilities are used to facilitate the creation of data sources, and the testing of the connection between the UNIX client and the server machines running the Relativity Data Server.

Appendix A: UNIX ODBC Driver Managers. This appendix provides information about the two ODBC Driver Managers that are available on UNIX.

Introducing Relativity Data Client for UNIX

The Relativity Data Server and Data Client components are used in the two-tier (or client/server) configuration of Relativity. In the two-machine configuration, the Relativity Data Server component of the Relativity Database Management System (DBMS) resides on a remote UNIX machine (called the UNIX server) or Windows machine (called the Windows server) close to the data files that the DBMS accesses. The Relativity Data Client for UNIX component of the Relativity DBMS resides on a UNIX machine (called the UNIX client), close to the ODBC-enabled application that needs to access the data.

Note This document uses the term "UNIX server" to indicate the UNIX machine on which the Relativity Data Server is installed. The term "UNIX client" indicates the UNIX machine on which the Relativity Data Client is installed. It is possible to have the Relativity Data Client and the Relativity Data Server installed on the same physical UNIX machine, in which case the terms UNIX server and UNIX client refer to the same machine. Thus, the term UNIX client does not *always* indicate a workstation class of machine.

Relativity provides for a *true* relational database view of your COBOL application data. It also provides an Open DataBase Connectivity (ODBC)-compliant relational database engine that allows SQL-based access to your COBOL application data without moving, converting replicating or re-engineering your legacy data files. With Relativity, you can choose virtually any modern ODBC-enabled development tool to build applications for ad hoc reporting, decision support, and specialized data processing functions. Moreover, using Relativity, you do not have to rewrite or migrate any of your working applications in order to benefit from a client/server environment.

Understanding ODBC

The Relativity document, *The Theory of Relativity*, provides an overview of the Relativity product. However, that guide does not cover the Open DataBase Connectivity (ODBC) environment in depth, particularly the concept of Driver Managers. The Driver Manager is an integral part of ODBC, and it is included as part of the Microsoft Windows operating system. As a result, on Windows, installation of the ODBC Driver Manager is not visible to the end user. On UNIX, however, the ODBC Driver Manager is not a standard part of any UNIX operating system, although two groups have written open source implementations of it. To assist in familiarizing you with the use of these implementations, see

The following section defines some of the terms and components used in ODBC.

ODBC Terminology

A *database* is a system that stores information in the form of tables. Each table in the database contains rows. Each row in a table contains columns. It is an over simplification to say that a table is like a file, a row is like a record, and a column is like a data item, but there are similarities in these concepts. To access information from a database, you need a *database management system (DBMS)*, a collection of programs that enable you to store, modify, and extract data from the database in the form of a *query*, which is a stylized question conforming to a set of query language rules. Examples of database management systems include SQLServer, Oracle, and Informix.

Each DBMS has its own specific *Application Program Interface (API)* to access data within it. An API is the set of procedure calls, within the DBMS, that are needed to connect to a database, access the tables within it, and return the results to the application program.

A *database application program* is one that uses a database management system's API to retrieve the data from a database and perform useful work with it. Because each DBMS has its own proprietary API, a specific database application program generally works with only one DBMS. Unless specifically written otherwise, conversion of a database application to a different DBMS is usually a large and often error-prone task.

ODBC, the acronym for Open Database Connectivity, was created by Microsoft Corporation to provide independence for a database application program from the DBMS that it accesses. ODBC provides a consistent API for accessing databases. ODBC accomplishes this by inserting a middle layer, called a database *driver*, between an application and the DBMS. Calls made to this API are passed to a driver specifically written for a database. It is important to note that a driver is not itself a database. Instead, a driver takes the requests made to the ODBC API and makes the appropriate API calls for a particular database management system. Thus, each driver is tailored to a specific DBMS, and internally, the drivers are each very different.

A database application program that is written to use the ODBC API is called an ODBC-enabled (or ODBC-compliant) application. Calls to the ODBC API are routed to the proper driver by a library called the *Driver Manager*.

The Driver Manager contains routines for the entire ODBC API. However, the Driver Manager does not actually carry out most of the functions of the API. Instead, when the ODBC-enabled application connects to a database, the application loads the library for the Driver Manager and calls the Connect API option using a data source name. This name indicates to the ODBC Driver Manager not only the proper driver to use to access the database, but any information needed by the driver to connect to that database. The Driver Manager will load the library for the proper driver, and then call the proper routine within the driver to connect to the actual database. Furthermore, ODBC API calls made to the Driver Manager are subsequently passed to the driver for execution.

Thus, the Driver Manager provides a layer of indirection, relieving the ODBC-enabled application of the need to be tied to driver, as well as a specific database. In theory, an application that is using an SQLServer database one day, could be using Informix the next merely by changing the driver associated with the name of the data source.

As noted, on Windows there is only one Driver Manager, which is the one supplied by Microsoft. Consequently, ODBC-enabled applications on Windows need only be concerned with accessing the library for that Driver Manager. However, on UNIX, two Driver Managers are available, which adds some complexity when using ODBC on this platform. In order to facilitate your use of the Relativity Data Client for UNIX, Liant has included pre-built versions of both Driver Managers and will optionally install them during the Data Client's installation. For more in-depth information, see

ODBC and Relativity Data Client for UNIX

In ODBC terms, the Relativity Data Server is the database, and the Relativity Data Client is the driver for the Relativity Data Server. Although the Relativity Data Server implements the ODBC API directly, the Relativity Data Client is still needed to manage the network communication to the Relativity Data Server.

The Relativity Data Client for UNIX is capable of communicating with a Relativity Data Server for UNIX or a Relativity Data Server for Windows. It is also capable of communicating with a Relativity Data Server on the same UNIX machine as itself.

Liant supplies command line-based tools for creation, modification, and deletion of data sources, for both the Relativity Data Client for UNIX and the Relativity Data Server. These tools will facilitate creation of data sources from installation scripts. There is also a tool for testing a client data source and its connection to a server data source.

Related Relativity Documentation

In addition to the *Relativity Data Client for UNIX Installation Guide* and *The Theory of Relativity, A Primer*, the Relativity documentation set consists of the following items:

- **UNIX Driver Managers Build Guides.** A pair of HTML documents, located in the UDrvMan directory of the Relativity Data Client for UNIX Electronic Software Delivery download file and on the Relativity Data Server product CD, that give instructions on how to build the two ODBC Driver Managers for UNIX (unixODBC and iODBC) on the various UNIX platforms that the Relativity Data Client for UNIX supports. Note that these documents should be referenced only if you decide to rebuild the Liant-supplied versions of these Driver Managers.

- **Relativity Client/Server Installation Guide.** A document (one for UNIX and one for Windows) that is intended for a System Administrator. It describes the following:

  - How to install the Relativity Data Server software component on a computer running either a UNIX or Windows operating system and verify that the installation was successful.

  - How to:

    - Install the Relativity Data Client software component on a secure Windows workstation (such as the workstation belonging to a Database Administrator) for the purpose of catalog development.

    - Install the Relativity Server Administrator utility program in order define a server for the client and configure a server data source.

    - Verify communications between the client and the server.

  - How to install the Relativity Data Client software component on an end user's Windows workstation and verify that the installation was successful by configuring a client data source and associating it with a server data source.

  - How to run the RM/COBOL Indexed File Recovery utility (**recover1**) to recover an RM/COBOL indexed file.

- **Relativity Designer Installation Guide.** A document that describes how to install the Relativity Designer software component and verify that the installation was successful.

- **Relativity DBA Installation Guide**. A document that describes how to install and verify the Relativity DBA (Database Administrator) software component on a Windows-based workstation.

- **Relativity Java Client User's Guide**. An HTML document, located in the JDBC directory of the Relativity Java Client Electronic Software Delivery download file and on the Relativity product CD, that describes the installation and verification of the Relativity Java Client as well as information about deploying it with Java applications and applets, and setting up data source connections. The Java Client is a Java Database Connectivity (JDBC) component that resides in a Java runtime environment (JRE).

- **Relativity Online Help.** An online HTML help documentation system that provides fast access to detailed information on Relativity features and options. The help system also contains step-by-step presentations on how to accomplish specific tasks with Relativity and an extensive glossary. A separate help file is provided for each of the various Relativity tools: the DBMS (Data Client and Data Manager), the Designer, the DBA (Database Administrator), the Relativity Configuration Utility, and the Server Administrator.

- **Relativity README Files.** A set of online HTML documents that lists any changes to the Relativity documentation since its publication and contains new technical information that supplements the documentation.

- **LiantInstall Program User's Reference.** A document that describes how to configure and control the installations of Liant products, including Relativity.

Conventions Used in this Document

This document contains visual cues to help the reader identify important information.

Table Convention	Indicates
Initial Capitals	Menu names, command names, and dialog box, window, and form titles.
Bold	Menu, command, and button names.
	Other elements to be selected or typed to accomplish an action.
	Label on input media used during installation.
Italic	Reference to a topic in the current document or another Relativity document.
	Reference to another document.
	Emphasis.
Bold Italic	Variables.

Registration

Please take a moment and register your Liant product online at: http://www.liant.com.

Registering your product entitles you to the following benefits:

- **Customer support.** Free 30-day telephone support, including direct access to support personnel and 24-hour message service.

- **Special upgrades.** Free media updates and upgrades within 60 days of purchase.

- **Product information.** Notification of upgrades or revisions to Relativity when they are released.

You can also receive up-to-date information about Liant and all its products via our web site. Check back often for updated content.

Technical Support

Liant Software Corporation is dedicated to helping you achieve the highest possible performance from the Liant family of products. The technical support staff is committed to providing you prompt and professional service when you have problems or questions about your Liant products.

Technical support services are subject to Liant's prices, terms, and conditions in place at the time the service is requested.

While it is not possible to maintain and support specific releases of all software indefinitely, we offer priority support for the most current release of each product. For customers who elect not to upgrade to the most current release of the products, support is provided on a limited basis, as time and resources allow.

Support Guidelines

When you need assistance, you can expedite your call by having the following information available for the technical support representative:

- Company name and contact information.

- Liant product serial number (found in the Electronic Software Delivery email, on the media label, or in the product banner message).

- Liant product version number.

- Operating system and version number.

- Type of files (RM/COBOL or Micro Focus COBOL) being used when the problem occurred.

- Hardware, related equipment, and terminal type.

- Exact message appearing on screen.

- Concise explanation of the problem and process involved when the problem occurred.

Test Cases

You may be asked for an example (test case) of the source that demonstrates the problem.

- The smaller the test case is, the faster we will be able to isolate the cause of the problem.

- Do not send full applications.

- Reduce the test case to the smallest possible combination of components required to reproduce the problem.

- If you have very large data files, write a small program to read in your current data files and to create new data files with as few records as necessary to reproduce the problem.

- Test the test case before sending it to us to ensure that you have included all the necessary components to run the test case.

When submitting your test case, please include the following items:

1. **README text file that explains the problems.** This file must include information regarding the hardware, operating system, and versions of all relevant software (including the operating system and all Liant products). It must also include step-by-step instructions to reproduce the behavior.

2. **Program source files.** We require source for any program that is called during the course of the test case. Be sure to include any copy files necessary for recompilation.

3. **Data files required by the programs.** These files should be as small as possible to reproduce the problem described in the test case.

Chapter 1: Installation and Verification of Relativity Data Client for UNIX

This chapter lists the system and setup requirements (see page 10) and describes the procedures for installing the Relativity Data Client for UNIX (see page 12) software on a computer having one of the UNIX operating systems listed under System and Setup Requirements (see page 10).

This chapter also discusses the following topics:

How to	See page
Verify that the installation of the Relativity Data Client for UNIX was successful by:	27
• Configuring a Relativity Data Server data source from the UNIX client.	27
• Configuring a Relativity Data Client data source on the UNIX client.	28
• Testing the Relativity Data Client data source.	28
Remove the Relativity Data Client for UNIX.	29
Customize the Relativity Data Client for UNIX installation.	29

System and Setup Requirements

Installation of the Relativity Data Client for UNIX software requires the following minimum software and hardware.

Component	Requirement
Operating System	HP-UP 11 (PA-RISC and Itanium) IBM AIX 5.2 Intel UNIX System V Release 4 Linux (2.6 kernel or later) SCO OpenServer 5 SCO System V Release 5 (UnixWare 7.1.1 or later and SCO OpenServer 6 Sun Solaris SPARC (2.9) and Intel x86 (2.9)
Disk Space	5 MB recommended
Network Software	TCP/IP network
C Development System	Required only if developing a new ODBC application or building either of the Driver Managers supplied by Liant. The Driver Managers have their own requirements for building, especially if the GUI tools are being built. For more information on building the Driver Managers, see the UNIX Driver Managers Build Guides, two HTML documents (iodbc.htm and unixodbc.htm), which are located in the UDrvMan directory on the product installation CD.
Driver Managers	unixODBC 2.2.7 or later iODBC 3.51.1 or later **Note** Either of these Driver Managers can be installed by this product if the site has not already installed a Driver Manager.

Installation of the Relativity Data Client for UNIX software also includes the following prerequisites:

- If one of the Driver Managers supplied by Liant is installed, it is configured to store system data sources in the directory **/usr/local/liant/etc**. The person installing the software must have permission to create this directory before beginning the installation. For more information, see Appendix A: *UNIX ODBC Driver Managers* (on page 71).

- If one of the Driver Managers supplied by Liant is not installed, then the PATH environment variable and the system library search path environment variable must contain the library directory of the Driver Manager that is to be used. The library search path environment variables for the different UNIX versions are as follows:

Operating System	Variable
HP-UX	LIBPATH
IBM AIX	SHLIB_PATH
Intel UNIX System V Release 4 Linux (2.6 kernel or later) SCO OpenServer 5 SCO SVR5 (UnixWare 7.1.1 or later and SCO OpenServer 6) Sun Solaris SPARC and Intel x86	LD_LIBRARY_PATH

- If neither of the Driver Managers supplied by Liant is installed, the person installing the software must have the necessary permissions to alter the control files of the Driver Manager that is in use.

- The person installing the software must have the necessary permissions to create the installation directories. The default location for these directories is in **/usr/local/liant**.

- If there is currently a version of the software in the installation directory, all processes currently using the Relativity Data Client for UNIX and the Driver Manager (if one of the Liant-supplied Driver Managers is being installed), should be terminated first.

