

What's New

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Relativity 11

The following new features are available in the product:

- Support for SCO System V Release 5 (SVR5) was added.
- Support for Vista was added.

The following defects were corrected:

2998	Designer Helpfile vague about the values of True and False
3140	Library libucb.so.1 not found running installing UNIX Data Client
3143	Nullable Utility or Nullable Column Utility
3204	Designer Autoplay menu has bad link to Adobe Acrobat installation
3206	View menu only works for 'tabbed' view
3207	Data Manager Installation Hangs
3209	Designer Support DLLs are out of date
3210	Incorrect Catalog window label
3213	NTS fields (and probably others) do not work well with "Assume Spaces=Zeros"
3215	Common task is mislabeled
3216	Designer Interface Nits
3217	Write Support Wizard missing item from Field list box
3222	Selecting to not show welcome dialog disables open button
3225	Linux Client install 2.6 kernel with ARCH_TYPE x86_64 not recognized
3227	ArrayIndexOutOfBoundsException occurs when fetching data set
3228	Merge FD results in "Unable to create file instance" Error
3234	Typo in Relativity Designer documentation
3245	Run-time error '438': Object doesn't support this property or method

Why did the Relativity number advance to 11? A non-technical decision was made that all Liant products will have their version numbers synchronized at the version 11.

Relativity 6.01

The following new features are available in the product:

- Support for the HP-UX Itanium platform was added.
- Support for [Microsoft Windows x64 Edition](#) was added.

The following new features are available in the Designer:

- Enhanced the configuration of the Source Code Import Wizard's **FD Import Selection Option**. See **During Import, Place All FDs in Available List** in the **System Options** page of the Designer Help File for more information.

- The Catalog Object window now displays a count of the number of Files and Tables in the catalog.

The following defects were corrected:

2668	Data Manager's Uninstall does not decrement use count for readme files
3051	'connect.log' not being created
3113	Unknown License Error uninstalling Data Manager
3127	Relativity Data Server Service has no description
3130	NT Data Server does not report Use Count violation with proper error message
3133	Nullable Utility's No Thanks button skips Welcome Page
3134	relclienttest will not run using Liant iODBC Driver Manager
3136	DBMS Help file: MF Options Page problem
3142	NT: Unexpectedly disconnected from server
3145	Using Global Add can crash Designer
3149	Change to INSTALL script needed for SVR4 platform
3150	Have UNIX install sniff the CD for the license file
3151	HP-UX: Data Server stops accepting connections
3153	License Use count overcounting with Citrix Servers
3156	Renaming an FD does not work properly
3157	Problem when using the multi-file feature in Relativity
3161	Typo's in the Relativity Client/Server for Unix Installation Guide
3164	Designer crashes - runtime error 9 subscript out of range
3165	Intermittent errors creating sort files
3167	Runtime error 380 using the Nullable Utility
3171	Can not install on Open Server 6
3172	Support for installing on Solaris 10 systems
3174	Data Manager will not install on Windows XP 64-bit
3175	Allow larger File Process Count configuration
3176	Add display of total number of FDs / Tables
3178	Relativity Data Client does not work with Windows XP Pro 64
3179	Data Server will not install on Windows XP 64-bit OS

3182	relclienttest won't run on AIX and HP-UX
3185	Run-time Error '91': Object variable or With block variable not set / vbalexbar
3186	Error 2 delete registry key during uninstall
3188	Java Client will not install on Windows XP 64-bit OS

Microsoft Windows x64 Edition

Support for the [x64 Edition of Windows](#) is provided via the 32-bit features of the operating system. As 32-bit ODBC Drivers, the Relativity Data Manager and Data Client are not accessible via the ODBC Administrator available in the Control Panel, which only supports 64-bit ODBC Drivers. To maintain Relativity data sources, it is necessary to run the 32-bit ODBC Administrator, **C:\Windows\SysWOW64\odbcad32.exe**.

To run the 32-bit ODBC Administrator, it is recommended that a **Shortcut** be created for it and installed on the Windows desktop. The procedure for this is:

1. Open **My Computer** and navigate to **C:\Windows\SysWOW64**.
2. Locate the file **odbcad32.exe**.
3. Right click on **odbcad32.exe** and select **Copy** from the pop-up menu.
4. On your **Windows Desktop**, right click in the area where the shortcut is to be placed, and select **Paste Shortcut** from the pop-up menu. A shortcut named **Shortcut to odbcad32.exe** will be created.
5. Right click on **Shortcut to odbcad32.exe** and select **Rename** from the pop-up menu. Change the shortcut's name to **ODBC Administrator (32-bit)**.

Opening the **ODBC Administrator (32-bit)** shortcut will allow Relativity data sources to be maintained.

Although the 32-bit ODBC Administrator isn't available from the Windows Control Panel, the ODBC Relativity and Relativity Server control panel applets are. In the Control Panel, open **View x86 Control Panel Icons**.

The x64 Edition of Windows runs on AMD Athlon 64, AMD Opteron, Intel Xeon with Intel EM64T support, and Intel Pentium 4 with Intel EM64T support processors. Intel Itanium is not a supported processor. For more information, see [System requirements for Windows XP Professional x64 Edition](#).

The following new features are available in the product:

- The Relativity Data Server now counts multiple connections from the same client as only one use against the use count.
- Support for a Relativity Data Client for UNIX was added. There is a separate installation for this feature. See the *Relativity UNIX Data Client Installation Guide*, **ReldcUX.pdf** in the docs directory of the installation media, for more information.
- Support for SQLPrimaryKeys was added.
- Provided ability to convert constants in SELECT AS statements to decimal columns. See [Decimal Numeric Literal support](#).
- Enhanced the scalar function CONVERT to create decimal columns with the proper scale and precision. See [CONVERT SQL_DECIMAL support](#).
- The table connection pathnames have been enhanced to support column values and connection attributes, as well as the environment variables introduced in Relativity 5.04. See **Data File Path Names (Advanced)** in the DBMS help file for more information.
- Added ability to connect to a Data Source by specifying the Driver Name and Database Qualifier. See **Connection Strings (Advanced)** in the DBMS help file.
- Added ability to connect to a Server Data Source by specifying the Driver Name, Server Name and Database Qualifier. See **Connection Strings (Advanced)** in the DBMS help file.
- The Query Plan Viewer displays large query plans better.
- The following new functions were added to the Relativity Installation Kit:
 - AddServerDefinition
 - DefaultServerDefinition
 - GetConnectionInfo
 - GetDefaultServerDefinition
 - GetServerCharacterSetsList
 - GetServerDefinitionList
 - GetServerFMSupport
 - GetServerInfo
 - RemoveServerDefinition
 - ShutdownServer
 - TerminateConnection

The following new features are available in the Designer:

- Improved the User Interface to follow the Windows XP conventions. See **XP Look & Feel Layout View** in the Designer Help File for more information.
- Added a Utility that will search the tables in a Relativity Data Source, automatically making selected numeric and date columns nullable. See **Nullable Column Utility** in the Designer Help File for more information.
- Added keyboard shortcuts to speed up the process of merging data.

- Added ability to maintain Occurs Depending On in the FD form. See **Re-assign or remove OCCURS clauses with the DEPENDING ON phrase** in the Designer Help File for more information.
- The table form now indicates which columns have indexes built on them. See **Show Indexes for Tablename Form** in the Designer helpfile for more information.
- Added ability to configure if the FD Import form automatically selects all of the FD's in an RST file. See **During Import, Place All FDs in Available List** in the **System Options** page of the Designer Help File for more information.
- The following new features are available in the UNIX Data Servers:
 - A command line Data Server Administrator was added to the UNIX Relativity Data Server installations. See the Appendix B in the *Relativity UNIX Client/Server Installation Guide* for more information.
 - In the installations, the current operating system is verified against the expected operating system of the installation.
 - The LINK command for Relativity Data Servers for Micro Focus now automatically uses the same Micro Focus that was in use at installation of the Data Server.

The following new features are available in the Windows Data Server:

- The Windows Data Server installation now provides the ability to configure the types of messages that are placed in the NT Application Event log. The default is to log only errors and warnings.

