

**The highest-productivity distributed-application development environment**

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### Multi-Tier Broker Architecture: sets the standard for high-productivity and rapid development of high-performance client, server and multi-tier applications

<b>The Business Broker</b>	The Business Broker is a distributed name service that indirectly binds applications to remote objects based on load balancing criteria or object availability. Delphi 4 uses the Business Broker to ensure that business critical systems remain running in a twenty-four hour by seven days a week environment while ensuring high-speed performance for an unlimited number of users.
<b>Remote Data Broker</b>	Delphi 4's Remote Data Broker is an essential technology that allows for an ultra-thin client architecture with the lowest configuration and distribution costs. Using OLEnterprise and the Remote Data Broker, the developer can efficiently communicate data from an application server to a client in a multi-tier application environment. Delphi 4's unique <b>Remote Data Broker</b> reduces network traffic, centralizes transaction management, security, and performance, reduces network loads, and reduces the number of simultaneous database connections.
<b>Constraint Broker Automatic Constraint Propagation</b>	Delphi 4 automatically propagates Relational Database Management Constraints, through the high-speed native SQL Links Drivers, to the client thereby reducing the network traffic associated with validating user input back at the database server. Also propagated from the server are field default values which in combination with constraints help to maintain data integrity through-out the enterprise.
<b>Master-Detail intelligence with Nested Tables</b>	<b>New and Exclusive!</b> MIDAS delivers distributed thin-client applications which are easier to maintain, modify, and update through its enhanced support of master-detail relationships and nested tables. Complete relational database information, including table structures can be distributed to thin clients without writing a single line of code. Support for updates to all master and detail data is automatic.
<b>Login support</b>	<b>New!</b> MIDAS eases the developer's implementation of application security with built-in support for user logins.
<b>One-Step CORBA</b>	<b>New!</b> MIDAS servers now support the open CORBA standard infrastructure, providing higher performance application servers on more diverse platforms. You have more choices for deploying your application servers with CORBA-enabled thin client communication.
<b>Deferred blobs</b>	<b>New and Exclusive!</b> MIDAS dramatically speeds retrieval of results to the client, allowing the user to view non-blob data immediately, deferring retrieval of blob data until after other data is retrieved, or allowing it to be fetched on demand.
<b>Zero configuration</b>	Zero configuration of distributed thin client applications means zero headaches for dealing with user configuration problems. Only the client executable and one DLL are required for full featured support on the client side.
<b>Business rules</b>	MIDAS provides lower maintenance and higher response to the changing needs of your business through automatic updates to the client of business rules maintained on the server.
<b>Briefcase mode</b>	<b>Exclusive!</b> Answer your company's increasing mobile and wireless database application needs with MIDAS' detachable database operations. All updates to the data, including insertions, deletions, and modifications are automatically tracked in the dataset. The one-step re-synchronization process handles master-detail data automatically, and can even provide robust conflict resolution to the client application from the server.
<b>Efficient</b>	MIDAS distributed thin client applications produce less network traffic than other

<b>communication</b>	vendor's solutions, dramatically increasing performance on low-bandwidth wireless or modem networks like the Internet. MIDAS uses only open and existing standards like TCP/IP, CORBA, and DCOM for communication.
<b>OLEEnterprise</b>	OLEEnterprise allows for application logic and data access to be centralized in an application server and then used in a distributed environment. The application server becomes a one-to-many service provider of business objects and business processes. Therefore business logic can be reused among multiple applications, and because application logic need only be changed in one location maintenance of applications is much easier.