End-User Requirements

End users of the Relativity Data Client that utilize the Relativity Data Client for UNIX have the following requirements:

- The system library search path environment variable must contain the directory containing the Driver Manager Library. If one of the Driver Managers supplied by Liant is installed, this directory and the name of the system library search path environment variable will be displayed during the installation process. The default location will be **/usr/local/liant/lib**. For more information, see Appendix A: *UNIX ODBC Driver Managers* (on page 71).

- The end user must have read permission to the directory containing the Driver Manager Library and the Driver Manager control files. If one of the Driver Managers supplied by Liant is installed, the default location will be **/usr/local/liant/etc** and **/usr/local/liant/lib**.

- The end user must have read permission to the directory containing the library for the Relativity Data Client for UNIX. The default location is **/usr/local/liant/lib**.

- If the end user is to run any of the Liant-supplied tools for creating server or client data sources, then the end user must have read permission to the installation directory containing those tools, and that directory must be in the end user's PATH environment variable, or the end user must supply the complete pathname of the tool when invoking it.

Installing the Relativity Data Client for UNIX

This section discusses the distribution media options (see the following topic) and the steps on how to install the Relativity Data Client for UNIX software, including the following:

- Step 1: View the Data Client README File (see page 13)

- Step 2: Create the Staging Directory (see page 14)

- Step 3: Load the Distribution Media (see page 14)

- Step 4: Start the Installation Script (see page 18)

- Step 5: Answer the Installation Prompts (see page 19)

- Step 6: Perform the Installation (see page 22)

- Step 7: Unload the Distribution Media (see page 25)

- Step 8: Remove the Staging Directory (see page 26)

Note 1 The staging directory is a temporary directory that is used during the installation process. No permanent files are placed here. The installation script uses this directory to contain files that it will use to control the installation process. An installation prompt is provided to remove these control files following a successful installation. The staging directory is not required to be on the same UNIX file system as the installation directory. Because the bulk of the files on the Data Client are read directly from the installation media into the installation directory, the space requirements for the staging directory are small.

Note 2 For information on customizing the installation procedures of the Data Client, refer to Customizing the Relativity Data Client for UNIX Installation (on page 29).

Distribution Media Options

The Relativity Data Client for UNIX software is available on CD-ROM media and via Electronic Software Delivery. For the CD-ROM option, the Relativity Data Client for UNIX is delivered on the CD-ROM media for the Relativity Data Server for UNIX or the Relativity Data Server for Windows. Electronic Software Delivery allows the Relativity Data Client for UNIX to be downloaded from the Liant Electronic Software Delivery web site in any of the following three formats. Simply follow the instructions on the web site for downloading and decompressing the file for the format selected.

- **ISO CD Image.** There is not a separate ISO CD Image for the Relativity Data Client for UNIX. It is part of the Relativity product ISO CD Image. If you have chosen to download the ISO CD Image option for a Relativity product and created the physical CD-ROM media, then proceed with normal CD installation. See CD-ROM on the UNIX Client (on page 14).

- **Windows Self-Extracting EXE.** The download format for Windows Self-Extracting EXE contains *only* the Relativity Data Client for UNIX.

  After the deliverable has been downloaded and uncompressed, and the installation components have been created from the Windows Self-Extracting EXE, follow the instructions in the CD-ROM or Software Download on a Windows Client (on page 16) topic to install the Relativity Data Client for UNIX software.

- **UNIX GUNZIP TAR.** The download format for UNIX GUNZIP TAR contains *only* the Relativity Data Client for UNIX.

  After the deliverable has been downloaded and uncompressed, and the installation components have been created from the GUNZIP TAR distribution format, follow the instructions in CD-ROM on the UNIX Client (see page 14) to install the Relativity Data Client for UNIX software.

Note 1 The Windows Self-Extracting EXE format is decompressed on a Windows machine. The UNIX GUNZIP TAR format is decompressed on a UNIX machine. The Relativity Data Client for UNIX product contains only UNIX components. The only advantage to downloading the Windows Self-Extracting EXE is to avoid the necessity of downloading and installing the gunzip utility on UNIX.

Note 2 The instructions that follow refer to an installation components directory, which is the directory to where the deliverable file, via electronic software delivery, was downloaded and decompressed.

Step 1: View the Data Client README File

The README files contain important, last-minute information about Relativity. It is a good idea to read these files before installing or running this version of Relativity.

To view the Relativity Data Client README file on Windows:

a. If the distribution media is a CD, insert the Relativity product CD into the Windows client's CD-ROM drive. Proceed to step b of these instructions.

   If the distribution is via Windows Self-Extracting EXE, proceed to Step 2: Create the Staging Directory (on page 14).

b. Do one of the following:

   - If the **LiantInstall** program starts automatically, click **Browse CD** and navigate to the ReadMe directory and open the file **client.htm**.

   - If the installation program, **LiantInstall**, does not start automatically, or if your UNIX server contains a CD-ROM and an Internet browser, direct a browser to the file **ReadMe/client.htm** on the CD or the installation components directory.

Note For UNIX clients, you will have to wait until after you complete Step 3: Load the Distribution Media (see page 14) in order to be able to view the README file with the UNIX server's Internet browser.

Step 2: Create the Staging Directory

It is necessary to create an empty, temporary staging directory to contain the files used to control the installation process. This directory need not be on the file system where the Relativity Data Client ultimately will be installed; nor will the file system of the staging directory require more than 100 blocks for free storage. The majority of the Data Client's files will be installed directly from the distribution media into its installation directory.

Note If the UNIX client is unable to read the installation media directly, it will be necessary to load the media on a machine what can read the installation media and then copy the installation file into the staging directory. In this case, the file system of the staging directory will need 9000 blocks of free storage.

To create the staging directory, enter:

```
mkdir /RelStage
```

The name *RelStage* will be used throughout the remainder of this document to refer to the staging directory. You may, however, choose any name you wish.

Step 3: Load the Distribution Media

The Relativity Data Client for UNIX is distributed on CD-ROM media or electronically via a download from the Liant web site. Use any of the following options to load the distribution media:

- If your UNIX client has a CD-ROM drive installed and the software was delivered on this type of media, see the following topic, CD-ROM on the UNIX Client.

- If the UNIX client does *not* have a CD-ROM drive, or if the distribution was via download using the Windows Self-Extracting EXE format, refer to CD-ROM or Software Download on a Windows Client (on page 16).

- If the distribution was via download using UNIX GUNZIP TAR, after the downloaded file has been decompressed into an installation components directory, no further steps are necessary to load the distribution media.

CD-ROM on the UNIX Client

Use this option to load the distribution media if your UNIX hardware has a CD-ROM drive installed and the Relativity Data Server was delivered on this type of media. Instructions for loading the distribution media on specific versions of UNIX are provided in the following sections.

Note In the instructions that follow, the standard mount directory names are used where the UNIX operating system has such a standard. If the operating system does not follow a standard, the name */cdrom* is used. It will be necessary either to create the directory */cdrom* or substitute the preferred mount directory name for */cdrom*.

HP-UX

1. Insert the CD into the CD-ROM drive.

2. Log in as root and enter:

```
mount -F cdfs -o ro,cdcase /dev/dsk/cd0t4d0 /cdrom
```

Note 1 It may be necessary to create the mount directory /*cdrom* before executing this command.

Note 2 The device name, c0t4d0, is dependent on the hardware configuration of your UNIX server. It may be necessary to substitute the proper value for your system. Consult your UNIX System Administrator.

IBM AIX

1. Insert the CD into the CD-ROM drive.

2. Log in as root and enter:

```
mount -o ro -v cdrfs /dev/cd0 /cdrom
```

Note It may be necessary to create the mount directory /*cdrom* before executing this command.

Intel UNIX System V Release 4

1. Insert the CD into the CD-ROM drive.

2. Log in as root and enter:

```
mount -o ro -F cdfs /dev/cd0t4l0 /cdrom
```

Note 1 It may be necessary to create the mount directory /*cdrom* before executing this command.

Note 2 The penultimate character in **c0t4l0** is a lowercase letter "L".

Note 3 The device name, **c0t4l0**, is dependent on the hardware configuration of your UNIX client. It may be necessary to substitute the proper value for your system. Consult your UNIX System Administrator.

Linux

1. Insert the CD into the CD-ROM drive.

2. Log in as root and enter:

```
mount -o ro -t iso9660 /dev/cdrom /mnt/cdrom
```

SCO OpenServer 5

1. Insert the CD into the CD-ROM drive.

2. Log in as root and enter:

   ```
   mount -o ro -f ISO9660,lower /dev/cd0 /cdrom
   ```

   Note It may be necessary to create the mount directory /*cdrom* before executing this command.

SCO System V Release 5 (UnixWare 7.1.1 or later and SCO OpenServer 6)

1. Insert the CD into the CD-ROM drive.

2. Log in as root and enter:

   ```
   mount -F cdfs -o ro /dev/cdrom/c1b0t0l0 /CD-ROM_1
   ```

   Note 1 The penultimate character in **c1b0b0t0l0** is a lowercase letter "L".

   Note 2 the device name, **c1b0b0t0l0**, is dependent on the hardware configuration of your UNIX client. It may be necessary to substitute the proper value for your system. Consult your UNIX System Administrator.

Sun Solaris SPARC and Intel x86

1. Insert the CD into the CD-ROM drive.

2. If Solaris does not automatically load the CD-ROM, log in as root and enter:

   ```
   Volcheck
   ```

CD-ROM or Software Download on a Windows Client

Use this option to load the distribution media if your UNIX hardware does not have a CD-ROM drive installed, but there is a CD-ROM drive on a Windows client that has FTP access to the UNIX client, or if you received the Relativity Data Client for UNIX program via Software Electronic Delivery and chose the Windows Self-Extracting EXE format.

1. On the Windows client, if installing from a CD, insert the Relativity product CD into the CD-ROM drive.

   Note These instructions assume that this is drive D. If it is another drive, change the drive letter to the appropriate letter in the remaining instructions.

2. Open a Command Prompt window by clicking **Start** on the task bar, pointing to **Programs**, then to **Accessories**, and then clicking **Command Prompt**.

3. Do one of the following:

   - If installing from a CD, change to the CD-ROM drive:

     ```
     d:
     ```

   - If installing from a software download installation components directory, change to the installation components directory:

     ```
     cd \InstallationComponentsDirectory
     ```

4. Change the directory to the **DClient** directory:

    ```
    cd DCLIENT
    ```

5. Change the directory to the proper directory for the operating system on which the Data Client is to be installed:

    - If this is an Electronic Software Delivery installation, there will be only one directory. The name of this directory is product- and operating system-dependent, and will be one of the names listed for the CD-ROM installation, as described below.

    - If this is a CD-ROM installation, you will need to select the proper directory from the following list:

        - 010 - Intel UNIX System V Release 4

        - 051 - SCO OpenServer 5

        - 056 - Sun Solaris SPARC

        - 057 - Sun Solaris Intel x86

        - 061 - HP-UX for PA-RISC

        - 063 - Large File Linux (Intel)

        - 065 - HP-UX for Itanium

        - 066 - IBM AIX

        - 067 - SCO System V Release 5 (UnixWare 7.1.1 or later and SCO OpenServer 6)

6. Connect to the UNIX client:

    ```
    ftp UnixClientName
    ```

    where *UnixClientName* is the network name of your UNIX client.

7. Change the directory to the staging directory:

    ```
    cd /RelStage
    ```

8. Specify a binary file transfer:

    ```
    BINARY
    ```

9. Send the installation script to the UNIX client:

    ```
    send INSTALL.SH install.sh
    ```

10. Send the installation file to the UNIX client:

    ```
    send DCLNCPIO dclncpio
    ```

11. Disconnect from the UNIX client:

    ```
    bye
    ```

12. Close the Command Prompt window with the following command and, if necessary, remove the CD-ROM from the CD-ROM drive:

    ```
    Exit
    ```

Step 4: Start the Installation Script

To start the installation script for the Relativity Data Client for UNIX:

a. Login as root.

   Note If you are going to use a Driver Manager that is already installed on the UNIX client, make sure the directory containing the Driver Manager is in the library search path environment variable. See <u>System and Setup Requirements</u> (on page 10) for more information.

b. Change the directory to the staging directory:

   ```
   cd /RelStage
   ```

c. Do one of the following:

   - If you have a CD-ROM installation on UNIX, invoke the following installation script on the CD-ROM:

     ```
     sh /cdrom/install.sh
     ```

     where *cdrom* is the mount directory specified in the procedures in <u>CD-ROM on the UNIX Client</u> (see page 14). For those operating systems with standard mount directory names, choose the appropriate name from the following:

     – HP-UX: */cdrom*/install.sh

     – IBM AIX: */cdrom*/install.sh

     – Intel UNIX System V Release 4: */cdrom*/install.sh

     – Linux: /mnt/cdrom/install.sh

     – SCO OpenServer 5: */cdrom*/install.sh

     – SCO System V Release 5 (UnixWare 7.1.1 or later and SCO OpenServer 6):

       ```
       /CD-ROM_1/install.sh
       ```

     – Sun Solaris SPARC and Sun Solaris Intel x86:

       ```
       /cdrom/relativity12/install.sh
       ```

   - If you have an Electronic Software Delivery on the UNIX Server, invoke the following installation script in the installation components directory:

     ```
     sh /InstallationComponentsDirectory/install.sh
     ```

   - If you have an Electronic Software Delivery on the Windows Client, invoke the following installation script in the staging directory:

     ```
     sh ./install.sh
     ```

     Proceed directly to Step 5: Answer the Installation Prompts.

d. The installation script will display a message indicating the operating system on which it
    is running and a list of the products available to install. The script will then prompt for
    the directory of the product to install:

    ```
    Please enter the directory name of the product to
       install: [exit]
    ```

    Enter the directory name **DClient** and proceed to Step 5.

Step 5: Answer the Installation Prompts

The installation script prompts you for all the information that it needs before beginning the
actual installation of the Relativity Data Client. If there is a failure during the installation, the
responses to these prompts will be presented as the defaults for the prompts when the script is
started again. The defaults appear in the square brackets at the end of the prompt. Pressing
the Return or Enter key at the prompt will result in the value within the square brackets being
used as the response to the prompt.