The following defects were corrected:

137	SQLColumns returns 0 rows and no error when DrmOpenTable fails
1306	DBMS Helpfile icons need separate names
1510	Need a way to maintain ODO and Parallel Occurs
1595	Show index columns when defining tables
2421	Global option to make columns Nullable
2563	Connection Time Out feature undocumented
2564	Constants in SELECT AS don't create columns with expected characteristics
2577	Schema Extractor requires input file to have an extension of CBL
2582	Null Pointer Exception with JDBC
2586	Inserts are slow on NT
2673	Designer/DBA installation always creates a C:\Program Files\DESIGN32 directory

2708	'Edit Selected Table Connection' form off the side of the screen
2797	Allow for an option to mark all numeric columns as nullable
2803	DBA displays incorrect program name in license error message
2813	Column built on a File Label item returns error message when fetched
2829	Installation script appears to hang
2833	Connection menu problems
2854	Monitor fails to validate license if mismatched versions
2878	Support DSN-less connection to Data Server
2894	Monitor waits for all transports to initialize
2902	Relativity Data Manager Uninstall Name incorrect
2925	Server Administrator can be excluded from UNIX Data Server by Use Count
2935	Allow RST Default Behavior to be controlled
2952	Designer Menu should be context sensitive
2953	Documentation Install gives wrong version number for Acrobat Reader
2963	Context Menus not operating on expected object
2964	Add User popup menu choice looses current selection in catalog window
2967	Relativity LINK command for MF should have environment set up
2973	Relativity Monitor error 0xC1010402
2981	Windows Server crashes when WIN_ASSERT executes
2992	Make table's access name be a function of client's computer name
2993	Query Plan viewer chops off image
3001	Operating System Error 79 on Unixware 7
3007	Keyboard shortcuts for merge data actions
3013	Allow connection using DBQ and DRIVER
3014	Data Server Usage should not count multiple connections from the same client
3024	Access UPDATE query stops prematurely
3030	Data Manager Monitor Viewer helpfile not installed properly
3031	Determine Which Value to Use for Set To True
3032	Allow tags in access names
3037	Designer Install creates empty DESIGN32 directory
3040	Invalid year causes error instead of NULL
3041	Run-time error '35601' Element not found

3043	Data Server stops receiving connections from clients
3045	Can't Access This Data Source. ODBC Error when opening a 2nd catalog in dba.
3046	Support SQLPrimaryKeys
3047	Missing file label column disables all indexes on a table
3048	"Connectivity error" using Visual FoxPro
3052	LIKE clause misses rows
3053	Designer creates charsets with euro code point = 0
3060	Data Manager does not report 98,45 error on relative file
3062	Cardinality can be incorrectly overwritten
3066	NOT phrase in WHERE clause returns too few rows
3068	Relativity Data Manager and Data Server fail to install
3069	Buffer overrun in AGPCNF file processing
3070	licverify gives syntax error
3071	Combine Windows and UNIX installations into one CD
3072	UNIX Data Server won't install with latest Server Express
3073	Officially support server.log
3074	Copy license certificate to installation directory
3075	Missing report data
3076	Exporting COBOL picture also exports fields not explicitly in report
3077	Creating a File Instance from Designer results in a Null Charset
3078	Add Driver Name to information sdStartCopy dialog
3079	Import from COB file does not accept versions > 8
3080	NT Server logs an excessive number of messages
3081	Designer displays no error when import from .COB file fails
3083	Access Error communicating with Data Manager Monitor
3094	Concurrent transactions may not change table cardinality
3112	FD Merge loses parallel occurs
3114	Access Violation in Relativity Data Client
3124	Designer runtime error 9 managing FD filter

Decimal Numeric Literal Support

If a select statement contains a constant such as:

```
SELECT 00000000.00 AS NUMBER FROM SESSIONS
```

The column NUMBER will normally be a floating point type. However, COBOL applications rarely use floating point numbers. In this version of Relativity, the option **DefaultLiteralToDecimal** will cause the column to be type SQL_DECIMAL with the precision and scale dictated by the literal constant. See the **Literal Column Support (Advanced)** topic in the DBMS help file for more information.

CONVERT SQL_DECIMAL Support

The SQL function CONVERT(expression, SQL_DECIMAL) now uses *expression* to determine the precision and scale of the result for the function. If *expression* is a single numeric literal (with no exponent), the number of digits in the numeric literal, including leading zeroes, is used as the precision of the function's result. Similarly, the number of digits to the right of the decimal point is used as the scale for the result.

See the **Scalar Function CONVERT (Advanced)** in the DBMS help file for more information.

Relativity 5.04

The Data Manager and Data Servers were enhanced to support environment variables in table connection pathnames. Furthermore, the Data Servers automatically set a pair of environment variables that can be used to identify the Data Client's machine and user names. This will allow individual Windows client machines to access files containing data specific to them, while having a single catalog and using a single set of tables within that catalog for all clients. See [Data Server Path Name Environment Variable Support](#) and [Data Manager Path Name Environment Variable Support](#) in the DBMS Help file.

For defect 3026, 'Key is not unique in collection' error in the designer, this was produced by a corrupted catalog. It is still not known the sequence of events that caused the catalog to be corrupted, however the Designer in this release will detect the situation and automatically correct it. To correct the problem in the catalog, open the Data Source with the problem. From the Security menu, select Connections. The Edit Connections form will open. The Save Changes button should already be enabled. Press the Save Changes button.

For defect 3029, RM Data Server 'File lock violation', the Data Server and Data Manager have both been changed to support the RM File Process Count configuration parameter. This change has not been propagated to the data source configuration utilities. See [RM File Lock Violation](#) error below for more information on setting this configuration parameter.

The following defects were corrected:

2961	UNIX Data Server can kill innocent processes
3027	Data truncated: Parameter 1
3029	RM Data Server 'File lock violation'
3033	SELECT statement with IN clause excludes rows
3034	-_LICENSE keyword does not work for DBA Install
3036	UNIX Data Server Connections are not always properly removed
3039	Remote source compile gives File Not Found - MakeRst

RM File Lock Violation error

This problem manifests itself with random 'File Lock Violation' errors while running queries. This error is not consistent, and running the same query again could result in correct results. The problem is that the RM/COBOL programs that are also accessing the same data files are running with a configuration file that has the following configuration parameter in it.

RUN-FILES-ATTR file-process-count=xxxx

where xxxx is a numeric value besides 1024, which is Relativity's value for this configuration parameter. To change this configuration parameter for Relativity, locate your environment below and follow the instructions.

Windows Data Server and Data Manager

To set this configuration parameter, from the Start menu, select Run. In the Run dialog, type 'regedit' and press the OK button. To set this parameter for a single User DSN, navigate to **HKEY_CURRENT_USER\Software\ODBC\ODBC.INI\DataSourceName**. To set this parameter for a single System DSN, navigate to **HKEY_LOCAL_MACHINE\Software\ODBC\ODBC.INI\DataSourceName**. To set this parameter for all data

sources on the machine, navigate to **HKEY_LOCAL_MACHINE\Software\Liant Software Corporation\Relativity\reldbms.ini\RM File Manager**. In the right hand pane, right click, select New, and then select String Value. Name the new string value FileProcessCount. Right click on FileProcessCount and select Modify from the pop up menu. In the Edit String dialog, enter the desired value for the FileProcessCount parameter. This must match the value for the "RUN-FILES-ATTR file-process-count" configuration parameter of the RM/COBOL applications.

UNIX Data Server

To set this configuration parameter, change directory to the installation directory for the Relativity Data Server. To set the parameter in specific data sources, edit the file odbc.ini. Each Server data source is in a separate section, which begins with the data source name enclosed in square brackets. There are some sections in this file that are not data sources, and these can be ignored. For each Data Server data source that is to have this configuration parameter set, add the following line:

FileProcessCount=2048

where 2048 is the same value as the COBOL program is using for the FILE_PROCESS_COUNT keyword in the RM/COBOL configuration file. Save the odbc.ini file.

To set the parameter for all data sources, edit the file reldbms.ini. If this file does not exist, create it. Locate the line **[RM File Manager]**. If this line does not exist, create it. After this line, add the following line:

FileProcessCount=2048

where 2048 is the same value as the COBOL program is using for the FILE_PROCESS_COUNT keyword in the RM/COBOL configuration file. Save the odbc.ini file.

It will not be necessary to restart the server for the change to the configuration file to take effect, although any clients that are already connected will not see the benefit until they disconnect and connect again.