### Open, Scalable Database Access for easier maintenance

<b>Multiple Database Engine Support</b>	Delphi 4 supports multiple database engines through an open API so that any Database Engine result sets work seamlessly with Delphi 4's powerful database aware controls. Delphi 4 uses an open architecture in order to support multiple light-weight database engines. The developer is given complete control to provide the essential database services (e.g. caching, retrieval, language collating, heterogeneous access, generic cursor support) necessary for a specific application.
<b>32-bit SQL Links with unlimited deployment</b>	Delphi 4 includes a comprehensive suite of high-performance 32-bit SQL Link native drivers for Oracle, Interbase, Sybase, MS SQLServer, Informix and DB2 Native drivers. Delphi Client Server Suite includes an unlimited deployment license for all drivers.
<b>New: Native Access97Database Driver</b>	Delphi 4 is the only solution for scalability from the Access desktop to the Enterprise. High-speed, native database drivers to Microsoft Access databases combines the easiest to use RAD tool, Delphi, with the most popular desktop database.
<b>Native FoxPro Driver</b>	Enjoy no-compromises support for FoxPro databases within Delphi 4, the fastest RAD development environment. Developers can now create high-speed Delphi 4 applications and maintain existing FoxPro databases without incompatibilities. Delphi 4 has full support for FoxPro indices which ensures backward compatability for existing applications.
<b>New: Powerful SQL Builder</b>	<p>SQL Builder is a powerful database tool that allows you to create and execute SQL queries without having to remember or know the syntax of SQL. When you use SQL Builder, you can view and edit the resulting SQL. You can create a full range of SQL queries, from the simplest SELECT to a complicated, multi-table join with calculated fields and expression-based joins with point and click ease eliminating errors in queries.</p> <p>SQL Builder features include the following:</p> <ul style="list-style-type: none"> <li>• Generates and parses SQL</li> <li>• Supports nested expressions.</li> <li>• Changes row formats dynamically.</li> <li>• Allows users to specify strings without quotes.</li> <li>• Provides robust search and replace capabilities.</li> <li>• Allows users to join and manipulate multiple database tables easily.</li> </ul>
<b>Oracle BLOBs</b>	<b>New and Exclusive!</b> For multimedia and other applications requiring non-structured data can now have multiple binary objects, each up to 4GB in size, stored in a single row of a database table. Large Object (LOB) types store locators that specify the location of large objects stored out-of-line (storing only the locator in the data row, not the actual LOB data) or in an external file.

	You can optimize your database to use these new binary types. BLOB (Binary Large Object) is a binary data type that can be used to store any type of data. For document management or text retrieval systems, CLOB (Character Large Object) types can be used to store large blocks of textual information. You can reference external files edited by other applications (such as sound files, AVIs, bitmap images, and so on) without having to duplicate these potentially huge files inside the database because BFILE data is stored in operating system files outside the database.
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### Oracle 8's Object Relational Extensions

<b>Abstract Data Types</b>	<b><i>New and Exclusive!</i></b> Abstract Data Types (ADT) allows you to define your own data types or business objects corresponding to your corporate business rules. These data types can include existing scalar data types (such as integers and dates), and may also include nesting of other ADTs. You can implement business objects that can be stored in your database, and queried or retrieved when needed. These business objects may represent people, data warehouses, inventory items, addresses, purchase orders, invoices, or anything else that defines your operational procedures.
<b>VARRAY (Variable-length arrays)</b>	<b><i>New and Exclusive!</i></b> You can build new kinds of applications that accurately model your business organization with VARRAY support. Traditional scalar types and new object relational data can be saved with unprecedented flexibility with this persistent array type. VARRAYs can store lists of business objects, which can refer to additional ADTs.
<b>Nested Tables</b>	<b><i>New and Exclusive!</i></b> Nested tables are perfect for statistical information and tracking purposes. Nested Tables allow repeating groups of information to be stored directly into an existing table, without requiring keys to be generated for each row of the nested table. Functions for determining the number of nested rows and manipulating them are provided.
<b>REFs (Object Pointers)</b>	<b><i>New and Exclusive!</i></b> REFs speed up access to object relational data. References to nested objects are stored with this new data type. When the REF pointer is resolved, its referenced objects are brought into the client object space for examination and modification (pinned). The reference for each object is a globally unique identifier, which is called an Object ID in Oracle. These unique identifiers allow REF pointers to be traversed on demand (known as object navigation or pointer chasing) so only the information you currently needed is loaded into the client object space.
<b>BFILE (External file references)</b>	<b><i>New and Exclusive!</i></b> You can now reference files stored externally to the database, eliminating duplication of large files (such as business documents), increasing database performance, providing more flexible file access, and reducing storage requirements.