Each prompt is discussed below in the order in which it appears.

a. **Name of the installation file or the CD mount directory:**

    This prompt requests the name of the installation device containing the UNIX Data Client
    installation file. The installation script will locate the installation file in the directory
    containing the installation script. If there is an installation file in that directory, the name
    of that file will be presented as the default for this prompt. If you wish to specify a
    different installation file, enter the name of that file in response to this prompt. You may
    enter only the mount directory or the installation components directory in response to this
    prompt. In this case, the installation script will choose an installation file appropriate to
    the target operating system.

    The default name, as appropriate for your UNIX system, is shown in the following list:

    - HP-UX PA-RISC: `/cdrom/dserver/061/dclncpio`.

    - HP-UX Itanium: `/cdrom/dserver/065/dclncpio`

    - IBM AIX: `/cdrom/dserver/066/dclncpio`.

    - Intel UNIX System V Release 4: `/cdrom/dserver/010/dclncpio`

    - Linux: `/mnt/cdrom/dserver/063/dclncpio`

    - SCO OpenServer 5: `/cdrom/dserver/051/dclncpio`

    - SCO System V Release 5 (UnixWare 7.1.1 or later and SCO OpenServer 6):

      `/CD-ROM_1/dserver/067/dclncpio`

    - Sun Solaris SPARC:

      `/cdrom/relativity12/dserver/056/dclncpio`.

    - Sun Solaris Intel x86:

      `/cdrom/relativity12/dserver/057/dclncpio`.

    - CD-ROM on the Windows client: `dclncpio`

    - Electronic Software Delivery on Windows client: `dclncpio`

    - Electronic Software Delivery on UNIX server:

      `/InstallationComponentsDirectory/DServer/nnn/dclncpio`

b. **Do you accept this license?:**

The Liant license agreement prompt will be displayed via the UNIX command, **more**.

Please read this license agreement carefully. If you agree with the terms, enter **y**. Enter **n** to terminate the installation. There is no default.

c. **1) unixODBC**
2) iODBC
3) none
Driver Manager to install [none]:

This prompt requests which Driver Manager, pre-built by Liant, to install, if any. If this installation does not install a Driver Manager, at least one Driver Manager must still be installed on the UNIX client. The Liant-supplied Driver Managers have been built to store system data sources in the file **/usr/local/liant/etc/odbc.ini**. Having a fixed name for the system data sources file is a characteristic of both the Liant-supplied Driver Managers, although the file used can be overridden by using environment variables. For more information, see Appendix A: *UNIX ODBC Driver Managers* (on page 71).

To install the unixODBC Driver Manager, enter the value **1**, **unixODBC**, **UNIXODBC**, or **unixodbc**. To install the iODBC Driver Manager, enter the value **2**, **iODBC**, **IODBC**, or **iodbc**. Enter the value **3**, **none**, or **NONE** not to install a Driver Manager. The default value is **none**.

d. **Directory in which to install the Driver Manager [/usr/local/liant]:**

This prompt appears only if Step 5c requested that the files for a Liant-supplied Driver Manager be installed. This prompt requests the name of the directory where the Driver Manager files are to be installed.

Enter the name of the directory for the Driver Manager files. The default is **/usr/local/liant**.

e. */usr/local/liant* **does not exist. Do you wish to create it? [y]:**

This prompt appears only if Step 5c requested that the files for a Liant-supplied Driver Manager be installed, and if the directory for the Driver Manager files, which was specified in Step 5d, does not exist.

To create the directory, enter **y**. To specify a different directory for the Driver Manager files, enter **n**.

f. **Directory in which the Driver Manager Library files are installed**
[*/usr/local/liant/lib***]:**

This prompt appears only if Step 5c requested that the files for a Liant-supplied Driver Manager not be installed. A Driver Manager must be present on the UNIX client in order to install the Data Client, and this prompt requests the name of the directory where the Library files for a previously installed Driver Manager were installed.

Enter the name of the directory for the Driver Manager Library files. The default is **/usr/local/liant/lib**.

g. **Directory in which to install the Data Client [***/usr/local/liant/lib***]:**

This prompt requests the name of the directory where the Data Client is to be installed.

Enter the name of the directory. The default is **/usr/local/liant/lib**.

h. */usr/local/liant/lib* **does not exist. Do you wish to create it? [y]:**

This prompt does not appear if the directory specified for the Data Client installation directory (see Step 5g) already exists, or if it is a directory named **lib** within the directory specified for the Driver Manager Library installation (see Step 5d).

Note Since the installation of the Driver Manager Library will automatically create a directory named **lib**, it will not be necessary to verify the creation of this directory name.

To create the directory, enter **y**. To specify a different directory, enter **n**.

i. **Directory in which to install the Data Client utilities [***/usr/local/liant/bin***]:**

This prompt requests the name of the directory to install the RelClientAdmin utility (see page 57), RelDriverAdmin utility (see page 68), and RelClientTest utility (see page 66) to manage local client data sources, manage local drivers, and verify the installation.

Enter the name of the directory in which to install these Data Client utilities. The default is **/usr/local/liant/bin**.

j. */usr/local/liant/bin* **does not exist. Do you wish to create it? [y]:**

This prompt does not appear if the directory in which to install the RelClientAdmin, RelClientTest, and RelDriverAdmin utilities (see Step 5i) already exists, or if it is a directory named **bin** within the directory specified for the Driver Manager Library installation (see Step 5d).

Note Since the installation of the Driver Manager Library will automatically create a named **bin**, it will not be necessary to verify the creation of this directory name.

To create the directory, enter **y**. To specify a different utility directory, enter **n**.

k. **Do you wish to install the Data Server administration utility? [n]:**

This prompt requests to install a RelServerAdmin utility (see page 39) to manage Data Server data sources. The Relativity Server Administrator utility needs to be installed only on an Administrator's machine. It will be installed in the same directory as the Data Client utilities, which were specified in Step 5i.

Enter **y** to install this utility. Enter **n** not to install the utility. The default is **n**.

l. **User name under which to install the Data Client [***CurrentUser***]:**

This prompt requests the user name under which the Data Client is installed.

Enter the user name of the Data Client (for example, Relativity). The default is the current user.

m. **Default Server's Network Name [***ServerName***]:**

This prompt requests the network name of a Window or UNIX server machine on which a Relativity Data Server is running. This server will be the default server when creating new data sources.

Enter the network name of the desired machine or **none** not to create a default server. The default is **none**.

n. **Default Server's Service Port [1583]:**

This prompt appears only if the response to the Default Server's Network Name in Step 5m is any value other than **none**. This prompt requests the service port number of the Relativity Data Server that is running on the machine specified in Step 5m.

Enter the service port number of the Relativity Data Server. The default is **1583**.

o. **When installation is finished, do you wish to remove the temporary files from** */RelStage***? [n]:**

This prompt requests whether you want to clean up the temporary files that the Data Client installation placed in the staging directory. This will include the file that is storing the values entered in response to the installation prompts and the INSTALL script. These files are removed *only* following a successful installation.

To remove the temporary files, enter **y**. To cause the temporary files to remain, enter **n**. The default is **n**.

Step 6: Perform the Installation

The following messages may appear during the installation of the Relativity Data Client:

- **Creating directory *X*...Directory already exists, using existing directory.**

  This message indicates that directory *X*, which was to be created, already exists.

- **Creating directory *X*...Success.**

  This message indicates that directory *X* was successfully created.

- **Creating directory *X*...Failed to create directory.**

  This message indicates that directory *X* was not created.

- **Cannot determine Operating System type. Please contact Liant Customer Support.**
  OS_NAME=*name*
  OS_RELEASE=*number*
  ARCH_TYPE=*architecture*

  This message indicates that the installation cannot determine the current operating system, and that the installation may not be compatible with this operating system. Contact Liant Customer Support with the information indicated by the *name*, *number*, and *architecture* fields.

- **Attempt to install Relativity Data Client for *ProductOperatingSystem* on *ActualOperatingSystem***

  This message indicates that the installation was able to determine the current operating system (*ActualOperatingSystem*), and that it is not the correct operating system for the product (*ProductOperatingSystem*). Obtain the correct version of the Relativity Data Client for the operating system on which you are attempting the installation.

- **./install.sh must be run as root equivalent.**

  This message indicates that the current user does not have sufficient privileges to install the Relativity Data Client.

- */cdrom* **is not a file or directory.**

  This message is in response to Step 5a and indicates that the value entered for that prompt is not a valid file or directory name. Enter either a valid filename, which will be treated as a Data Client installation file, or a directory name, which will be treated as a CD-ROM device mount directory or installation components directory.

- **Cannot find installation file using */cdrom***

  This message indicates that the directory name entered for Step 5a does not contain the Data Client installation file.

- **Cannot access installation file.**

   This message indicates that the installation file, which was either entered directly in Step 5a or located within the directory entered in Step 5a, cannot be opened. Before this message is displayed, another error message will be printed that indicates the source of the problem.

- **Installation does not contain the required files.**

   This message indicates that the installation file, which was either entered directly in Step 5a or located within the directory entered in Step 5a, could be opened, but it did not contain the expected files within it. It is probably the wrong installation file for this installation script.

- **Please respond with y for yes or n for no.**

   This message is in response to a prompt that requires a yes or no answer. Simply use the lower case first letter of the word in your response.

- **Unknown Driver Manager: *DriverManager*.**

   This message is in response to Step 5c and indicates that the installation script does not recognize the name of the Driver Manager to install.

- **This installation will use the Driver Manager. If the installation fails with the message 'error loading ODBC library libiodbc.so', place the Driver Manager's Library directory into LD_LIBRARY_PATH and perform the installation again.**

   This message indicates that the installation was requested not to install a Driver Manager in Step 5c, and that a directory containing the Driver Managers Library was not specified in Step 5f. In this case, it is assumed that there is a Driver Manager already installed, and the directory containing the Driver Manager Library is already in the library directory search path environment variable (usually LD_LIBRARY_PATH). If this is not the case, the installation will fail and either the library directory search path must be corrected, or the directory name must be entered in response to Step 5f.

- *DirectoryName* **does not exist.**

   This message is in response to Step 5f and indicates that *DirectoryName* given to that prompt does not exist.

- *DirectoryName* **does not contain Driver Manager Library files.**

   This message is in response to Step 5f and indicates that *DirectoryName* exists, but does not contain the Driver Manager Library files. Only the unixODBC libraries, **libodbc.so** and **libodbcinst.so**, are searched for. (The iODBC installation usually creates symbolic links with these names to its **libiodbc.so** and **libiodbcinst.so** files.)

- *UserName* **is not a valid user name.**

   This message is in response to Step 5l and indicates that *UserName* cannot be located in the **/etc/passwd** file.

- *????* **is not a valid service port number.**

   This message is in response to Step 5n and indicates that the service port number entered was not valid. The service port number must be greater than 0, and it must be a valid integer. If the number is not a valid integer, this message will be preceded by a system error message.

- **Beginning installation.**

   This message indicates that the installation script is beginning installation of the Relativity Data Client.

- **Installing Driver Manager *DriverManager*.**

  This message precedes the execution of the **cpio** command that will read the Driver Manager installation files from the installation device and place them into the installation directory. If the **cpio** command fails, a message indicating the source of the failure will appear instead, and the installation will terminate.

- **Installing Data Client.**

  This message precedes the execution of the **cpio** command that will read the Data Client's installation files from the installation device and place them into the installation directory. If the **cpio** command fails, a message indicating the source of the failure will appear instead, and the installation will terminate.

- **Installing Data Client utility programs.**

  This message precedes the execution of the **cpio** command that will read the utility installation files from the installation device and place them into the installation directory. If the **cpio** command fails, a message indicating the source of the failure will appear instead, and the installation will terminate. The utility programs include the client administration utilities (RelClientAdmin, RelClientTest, and RelDriverAdmin) and the server administration utility (RelServerAdmin). For more information, see Chapter 2: *Utility Programs* (on page 37).

- **Installing Data Client in Driver Manager.**

  This message indicates that the Relativity Client Driver Administrator utility program (RelDriverAdmin) is being executed to record the location of the Data Client's installation files with the Driver Manager.

- **Storing default Server Name *ServerName***

  This message indicates that the Relativity Client Data Source Administrator utility program (RelClientAdmin) is being executed to record the default server specified in prompts 5m and 5n.

- **Install was successful.**

  This message indicates that the installation was successful.

- **In order to use the Liant-supplied Driver Manager files, add */usr/local/liant/lib* to the *LD_LIBRARY_PATH* environment variable.**

  Note In this message, *LD_LIBRARY_PATH* is used for illustrative purposes only. You must use the specific environment variable name that applies to your operating system. For more information, see System and Setup Requirements (on page 10).

  This message appears only if the Liant-supplied Driver Manager files are installed. The directory */usr/local/liant/lib* is the name of the directory in which they were installed. *LD_LIBRARY_PATH* is the name of the operating system environment variable that is searched for shared libraries. The environment variable names for each UNIX operating system are listed in the discussion of additional prerequisites in System and Setup Requirements (see page 10).

- **In order to use the Data Client utility programs, add */usr/local/liant/bin* to the PATH environment variable.**

  This message is a reminder that it is necessary to change your PATH environment variable in order to execute the Data Client utility programs. The directory */usr/local/liant/bin* is the name of the directory in which they were installed.

- **Files removed.**

  This message indicates that, per your request, the temporary files in the staging directory have been removed.

Step 7: Unload the Distribution Media

This step removes the Data Client installation media from the hardware. Use any of the following options to unload the distribution media:

a. If the installation involved a CD-ROM drive installed on the UNIX client, see Unload the CD-ROM on the UNIX Client (as described in the next topic).

b. If the UNIX client does not have a CD-ROM drive, refer to Unload the CD-ROM on the Windows Client (on page 26).

c. If the distribution of the media was via Software Download using UNIX GUNZIP TAR, remove the installation components directory with the following command:

```
rm -rf /InstallationComponentsDirectory
```

Unload the CD-ROM on the UNIX Client

Use this option to unload the distribution media if the Relativity Data Client for UNIX installation involved a CD-ROM drive installed on the UNIX client. Instructions for specific versions of UNIX are provided.

HP-UX, IBM AIX, Intel UNIX System V Release, and SCO OpenServer 5

The instructions for these platforms are identical:

1. Enter the following command:

```
umount /cdrom
```

    where */cdrom* is the mount directory used in the **mount** command.

2. Remove the installation media from the CD-ROM drive.

If you had to create the mount directory */cdrom* for this installation, you may remove it at this time.