Relativity 5.03

The following defects were corrected:

2999	DBSample does not work
3008	SQLStatistics reports non unique index columns as unique
3010	Impromptu causes the AIX Data Server to crash
3011	Index is not built on a valid prime key
3018	ADO application reports Catastrophic Error accessing Relativity

Please see the description for defects [3015](#) and [3016](#) in the [Defects Read Me](#) for important information regarding Microfocus on the Linux 6 and AT&T SVR4 platforms. The lack of support for these platforms by Microfocus will probably result in Relativity dropping support for them, at least for Microfocus, in a future release.

Relativity 5.02

The Show Deprecated Stored Procedures option was added to support applications that were written to use the original column names of the DBA_ListTableConns stored procedure. In the Relativity Configuration Help, see the Setup Options Page. In the Relativity Server Admin Help, see the Global Options Page. (To access these help files, go to the Windows Control Panel. The Relativity Configuration Help is accessed from the Relativity icon. The Relativity Server Admin Help is accessed from the Relativity Server icon.)

Two new functions, GetServerConfig and SetServerConfig, were added to the Relativity Installation Kit.

This release also fixes a problem between Relativity and the Microsoft Jet Engine 4.0, which manifested itself in the Microsoft Jet Engine 4.0, Service Pack 7 release.

The following defects were corrected:

2043	Help file screen shots do not match those of screens in the current version
2554	Relativity Control Panel Applet Help File does not match
2605	DBMS Helpfile: MF Options Page problems
2847	"Report Layout Editor Help" icon points to non-existent file
2858	Remove Monitor from Startup during install

2884	Column names returned by DBA_ListTableConns() have changed
2942	DBMS Helpfiles do not describe the Translator button on the Setups
2972	Unable to link tables from ACCESS to a Relativity Data Source
2974	Designer Global Edit corrupts catalog
2975	"Out of Memory" error processing Delete
2976	Allow multiple items to be added to a Record Type
2977	Cannot delete a recently added Item from a Record Type
2978	SQLTables causes crash/GPF
2979	Invalid Procedure Name Error when opening Catalog
2982	"The key was not found" error after a catalog merge
2985	CRDM error Out of Memory #-1011 on query
2986	Add error code for license validation timeout
2988	Filter expression values cannot be changed by check box
2989	Data Server does not terminate after JDBC client disconnects

Relativity 5.01

The following new features are available in the Data Servers.

- Support for large RM/COBOL files on Linux.
- Support for Open UNIX.

The Designer and DBA help files were brought up to date.

The following defects were corrected:

2746	All index values not available when multiple defined occurs exist
2822	Popup for Independent Select in Designer help file is cut off at the bottom
2832	make_rst program references in Designer help file
2834	Connection menu is not documented
2897	Relativity Data Server installation fails on LINUX SUSE
2921	Encapsulate is spelled incorrectly in help files
2956	"Database limit reached" error

2958	Runtime error 380 within the Designer
2960	STOP command doesn't work on Open UNIX

Relativity 5

As of Relativity 5, the second digit of the version number will cease to be significant. The third digit, which historically has indicated a bug fix release, will continue to serve that function.

The following new features are available in the Designer:

- Added support for 10's complement transform. (See **10's Complement** topic in the Designer help file.)
- Added support for a LogicalOrder transform. (See **LogicalOrder Column Transform** topic in the Designer help file.)
- Added a character set maintenance dialog. (See **Character Set Maintenance** dialog box topic in the Designer help file.)
- Added displaying the item on which the number of occurrences depends, if an FD item has an OCCURS DEPENDING UPON clause.

The following new features are available in the Data Manager:

- Improved support for Translation DLLs. They are now called at the proper places in processing, and are now supported by the Data Client.
- Added LogicalOrder column transform to support translating to logical order bi-directional data that is already in visual order.
- Added a code page for 7-bit Hebrew.
- Added support for the SQL Quarter function.
- On Windows Servers, the Relativity Monitor will now log errors to the event log that it receives when opening the Liant license.
- Added support for RM/COBOL's Euro solution. (See **Character Set Maintenance** dialog box topic in the Designer help file.)
- Rebased DLLs for faster loading.
- Added support for using the installed [Micro Focus File Handler](#).

Upgraded the SQL Engine to 6.2.

Upgraded JDBC Client to version 6.2. (Note that this is not a JDBC version number.)

The following defects were corrected:

104	SQL Query not using index when key is resolved thru JOIN
1363	Simba C/S for Alpha AXP Server doesn't support RDO functionality
1616	Valid date range limited to years 1582-3000, inclusive
2537	Open error of Catalog from data client should be more informative
2744	File Instance without label causes server to crash
2747	Many problems with manually binding multiple subscripts
2766	Add "IsValidDate" function
2782	Improvements to Data File Format List in Designer
2809	Problems with "Import from Another Catalog"
2811	In the Monitor, log OpenLicense errors in the event log
2816	"Import from another catalog" terminology
2819	Subscript out of range error when opening Edit Connections
2843	Character set for ISO 8859-1 missing
2846	Installation of Acrobat on AIX fails
2848	"Multi-File Table Support Overview" link does not exist in docs.htm
2849	Bind Subscripts dialog does not work for items with more than one subscript
2852	INSERT fails during item set test
2853	Monitor doesn't run with custom Desktop
2856	Deleting table instance doesn't always take effect
2862	Too many result rows if parameter in WHERE clause
2865	Designer gets "Error calling SafeArrayPutElement." from 5.0 DBMS
2867	Memory error when trying to import MF source file with COPY statement
2870	SQL engine calls translation DLL at wrong place
2871	Relativity DBA is very slow when building the connection tree
2873	Designer FD does not always display lower bound of OCCURS DEPENDING ON
2874	Designer does not display DEPENDING ON item
2876	Designer Generating Wrong Data Types for MF
2877	Add 10's complement transform
2893	Cannot Select 01's to import
2898	Relativity Data Server "Listener failed" message uninformative
2904	Two Deletes from ACCESS results in a dynamic parameter mismatch error

2907	Edit Connections Global Add does not correctly save file connections
2911	Global Add does not enable Edit Connections Save button
2913	Columns longer than 400 bytes lose data on UNICODE application
2914	Catalog Merge corrupts catalog
2918	Data Client crashes under Crystal Reports v9.2.0
2919	Schema Extractor (Import FD) crashes with a GPF in LISTPROC
2922	Engine does not allow expressions with no collation
2934	Select a single 01 level, all 01s still imported
2954	ODO button does not set the minimum value

Micro Focus File Handler

Previous versions of the Relativity Data Manager for Windows and the Relativity Data Server for Windows Server had a fixed version of the Micro Focus file handler. If an update of the file handler was available from Micro Focus, customers had to wait until a new version of Relativity was available from Liant to use it. In this release of Relativity, the installation procedure will automatically search for an installation of Micro Focus Net Express or Micro Focus Application Server, and perform the install such that the Data Manager or Data Server will use the file handler DLL from the Micro Focus installation. If an installed Micro Focus file handler can't be located, then the installation procedure will install a Micro Focus Net Express 3.0 file handler and use that to access Micro Focus data files. This new procedure will allow customers control the Micro Focus file handler that is in use. While Relativity will ship a Net Express 3.0 file handler, we will continue to test with the latest Micro Focus Net Express.

Relativity 4.21

The following new features are available:

- Partial support for [non-DISPLAY numeric keys](#) with NetExpress and ServerExpress files.

The following defects were corrected:

2837	DBA has File/Table report line in catalog window
2871	Relativity DBA is very slow when building the connection tree, see the workaround for defect 2871 in Defects Read Me .

2872	Tables are not alphabetized when assigning column update privileges in DBA
2879	Error -4020 opening table
2880	WHERE expression which specifies label column doesn't return any rows

Non-DISPLAY numeric keys support

Microfocus NetExpress and ServerExpress file managers support keys whose format is other than DISPLAY (Alphanumeric), namely Packed Decimal, Comp-X and COMP-5. Support has been added that will allow Relativity to open these files. However, Relativity will not build SQL indexes that include columns based on these keys at this time. Indexes will contain columns up to the columns based on the non-DISPLAY field, but these indexes will not be unique.

Relativity 4.20

The following new features are available:

- Full support for [Collating Sequences](#).
- Installation programs will now accept [quoted arguments](#).
- [Alt-click functionality](#) returned to Designer.
- [Data Manager Monitor](#) installed as a Service on Windows Server machines.
- Added support for IsValidDate function.
- Improved speed of deleting FD items.
- Added Uninstall support on UNIX Server.

Upgraded RM File Manager to 7.5.

Upgraded List and Label to version 8.