**Microsoft Transaction Server (MTS)**

<b>Resource Pooling</b>	<b>New!</b> More of your company's Information Network users can access your database servers and do faster data analysis because of Delphi's support for resource pooling. Resource pooling provides faster connections and reduced network load, which increases the performance and responsiveness of your database applications.
<b>Two phase commit</b>	<b>Exclusive!</b> Database applications can now perform transactions across different database servers (like Sybase, Oracle, and DB2), for both Microsoft operating systems and heterogeneous environments. A more reliable and robust transaction system is now available for any database natively supported by the Borland Database Engine through the use of MTS' two-phase commit capability.
<b>X/Open XA Support</b>	<b>Exclusive!</b> The open standard XA allows transaction servers (such as Oracle) to communicate with MTS' resource manager. Now, the client application can see a single success or failure for a package of transactions that are submitted to servers in a heterogeneous environment.

**Faster time to market**

<b>NEW: AppBrowser IDE</b>	The NEW AppBrowser IDE greatly increases the productivity of the developer by simplifying the process of reading, writing and browsing code. The code editor now eases the task of navigating within a unit or between related units. The editor metaphor is now similar to a web browser that allows the developer to browse through project code. The IDE now also makes full use of the Microsoft Intellimouse keeping the developer focused on code rather than the IDE.
<b>NEW: Code Explorer</b>	Code is now much easier to understand and maintain with the code browser, which maintains a live structured TreeView of the current unit. This structured view becomes a table of contents into the source code facilitating the entire coding process.
<b>NEW: Advanced Project Manager makes complex development easier</b>	Delphi 4 has the new advanced project Manager for the easy compilation on multiple targets such as EXE and DLL files. Your application may consist of two projects; one for an executable, one for a DLL. Now, you can work on and build both projects at the same time by adding the projects to the same project group. This greatly enhances your ability to share units among multiple projects.

### Code Insight: Now, the easiest to learn high performance RAD C/S tool for higher productivity.

<b>NEW: Class Completion wizard</b>	The class completion wizard makes quick work of maintenance of the definition and implementation of classes. For both beginner and advanced developers this feature will greatly enhance productivity. For the beginner who is not yet completely comfortable with the syntax of Delphi classes, the class completion wizard greatly reduces the knowledge required to do this. The advanced developer's productivity will sky rocket as the tedious tasks of completing the coding required to build classes is taken over by this innovative wizard. This wizard is a Two-Way Tool that uses sophisticated background code parsing techniques to be completely in synch with your class code at all times.
<b>New: Tooltip Symbol Insight</b>	The new Symbol Insight greatly facilitates the process of writing code. While coding the developer gains access to information the background compiler stores about each symbol. This feature gives the developer insight at design-time into how symbols will be processed and used at runtime thereby reducing confusion.
<b>Code Templates Wizard</b>	Delphi 4 provides standard code templates for statements such as <i>If</i> , <i>FOR</i> , <i>WHILE</i> and <i>CASE</i> so that programmatic syntax is always correct. In the editor, simply start a code statement and Delphi 4 will complete it for you thereby reducing errors and speeding development. Delphi 4 also allows the developer to add their own code templates so that the development environment is customized to your corporate standards.
<b>Code Completion Wizard</b>	Delphi assists developers in the use of the Visual Component Library or their own components. As you type, Delphi 4 automatically provides the list of properties, methods, or events names for the given component. You no longer have to remember the methods or property names, or look up help. This saves valuable development time and helps reduce the learning curve of Delphi.
<b>Code Parameter Wizard</b>	Delphi 4 automatically displays in a Windows ToolTip, parameters for procedures, functions, methods, and events as the developer uses them in code. This saves valuable time by eliminating navigation in the editor by making information available when you need it. It also reduces errors by ensuring function parameters are passed in the correct order of the declaration.
<b>Visual Component Creation</b>	Delphi 4 simplifies the reusability of components by introducing Visual Component Creation. Developers can easily and instantly create combined components with the associated code and place the new component on the Delphi palette page. Developer can then reuse these objects in the same project or some other project thereby making development easier and faster.
<b>ToolTip Expression Evaluation</b>	Delphi 4's ToolTip Expression Evaluation makes code more understandable and easier to debug. This saves development time and helps get robust applications to market more quickly. The ToolTip Expression Evaluator allows the developer to position the cursor over an object, variable, parameter, constant, or any other expression and see the assigned value in a Windows Tool Tip.
<b>DLL Debugging</b>	Delphi 4 allows the developer to debug DLLs within the Delphi environment. There is no need for a separate and costly debugging program in order to create complex applications containing DLLs. By simply setting the host application and setting a break point in the DLL, the developer saves time in creating and debugging DLLs for use in WebServers and other tools.