Linux

1. Enter the following command:

```
umount /mnt/cdrom
```

2. Remove the installation media from the CD-ROM drive.

SCO System V Release 5 (UnixWare 7.1.1 or later and SCO OpenServer 6)

1. Enter the following command:

   ```
   umount /CD-ROM_1
   ```

2. Remove the installation media from the CD-ROM drive.

Sun Solaris SPARC and Intel x86

1. Enter the following command:

   ```
   eject cdrom
   ```

2. Remove the installation media from the CD-ROM drive.

Unload the CD-ROM on the Windows Client

Follow these instructions to unload the distribution media if the Relativity Data Client was installed from a CD-ROM drive on a Windows client.

1. Remove the media from the CD-ROM drive.

2. At the Windows command prompt, enter:

   ```
   exit
   ```

3. Enter the following command from the UNIX root login:

   ```
   rm /RelStage/dclncpio
   rm /RelStage/install.sh
   ```

Step 8: Remove the Staging Directory

You may now remove the staging directory from the UNIX client by entering:

```
cd ..
rm -rf /RelStage
```

Verifying Installation of the Relativity Data Client for UNIX

The procedure to verify communications between the Relativity Data Client and the Data Server consists the following tasks:

- Configuring a Relativity Data Server data source from the UNIX client (see below)

- Configuring a Relativity Data Client data source on the UNIX client (see page 28)

- Testing the Relativity Data Client data source (see page 28)

Configuring a Relativity Data Server Data Source from the UNIX Client

In order to configure a Relativity Data Server data source from the UNIX client, the RelServerAdmin utility (see page 39) must have been installed during installation. Note that if the Relativity Server Administrator utility was installed on a different machine and the server data source (named Verify) has already been configured, then this step may be omitted and you may proceed to Configuring a Relativity Data Client Data Source on the UNIX Client (see page 28).

To configure a Relativity Data Server data source from the UNIX client, log in as a user on the UNIX client that has the directory containing the Relativity Server Administrator utility in its PATH environment variable and enter the following command on the command line:

```
relserveradmin --add-data-source Verify
   --server-name ServerName
   --catalog samples/??/verify/verify.rcg
   --data-source-desc "Relativity C/S Data Source."
```

This command will create a data source named Verify on the Relativity Data Server specified by *ServerName*. The values for the command-line parameters are as follows:

- For the *ServerName* value, supply the network name of the UNIX or Windows server on which the Relativity Data Server is installed. If the Relativity Data Server is configured to run on a service port other than 1583, *ServerName* will have the form *NetworkName.ServicePort*. If the Relativity Data Server is running on the default server, as specified in steps 5m and 5n in Step 5: Answer the Installation Prompts (on page 19), --server-name *ServerName* may be omitted from the command.

- For the samples/*??*/verify/verify.rcg value, substitute one of the following for *??*:
  - rm, if the Relativity Data Server supports RM/COBOL data files.
  - mf, if the Relativity Data Server supports Micro Focus COBOL data files.

- If the Relativity Data Server supports both types of COBOL files, it is necessary to provide one additional parameter on the command line:

  ```
  --type ??
  ```

  where the value of *??* is either **rm** or **mf**, depending on the desired COBOL product. The value of *??* in this parameter must match the value of *??* in samples/*??*/verify/verify.rcg, as described above.

Note A valid data source name must have a length within the range of 1 through 32 characters. The characters [ ] { } ( ) , ; * = ! @ \ must not appear in a data source name. The data source name must also begin with a letter.

Tip It is helpful to use the same name for the Data Client and the Data Server data sources that will be associated with one another.

Configuring a Relativity Data Client Data Source on the UNIX Client

To configure a Relativity Data Client data source on the UNIX client, log in as a user on the UNIX client that has the directory containing the Relativity Client Data Source Administrator utility program (RelClientAdmin) in its PATH environment variable, the directory containing the Driver Manager in the library search environment variable, and the appropriate permissions to modify the Driver Manager's data source configuration file, **odbc.ini**, and enter the following command on the command line:

```
relclientadmin --add-data-source Verify
    --server-name ServerName
    --server-data-source-name Verify
    --data-source-desc "Relativity C/S Data Source."
```

This command will create a data source named Verify on the UNIX client and associate with a server data source named Verify on the Relativity Data Server specified by *ServerName*. The values for the command-line parameters are as follows:

- For the *ServerName* value, supply the network name of the UNIX or Windows server on which the Relativity Data Server is installed. If the Relativity Data Server was configured to run on a service port other than 1583, *ServerName* will have the form *NetworkName.ServicePort*. If the Relativity Data Server is running on the default server, as specified in steps 5m and 5n in Step 5: Answer the Installation Prompts (see page 19), --server-name *ServerName* may be omitted from the command.

  Note A valid data source name must have a length within the range of 1 through 32 characters. The characters [ ] { } ( ) , ; * = ! @ \ must not appear in a data source name. The data source name must also begin with a letter.

  Tip It is helpful to use the same name for the Data Client and the Data Server (see Step 5 on page 28) data sources that will be associated with one another.

Testing the Relativity Data Client Data Source

1. To test a Relativity Data Client data source on the UNIX client, Log in as a user on the UNIX client that has the directory containing the Relativity Data Client Data Source test utility in its PATH environment variable, and the directory containing the Driver Manager Library in the library search environment variable.

2. Enter the following command on the command line:

   ```
   relclienttest -d Verify -u sales -s "select *
       from backorder"
   ```

   where Verify is the name of the data source, as described in Configuring a Relativity Data Client Data Source on the UNIX Client (on page 28).

   A list of rows from the BackOrder table is displayed.

Removing the Relativity Data Client for UNIX

The Relativity Data Client for UNIX program can be removed from the UNIX client on which it was installed. This may be necessary if the Data Client is to be moved to a different UNIX client machine, or if a new release of the Data Client is to be installed on the same UNIX client machine.

To remove the Relativity Data Client from the UNIX client:

1. Log in as root.

2. Add the directory containing the Relativity Data Client Data Source Administrator utility in the PATH environment variable.

3. Invoke the uninstall script to remove the Relativity Data Client.

    ```
    relclientuninstall
    ```

    This command will remove the files installed for the Relativity Data Client. However, the Driver Managers will not be removed.

Customizing the Relativity Data Client for UNIX Installation

You may customize the installation of the Relativity Data Client for UNIX to install your application's client data sources. You also may predefine answers to the installation prompts and change the installation defaults. This section discusses the various ways you can customize the installation process, including:

- Formatting the relativity.ini definition file (see page 30)

- Creating a media image directory (see page 30)

- Unpacking the Data Client installation media (see page 31)

- Installing server definitions (see page 31)

- Installing predefined data sources (see page 32)

- Bypassing installation prompts (see page 33)

- Overriding installation prompts defaults (see page 34)

- Creating new installation media (see page 35)

Note The first, second, and last procedures are required if you choose any of the other options to customize the Data Client installation process.

Formatting the relativity.ini Definition File

The core of customizing the Relativity Data Client for UNIX installation is the definition file, **relativity.ini**. When this file is present in the installation media, it is consulted for server definitions, data source definitions, predefined answers to installation prompts, and installation defaults.

This file is a standard text file, with new line characters terminating each line. Lines are grouped into sections. Each section begins with a section name, which is enclosed in square brackets, "[ ]", with the left square bracket at the beginning of the line. Section names may contain spaces. Each section ends with a blank line.

Each line of a section contains keyword value pair with the format:

```
Keyword=Value
```

A *keyword* must be at the start of a line, and it may not contain a space or an equal sign, "=". Duplicate keywords within the same section are not allowed.

No spaces are allowed before or after the equal delimiter.

The *value* may not contain an equal sign, but may contain spaces, and it extends to the end of the line.

The following example illustrates the format of a **relativity.ini** definition file:

```
[Section Name 1]
FirstKeyword=First Value
SecondKeyword=Second Value

[Section Name 2]
AKeyword=A Value
AnotherKeyword=Another Value
```

Creating a Media Image Directory

Use the following command to create an empty directory in which to place the installation media's contents:

```
mkdir /RelMedia
```

To make this directory your current directory, enter:

```
cd /RelMedia
```

You may change RelMedia to be any appropriate directory.

Unpacking the Data Client Installation Media

In the media image directory, unload files from the installation media into the directory using commands such as the following:

```
cpio -icBvdum </cdrom/dclient/nnn/dclncpio*
```

Change */cdrom* to be the name of the device that holds the Relativity Data Client for UNIX distribution media. See <u>Step 5: Answer the Installation Prompts</u> (on page 19). Change *nnn* to be the proper directory for the operating system on which the Data Client is to be installed. See <u>CD-ROM or Software Download on a Windows Client</u> (on page 16) for a list of the operating system numbers.

Installing Server Definitions

If you wish to predefine server definitions on the UNIX client, add a section named [Server Definitions] to the **relativity.ini** file in the media image directory. If this section is present within the relativity.ini file, it will cause the servers defined within this section to be defined automatically on the UNIX client.

The keywords value pairs within the [Server Definitions] section have the format:

```
ServerNetworkName.ServicePort=
```

where:

- *ServerNetworkName* is the name of the UNIX server on the local network.

- *ServicePort* is the service port number of the Relativity Data Server that is running on the machine *ServerNetworkName*. If this entry is missing, the service port is assumed to be 1583.

If Step 5m and 5n specify no default server, the server definition that is defined by the first keyword value pair is treated as the default server name.

The following is an example of a [Server Definitions] section:

```
[Server Definitions]
UNIXServer.1583=
WindowsServer.1583=
```

Installing Predefined Data Sources

If you wish to predefine data sources on the UNIX client, add a section named [ODBC Data Sources] to the **relativity.ini** file definition.

The keyword value pairs within the [ODBC Data Sources] section have the following format:

```
DataSourceSection=
```

where:

- *DataSourceSection* is the name of a section within the **relativity.ini** file that contains the details of the data source to create.

For each data source section specified in [ODBC Data Sources] by *DataSourceSection*, there must be a separate section in the **relativity.ini** with that name. The keyword value pairs within each of these sections define the actual data sources.

The recognized keywords are:

- **ClientDataSource**. The value of this keyword is the name of the client data source to create.

- **Server.** The value of this keyword is the name of the UNIX server to with which the client data source is associated. This keyword is optional. If it is not present, the client data source is associated with the default server. The format of this entry is *ServerNetworkName.ServicePortNumber*. *ServicePortNumber* is optional and the default is 1583.

- **ServerDataSource.** The value of this keyword is the name of the server data source on the UNIX server. This keyword is required.

- **Description.** The value of this keyword is the description to give to the client data source. This keyword is optional.

- **CharacterSet.** The value of this keyword is the character set number to give to the client data source. This keyword is optional.

The following is an example of a defining data sources within the **relativity.ini**:

```
[ODBC Data Sources]
FirstClientDataSource=
SecondClientDataSource=

[FirstClientDataSource]
ClientDataSource=First Client Data Source
Server=UNIXServer.1583
ServerDataSource=UNIXServer DataSourceName
Description=Data Source on UNIX Server

[SecondClientDataSource]
ClientDataSource=Second Client Data Source
Server=WindowsServer
ServerDataSource=WindowsServer DataSourceName
Description=Data Source on Windows Server
```

This example creates two client data sources: FirstClientDataSource and SecondClientDataSource. The first client data source is to a server data source named UNIXServer DataSourceName on the machine with the network name UNIXServer. The second data source is to a server data source named WindowsServer DataSourceName on the machine with the network name WindowsServer.

Bypassing Installation Prompts

If you wish to prevent the installation prompts from appearing, add a section named [Parameters] to the **relativity.ini** file. Each keyword in this section corresponds to a particular prompt in . The value of each keyword supplies the answer to the prompt.

The supported keywords are:

- **OWNER.** This keyword contains the user name with which the Data Client is installed. Installed files will be owned by this user name. This keyword corresponds to Step 5l.

- **INSTALL_DIR.** This keyword contains the name of the directory in which the Data Client's shared library is to be installed. This keyword corresponds to Step 5g.

- **INSTALL_CREATE.** This keyword contains **y** if the directory indicated by INSTALL_DIR can be created. This keyword corresponds to Step 5h.

- **DRIVER_MANAGER.** This keyword contains the name of the Driver Manager to install. The value **unixODBC** indicates the unixODBC Driver Manager. The value **iODBC** indicates the iODBC Driver Manager. The value **none** indicates not to install a Driver Manager. This keyword corresponds to Step 5c.

- **DM_DIR.** This keyword contains the directory in which the Driver Manager is to be installed. This keyword corresponds to Step 5d.

- **DM_CREATE.** This keyword contains **y** if the directory indicated by DM_DIR can be created. This keyword corresponds to Step 5e.

- **DM_DIR_LIB.** This keyword contains the directory in which the Driver Manager Library is already installed. Use this keyword if the value for the DRIVER_MANAGER keyword is **none**. This keyword corresponds to Step 5f.

- **UTIL_DIR.** This keyword contains the directory in which the client data source administration and server administration utilities will be installed. This keyword corresponds to Step 5i.

- **UTIL_CREATE.** This keyword contains **y** if the directory indicated by UTIL_DIR can be created. This keyword corresponds to Step 5j.

- **SRVADMIN_UTIL.** This keyword contains **y** if the Relativity Server Administrator utility (RelServerAdmin) is to be installed. This keyword corresponds to Step 5k.

- **SRV_NAME.** This keyword contains the name of the default server. This keyword corresponds to Step 5m.

- **SRV_PORT.** This keyword contains the service port number of the Relativity Data Server running on the machine indicated by SRV_NAME. This keyword corresponds to Step 5n.

- **REMOVESRC.** This keyword contains **y** if the temporary files created by the installation are to be removed following a successful installation. This keyword corresponds to Step 5o.

Overriding Installation Prompts Defaults

If you wish to change the default values for installation prompts, add a section named [Defaults] to the **relativity.ini** file. Each keyword in this section corresponds to a particular prompt in . The value of each keyword supplies the default answer to the prompt.

The supported keywords are:

- **DEFAULT_OWNER.** This keyword contains the default user name with which the Data Client is installed. This keyword corresponds to Step 5l.

- **DEFAULT_INSTALL_DIR.** This keyword contains the default name of the directory in which the Data Client's shared library is to be installed. This keyword corresponds to Step 5g.

- **DEFAULT_INSTALL_CREATE.** This keyword contains the default value for Step 5h, which indicates whether the Data Client's installation directory can be created.

- **DEFAULT_DRIVER_MANAGER.** This keyword contains the default value for Step 5c, which indicates the name of the Driver Manager to install.