The following defects were corrected:

1089	Bad query plan: small table on left, large table on right despite index available.
1667	Add a Flag to return NULL for invalid date ranges
1846	Program Collating Sequence preventing access to existing catalogs.
2030	Can not terminate a client on the Windows Server.
2050	Problems with the Automated Installation.
2227	Report Help Buttons don't work properly.

2366	License Installation Problem
2390	Alt-click function lost with 32-bit Designer.
2428	Condition item value has type 102
2627	"Column identifier out of range" error message.
2648	Index not used for "IS NULL" in query.
2665	Error starting Data Manager Monitor on SQL Server if no one is logged in.
2670	DBMS Helpfile: TIMESTAMPT typo.
2675	Version info. in DBA About Box is not legible.
2677	Designer loops between login and catalog below minimum version message.
2684	Occurs item numbers continue to append additional numbers.
2686	Deleting Items from FD takes too long
2730	File Label Menu not correctly enabled.
2738	Null Value, Transform, User Data Type column dropdown in wrong spot.
2741	Saving a file's changes loses selection.
2749	Typo in Designer and DBA help file.
2754	Catalog invalid; no item for item id native err: -4004 unable to open table.
2756	Query Server Error: Column Identifier Out of Range using Cognos.
2757	Catalog error -4123: Duplicate Presentation sequence
2760	After FD Merge Table Privileges are lost
2762	Indexes are not used for CREATED tables.
2764	UNIX server leaves shared memory and semaphore around.
2765	JUSTIFY RIGHT fields in Key are not recognized as keys.
2766	Add "IsValidDate" function
2767	Cache file contents to allow CREATE INDEX on nonempty table.
2768	MF crashes when key or key component description in the catalog is incorrect.
2774	Server Admin Menu Pick does not work on Windows Server.
2778	SELECT with two columns WHERE clause filters on only one
2784	DBA_AddFileName causes crash
2791	Designer corrupting item sets
2794	MF error 41 on UNIX Server
2798	SELECT returns stale data

Collating Sequence support

The SQL indices in Relativity are based on keys within the index files. However, indices could not be built on files whose keys contained a Collating Sequence. In normal files, keys based on character fields were sorted by the binary value that the underlying character set or code page assigns to each character. With a Collating Sequence, this sorting sequence could be altered to a more natural order, matching the ordering of the native language, for example, or even causing upper case and lower case letters to be sorted the same. With Relativity's Collating Sequence support, SQL Indices will now be built on file keys containing collating sequences.

Quoted Arguments

The Relativity Installation programs support the passing of arguments when they are invoked, so that when they are started from another installation program, the default answer to the Relativity Installation prompts may be altered. In the past, arguments that might contain a space had to be delimited by open and close bracket, even if the actual argument did not have one. For example to set the default organization to Liant, the following command line was required:

```
SETUP -_ORG=[Liant]
```

This caused confusion for two reasons: First, because the delimiter did not appear to be needed, and second, because the industry standard for delimiting command line arguments containing spaces is to use double quotes.

The Relativity Installation scripts have been changed to not require the delimiter to be present, and to support double quotes as well as the square brackets as delimiters. Thus the following command line is now accepted:

```
SETUP -_ORG=Liant
```

As well as:

```
SETUP -_ORG="Liant Software Corporation"
```

Alt-Click support in Designer

In version of the Relativity Designer prior to 3.2, it was possible to select all the items in a FD group by pressing on the keyboard's ALT key while clicking on the group name. That functionality has now been restored.

Relativity Data Manager Monitor as a Windows Server Service

The Relativity Monitor is a small program that is responsible for managing the Relativity Data Manager licenses on a machine. It also has a system tray icon from which the Data Manager's status can be examined, such as the number of current connections to it and the database that is opened. The original implementation of the Monitor assumed there are only one copy of the program installed and running on a machine, and it worked well on Windows 9X and NT. However this technique did not work well on Terminal Server, especially when more than one terminal session was attempting to use the Relativity Data Manager at the same time. Installing the Relativity Monitor as a service on Windows Servers in will correct these problems.

Relativity 4.11

In the Data Manager:

- Improved transaction support's detection of locked records.

In the Data Manager and the Designer:

- Changes to the support for [Spaces, Invalid Numerics and Nonnegative data](#).

The following defects were corrected:

1178	Date 6-digit and 8-digit format are treated as Integer in table form.
2576	Runtime error 9 when dragging a column name on table form to top.
2070	IF function in Select fails
2611	Transaction support does not detect duplicate keys.
2704	MF File Manager returns too much data.
2727	Spaces = 0 does not work if item part of a key.
2729	UPDATE which changes prime key can crash DBMS.
2732	Select from complex view is infinite looping.

2733	IF causing 'Expression evaluation error'.
2735	Designer hangs when deleting a connection.
2736	Can only delete one connection at a time.
2750	Garbled trace log and crashes.

Invalid Numerics support change

In some numeric data items, numbers are represented by a narrow range values. For example, in the numeric Display format, each numeric digit is represented by the characters '0' through '9', with signs represented by the characters '+' or '-'. With these numeric types, it is possible for the data item in the record to contain values that are not in the defined range of values, and as a result, represent invalid numeric data. In numeric Display format, a number that contained the character 'A' as a digit would not be considered as valid number.

In general, Relativity returns an error message when encountering such data and the data records must be corrected before they can be used by Relativity. However, in those cases where correction is not practical, or the COBOL program has a specific purpose for inserting the invalid numeric information into the record, the options "Assume Spaces=Zeros", "Invalid Numerics Return NULL" and "Assume Nonnegative=Positive" indicate how Relativity is to handle invalid numeric data when it encounters it. However, these options did not apply to data items that are part of an index file key because the invalid numeric information causes the data items to be sorted in a nonnumeric fashion, causing the SQL indexes based on these keys to behave in an unpredictable fashion. Thus, when invalid numeric data is encountered in these items, an error was still returned.

The Designer and DBMS have been changed to now allow the Invalid Numeric options to be applied to all fields, even to those in keys. The trade off is that indexes will not be built on these items. Unfortunately, at this time, there is not a way to specify which fields should have these options applied to them, thus none of the Numeric Display items in a catalog that are part of a key will have an index built on them. This will obviously have an adverse effect on performance. See **Data Source Options** topic in the Designer help file for more information. If there are a small and well-known number of invalid numeric values for a field (such as all spaces), another alternative to these options is to define a Null condition item on the field that will allow the invalid numeric information to be returned as a Null for the Column's value. See **Defining Null Information** in the Designer help file.

Relativity 4.10

Implemented Multi-File Table support. This support will allow a single table to be able to be associated with multiple files and merge their records together into one row-set for the table. With this feature, Relativity is capable of accessing the records from these files sequentially (all the records from one file first, then the records from the next file) or merging the records from the multiple files into a stream of records, all properly sorted based one of the keys of the files. The rest of the processing that Relativity performs to turn the file records into SQL rows occurs as before. In order to distinguish which file the rows are from, a new File Label working storage item can be defined on which a column could be associated. With this new feature, information that is stored in multiple directories, for example to separate one store's accounting data from another, can be accessed from one set of Relativity tables for cross store analysis of the data. See the **Supporting Multi-File Tables** topic in the Designer help file for more information.

Upgraded JDBC Client to version 6.1. (Note that this is not a JDBC version number.)

The following defects were corrected:

988	Designer and DBA do not properly display column privileges.
1298	User-defined data type used by FD can be deleted without warning.
1604	Desginer/DBA Edit Privileges form should display current group name.
1894	DBMS Helpfile problems.
2028	Designer usability - Resizable Import from Catalog dialog requested.
2221	Show button should only be enabled when a row is selected.
2222	Documentation uses wrong column name.
2325	File-Table Cross Reference By Table Report Does Not Print File.
2345	Multi Table Delete.
2481	Column Default Value may be incorrectly deleted.
2594	RM schema extract on UNIX Server is not described in Designer Help.
2603	Data File Format option's help is not very informative.
2607	Catalog Merge menu item clarification
2610	DBA doesn't change default login user name until it terminates.
2614	Incorrect INI section named in Designer Help File.
2621	Double clicking a report on the report tab does not do anything.

2635	Independent 'SELECT' documentation does not simply explain the option.
2636	Designer Help: "Select All Columns" button documentation problems.
2639	Resolve Merge Differences dialog help problems
2654	FD's Character Set should be displayed as part of FD's Properties.
2772	Details of -_SERVER installation argument missing.