**Advanced Debugging for getting complex projects to market faster**

<b>New: Module View for detailed , low-level debugging</b>	Use the module view to see different modules, such as .EXEs and DLLs, within a single debug session. Module view is a three-paned view that shows detailed information about the different modules that are loaded by the process being debugged.
<b>New: Event Log for tracking hard to produce problems</b>	You can also display an event log from the debugger. It shows process control messages, breakpoint messages, OutputDebugString messages, and window messages. Using the local menu, you can clear the event log, save the event log to a text file, add a comment to the event log and set options for the event log.
<b>New: Data Watch breakpoints</b>	The debugger now supports data watch breakpoints, which help you find complex pointer problems. When set, the debugger breaks if memory gets written to a certain address. You can set a data watch breakpoint two ways:
<b>New: Integrated DLL Debugging</b>	Delphi 4 allows the developer to debug DLLs within the Delphi environment. There is no need for a separate and costly debugging program in order to create complex applications containing DLLs. By simply setting the host application and setting a break point in the DLL, the developer saves time in creating and debugging DLLs for use in WebServers and other tools.
<b>New: Automatic Inspection of Local Variables for debugging productivity</b>	While in debug mode, you can show the current function's local variables. To do so, choose Run   Inspect local variables and variables in scope will automatically be displayed and updated. This increases debugging productivity.
<b>NEW: Remote debugging</b>	Remote debugging greatly facilitates the debugging of objects on remote machines. The complex task of multi-process debugging is greatly simplified.

**Language Enhancements**

<b>NEW: Method Overloading</b>	With the NEW support for method overloading, the design of objects that are easier to use is greatly simplified. Objects can now have more than one method with the same name; as a result the interoperability among objects is greatly facilitated.
<b>NEW: Dynamic Arrays</b>	With the NEW support for dynamic arrays Delphi now supports a commonly requested data structure. Dynamic arrays greatly simplify the use and reuse of memory. Dynamic arrays specify type information (the number of dimensions and the type of the elements) but not the number of elements.
<b>NEW: 64 Bit Integers</b>	<b>New:</b> For applications that require the use of numbers of a large magnitude, Delphi now supports the creation of 64 bit integers.