- **DEFAULT_DM_DIR.** This keyword contains the default directory in which the Driver Manager is to be installed. This keyword corresponds to Step 5d.

- **DEFAULT_DM_CREATE.** This keyword contains the default value for Step 5e, which indicates whether the directory for the Driver Manager can be created.

- **DEFAULT_DM_DIR_LIB.** This keyword contains the default directory in which the Driver Manager is installed. This keyword corresponds to Step 5f.

- **DEFAULT_UTIL_DIR.** This keyword contains the default directory in which the client data source administration and server administration utilities will be installed. This keyword corresponds to Step 5i.

- **DEFAULT_UTIL_CREATE.** This keyword contains the default value for Step 5j, which indicates whether the directory containing the administration utilities can be created.

- **DEFAULT_SRVADMIN_UTIL.** This keyword contains the default for Step 5k, which indicates whether the Relativity Server Administrator utility (RelServerAdmin) is to be installed.

- **DEFAULT_SRV_NAME.** This keyword contains the default name of the default server. This keyword corresponds to Step 5m.

- **DEFAULT_SRV_PORT.** This keyword contains the default service port number of the default Relativity Data Server. This keyword corresponds to Step 5n.

- **DEFAULT_REMOVESRC.** This keyword contains the default for Step 5o, which indicates whether the temporary files created by the installation are to be removed following a successful installation.

Creating New Installation Media

Once the media image directory contains the modified **relativity.ini**, new installation media can be created with the following **cpio** command.

```
find * -print | cpio –ocBv >dclncpio
```

The resulting **dclncpio** file will then need to be placed on a CD-ROM. Liant uses the ISO 9660 file system and CD-ROM mode 1 for greatest portability.

Chapter 2: Utility Programs

Several utility programs are supplied with the Relativity Data Client for UNIX to facilitate the creation of client and server data sources, the testing of the connection between the UNIX client and the server machine running the Relativity Data Server, and maintaining the drivers.

They include the following:

- RelServerAdmin utility (see page 39). Use the Relativity Server Administrator utility program (**relserveradmin**) to manage data sources on the server and store server definitions on the UNIX client.

- RelClientAdmin utility (see page 57). Use the Relativity Client Data Source Administrator utility program (**relclientadmin**) to manage client data sources and server definitions on the UNIX client.

- RelClientTest utility (see page 66). Use the Relativity Client Data Source Test utility program (**relclienttest)** to test a client data source and its connection to a server data source, and to issue simple SQL statements to the Relativity Data Server.

- RelDriverAdmin utility (see page 68). Use the Relativity Client Driver Administrator utility program (**reldriveradmin)** to maintain the Relativity Data Client driver on a UNIX client. This utility is primarily used during the install and uninstall processes of the Relativity Data Client.

Command-Line Interface

The utility programs that are supplied with the Relativity Data Client for UNIX employ a command-line interface. Technically, each element typed on the command line is a parameter; however, the following terminology is used in order to distinguish among the various types of parameters:

- *programname* refers to the name of the utility program; for example, relserveradmin, relclientadmin, relclienttest, and reldriveradmin.

  Note On the command line, all utility program names must be entered in lowercase characters. However, this document uses a mixed case convention when referring to the abbreviated names of the utilities. For example, the shortened name of the Relativity Server Administrator utility is RelServerAdmin utility.

- *command* refers to the administrative function to be performed by the utility; for example, --add-data-source.

- *parameter* refers to additional information associated with a command; for example, [--server-name *ServerName*].

Each of the utility programs is invoked by typing its program name on the command line, followed by a command or one or more parameters. Each command and parameter supported by the utility program has two forms: a verbose form, which is introduced by two dashes, and a terse form, which is introduced by a single dash. Both forms may be used on the same command line.

Most, but not all, parameters have values that are associated with them. The meanings of these values are discussed below:

- *ServerName* identifies a Relativity Data Server on the network. *ServerName* is composed of two components: *NetworkName* and *ServicePort*.

  – *NetworkName* is the name of the UNIX or Windows server on the network. A *NetworkName* is composed of alphanumeric characters.

  – *ServicePort* is the TCP/IP service port that a Relativity Data Server running on the server *NetworkName* is configured to use. A *ServicePort* is an unsigned decimal number. The default for *ServicePort* is 1583.

  The format for *ServerName* is *NetworkName.ServicePort*. When *ServicePort* is omitted, the delimiting period should be omitted as well.

- *FileName* specifies a filename, in the format for the operating system on which the Relativity Data Server is running.

- *Text* indicates one or more words of text. If *Text* contains spaces, delimit *Text* with quotation marks. See the individual parameters under each command for the meaning of the *Text* value.

- *UnsignedInteger* specifies a zero or positive decimal number.

- *SignedInteger* specifies a decimal number, which may contain a leading dash to indicate a negative number.

Conventions

In this chapter, the following conventions for using command-line parameters are observed:

1. Parameters or values that are optional are enclosed in square brackets, "[ ]".

2. Parameters or values that are required, and where only one may appear, are enclosed in braces, { }, with the individual items in the list separated by vertical bars, " | ".

3. Each parameter is described using its verbose form, with the terse form following in parentheses. Many, but not all, of the terse forms are merely the first letter of each word of the verbose form.

Displaying Help

If you supply the parameter --help (-h) in every command, the utility requests and displays additional information and documentation on the command and its parameters. If you supply the --help parameter without a command, only a list of the supported commands is displayed.

The syntax of this command is as follows:

```
programname [command] --help
```

RelServerAdmin Utility

The Relativity Server Administrator utility program, **relserveradmin**, supports many administrative functions on the Relativity Data Server and can be used to maintain data sources on a Relativity Data Server. This utility can also be used to store the server definitions (server network names and service port numbers) of Relativity Data Servers on the local client machine, so that the RelClientAdmin utility (see page 57), can display the servers in its list.

The following sections describe how to use the commands and associated parameters for this utility, and the additional RM/COBOL file manager configuration parameters (see page 54) and Micro Focus COBOL file manager configuration parameters (see page 55) you may need.

Using the RelServerAdmin Utility Commands and Parameters

Each administrative function, or *command*, performed by the RelServerAdmin utility is addressed separately, in order to document clearly the additional parameters that the command supports.

The following table lists the commands supported by the RelServerAdmin utility.

Verbose	Terse	Description
--add-data-source	-ads	Adds a new server data source.
--add-server	-as	Adds a data server definition.
--list-character-sets	-lcs	Lists all of the character sets that a data server supports.
--list-data-sources	-lds	Lists all existing server data sources.
--list-servers	-ls	Lists all data server definitions.
--modify-data-source	-mds	Modifies an existing server data source.
--remove-data-source	-rds	Removes an existing server data source.
--remove-server	-rs	Removes a data server definition.
--show-data-source	-sds	Shows an existing server data source definition.
--show-server-status	-sss	Shows a data server's current status and lists all of its current connections.
--shutdown-server	-ss	Shuts down a data server.
--terminate-server-connection	-tsc	Terminates a current connection on a data server.

Adding a Data Source

A data source contains information necessary for the Relativity Data Server to open a data source requested by a Relativity Data Client. The --add-data-source command creates a new data source on the Relativity Data Server.

To add a new data source on the Relativity Data Server, use the following command:

```
relserveradmin --add-data-source Text
   [--server-name ServerName]
   --catalog FileName
   [--type {RM|MF}]
   [--data-source-desc Text]
   [--create]
   [--query-plan {Y|N|C}]
   [--query-plan-file FileName]
   [--character-set SignedInteger]
   [--pool UnsignedInteger]
   [--file-process-count UnsignedInteger]
   [--cat-format {IDX4|IDX8|DEFAULT|BTRIEVE|
      CISAM|LEVELII|UnsignedInteger}]
   [--new-table-format {IDX4|IDX8|DEFAULT|BTRIEVE|
      CISAM|LEVELII|UnsignedInteger}]
   [--data-compress UnsignedInteger]
   [--sparse-byte UnsignedInteger]
   [--trailing-spaces {Y|N}]
   [--leading-chars {Y|N}]
   [--compress-duplicate-keys {Y|N}]
```

where:

- The value of the --add-data-source (-ads) command specifies the name of the new data source.

- The value of the --server-name (-s) parameter indicates the Relativity Data Server on which to add the data source.

- The value of the --catalog (-c) parameter specifies the filename of the data source's catalog.

- The value of the --type (-t) parameter specifies the type of files to be accessed by the data source. The value **RM** indicates that RM/COBOL files are to be accessed. The value of **MF** indicates that Micro Focus COBOL files are to be accessed. This parameter is required only if the Relativity Data Server is running on a Windows server, and the Data Server has been installed to manage both types. Otherwise, the value of the type parameter must match the type of files that the Relativity Data Server can access.

- The value of the --data-source-desc (-desc) parameter specifies the description to give to the new data source.

- The presence of the --create (-cr) parameter specifies that the new data source's catalog file should be created.

- The value of the --query-plan (-qp) parameter specifies whether the new data source should generate query plans. The value of **Y** will cause query plans always to be generated. The value of **N** will cause query plans never to be generated. The value of **C** will allow the generation of query plans to be controlled by the --query-plan parameter of the client data source (see page 58).

- The value of the --query-plan-file (-qpf) parameter specifies the filename to receive generated query plans. This parameter is required only if the value of the --query-plan parameter is **Y** or **C**.

- The value of the --character-set (-cs) parameter specifies the number of the character set to use with the new data source. If this parameter is absent, the default character set will be used.

- The value of the --pool (-p) parameter is for use only with RM/COBOL files. It specifies the number of 1024 byte pages that the RM/COBOL file manager should allocate in its buffer pool. This parameter can have the value from 16 to 649. The default is **256**. For more information, see Buffer Pool (on page 54).

- The value of the --file-process-count (-fpc) parameter is for use only with RM/COBOL files. It specifies the maximum number of processes—including RM/COBOL run units—that can have a file opened at the same time. This parameter can have the value from 8 to 4096. The default is **1024**. For more information, see File Process Count (on page 54).

- The value of the --cat-format (-cf) parameter is for use only with Micro Focus COBOL files. It specifies the type of Micro Focus COBOL file that should be used when creating a new catalog file. The valid values are **DEFAULT**, **BTRIEVE**, **CISAM**, **LEVELII, IDX4**, and **IDX8**. For more information, see Catalog Format (on page 55).

- The value of the --new-table-format (-ntf) parameter is for use only with Micro Focus COBOL files. It specifies the type of Micro Focus COBOL file that should be used when creating a new file because of a CREATE TABLE SQL statement. The valid values are **DEFAULT**, **BTRIEVE**, **CISAM**, **LEVELII**, **IDX4**, and **IDX8**. For more information, see New File Format (on page 55).

- The value of the --data-compress (-dc) parameter is for use only with Micro Focus COBOL files. It specifies the decimal value of the data compression algorithm to be configured for a new data file created as the result of a CREATE TABLE SQL statement. For more information, see Data Compression (on page 55).

- The value of the --sparse-byte (-sb) parameter is for use only with Micro Focus COBOL files. It specifies the decimal value of the sparse byte to be configured for key compression in a new data file created as the result of a CREATE TABLE SQL statement. For more information, see Key Compression – Sparse Byte (on page 56).

- The value of the --trailing-spaces (-ts) parameter is for use only with Micro Focus COBOL files. It specifies whether trailing spaces are to be compressed in keys in a new data file created as the result of a CREATE TABLE SQL statement. For more information, see Key Compression – Trailing Spaces (on page 55).

- The value of the --leading-chars (-lc) parameter is for use only with Micro Focus COBOL files. It specifies whether leading characters are to be compressed in keys when creating a new file because of a CREATE TABLE SQL statement. For more information, see Key Compression – Leading Characters (on page 56).

- The value of the --compress-duplicate-keys (-cdk) parameter is for use only with Micro Focus COBOL files. It specifies whether duplicate keys are to be compressed in a new data file created as the result of a CREATE TABLE SQL statement. For more information, see Key Compression – Duplicates (on page 56).

Example

```
$ relserveradmin --add-data-source Verify
   --server-name aix43
   --catalog samples/verify/rm/verify.rcg

Data source 'Verify' added on aix43.
```

Adding a Server Definition

A server definition is merely a *ServerName* that has been recorded using this command. The Relativity Server Administrator utility can maintain a set of server definitions for the current user.

Note The set of server definitions is for a future enhancement of the Relativity Server Administrator utility. This set of definitions and this command are of limited use at this time. However, this command's --default parameter is very helpful, particularly if you are dealing with only one Relativity Data Server. Setting a *ServerName* as the default will eliminate the need to supply the --server-name parameter in other commands.

To add a new server definition, use the following command:

```
$ relserveradmin --add-server ServerName [--default]
```

where:

- The value of the --add-server (-as) command, *ServerName*, is the network name and service port of the Relativity Data Server to add to the list of server definitions.

- The presence of the --default (-d) parameter indicates that *ServerName* is to be the default for the --server-name parameter in other commands.

Example

```
relserveradmin --add-server aix43.1583 --default

Created Relativity data server definition for aix43.1583.
```

Listing Character Sets

A character set is an interpretation of the bytes within a data file that represent characters, typically the items with a picture clause of X. Each data file has a character set associated with it, and this information is stored as a fixed attribute within a Relativity database. Relativity is capable of translating these characters from the character set of the data file to the character set of the ODBC application. This command supplies a list of the character sets for which the data server can supply translation.

To display a list of the character sets that a Relativity Data Server supports, use the following command:

```
relserveradmin --list-character-sets [ServerName]
   [--server-name ServerName]
```

where:

- The value of the --list-character-sets (-lcs) command indicates the Relativity Data Server for which to list character sets.

- The value of the --server-name (-s) parameter may also be used to indicate the Relativity Data Server for which to list character sets.