Relativity 4.03

The following defects were corrected:

1999	Bound subscript columns with null conditions generate incorrect results.
2330	Open FD from Table Form does not track Record Type.
2531	Item Patterns with Scale are ignored.
2628	GROUP BY produces duplicate rows.
2638	Designer inconsistency with "Import from Another Catalog".
2643	Monitor does not work properly on Terminal Server.
2644	Complex NULL condition does not work properly on column with bound subscript.
2647	FD Comment Field does not work.
2649	Push Down Join does not return all the rows that it should.
2653	Character Set Import does not appear to work.
2657	HP/UX dataserver crashes when opening linked table in Access 2000.
2662	Join fails to return rows.
2664	Error starting second monitor on Terminal Server.
2669	UPDATE does not locate row created by previous INSERT.
2672	Data Server does not function properly with MF Server Express.

Relativity 4.02

In the Data Manager and Data Server:

- Changed Transaction Support to work with "Microsoft OLE DB Provider for ODBC".

In the Designer:

- Corrected a problem where errors encountered on a Client Server data source by the Show Data window were not being reported.
- Added IDX8 to the list of Data File Formats supported.

In the Data Client:

- Changed the 4.0 Data Client to be able to support 3.2 Data Servers.

In the Relativity Data Servers for UNIX:

- Corrected the installation script to install with Micro Focus' Server Express.

In the Data Manager Monitor:

- Changed the usage counting mechanism to be one usage per machine if on Windows 9x or Windows NT Workstation, and one usage per connection if on Windows NT Server or Windows Terminal Server.
- Corrected a problem recovering if the network connection is interrupted.

The following defects were corrected:

2000	An apostrophe in a record-type name causes Designer shutdown.
2574	Client/Server: Designer's Show Data does not show any data.
2579	Starting the Data Server while another one is active corrupts connection list.
2598	Cannot update more than 2 records with Relativity C/S.
2604	File Format IDX8 is missing from Data File Format options.
2606	SimbaClient unpacking error.
2613	Monitor gives error 10049 when Win2K not connected to network.
2616	"Invalid API Parameter" inserting from ADO.
2617	MF Data Server won't install on a system with Server Express.
2626	Monitor counts uses incorrectly.
2629	DBA gets overflow error when opening catalog on client server.
2637	Error 22 installing license.

Relativity 4.01

In the Data Manager:

- Corrected the Access 2000 and Access 2002 problem with inserts, updates, and deletes.
- Corrected a minor display problem in the Data Manager Monitor.

The following defects were corrected:

2589	Office XP: Errors inserting new rows into a table.
2591	Monitor display of computers is blank if more than two licenses.

Relativity 4.00

In the Data Manager:

- Added [transaction support](#).
- Updated to the latest SQL Engine, Simba 5.5.
- Enabled [Connection Pooling](#).
- Added logging of exception information to the Relativity Data Server for Windows.
- Limited [pushdown joins](#) supported.

In the Designer:

- The menu system has been completely revamped. It now more closely follows existing Windows (r) standards.
- Added a context activated FD, User, and Table Menu.
- Added popup menu (right-click) support.
- Improved the Show Data feature. There is now a Query builder feature; show Data is no longer modal. It can stay open while you open/interact with other dialogs. It has Print/Print Preview and export to comma separated file.
- There is now a SQL Window that allows direct entry of any SQL Select statement.
- There is an Improved Open Dialog that supports multiple drivers.
- The Edit Paths dialog now supports show data.
- A new FD Properties dialog allows viewing of some information from the catalog that was not available before, including the file's keys, the File Format, Min/Max record size, all of the tables built from the selected FD and all of the FD's record types, and their filters.
- There is an improved Record Type toolbar on the FD form.
- There is now a Show Index dialog.
- The Options Dialog (formally preferences) has been revamped.

- The Table form now allows setting of Inserts and Updates without visiting second dialog.
- The catalog window will remember its size and location.
- There is now a menu pick to launch Server Administrator control panel applet if it is installed.
- There is now a menu pick to launch the ODBC32 Control Panel Applet.
- There is now a Status Report. There are several 'batch' type processes in the Designer. These used to end in various ways, such as the form just going away. They all now end with a status report. The report shows start/end times, as well as a summary of what was done, and any errors/warnings encountered.
- On the help menu, there is now a pick to launch the DBMS Help file. It uses the help file for the currently selected driver.
- Added a Welcome screen to the Designer. This presents the user with the option of opening a recent catalog, opening any catalog (by specifying a driver, if more than one exists), or creating a new data source.
- Support "search" and "search/replace" when defining table columns.
- Provided a way to copy a table definition.
- Stopped the designer from unnecessarily rebuilding the FD structure for every table.
- Added a rename Record Type function.
- Changed the modality of the Write Support Wizard dialog so that it would be possible to commit a table.
- Made improvements to the Edit Privileges form.
- Added support for an expiration date on the catalog and on the user ID.
- The user permissions form is now sorted.
- Fixed problems with Redundant Data Items dialog.
- Added the ability to resize the Table Connections and Table Filter Windows.
- Added better way of changing existing users.
- Made performance improvements when importing from another catalog.
- Replaced simple pattern matching support with regular expressions.

In the DBA:

- Added a Welcome screen to the DBA. This presents the user with the option of opening a recent catalog, opening any catalog (by specifying a driver, if more than one exists), or creating a new data source.
- Also added a catalog window to the DBA. Look and feel very much like the Designer catalog window. Only has Table, User, Report tabs.
- Resized the width of Edit Connections list boxes.
- There is now a menu pick to launch Server Administrator control panel applet if it is installed.

Added the Java Client.

The following defects were corrected:

254	Describe Filter Item dialog shouldn't use toggle button for AND/OR/NOT.
613	Synchronize table connection changes.
643	SQL Select of min or max value of index may scan all rows.
1052	DBA Merge does not diagnose lost connections.
1381	Table items refreshing problem on Windows Server.
1894	DBMS Helpfile problems.
1988	SCO crashes when virtual memory limit is reached.
2045	Help topic does not exist for the "Create Catalog for Data Source" dialog box.
2067	Designer problem loading code page.
2071	The C/S Setup tab has option for Maximum connections per process.
2296	UNIX Servers Installation doesn't convert existing Data Sources.
2328	Convert function does not work with SQL_VARCHAR parameter in a create view.
2362	Deleting an item from an FD does not remove the item from all Record Types.
2369	Deletion of server data source returns an error.
2383	Renaming a server data source leaves old data source.
2384	Temporary Files Directory not in Server Admin help file.
2385	Data Truncation is not reported on expressions.
2388	Edit Connections, arrow keys don't trigger refresh.
2404	FD Grid not refreshed correctly.
2427	Schema Extractor cannot compile free format MF Cobol Source.
2438	Designer stops if warnings during compile, should allow to proceed.
2447	Relativity Server Control Panel applet installed in wrong directory.
2451	Data Server can't open files on AIX larger than 1.6GB.
2456	SQLFetch causes ASSERT.
2464	Invalid File Key opening table.
2471	Designer Cannot find .LST file during RST Import.
2472	filemgr.c ignores error from InitMsgScan.
2473	Designer hangs during Merge FD.
2474	INSERT succeeds, but new row does not appear in the table.
2475	"let: not found" error during installation.

2476	Updating a column on the prime key takes a longer than updating other columns.
2478	"Invalid buffer size" during Insert.
2483	FD menu not available after file delete.
2485	Customer suggested documentation additions re: install instructions.
2508	Upgrade of catalog failed: Internal error -1903.
2521	Windows Server has non terminating processes.
2532	Run-time error '9' Subscript out of range.
2533	Unexpected error: Unable to add name. Exit and restart Designer as soon.
2543	Relativity Server for Windows GPF's when retrieving rows.

What is a Push Down Join?

Under some circumstances, the higher level of the SQL Engine offers the lower level of the product the opportunity to process a join itself. If the lower level declines (as it normally does), the higher level asks the lower level to perform reads from the individual tables being joined; the Engine does the join itself. If the lower level accepts the offer, the Engine asks the CRDM to give it the results of the join. We say that the join was "pushed down" to the lower level.

The only circumstance where the lower level accepts the offer to push down a join is where:

1. two tables in the join are defined on the same COBOL file; and
2. both tables have indexes; and
3. an index in each table covers the join conditions; and
4. these indexes refer to the same underlying key of the file; and
5. at most one of the tables has subscripts.