### The Best and most complete support for the Windows environment

<b>Docking</b>	<p>With Delphi 4 developers can visually create applications with window docking without writing code. As applications have become increasingly complex and feature rich, it has become important to allow end-users a greater degree of control over how they customize their applications environment. With Delphi application complexity can be managed by the introduction of form docking. Forms, which normally are free floating, can now be docked together so that they are attached to one another thereby better organizing the screen. Delphi has greatly simplified this normally very difficult advanced graphical user interface technique.</p> <p>With this advanced docking capability the usability of both Delphi and the applications you create is greatly increased. This means applications that are faster to learn and to use.</p>
<b>New: ControlBar</b>	<p>The new control bar component greatly reduces the complexity of building user interfaces that resemble the Microsoft Office97 look and feel. The end-user of these applications has complete control over the placement of toolbars on a form. The ControlBar can act as a docking container for any Delphi control and gives much more flexibility and is more intuitive in layout management and drag and drop operations.</p>
<b>NEW: Windows 98 Common Controls</b>	<p>For applications specifically targeted to meet the Windows 98 User Interface standards, Delphi includes NEW Windows 98 components to support features like MonthCalendar, PageScroller and Flat Scrollbars. With the new Windows 98 components, you can design elegant Windows 98 logo compliant applications and add power to these applications with reusable components</p>
<b>NEW: Intellimouse support</b>	<p>Delphi 4 provides complete support for the Microsoft IntelliMouse SDK. This support sets the end-user of your application free to scroll, zoom, and navigate without taking their hand off the mouse. Using the wheel, the end-users of your applications can smoothly scroll through screens of information and zoom in to view data instead of hunting for scrollbars, buttons, and menus on the form.</p>
<b>NEW: ActionLists</b>	<p>ActionLists reduce the complexity of building increasingly complex modern graphical user interfaces. ActionLists allow the developer a convenient centralized location to handle the response to user commands. It provides control over user interface items such as menus and buttons and how they respond to user commands. Delphi again takes object oriented development to the next level by allowing the developer to separate user interface activity from application logic thereby reducing lines of code, code complexity, reusability and robustness. Delphi 4 includes many predefined Standard Actions thereby further decreasing the time required to build fully functional feature rich Windows applications.</p>
<b>Windows NT Services</b>	<p>Services provide the ability to build applications that run in the background and automatically start up with the startup of the operating system. Two NEW wizards simplify the creation of these advanced programming tasks. Once created A Service's properties and events are easily and visually customized in a Delphi NT service designer.</p>

**Active Insight: An Enterprise Component Foundry for maximum reusability**

<b>One-Step ActiveX</b>	Delphi 4 is the highest-productivity application environment for creating high-speed industry-standard ActiveX components. Delphi 4 easily creates ActiveXs that can be used with existing development tools, such as C++, Java, Visual Basic, or PowerBuilder, in use through out the enterprise. Delphi 4 ActiveX controls are native machine code compiled and do not require a distributable runtime environment.
<b>Built in COM Support</b>	Delphi 4 integrates Microsoft's COM (Common Object Model) seamlessly into its rapid application development environment so that developers can easily and quickly create reusable, language interoperable business objects. Delphi uses COM objects in a multi-tier environment to provide re-usable and integrated business solutions.
<b>Packages</b>	<p>Delphi 4 provides a solution for the development of efficient application executables that need to be quickly and easily distributed via an Intranet to a large number of users. Delphi 4 allows you to recompile with <b>Packages</b> to reduce executable size by an order of magnitude.</p> <p>Packages are a unique leading-edge compiler technology that gives developers the ability to breakdown applications into separate, reusable compiled pieces without a slowdown in performance. Packaged applications use a customizable application environment that is delivered and configured once, thereby reducing both the configuration complexity of the application and reducing the need for additional distribution resources.</p>
<b>EXCLUSIVE: Integrated Type Library creation reduces the number of programming tasks</b>	The Type Library editor is an essential graphical tool that enables developers to easily examine and create type information for ActiveX controls and COM objects. This type information can be provided with an object either stand-alone in a type library (.TLB) file, or integrated into the EXE or OCX as a resource. Using and creating IDL (Interface Definition Language) has never been easier. Because the TypeLibrary editor is integrated into COM and ActiveX development, the developer has the ability to change things in code, in IDL or graphically and always have a synchronized view into complex COM development. This will save hours of programming frustration and will flatten the COM/DCOM/ActiveX learning curve.