Example

The number to the left of each character set name is the identifier of the character set. Use this value in the --character-set parameter of the --add-data-source command and the --modify-data-source command.

```
$ relserveradmin --list-character-sets aix43

Character sets on data server aix43.
-28. Hebrew 7-bit Old Code
-25. MF EBCDIC (UNIX)
-24. MF EBCDIC (DOS)
-23. RM EBCDIC
-22. IBM-850
-21. SCO Latin 1
-20. STANDARD-2
-16. ISO 8859-16
-15. ISO 8859-15
-14. ISO 8859-14
-13. ISO 8859-13
-11. ISO 8859-11
-10. ISO 8859-10
-9. ISO 8859-9
-8. ISO 8859-8
-7. ISO 8859-7
-6. ISO 8859-6
-5. ISO 8859-5
-4. ISO 8859-4
-3. ISO 8859-3
-2. ISO 8859-2
-1. ISO 8859-1
37. EBCDIC US Canada
.
.
.
1250. Windows Latin 2
1251. Windows Cyrillic
1252. Windows Latin 1
1253. Windows Greek
1254. Windows Latin 5
1255. Windows Hebrew
1256. Windows Arabic
1257. Windows Baltic Rim
1258. Windows 1258
```

Note Those character sets that represent Windows codepages have a positive value the same as their codepage number. Negative numbers represents all other character sets.

Listing Data Sources

A data source name is an identifier that ODBC applications use to access a Relativity database. This list of data source names represents the data sources on the Relativity Data Server to which a Relativity Data Client data source may be associated.

To display a list of the data source names on a Relativity Data Server, use the following command:

```
relserveradmin --list-data-sources [ServerName]
    [--server-name ServerName]
```

where:

- The value of the --list-data-sources (-lds) command indicates the Relativity Data Server for which to list data sources.

- The value of the --server-name (-s) parameter may also be used to indicate the Relativity Data Server for which the data sources are to be listed.

Example

```
$ relserveradmin --list-data-sources aix43

Data sources on data server aix43.
Shirt-3
Verify
```

Listing Server Definitions

A server definition is simply a *ServerName* that has been recorded using the --add-server command. The RelServerAdmin utility can maintain a set of server definitions for the current user.

Note The set of server definitions is for a future enhancement of the Relativity Server Administrator utility. This set of definitions and this command are of limited use at this time.

To display a list of the current set of server definitions defined on the UNIX client, use the following command:

```
relserveradmin --list-servers
```

Example

```
$ relserveradmin --list-servers

Relativity data servers defined on this client.
tcp:aix43.1583
tcp:aix43.1584
tcp:hp825.1584
tcp:sco5.1583
tcp:ncr3000.1583
tcp:sunx86.1583
tcp:uw711.1583
tcp:valhalla.1583
tcp:valhalla.1584
```

Modifying a Data Source

A data source contains information necessary for the Relativity Data Server to open a data source requested by a Relativity Data Client. This command alters an existing data source on the data server.

To modify a data source on a Relativity Data Server, use the following command. Note that parameter values that are not specified in the command retain their previous value in the data source.

```
relserveradmin --modify-data-source Text
    [--server-name ServerName]
    [--new-data-source-name Text]
    [--catalog FileName]
    [--type {RM|MF}]
    [--data-source-desc Text]
    [--create]
    [--query-plan {Y|N|C}]
    [--query-plan-file FileName
    [--character-set SignedInteger]
    [-pool UnsignedInteger]
    [--file-process-count UnsignedInteger]
    [--cat-format {IDX4|IDX8|DEFAULT|BTRIEVE|
       CISAM|LEVELII|UnsignedInteger}]
    [--new-table-format {IDX4|IDX8|DEFAULT|BTRIEVE|
       CISAM|LEVELII|UnsignedInteger}]
    [--data-compress UnsignedInteger]
    [--sparse-byte UnsignedInteger]
    [--trailing-spaces {Y|N}]
    [--leading-chars {Y|N}]
    [--compress-duplicate-keys {Y|N}]
```

where:

- The value of the --modify-data-source (-mds) command specifies the current name of the data source.

- The value of the --server-name (-s) parameter indicates the Relativity Data Server on which to modify the data source.

- The value of the --new-data-source-name (-ndsn) parameter specifies the new name of the data source.

- The value of the --catalog (-c) parameter specifies the filename of the data source's catalog.

- The value of the --type (-t) parameter specifies the type of files to be accessed by the data source. The value of **RM** indicates that RM/COBOL files are to be accessed. The value of **MF** indicates that Micro Focus COBOL files are to be accessed. This parameter, if specified, must match the --type parameter originally used to create the data source.

- The value of the --data-source-desc (-desc) parameter specifies the description to give to the data source.

- The presence of the --create (-cr) parameter specifies that the data source's catalog file should be created.

- The value of the --query-plan (-qp) parameter specifies whether the data source should generate query plans. The value of **Y** will cause query plans always to be generated. The value of **N** will cause query plans never to be generated. The value of **C** will allow the generation of query plans to be controlled by the --query-plan parameter of the client data source (see page 58).

- The value of the --query-plan-file (-qpf) parameter specifies the filename to receive generated query plans. This parameter is required only if the value of the --query-plan parameter is **Y** or **C**.

- The value of the --character-set (-cs) parameter specifies the number of the character set to use with the data source.

- The value of the --pool (-p) parameter is for use only with RM/COBOL files. It specifies the number of 1024 byte pages that the RM/COBOL file manager should allocate in its buffer pool. This parameter can have the value from 16 to 649. For more information, see Buffer Pool (on page 54).

- The value of the --file-process-count (-fpc) parameter is for use only with RM/COBOL files. It specifies the maximum number of processes, including RM/COBOL run units, which can have a file opened at the same time. This parameter can have a value from 8 to 4096. For more information, see File Process Count (on page 54).

- The value of the --cat-format (-cf) parameter is for use only with Micro Focus COBOL files. It specifies the type of Micro Focus COBOL file that should be used when creating a new catalog file. The valid values are **DEFAULT**, **BTRIEVE**, **CISAM**, **LEVELII**, **IDX4**, and **IDX8**. For more information, see Catalog Format (on page 55).

- The value of the --new-table-format (-ntf) parameter is for use only with Micro Focus COBOL files. It specifies the type of Micro Focus COBOL file that should be used when creating a new data file as a result of the CREATE TABLE SQL statement. The valid values are **DEFAULT**, **BTRIEVE**, **CISAM**, **LEVELII**, **IDX4**, and **IDX8**. For more information, see New File Format (on page 55).

- The value of the --data-compress (-dc) parameter is for use only with Micro Focus COBOL files. It specifies the decimal value of the data compression algorithm to be configured for a new data file created as the result of the CREATE TABLE SQL statement. For more information, see Data Compression (on page 55).

- The value of the --sparse-byte (-sb) parameter is for use only with Micro Focus COBOL files. It specifies the decimal value of the sparse byte to be configured for key compression in a new data file created as a result of the CREATE TABLE SQL statement. For more information, see Key Compression – Sparse Byte (on page 56).

- The value of the --trailing-spaces (-ts) parameter is for use only with Micro Focus COBOL files. It specifies whether trailing spaces are to be compressed in keys in a new data file created as a result of the CREATE TABLE SQL statement. For more information, see <u>Key Compression – Trailing Spaces</u> (on page 55).

- The value of the --leading-chars (-lc) parameter is for use only with Micro Focus COBOL files. It specifies whether leading characters are to be compressed in keys in a new data file created as a result of the CREATE TABLE SQL statement. More information is available in <u>Key Compression – Leading Characters</u> (on page 56).

- The value of the --compress-duplicate-keys (-cdk) parameter is for use only with Micro Focus COBOL files. It specifies whether duplicate keys are to be compressed in a new data file created as a result of the CREATE TABLE SQL statement. For more information, see <u>Key Compression – Duplicates</u> (on page 56).

Example

```
$ relserveradmin --modify-data-source Verify
   --server-name aix43 --new-data-source-name "New Verify"

Data source 'Verify' modified on server aix43.
```

Removing a Data Source

To remove a data source on a Relativity Data Server, use the following command:

```
relserveradmin --remove-data-source Text
   [--server-name ServerName]
```

where:

- The value of the --remove-data-source (-rds) command specifies the name of the data source to remove.

- The value of the --server-name (-s) parameter indicates the Relativity Data Server from which to remove the data source.

Example

```
$ relserveradmin --remove-data-source "New Verify"
   --server-name aix43

Removed data source 'New Verify' from aix43.
```

Removing a Server Definition

A server definition is merely a *ServerName* that has been recorded using the --add-server command. The RelServerAdmin utility can maintain a set of server definitions for the current user.

Note The set of server definitions is for a future enhancement of the Relativity Server Administrator utility. This set of definitions and this command are of limited use at this time.

To remove a server definition, use the following command:

```
relserveradmin --remove-server ServerName
```

where:

- The value of the --remove-server (-rs) command, *ServerName*, is the network name and service port of the Relativity Data Server to remove from the list of server definitions.

Example

```
$ relserveradmin --remove-server aix43.1583

Relativity data server definition for aix43.1583 removed.
```

Showing a Data Source

A data source contains information necessary for the Relativity Data Server to open a data source requested by a Relativity Data Client. This command shows the current contents of the data source.

To display a data source on a Relativity Data Server, use the following command:

```
relserveradmin --show-data-source Text
   [--server-name ServerName] [-env]
```

where:

- The value of the --show-data-source (-sds) command specifies the name of the data source to show.

- The value of the --server-name (-s) parameter indicates the Relativity Data Server for which to show the data source.

- The presence of the --env (-e) parameter specifies that the information from the data source be printed to standard output in the form of Bourne shell environment variable assignments. The purpose is to emit the information in a form that will be usable in a script to manipulate or copy an existing data source. The environment variable names and their corresponding parameter options are given in the following table:

Variable Name	Parameter
DS_CATALOG	--catalog
DS_TYPE	--type
DS_DESC	--data-source-desc
DS_QP	--query-plan
DS_QPF	--query-plan-file
DS_CS	--character-set
DS_POOL	--pool
DS_FPC	--file-process-count
DS_CATF	--cat-format
DS_NEWF	--new-table-format
DS_DC	--data-compress
DS_SB	--sparse-byte
DS_TS	--trailing-spaces
DS_LC	--leading-chars
DS_DUP	--compress-duplicate-keys

Example

```
$ relserveradmin --show-data-source Shirt-3
    --server-name aix43

Data source 'Shirt-3' on aix43:
DBQ=Shirt_3
Description=Sample Shirt-3 Data Source
Catalog=samples/rm/shirt-3/shirt3.rcg
FileMgr=RM
```

Showing the Status of a Data Server

A Relativity Data Server's status consists of several pieces of information, including when it started, the number of clients that are connected to it, the maximum number of clients that can connect to it, the number of connections that it is servicing, and the actual connections themselves. (Only version 6 Relativity Data Servers and later supply the number of clients and maximum number of clients status information.) The connection information consist of the ID of the UNIX or Windows process that is servicing the connection, the name of the client machine, the user name of client, and the name of ODBC application program. (Not all ODBC applications supply the application name.)

To show the status of a Relativity Data Server, and to display a list of connections it is currently servicing, use the following command.

```
relserveradmin --show-server-status [ServerName]
   [--server-name ServerName]
```

where:

- The value of the --show-server-status (-sss) command indicates which Relativity Data Server's status to show.

- The value of the --server-name (-s) parameter may also be used to indicate which Relativity Data Server's status to show.

Example

```
$ relserveradmin --show-server-status aix43

Status of server aix43.
Server Start Time: Thu Jun 24 13:58:43 2004.
Current number of connections: 2.
Process ID Client Machine (User Name) Application
     28446 ncr3000 (db3 owner)       Microsoft Access for Windows
     28450 ncr3000 (db3 owner)       Unknown app
```

Shutting Down a Data Server

The --shutdown-server command will terminate a Relativity Data Server. This command has the same effect as executing the ./STOP script on the Relativity Data Server for UNIX or stopping the service on the Relativity Data Server for Windows.

Note If a Relativity Data Server for UNIX is configured to start automatically at machine boot, the --shutdown-server command will shut down the data server, but the UNIX operating system will automatically restart it.

To shut down or stop a running Relativity Data Server, use the following command:

```
relserveradmin --shutdown-server [ServerName]
    [--server-name ServerName]
    {--immediately | --gracefully}
```

where:

- The value of the --shutdown-server (-ss) command may also be used to indicate the Relativity Data Server to shut down.

- The value of the --server-name (-s) parameter may also be used to indicate the Relativity Data Server to shut down.

- The presence of the --immediately parameter indicates that the Relativity Data Server is to shut down immediately, summarily disconnecting existing client connections.

- The presence of the --gracefully parameter indicates that the Relativity Data Server is to refuse new connections and allow existing connections to disconnect normally, before terminating itself.

Example

```
$ relserveradmin --shutdown-server aix43 --gracefully

Server aix43 requested to shut down gracefully.
```

Terminating a Connection to a Data Server

Each client connection to a Relativity Data Server has a unique ID that can be used to identify the connection. This ID is supplied when terminating a client's connection.

Note The --terminate-server-connection command will not force the client connection to terminate. It will merely request that the connection be terminated. This request will be honored when the current request from the client is complete, or if the Relativity Data Server is idle waiting for the next request from the client. This command will not interrupt a current client request.

To terminate a client's connection to a Relativity Data Server, first use the --show-server-status command to determine the process ID of the connection to terminate, and then use the following command:

```
relserveradmin --terminate-server-connection UnsignedInteger
    [--server-name ServerName]
```

where:

- The value of the –terminate-server-connection (-tsc) command specifies the process ID of the connection to terminate.

- The value of the --server-name (-s) parameter indicates the Relativity Data Server on which to terminate a connection.

Example

```
$ relserveradmin --terminate-server-connection 28446
   --server-name aix43

Terminated connection for process ID 28446.
```

RM/COBOL File Manager Configuration Parameters

This section explains the configuration parameters for access to RM/COBOL files in more depth. See the *RM/COBOL User's Guide* for more information.

Buffer Pool

This configuration parameter sets the size of the buffer pool to be used by the RM file manager for buffer allocation. Note that only the value specified for the first data source connection takes effect when a single application connects to multiple data sources. The value specifies an integer number of kilobytes (1024 bytes) of memory to be allocated for the buffer pool. A value of zero indicates that the default value of 256K bytes should be used. If specified, the value must be a decimal integer from 16 to 649.

File Process Count

This configuration parameter sets the maximum number of processes, including RM/COBOL run units, which can have a file open at the same time. It applies to all file organizations. For record and file locks to perform correctly, all processes opening a file must use the same file process count. The maximum value is 4096. The minimum value is 8. The default value is 1024.

Micro Focus COBOL File Manager Configuration Parameters

This section explains the configuration parameters for access to Micro Focus COBOL files. See the Micro Focus documentation for more information.