The main idea is that when a row in one table is joined with a row in the other table, both of the joined rows will be derived from the same record.

What is connection pooling?

This means that if your application performs a lot of connects and disconnects to a Relativity Data Server, a new server will not need to be started for each connection. As long as the reconnect happens within the timeout value, the previous connection and server will be used. This can provide a performance boost for your application. Also, if you have a lot of programs running on the Windows Client that are using the same data

source, they will be able to make use of a connection that was recently freed by another program.

The Data Manager can also be used with connection pooling, but the amount of time needed to establish a connection on Windows is much smaller than that on UNIX Servers, so it is of smaller benefit.

What level of Transactions are supported?

Relativity transaction support is very basic consisting of only Read Committed support. This level of support will still allow nonrepeatable and phantom reads.

Relativity 3.25

Limited availability release to fix problems.

The following defects were corrected:

2477	DBA on Windows Server will only run from Administrator.
2528	Data Manager has illegal reference of memory location 0.
2539	Data Server error on Windows 2000.
2541	Insert into XML created table fails.
2543	Relativity Data Server for Windows GPF's when retrieving rows.

Relativity 3.24

The following defects were corrected:

2298	Data Client Installation does not convert old Client Data Sources.
2449	Numeric value out of range error on large query.
2452	DrmGetExtErrStr does not recognize special session ID.
2453	DBA Install doesn't support command line options.
2455	-_MOVE and -_DELETE install options don't work on MF Drivers.
2457	Confirm Edit Connections by pattern does not commit changes.
2458	Edit connections does not handle maximize correctly.
2460	Query w/ large num of rows hangs or returns an error.

2465

Server control panel applet not installed on Windows 2000 Professional.

Relativity 3.23

Relativity 3.23 was a limited release that included only the Relativity Data Client to correct defect 2432 and was available only from Liant's FTP site. The remaining 3.23 defect corrections were not available until the 3.24 release.

The following defects were corrected:

2374	Schema Extractor Not Finding Copy Books.
2418	TestIndexColumnAgainstFilter causes infinite loop.
2430	Select returns no rows.
2431	ANS condition item value doesn't work with numeric item.
2432	Data Source setup crashes on Windows 2000 Crash creating a data source.
2440	Query returns no data only when push down filters are disabled.
2441	'Invalid Scale Value' error.

Relativity 3.22

Relativity Data Server is now available on Red Hat Linux 6.0.

It is now possible to select multiple COBOL object files while importing.

The following defects were corrected:

2355	Runtime error '6148' within the Designer.
2386	Show Data causes Designer to exit.
2405	DBA: Cannot open data source if previous user is not authorized.
2407	Invalid numerics return null not staying checked.
2410	On Windows Server, creating an RM catalog really built an MF file.
2419	Linux: Terminate and Shutdown Immediately don't work.
2420	Linux: WHERE clauses contain constants with fractions don't work.

Relativity 3.21

The Access 2000 problem with criteria selections, which also manifests itself with wildcards, has been solved.

Support for imported character sets has been implemented in the Designer.

All internal character sets have been updated to the 1998 UNICODE standard. This includes the inclusion of the Euro character. Code page 850 and Hebrew code pages 862 and 1255 have also been added.

The Designer has been integrated with the Client Server product. It is now possible to import schema directly from source on your UNIX Server.

The UNIX Server releases are now available on CD-ROM.

Data Servers now support IDX-8 format Micro Focus COBOL files. (Note that this is largely a Micro Focus issue, but Liant has now verified that all the Micro Focus UNIX Server platforms that Relativity supports have IDX-8 support. Please make sure that your Micro Focus COBOL installation has the latest update BEFORE INSTALLATION of the Data Server, in order to get this support. If you perform the update after the installation of Relativity, use the LINK command in the installation directory to relink Relativity with the updated Micro Focus file manager.)

The following defects were corrected:

1991	Server refuses to accept connections.
2034	MF Server returns 2013 error attempting to select VERIFY catalog.
2054	Three select union fails with garbage in the data.
2068	Code page 850 missing from Unix Servers.
2172	Access 2000 call to SQLBindParameter fails.
2279	Transferring licenses as binary corrupts them.
2304	SUM Functions fail with C/S Relativity and Client Side Cursors.
2320	Relative pathnames do not allow a leading backslash.
2329	Grid sometimes repositions top row in FD form.
2330	Open FD from Table Form does not track Record Type.
2331	"Invalid Index Definition" error.

2337	Error 6 - Overflow when starting Designer or DBA.
2340	Client Server dynamic parameter mismatch.
2342	MF Btrieve fix for FMiPosR is bad.
2344	Runtime Error 6145 - invalid Column Index.
2348	Import From Another Catalog Not Sorted.
2351	Simple query fails with "INSERT or UPDATE not allowed" error.
2357	Record type error message when saving FD.
2358	Excessive memory usage during save of FD.
2363	Access 97 crash in client.
2364	Can not insert into table.
2365	Designer reports "Unable to access error information".
2367	Update with a Fat Cursor WHERE clause updates 0 rows.
2370	Data server crashes during extreme memory usage conditions.
2375	Unix Servers treat leading backslash as Relative Path.
2376	Query with IN clause and GROUP BY returns incorrect results.
2411	Move RELUTL32.DLL from Windows System to Product Install Directory.

Relativity 3.20

The Relativity Designer has been upgraded to be a 32-bit Windows application. The functionality of the program is largely the same, however some improvements in it have been made:

Both RM and MF source files can be processed directly by the designer when Importing COBOL FD's. It is no longer necessary to compile RM/COBOL source with the -Y option to import the FD's, although that option is still available.

It is now easier to rename a table, as the current table name appears in the dialog.

The show table data grid in the Designer now handles errors in an improved way. It shows the non-error data as before, but for every error, the cell in the grid says error. Clicking on a cell with an error will produce information about the column, underlying FD item, and the error.

The reports in the DBA and Designer now have print preview capability.

The processing of several reports, most notably the cross-ref reports, has been greatly sped up.

A 9's Complement Time Transform is now available.

The Resolve Merge Differences Form can now be resized.

Items in a group are not disabled with the group is disabled.

The Designer and DBA installation permit product registration, and initialize the form with information, particularly the serial number, from the installation.

The SQL Engine was upgraded to version 5.2.

The Relativity RM and MF product lines have been merged. There are no longer two Designers and DBA's, furthermore, the Data Manager will support both formats, requiring the desired file system to be specified when a data source is created.

It is now possible to create a data source, and it's catalog, using SQLConfigDataSource.

The Data Manager can now tell the difference between when a column is being set to a NULL value and a zero-length string.

The following defects were corrected:

13	CREATE TABLE fails if first 8 characters are not unique.
498	Report "COBOL Items by Table Name" incorrect.
653	There are two Table Name columns in the Cross-reference report.
732	Printed Report by Owner Name is sorted incorrectly.
742	Not granted 'Create Users for group' shows up in the granting list.
744	Can't grant granted column privileges.
819	Public privileges are not shown in the Privileges by Grantee report.
988	SQLColumnPrivileges returns extra non-granted column privileges.
1503	Table Connections reports truncate file pathname.
1678	Import IBM VS COBOL Keys has incorrect error message text.

1706	Clicking on FD when "Show Data" grid is active hangs.
1738	Wrong attribute, offset for Key 4 is invalid error recv trying to open table.
1742	Sketch area in Select Report dialog box does not work.
1901	DBA run by catalog owner does not display correct privileges.
1902	DBA Helpfile Privilege picture does not show table dropdown.
1904	DBA Helpfile incorrectly describes "Merge Database".
1948	Report Designer has strange Minimize/Restore/Close icons.
1959	Designer stops w/ Run-time error 5, when Import Btrieve menu item selected.
1975	Designer Helpfile tells users to create abridged source.
1989	Can not pass MF options on command line to make_rst on UNIX Server.
2001	Hexadecimal literals entered for 88-item values causes Designer shutdown.
2012	Incorrect adjustment of precision/length on COMP-6.
2018	Data Server: There is not a way to specify the location of temporary files.
2025	Add data item permits names longer than 30 characters.
2035	16 bit Server Administrator not installed.
2055	Code Page Error message in Designer.
2063	Cannot create new data source from designer for single-tier Micro Focus.
2082	Windows Server Service Password being stored in registry.
2085	In server login dialog, make the server name a static.
2107	Administrator Privileges, dsn help. Incorrect product reference.
2276	Line sequential device types INPUT, OUTPUT, INPUT-OUTPUT are rejected.