**Web Broker for high-speed dissemination of database information over the web:**

<b>NEW: Native VCL Internet components</b>	The world's highest performance suite of components implementing Internet standards, especially communications protocols. These components are written in pure Delphi over the open WinSock standard. This suite is essential for professional Delphi developers building Internet enabled desktop and client/server applications.
<b>Web Server Applications</b>	With Delphi 4, you create high-speed, high-throughput web-delivered data applications using your existing client/server knowledge. Delphi's open architecture and support of native system DLLs enables this high-productivity rapid application development for the internet. WebServer applications are server side DLLs that bind directly to ISAPI and NSAPI, web server interfaces from Microsoft and Netscape respectively.
<b>WebBridge</b>	To simplify Internet development, the WebBridge allows developers to program to a common API for both NSAPI and ISAPI. This flexibility protects your code base as the competing Internet standards evolve. The developer can concentrate on implementing business solutions regardless of the back-end web server.
<b>WebModules</b>	Web Modules centralize the dispatching of web client requests, the responses for the request, and the creation of HTML content. These web-specific actions combine with data access and business rules to disseminate high through-put data over the web without coding. The WebModule visually controls multiple requests coming into a web sub-site resulting in full client/server functionality over the web..
<b>WebDispatcher</b>	The WebDispatcher is the component responsible for Web Server Application's event handling. WebDispatcher works seamlessly with existing query and table components to produce CGI and HTML applications. This enables the Delphi developer to produce Web content with the same skill sets used in Client/Server development. Four additional components produce Web content for Queries, Tables, CGI applications and simple HTML
<b>ActiveForms</b>	Turn any Delphi form into an ActiveForm. ActiveForm are ActiveX Controls that use the Delphi form as a container for other Delphi components. ActiveForm publish ActiveX property pages and type libraries for adding high-speed functionality to other development environments, for example Internet Explorer, Visual Basic, Optima or PowerBuilder. Or use these forms to deliver applications over the Internet. Delphi's ActiveForm and Remote Data Broker help deliver ultra-thin, zero-configuration clients in a web delivered multi-tier database architecture.
<b>Web Deployment</b>	Delphi 4 uses the ActiveX architecture to easily deploy thin-client, zero-configuration, applications over the web thereby reducing the cost of software configuration and distribution. Web Deployment uses Microsoft standard application delivery mechanisms (CAB File delivery) and the web infrastructure to distribute your applications to a growing number of users on the Internet, Intranet, and throughout the enterprise.

**Java Interoperability guarantees developers a high degree of code reuse**

<b>MIDAS Client for Java (available seperately)</b>	The NEW Java client components for MIDAS assure the Delphi developer a high degree of code sharing and reuse. These components allow Java clients to communicate with Delphi MIDAS remote data broker servers. In environments where code must be shared among different developers, departments or divisions this greatly increases the reuse of Delphi code. The interoperability between Delphi and JBuilder development also becomes much simpler. Development of Java front end applications to Delphi MIDAS middle-tier servers gives the developer flexibility in deploying applications in heterogeneous environments like the enterprise or the Internet.
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**Business Insight: Turn data into actionable information for better decision making**

<b>DecisionCube -- MultiDimensional Analysis</b>	Lend more power to decision support systems by using Delphi 4's new DecisionCube, multi-dimensional analysis of data. Drill Down, Pivot and Aggregation provide new ways to visualize data and make better decisions.
<b>DecisionGrid</b>	Decision Grid dynamically displays multi-dimensional data so that users see information according to the business need. Pivotable data, collapsable summaries, and a drag and drop interface integrate seamlessly with graphs to drive your business.
<b>TeeCharts</b>	Delphi 4 provides the fastest way to turn enterprise-wide data into information. Developers use an expert to graphically display enterprise or Internet data with over eleven different styles. For example Line, Bar, Polar, Candle and other chart styles makes interpreting data faster which leads to better and faster decision making.
<b>Quick Reports</b>	QuickReports lets you design reports visually with native components and the Delphi form designer. Reports are built with bands and may contain titles, page headers and footers, multiple detail sets, summaries, group headers and footers. Report from any DataSource, including TTable and TQuery or even from arrays, lists or whatever data you want, use the powerful on-screen preview to check your results. Perform calculations like summary and counting of fields automatically. Calculations can be reset at grouping level.