Catalog Format

This configuration parameter controls the format of the Micro Focus COBOL index file that will be used when opening or creating a catalog. The available entries are **DEFAULT**, **BTRIEVE**, **CISAM**, **LEVELII**, **IDX4,** and **IDX8**. This configuration parameter cannot be used to change the format of an existing catalog. DEFAULT specifies the default Micro Focus COBOL file format for this operating system. BTRIEVE specifies the Btrieve file format. CISAM species the C-ISAM file format. LEVELII specifies the Micro Focus COBOL Level II indexed file format. IDX4 specifies the catalog as an optimized form of the format used by this system, for fast duplicate key handling. IDX8 specifies the catalog as a large file format file.

New File Format

This configuration parameter controls the format of the Micro Focus COBOL index file that will be used when creating new files because of a CREATE TABLE SQL statement. The available entries are **DEFAULT**, **BTRIEVE**, **CISAM**, **LEVELII**, **IDX4**, and **IDX8**. DEFAULT specifies the default Micro Focus COBOL file format for this operating system. BTRIEVE specifies the Btrieve file format. CISAM specifies the C-ISAM file format. LEVELII specifies the Micro Focus COBOL Level II indexed file format. IDX4 specifies the catalog as an optimized form of the format used by this system for fast duplicate key handling. IDX8 specifies the file as a large file format file.

Data Compression

This configuration parameter controls the type of data compression to be used when new files are created because of a CREATE TABLE SQL statement. This parameter is the same as the Micro Focus COBOL DATACOMPRESS compiler parameter. The value of **0** indicates that no compression of data records is to take place. The value of **1** indicates that compression algorithm 1 is to be used.

Key Compression – Trailing Spaces

This configuration parameter controls whether compression of trailing spaces is to occur on the keys of new files that are created because of a CREATE TABLE SQL statement. The value **Y** indicates that trailing spaces are to be compressed. The default is **N**, which indicates not to compress trailing spaces.

Key Compression – Leading Characters

This configuration parameter controls whether compression of leading characters is to occur on the keys of new files that are created because of a CREATE TABLE SQL statement. The value **Y** indicates that leading characters that are the same as in the previous key are compressed. The default is **N**, which indicates not to compress leading characters.

Key Compression – Duplicates

This configuration parameter controls whether compression of duplicate keys is to occur on the keys of new files that are created because of a CREATE TABLE SQL statement. The value **Y** indicates that the repetitions of duplicate keys are compressed. The default is **N**, which indicates not to compress duplicate keys.

Key Compression – Sparse Byte

This configuration parameter specifies the decimal number of the sparse character for keys of new files that are created because of creating tables. If this parameter is specified, keys in the file that contain only this value are suppressed. The default is not to suppress keys made up of the sparse character.

RelClientAdmin Utility

The Relativity Client Data Source Administrator utility program, **relclientadmin**, is used to maintain data sources on a UNIX client. This utility can also be used to store the server network name and service port number of Relativity Data Servers on the UNIX client.

The following sections describe the commands and their associated parameters for this utility.

Using the RelClientAdmin Utility Commands and Parameters

Each administrative function, or *command*, performed by the RelClientAdmin utility is addressed separately, in order to document clearly the additional parameters that the command supports.

The following table lists the commands supported by the RelClientAdmin utility.

Verbose	Terse	Description
--add-data-source	-ads	Adds a new client data source.
--add-server	-as	Adds a data server definition.
--list-data-sources	-lds	Lists all existing client data sources.
--list-server-character-sets	-lscs	Lists all of the character sets that a data server supports.
--list-server-data-sources	-lsds	Lists all existing data sources on a data server.
--list-servers	-ls	Lists all data server definitions.
--modify-data-source	-mds	Modifies an existing client data source.
--remove-data-source	-rds	Removes an existing client data source.
--remove-server	-rs	Removes a data server definition.
--show-data-source	-sds	Shows an existing client data source definition.

Adding a Data Source

A data source contains information necessary for the Relativity Data Client to open a data source requested by an ODBC application. This command creates a new data source on the client.

To add a data source to a UNIX client, use the following command:

```
relclientadmin --add-data-source Text
   [--driver-name Text]
   [--server-name ServerName]
   --server-data-source-name Text
   [--type {U|S}]
   [--data-source-desc Text]
   [--query-plan {Y|N}]
   [--character-set SignedInteger]
```

where:

- The value of the --add-data-source (-ads) command specifies the name of the new data source.

- The value of the --driver-name (-drv) parameter indicates the name of the ODBC Driver with which to create the new data source. The default is "Relativity Client".

- The value of the --server-name (-s) parameter indicates the Relativity Data Server to which to associate the data source.

- The value of the --server-data-source-name (-sdsn) parameter indicates the server data source on the data server to which to associate the data source. Use the --list-server-data-sources command to obtain a list of data sources on the data server.

- The value of the --type (-t) parameter specifies the type of the data source. The value **U** indicates a user data source. The value of **S** indicates a system data source.

- The value of the --data-source-desc (-desc) parameter specifies the description to give to the new data source.

- The value of the --query-plan (-qp) parameter specifies whether the new data source should generate query plans. The value of **Y** will cause query plans always to be generated. The value of **N** will cause query plans never to be generated. In order for this parameter to be effective, the server data source must have a --query-plan parameter of **C** (see page 41), which allows the client data source to control the creation of query plans.

- The value of the --character-set (-cs) parameter specifies the number of the character set to use with the new data source. If this parameter is absent, the default character set will be used. Use the --list-server-character-sets command to obtain a list of character sets on the data server.

Example

```
$ relclientadmin --add-data-source Verify
   --server-name aix43
   --server-data-source-name Verify

Data source 'Verify' added.
```

Adding a Server Definition

A server definition is merely a *ServerName* that has been recorded using this command. The Relativity Client Data Source Administrator utility can maintain a set of server definitions for the current user.

Note The set of server definitions is for a future enhancement of the Relativity Client Administrator utility. This set of definitions and this command are of limited use at this time. However, this command's --default parameter is very helpful, particularly, if you are dealing with only one Relativity Data Server. Setting a *ServerName* as the default will eliminate the need to supply the --server-name parameter in other commands.

To add a new server definition, use the following command:

```
relclientadmin --add-server ServerName [--default]
```

where:

- The value of the --add-server (-as) command, *ServerName*, is the network name and service port of the Relativity Data Server to add to the list of server definitions.

- The presence of the --default (-d) parameter indicates that this server is to be the default for the --server-name parameter in other commands.

Example

```
$ relclientadmin --add-server aix43.1583

Created Relativity data server definition for aix43.1583.
```

Listing Data Sources

A data source name is an identifier that ODBC applications use to access a Relativity database. This list of data source names represents the data sources on the UNIX client that an ODBC application may open.

To display a list of the data sources on a UNIX client, use the following command:

```
relclientadmin --list-data-sources
    [--type {U|S|B}]
```

where:

- The value of the --type (-t) parameter specifies the type of data sources to list. The value **U** indicates a user data source. The value of **S** indicates a system data source. The value **B** indicates both user and system data sources. The default is to list both.

Example

```
$ relclientadmin --list-data-sources

Data sources on data client.
_____User Data Sources_____
Shirt-3
_____System Data Sources_____
Verify
```

Listing Server Character Sets

A character set is an interpretation of the bytes within a data file that represent characters, typically the items with a picture clause of X. Each data file has a character set associated with it, and this information is stored as a fixed attribute within a Relativity database. Relativity is capable of translating these characters from the character set of the data file to the character set of the ODBC application. This command supplies a list of the character sets for which the data server can supply translation.

To display a list of the character sets that a Relativity Data Server supports, use the following command:

```
relclientadmin --list-server-character-sets [ServerName]
    [--server-name ServerName]
```

where:

- The value of the --list-server-character-sets (-lscs) command indicates the Relativity Data Server for which to list character sets.

- The value of the --server-name (-s) parameter may also be used to indicate the Relativity Data Server for which to list character sets.

Example

The number to the left of each character set name is the character set's identifier. Use this value in the --character-set parameter of the --add-data-source and --modify-data-source commands.

```
$ relclientadmin --list-server-character-sets aix43

Character sets on data server aix43.
-28. Hebrew 7-bit Old Code
-25. MF EBCDIC (UNIX)
-24. MF EBCDIC (DOS)
-23. RM EBCDIC
-22. IBM-850
-21. SCO Latin 1
-20. STANDARD-2
-16. ISO 8859-16
-15. ISO 8859-15
-14. ISO 8859-14
-13. ISO 8859-13
-11. ISO 8859-11
-10. ISO 8859-10
-9. ISO 8859-9
-8. ISO 8859-8
-7. ISO 8859-7
-6. ISO 8859-6
-5. ISO 8859-5
-4. ISO 8859-4
-3. ISO 8859-3
-2. ISO 8859-2
-1. ISO 8859-1
37. EBCDIC US Canada
.
.
.
1250. Windows Latin 2
1251. Windows Cyrillic
1252. Windows Latin 1
1253. Windows Greek
1254. Windows Latin 5
1255. Windows Hebrew
1256. Windows Arabic
1257. Windows Baltic Rim
1258. Windows 1258
```

Note Those character sets that represent Windows codepages have a positive value the same as their codepage number. Negative numbers represents all other character sets.

Listing Server Data Sources

A data source name is an identifier that ODBC applications use to access a Relativity database. This list of data source names represents the data sources on the Relativity Data Server to which a Relativity Data Client data source may be associated.

To display a list of the data source names on a Relativity Data Server, use the following command:

```
relclientadmin --list-server-data-sources [ServerName]
    [--server-name ServerName]
```

where:

- The value of the --list-server-data-sources (-lsds) command indicates the Relativity Data Server for which to list the data sources.

- The value of the --server-name (-s) parameter may also be used to indicate the Relativity Data Server for which to list the data sources.

Example

```
$ relclientadmin --list-data-sources aix43

Data sources on data server aix43.
Shirt-3
Verify
```

Listing Server Definitions

A server definition is merely a *ServerName* that has been recorded using the --add-server command of the Relativity Client Data Source Administrator utility. The Relativity Client Data Source Administrator utility can maintain a set of server definitions for the current user.

Note The set of server definitions is for a future enhancement of the Relativity Client Data Source Administrator utility. This set of definitions and this command are of limited use at this time.

To display a list of the current set of server definitions defined on the UNIX client, use the following command:

```
relclientadmin --list-servers
```

Example

```
$ relclientadmin --list-servers

Relativity data servers defined on this client.
tcp:aix43.1583
tcp:aix43.1584
tcp:hp825.1584
tcp:sco5.1583
tcp:ncr3000.1583
tcp:sunx86.1583
tcp:uw711.1583
tcp:valhalla.1583
tcp:valhalla.1584
```

Modifying a Data Source

A data source contains information necessary for the Relativity Data Client to open a data source requested by an ODBC application. This command alters an existing data source on the client.

To modify a data source on a UNIX client, use the following command. Note that parameter values that are not specified in the command retain their previous value in the data source.

```
relclientadmin --modify-data-source Text
    [--new-data-source-name Text]
    [--driver-name Text]
    [--server-name ServerName]
    [--server-data-source-name Text]
    [--type {U|S}]
    [--data-source-desc Text]
    [--query-plan {Y|N}]
    [--character-set SignedInteger]
```

where:

- The value of the --modify-data-source (-mds) command specifies the current name of the data source.

- The value of the --new-data-source-name (-ndsn) parameter specifies the new name of the data source.

- The value of the --driver-name (-drv) parameter indicates the name of the ODBC Driver with which to create the modify data source. The default is the driver that was used to create the data source.

- The value of the --server-name (-s) parameter indicates the Relativity Data Server to which to associate the data source.

- The value of the --server-data-source-name (-sdsn) parameter indicates the server data source on the data server to which to associate the data source. Use the --list-server-data-sources command to obtain a list of data sources on the data server.

- The value of the --type (-t) parameter specifies the type of the data source indicated by the --modify-data-source parameter. The value **U** indicates a user data source. The value of **S** indicates a system data source. The default is a system data source.

- The value of the --data-source-desc (-desc) parameter specifies the description to give to the data source.

- The value of the --query-plan (-qp) parameter specifies whether the data source should generate query plans. The value of **Y** will cause query plans always to be generated. The value of **N** will cause query plans never to be generated. In order for this parameter to be effective, the server data source must have a --query-plan parameter value of **C** (see page 41), which allows the client data source to control the creation of query plans.

- The value of the --character-set (-cs) parameter specifies the number of the character set to use with the data source. If this parameter is absent, the default character set will be used. Use the --list-server-character-sets command to obtain a list of character sets on the data server. For more information, see <u>Listing Server Character Sets</u> (on page 60).

Example

```
$ relclientadmin --modify-data-source Verify --query-plan Y

Data source 'Verify' modified.
```

Removing a Data Source

A data source contains information necessary for the Relativity Data Client to open a data source requested by an ODBC application. This command removes an existing data source on the client.

To remove a data source from a UNIX client, use the following command:

```
relclientadmin --remove-data-source Text
    [--driver-name Text]
    [--type {U|S}]
```

where:

- The value of the --remove-data-source (-rds) command specifies the name of the data source to remove.

- The value of the --driver-name (-drv) parameter indicates the name of the ODBC Driver with which to remove the new data source. The default is the driver that was used to create the data source.

- The value of the --type (-t) parameter specifies the type of the data source indicated by the --remove-data-source parameter. The value **U** indicates a user data source. The value of **S** indicates a system data source. The default is a system data source.

Example

```
$ relclientadmin --remove-data-source Verify

Removed data source 'Verify'.
```

Removing a Server Definition

A server definition is merely a *ServerName* that has been recorded using the --add-server command of the Relativity Client Data Source Administrator utility . The Relativity Client Data Source Administrator utility can maintain a set of server definitions for the current user.

Note The set of server definitions is for a future enhancement of the Relativity Client Data Source Administrator. This set of definitions and this command are of limited use at this time.

To remove a server definition, use the following command:

```
relclientadmin --remove-server ServerName
```

where:

- The value of the --remove-server (-rs) command specifies the network name and service port of the server definition to remove.

Example

```
$ relclientadmin --remove-server aix43.1583

Relativity data server definition for aix43.1583 removed.
```

Showing a Data Source

A data source contains information necessary for the Relativity Data Client to open a data source requested by an ODBC application. This command shows the current contents of the data source.

To display a data source on a UNIX client, use the following command:

```
relclientadmin -show-data-source Text
    [--type {U|S}]
    [-env]
```

where:

- The value of the --show-data-source (-sds) command specifies the name of the data source.