Relativity 3.10

Upgraded SQL Engine to version 5.1. Upgraded Micro Focus to NetExpress 3.0, including IDX8 format support.

Port of Data Server to Windows Server.

The following defects were corrected:

185	SimbaEngine C/S rejects INSERT of zero length VarChar.
1835	Need stored procedure to add and modify connections.

1921	Existing EXCEL 97 Queries no longer work with 3.0 Server.
1953	Condition item values don't match after merge.
1966	Fix support for descending indexes.
1968	SELECT ... ORDER BY -1 produces strange ordering.
1985	Make number of sessions configurable.
1990	Support MF Net Express.
2000	An apostrophe in a record-type name causes Designer shutdown.
2001	Hexadecimal literals entered for 88-item values causes Designer shutdown.
2002	Access 2000 with Data Client can't open data source.
2013	Micro Focus Created Table and Catalog format does not work.

Relativity 3.07

Port to Sun Solaris for SPARC.

The following defects were corrected:

1711	SELECT DISTINCT returns incorrect results.
1802	RMFM EAM DLLs always installed.
1831	Governors can't test LIMIT file with MicroFocus.
1836	32BIT ODBC SETUP/ADMIN complains about CTL3D32.DLL.
1839	Limit table privilege must be selectable by user to work.
1840	Default Global Limit does not work.
1870	MF doesn't support spaces in file names.
1888	Client Terminate problems.
1905	DBA Merge Catalog menu pick not visible.
1911	It is not possible modify the key of a relative file and no error results.
1919	GPF in 3.0 Governor.
1937	C/S Setup's Default Directory is not being used.
1946	Items cross-referenced with Table/Columns has bad column.
1947	Windows Server installation never displays Readme or What's New.
1955	SVR4 RM server will not run on Solaris.

1956	MF Server Terminate Client leaves phantom client.
1957	Rel Server Control Panel Applet help button problem.
1965	Delay opening data source when Client installed on Windows Server.
1967	Rel Server Control Panel Applet Server Status dialog has no help button.
1969	Open of read-only file for update gives no error.
1970	Allow query plan file to be set on server.
1972	HP Server crashes on fat cursor select.
1973	Modifying server data source duplicates keyword entries.
1977	Pushdown filters with subscript item does not function properly.
1979	One byte COMP-5 disallows index on key.
1982	Schema Extractor doesn't support RM/COBOL 7.0 object files.

The installation script now checks for libraries inconsistencies on the RM server and automatically relinks the server with the installation machine's libraries.

Problems with the Governor support, especially those with Micro Focus, have been corrected.

The Data Manager installation now supports options which will allow the bypassing of the installation of the VERIFY sample files.

The RM Schema Extract process now supports RM/COBOL Version 7 files. Although the RM/COBOL Version 7 support files are not being shipped with this release of Relativity.

Relativity 3.06

Port to HP-UX version 10.20.

The following defects were corrected:

657	HP Simba C/S uses byte alignment for structures.
1708	MF version allows created indicies on populated created tables.
1742	Create Index succeeds on populated table.
1962	GPF with pushdown filter on numeric column in index.

1963	GPF after opening Keyhole database.
1964	Server crashes on execute of a prepared statement with a bound parameter.

Added LINK script to installation that will allow the server to be relinked after installation.
See the README for more details.

Relativity 3.05

The following defects were corrected:

389	Server crashes if SQL "USER" keyword is used.
445	C/S returns 1 row when NULL parameter is bound to predicate.
612	SQLColumns returns column names in different order than defined.
738	Difficult to diagnose InvalidNumericData column/item.
1195	Install script checks for \$SHELL environment variable on UNIX Server.
1196	Install script runs into 'arg list too long' error on SCO GUI Window.
1857	MONTH-) and ORDER BY interaction gets weird results.
1907	INSTALL on SCO Open Server dies w/ "ksh required" message.
1912	Install should place entries in init.d.
1931	DBMS under Btrieve returns invalid connection string.
1933	Calling unknown stored procedure causes GPF.
1938	Expression evaluation error.
1939	Prepared INSERT fails if previous INSERT failed.
1944	After 65531 SELECTS the server crashes.
1945	Install fails on DG-UX with ln error.
1949	Add REMARKS support to SQLTables, SQLColumns, SQLProcedureColumns.
1951	Accept records with zero occurrences of repeating item.
1958	Bound subscripts broken.

Port to Unixware 7, which includes support for large files on RM Servers.

Relativity 3.04

Port to AT&T SVR4.

Relativity 3.03

Another patent! Relativity has been granted British patent GB2302430.

The following defects were corrected:

1927	Don't wait on record lock to update cardinality.
1930	Relativity chooses suboptimal index.
1925	Data Server fails to start properly.
1903	RUNACTIVE could set LIBPATH better.
1920	Server Setup information not saved.

Provided date computing functions that allow separate century field. (See Designer ReadMe.)

Replaced the RM/Btrieve because it was discovered that Btrieve version 7 requires key buffers to be 255 bytes in length and the RM/Btrieve support was allocating them to the exact length. The new Btrieve Adapter program compensates for this problem and prevents General Protection Faults in the Btrieve Client.

Placed the commands to start a Data Server down into the installation directory (REL?? 3.0x) in the script RUN. The RUNACTIVE script still exists, but now CD's into the active directory and invokes the RUN command.

Relativity 3.02

Technology so innovative, it's patented. Liant has been issued United States Patent No 5,826,076 for Relativity.

The RELDBMS.INI file contains configuration options for the Data Manager that are global to all data sources. In previous releases, this file was not well documented and required maintenance via an editor. In this release, there is a new facility available through the Windows Control Panel for the maintenance of this file. The control program Relativity will allow easier control of the configuration options. Of most interest is setting of RM and MF options so that they will apply to all data sources on the machine, and no longer will require them to be set on each data source individually.

The VERIFY sample files are now installed with the Data Manager to assist in the verification of installation on systems that will not have the Designer installed on them.

The following defects were corrected:

1529	'MS Query failed SYSDB on begin session - Driver's SQLSETCONNECTATTR failed'.
1800	1804 error is not documented.
1858	Performance in MS Access is slower in 2.45+ than in 2.44 or earlier....
1864	DBA Run-time Error '6' overflow on Add Connections.
1865	DBA table definition/table name/path name size problems.
1923	Allow inserts will not let you insert rows unless allow upd. is also checked.

Relativity 3.01

Improved performance for some comparison operations on indexed columns.

The following defects were corrected:

1429	Greater than in predicate slower than greater than or equal to.
1909	Non-numeric data in COMP-6 field will always generate error.
1914	Invalid value type on 88 item under item with "native" type.
1915	Redefined data item is added with incorrect level number.
1917	Simba seeks GE for = comparison.

Relativity 3.00

The Client/Server versions have been upgraded to use the most recent SQL Engine.

The Client/Server communication mechanism has been replaced with a more supportable product, which should allow problems to be diagnosed better.

The Designer and DBA Helpfiles have been significantly improved and restructured for comprehension. This includes consistent use of terminology within Designer and DBA.

Creation of data sources on the server have been placed in a separate program under

the Windows control panel to reduce the confusion of creating data sources on the client. This program, called the Server Administrator also has the ability to terminate client connections and to shutdown server from Windows workstation, and to delete a server data sources.

The Data Server has been enhanced to support RM/COBOL files. The RM data recovery utility, recover1, has been included as well.

Schema Import has been enhanced to be able to process a complete COBOL program.

The DBMS has been enhanced to have the ability to build a column on date or time with COMP subfields.

The use of Relativity with InfoExpress documented.

The following defect was corrected:

1829

DBMS returns wrong value for SQLGetInfo
SQL_SCROLL_OPTIONS.

Relational DataBridge version 2.52

It is now possible to create tables with LONGVARBINARY columns.

Query plans are now written to a separate file and can be viewed later with a query plan viewer.

The login prompt is now suppressed if both the UID and PWD are supplied as part of the connection string.

The ODBC 3.5 components are now being shipped.

The MF runtime has been upgraded to 4.0.32.

The RM product is now displays the InfoExpress and Btrieve options properly.

The RM product now ships the Btrieve and InfoExpress external access methods.

The Designer Table Report now reports comments properly.

Relational DataBridge version 2.51

Beginning with version 2.51, support for Governors is available. See the Relational DataBridge Governor Administrator help file for more information.

Also VSAM Sequential and Relative Files are supported.

Relational DataBridge version 2.50

Beginning with version 2.50, support for IBM Communication Server for NT is available.

Relational DataBridge version 2.45

The following defects were corrected:

1593	SQL MAX function causes an error if the argument is the primary key.
1805	Multiple Connection Error.
1811	Data is returned corrupted.

Relational DataBridge version 2.44

Corrected defect 1307 concerning a misleading description for error -1901 (Failed sysdb on beginsession) in the DBMS help file.

Improved the RM data source setup to allow RM/InfoExpress catalogs to be directly specified.

Fixed support for system data sources.

Fixed a problem with subscript out of range errors on merge of FD that has had parallel occurs.

Removed restriction of the 25 maximum of open tables.

Added support for Arabic code pages 1256, 708, and 864.

Improved data source setup to automatically create file data sources for support of

applications such as MS Query.

Relational DataBridge version 2.43

Beginning with version 2.43, support for Novell SAA Gateway is provided. Also, 16 bit support for APPC is provided.

Relational DataBridge version 2.42

Beginning with version 2.42, edited data items are supported.

Also new, support for Independent LUs with APPC is provided.

Relational DataBridge version 2.4

Beginning with version 2.4 of Relational DataBridge, the product formerly known as Relativity has been renamed Relational DataBridge.

Beginning with version 2.4 of Relational DataBridge, unabridged COBOL source files may be used as input to the Schema Extractor. The source files may contain Procedure Division content. The source may still need to be abridged if it contains a feature not yet supported by the Schema Extractor for a particular COBOL dialect. (See RELMF.WRI, RELMVS.WRI or RELVMS.WRI for a list of features not yet supported for particular COBOL dialects.) This feature is not new for Relational DataBridge for RM/COBOL, which does not use the Schema Extractor and thus has always had support for unabridged COBOL source.

Beginning with version 2.40, support for APPC via SNA is provided. To access this feature, during installation of the client, you will be asked which APPC SNA product is installed on your client machine. Then create a new data source. Start by creating a server name with APPC,RDBCPPIP,RELATIVITY_FOR_MVS as the network name. Then select a data source or create a new one, on this server. Finally create the new data source on the client.

Beginning with version 2.40, a tracing feature has been implemented.

Beginning with version 2.40, support for MVS user authentication is provided. This support requires that the user name and password entered to the ODBC application be valid MVS RACF IDs. This will allow user and groups to be defined through the

Relational DataBridge DBA. Do not assign passwords through the DBA, as they will not be validated. Only the RACF validation of the password is supported.

Also new in 2.40, single precision and double precision columns are supported, as well as COMP-1 and COMP-2 data items.

Relativity version 2.3

Beginning with version 2.3 of Relativity, support for VSAM files on MVS systems is provided.

Beginning with version 2.31 of Relativity, support for Windows 3.1 to MVS is provided.

Beginning with version 2.32 of Relativity, support for MVS user authentication is provided. This support requires that the user name and password entered to the ODBC application be valid MVS RACF IDs. This will allow user and groups to be defined through the Relativity DBA. Do not assign passwords through the DBA, as they will not be validated. Only the RACF validation of the password is supported.

Also new in 2.32, single precision and double precision columns are supported, as well as COMP-1 and COMP-2 data items.

Relativity version 2.2

Beginning with version 2.2 of Relativity, support for Code Pages is provided. Code Pages describe how the binary values that represent characters within character fields are to be interpreted. Most code pages are similar, especially in the first 128 characters, which represent the standard ASCII character set, but beyond that, they contain characters that are present in one language, but not in another. The most radical code page difference happens with the EBCDIC code pages, where even the letters and digits don't have the same binary representation as in ASCII based code pages.

Through Relativity's code page support, it is possible to describe the code page that the data within the file is represented in and Relativity will automatically detect the code page that the Windows machine is using and perform a translation between the two, so that the proper characters are displayed on the screen and characters fields modified by an ODBC application will be translated to the proper code page for the COBOL data file. While this has limited impact on Windows based applications, in the Client/Server environment where the code pages on the UNIX Server or VMS are based on ISO

standards, proper translation of common characters is now possible.

In those cases where there are characters that are not common between two code pages, a one to one mapping will be created between unused characters in one code page and the unused characters in the other. Thus while the proper character will not be displayed, if the field is updated by the ODBC application, any unchanged original characters will be placed back into the proper code page for the file.

Relativity version 2.0

Beginning with version 2.0 of Relativity, you may use the SQL INSERT, UPDATE and DELETE statements to modify the contents of data files created by COBOL applications. Earlier versions of the Relativity product supported these statements only on tables built through the SQL CREATE TABLE statement. In order for Relativity to modify data files created by COBOL applications, several rules must be followed when defining tables on the COBOL file definitions. These rules are described in the Relativity Designer help file and diagnosed through the Designer Write Wizard. You must use the Designer Write button on the table form toolbar to enable modifications to a particular table. You can then use the security capability to control individual user modifications to the table through the individual user privileges.

The Show Data grid used by the Relativity Designer when the Show button is pressed on the table form toolbar has been replaced. The new grid allows you greater control over which columns are displayed and the arrangement of the displayed columns on the screen. The new grid does not limit the rows displayed to the first fifty. As a side effect of this change, though, if you log in to the database by specifying a user id without a password, you will be prompted to log in again whenever you invoke the Show Data grid.

The Relativity Designer now maintains a list of the most recently used datasources in the File menu pulldown.

When only one instance is defined for a table definition, the Designer now renames the table instance when the table definition is renamed. This should match the behavior one expects to see and prevent much confusion.

A new function has been added to compute the number of occurrences from the record length. You should use this function if you are reading files with varying length records containing an array of items where the number of items in the array is computed from the record length. Earlier versions of the Relativity DBMS required the number of items

be recorded in a numeric item in the record itself.

The Relativity MF Schema Extractor has been enhanced to support Micro Focus COBOL compiler directives and to use Micro Focus COBOL compiler rules for locating files used during schema extraction. The RELMF.WRI file contains addition details on these enhancements. As a result of these changes, the RST file version number was changed. You will need to run the version 2.0 Relativity Schema Extractor to regenerate any RST files before attempting to import them using the version 2.0 Relativity Designer.

As part of supporting SQL INSERT, UPDATE, and DELETE statements on COBOL files, you can now define a Relativity table on multiple record types. This acts like a high performance UNION of tables defined on the individual record types. First you must define multiple record types through the Designer's FD Form. For each of the record types, identify the set of items in each type of record, and the filter of COBOL conditions which should be used to recognize that a record of that type has been read. You can then drag items from each of the record types into a new table. When a record is read of one type that omits items of the other type, columns defined on the omit items will return a NULL. Although in the past you could have provided a similar functionality with null conditions on each of the omitted items, the new functionality must be used if you wish to INSERT new rows into such a table.

The length of table names and column names allowed by the Relativity Designer is increased from 32 to 45 characters.

Passwords defined through the Relativity Designer or Database Administrator can no longer contain the illegal characters [] { } () , ; ? * = ! @.

Unsigned values in signed numeric key items can now be accessed as an index. Some COBOL programs define numeric items in COBOL indexed file key groups. When these items are numeric, the data in the file may not appear in the key in numeric order. When these items are defined as signed but the values are always unsigned, by marking the column on the item as unsigned the query optimizer may now use these columns as an index to the rows. Although such items when DISPLAY SIGN SEPARATE could have been handled before through redefinition, the new DBMS provides this optimization even for difficult types, e.g., PACKED-DECIMAL.

The client-based versions of the DBMS now support the ODBC functions SQLTablePrivileges and SQLColumnPrivileges. These functions describe the privileges granted to or by the current opener of the datasource. Similar functionality in the client-server versions of the DBMS will be available later this year.

The Designer and DBMS installation process now uses the newest release of InstallShield. As a result of this, the DBMS installation no longer needs to prompt you for the ODBC driver to install.

Relativity version 1.36

The Relativity Designer and Database Administrator Install Shield installation scripts are now available in a directory named ISHIELD when the Designer is installed. See the file ISHIELD.WRI for more information.

Relativity version 1.35

The Relativity Database Manager for Windows and the Relativity C/S Database Manager for VAX now allow Microsoft Access to issue parameterized queries against date columns. In the other Relativity C/S Database Managers, you must still define date items as timestamp columns if you wish to issue parameterized queries in Access.