- The value of the --type (-t) parameter specifies the type of the data source indicated by the --show-data-source parameter. The value **U** indicates a user data source. The value of **S** indicates a system data source. The default is a system data source.

- The presence of the --env (-e) parameter specifies that the information from the data source be printed to standard output in the form of Bourne shell environment variable assignments. The purpose is to emit the information in a form that will be usable in a script to manipulate or copy an existing data source. The environment variable names and their corresponding parameters are given in the following table:

Variable Name	Parameter
DS_SERVER	--server-name
DS_SERVER_DS	--server-data-source-name
DS_DESC	--data-source-desc
DS_QP	--query-plan
DS_TYPE	--type
DS_CS	--character-set

Example

```
$ relclientadmin --show-data-source Verify

Data source 'Verify':
Driver=Relativity Client
Description=Relativity C/S Data Source.
ServerName=aix43.1583
ServerDSN=Verify
QryPlan=0
ArrayFetchOn=1
ArrayBufferSize=8
```

RelClientTest Utility

The Relativity Client Data Source Test utility program, **relclienttest**, is used to test a client data source on the UNIX client and its connection to a server data source. This utility can also be used to issue limited SQL statements to the Relativity Data Server.

The following section describes the command and associated parameters for this utility.

Using the RelClientTest Utility Command and Parameters

The testing function, or *command,* performed by the RelClientTest utility is addressed separately, in order to document clearly the additional parameters that the command supports.

The following table lists the command supported by the RelClientTest utility.

Verbose	Terse	Description
--sql	-s	Executes an SQL SELECT statement on a client data source.

Testing Client Data Sources

To test a data source on a UNIX client, use the following command:

```
relclienttest --sql Text
    --data-source-name Text
    [--user-name Text]
    [--password Text]
    [--rows UnsignedInteger]
```

where:

- The value of the --sql (-s) command is the SQL statement to execute. Only SELECT statements are supported.

- The value of the --data-source-name (-dsn or -d) parameter is the name of the client data source.

- The value of the --user-name (-u) parameter is the user name with which to connect to the data source. If the --user-name parameter is not present, a connection will be attempted without a user name.

- The value of the --password (-p) parameter is the password with which to connect to the data source. If the --password parameter is not present, a connection will be attempted without a password.

- The value of the --rows (-r) parameter is the maximum number of rows to print from the SELECT statement specified with the --sql parameter. The default value for this parameter is **500**.

Example

```
$ relclienttest --sql "select * from backorder"
   --data-source-name Verify

ProductNumber|ProductSize|Color|PricePerUnit|Price4OrMore|
   BackOrderQuantity|DateStockExpected|
AP1927367D|20W |17|32|29.99|22|19940803|
AP1927466D|24W |03|12|10|0|19940705|
AP2823987D|ML  |03|19.99|17|20|19940721|
AP2824597D|ML  |17|28|25.99|30|19940701|
AP2824621D|MS  |45|20|16.99|120|19940824|
AP2824712D|MM  |03|12|10|26|19940724|
PF5430319B|S   |37|18|15.3|120|19940615|
PF5430442B|S   |37|16|13.6|100|19940615|
PF5430467B|M   |73|16|13.6|50|19940601|
PF5431036D|L   |78|22.99|18.79|2|19940630|
PF5432000D|L   |26|24|20.4|102|19940715|
PG5430418D|XLXT|34|20|17|40|19940630|
PG5430418D|XLXT|37|20|17|10|19940614|
PG5430418D|XLXT|73|20|17|130|19940701|
14 rows returned.
```

RelDriverAdmin Utility

The Relativity Client Driver Administrator utility program, **reldriveradmin**, can be used to maintain the Relativity Data Client driver on a UNIX client. The primary use of this utility occurs during the install and uninstall processes of the Relativity Data Client.

The following sections describe the commands and their associated parameters for this utility.

Using the RelDriverAdmin Utility Commands and Parameters

Each administrative function, or *command*, performed by the RelDriverAdmin utility is addressed separately, in order to document clearly the additional parameters that the command supports.

The following table lists the commands supported by the RelDriverAdmin utility.

Verbose	Terse	Description
--install-driver	-id	Installs the Relativity Data Client's driver.
--list-drivers	-ld	Lists all drivers installed on the UNIX client.
--uninstall-driver	-ud	Uninstalls the Relativity Data Client's driver.

Installing the Relativity Data Client Driver

"Installing a driver" is the ODBC terminology for this function. This command does not actually install the library files for the Relativity Data Client; the installation script performs that function. Instead, this command registers the Relativity Data Client with the ODBC Driver Manager, so that data sources may be created with the Relativity Data Client.

To install the Relativity Data Client driver, use the following command:

```
reldriveradmin --install-driver [Text]
   --directory Text
   [--driver-library Text]
   [--setup-library Text]
```

where:

- The value of the --install-driver (-id) command specifies the name of the driver. The default value is Relativity Client.

- The value of the --directory (-dir) parameter specifies the name of the directory in which the driver library files are located.

- The value of the --driver-library (-dl) parameter specifies the filename of the main driver library. Note that on HP-UX, the default value is **relclient.sl**. On all other operating systems, the default value is **relclient.so**.

- The value of the --setup-library (-sl) parameter specifies the filename of the driver data source setup library. Note that on HP-UX, the default value is **relclnsu.sl**. On all other operating systems, the default value is **relclnsu.so**.

Example

```
$ reldriveradmin --install-driver "Relativity Client"
   --directory /usr/local/liant/lib

Driver 'Relativity Client' installed.
```

Listing the ODBC Drivers

This command prints a list of all the drivers installed in the Driver Manager, including the Relativity Data Client.

To list the installed ODBC drivers, use the following command:

```
reldriveradmin --list-drivers
```

Example

```
$ reldriveradmin --list-drivers

Drivers on client.
Relativity Client
```

Uninstalling the Relativity Data Client Driver

This command does not actually uninstall the library files for the Relativity Data Client; the uninstall script performs that function. Instead, this command deregisters the Relativity Data Client with the ODBC Driver Manager.

To uninstall the Relativity Data Client driver, use the following command:

```
reldriveradmin --uninstall-driver [Text]
```

where:

- The value of the --uninstall-driver (-ud) command specifies the name of the driver. The default value is Relativity Client.

Example

```
$ reldriveradmin --uninstall-driver "Relativity Client"

Removed driver 'Relativity Client'.
```

Appendix A: UNIX ODBC Driver Managers

This appendix discusses some of the implementation issues and differences between the ODBC Driver Managers available on UNIX.

Driver Managers on UNIX

An ODBC Driver Manager is not a standard part of any UNIX operating system. Two groups, however, have written open source implementations of a Driver Manager for UNIX, both of which have been tested with the Relativity Data Client for UNIX. These two open source implementations are:

- **iODBC.** iODBC was written by Ke Jin and enhanced by OpenLink Software, Inc. It was released as Open Source under GNU's Lesser General Public License (LGPL) in 1999. More information is available from the web site at http://www.iodbc.org.

- **unixODBC.** unixODBC was written by Peter Harvey and enhanced by Easysoft Limited. It was released under GNU's Lesser General Public License (LGPL) and General Public License (GPL). Further information is available from the web site at http://www.unixodbc.com.

Note You can read more about the GNU General Public License at http://www.gnu.org/copyleft/gpl.html and about the GNU Lesser General Public License at http://www.gnu.org/copyleft/lesser.html. These licenses essentially grant Liant, and you, the right to distribute the software protected by the license, as long as the source of the original software is also distributed, or made available for the duration of three years. Liant has chosen the former of these options. The license also permits modification of the source of the software, as long as the modifications are clearly labeled. Liant ships the source in its original archive files, with build instructions and any sources changes noted in a separate document. In general, Liant has not enhanced the Driver Managers. Any source changes were made merely to facilitate compilation of the source on operating systems not already covered by the source's build scripts.

Differences

In general, these two Driver Managers, iODBC and unixODBC, implement the exact same Application Program Interface (API). However, there are some differences between the two implementations, which are discussed here and in the following topics.

Note Liant does not recommend one implementation over the other.

Because of UNIX compilation mechanisms, an ODBC application that is linked with a specific Driver Manager library should load that same Driver Manager library when the application is executed. It is possible for an ODBC application to be able to load either Driver Manager, but most applications do not use this technique.

It is possible, using UNIX links, to allow an ODBC-enabled application to use a Driver Manager other than the one to which it was linked. However, because an application should use a Driver Manager with which it was tested, and given that the two Driver Manager libraries have different names, Liant has decided to ship both UNIX Driver Managers with this product.

Installation of the Liant-supplied Driver Managers is optional, if the site already has a Driver Manager installed.

Note Liant ships only the ODBC Driver Manager library and the ODBC Installer library for each of the two Driver Managers. unixODBC supplies a number of drivers with its product, along with GUI-based tools to maintain data sources. iODBC also supplies GUI-based tools to maintain data sources. Liant is not responsible for supporting these drivers and GUI-based tools, and as such, does not supply them in binary form. They are, however, available in source form on the installation CD in the UDrvMan directory. This directory also includes instructions, the UNIX Driver Managers Build Guides, on how to compile the Driver Managers on the UNIX platforms that Relativity Data Client for UNIX supports. These documents, however, should be referenced only if you decide to rebuild the Liant-supplied versions of these Driver Managers.

unixODBC

The unixODBC Driver Manager uses a set of files to store information about the data sources and drivers that it manages. Furthermore, it supports both user data sources (those that are visible only to the current user) and system data sources (those that are visible to all users). This section discusses how the unixODBC Driver Manager locates these control files.

Data Source Search Sequence

unixODBC stores information about data sources in a file named **odbc.ini**. There is a pair of these files: one for user data sources and one for system data sources. This section describes how unixODBC locates these files.

When unixODBC searches for a data source, it uses the following search sequence:

1. unixODBC looks for the environment variable, ODBCINI. If it is present, unixODBC retrieves its value and attempts to open a file by that name. If the file is present, unixODBC reads all of the data sources within that file into memory.

2. If the environment variable ODBCINI is not present, unixODBC looks up the home directory for the current user name. (Note that unixODBC is not using the HOME environment variable to do this.) unixODBC attempts to open a file with the name, **.odbc.ini**, in the home directory. If that file is present, unixODBC reads all of the data sources within that file into memory.

3. The system data source file is opened, and the data sources that are within it are appended to the data sources already in memory. The Driver Manager contains the location of the system data source file. For the Liant-supplied unixODBC Driver Manager, this location is **/usr/local/liant/etc/odbc.ini**. If you compile unixODBC yourself, this location will be the directory specified to the configure script by the --prefix parameter, plus "/etc/odbc.ini". If the –prefix parameter is not specified, the location will be "**/usr/local/etc/odbc.ini**".

4. The requested data source is located from within the list of data sources stored in memory.

Driver Search Sequence

unixODBC stores information about drivers in a file named **odbcinst.ini**. This file is used to store the location of the Relativity Data Client driver shared library, among other things.

unixODBC expects this file to be in the same directory where the system data source file is located. For the Liant-supplied unixODBC Driver Manager, this location is **/usr/local/liant/etc/odbcinst.ini**. If you compile unixODBC yourself, this location will be the directory specified to the configure script by the --prefix parameter, plus "/etc/odbcinst.ini". If the --prefix parameter is not specified, the location will be "**/usr/local/etc/odbcinst.ini**".

iODBC

The iODBC Driver Manager uses a set of files to store information about the data sources and the drivers that it manages. Furthermore, it supports both user data sources (those that are visible only to the current user) and system data sources (those that are visible to all users). iODBC also supports both the user and system driver control files. This section discusses how the iODBC Driver Manager locates the control files.

Data Source Search Sequence

iODBC stores information about data sources in a file named **odbc.ini**. There is a pair of these files: one for user data sources and one for system data sources. This section describes how unixODBC locates these files.

When iODBC searches for a data source, it uses the following search sequence:

1. iODBC looks for the environment variable, ODBCINI. If it is present, iODBC retrieves its value and attempts to open a file by that name. If it succeeds, iODBC searches for the data source in this file.

2. If the environment variable ODBCINI is not present, iODBC retrieves the value of the HOME environment variable and appends "/.odbc.ini" to it and attempts to open a file by that name. If it succeeds, iODBC searches for the data source in this file.

3. If the data source has not been located, and searching the system data sources is permitted, iODBC looks for the environment variable, SYSODBCINI. If it is present, iODBC retrieves its value and attempts to open a file by that name. If it succeeds, iODBC searches for the data source in this file.

4. If the environment variable SYSODBCINI is not present, and searching the system data sources is permitted, iODBC opens the configured system data source file and searches for the data source. The Driver Manager contains the location of the system data source file. For the Liant-supplied iODBC Driver Manager, this location is **/usr/local/liant/etc/odbc.ini**. If you compile iODBC yourself, this location will be the directory specified to the configure script by the --with-iodbc-inidir parameter. If the --with-iodbc-inidir parameter is not specified, the location will be "**/etc/odbc.ini**".

Driver Search Sequence

iODBC stores information about drivers in a file named **odbcinst.ini**. This file is used to store the location of the Relativity Data Client driver shared library, among other things.

When iODBC searches for this file, it uses the following search sequence:

1. iODBC looks for the environment variable, ODBCINSTINI. If it is present, iODBC retrieves its value and attempts to open a file by that name. If it succeeds, iODBC searches for the driver in this file.

2. If the environment variable ODBCINSTINI is not present, iODBC retrieves the value of the HOME environment variable and appends "/.odbcinst.ini" to it and attempts to open a file by that name. If it succeeds, iODBC searches for the driver in this file.

3. If the driver has not been located, and searching the system odbcinst.ini file is permitted, iODBC looks for the environment variable, SYSODBCINSTINI. If it is present, iODBC retrieves its value and attempts to open a file by that name. If it succeeds, iODBC searches for the driver in this file.

4. If the environment variable SYSODBCINSTINI is not present, and if searching the system odbcinst.ini file is permitted, iODBC opens the configured system odbcinst.ini file and searches for the driver. The Driver Manager contains the location of the system odbcinst.ini file. For the Liant-supplied iODBC Driver Manager, this location is **/usr/local/liant/etc/odbcinst.ini**. If you compile iODBC yourself, this location will be the directory specified to the configure script by the --with-iodbc-inidir parameter. If the --with-iodbc-inidir parameter is not specified, the location will be "**/etc/odbcinst.ini**".