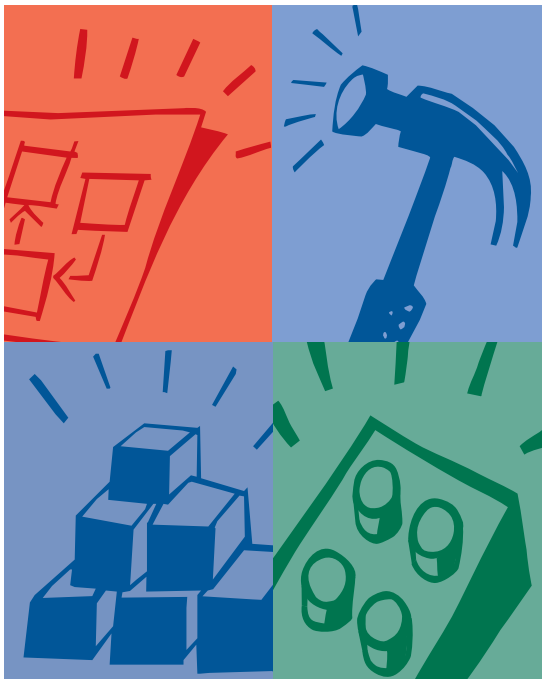
Oracle Tools

Family Brochure



ORACLE®

Enabling the Information Age™

Oracle Tools

ORACLE DESIGNER/2000™
is a business and application modeling tool with the unique ability to generate complete systems in a variety of languages and tools.

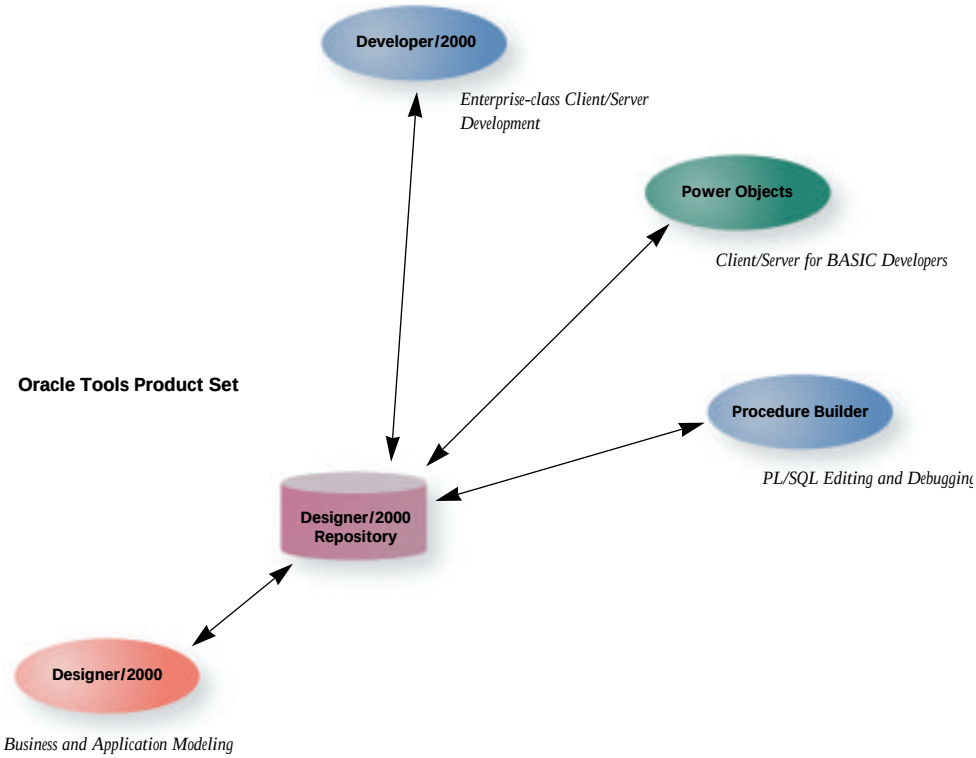
ORACLE DEVELOPER/2000™
is a high-productivity client/server and web development tool for building scalable applications that run on all major platforms.

ORACLE POWER OBJECTS™
is a client/server and web development tool for BASIC developers who demand an easy-to-use interface for building database applications.

ORACLE PROCEDURE BUILDER™
is a powerful environment for editing and debugging PL/SQL™ code for client applications as well as server-based procedures. It is also included as part of Developer/2000.

Oracle offers a complete suite of products for efficiently developing client/server and web applications, and for obtaining reliable and accurate information out of a database. The products are tightly integrated, but are also highly effective when used independently if the situation demands.

The Oracle tool set is well-suited to the creation of both decision support and OLTP applications. The products have a high degree of built-in database intelligence that ensures data integrity and delivers optimal performance. The Designer/2000 shared repository is the cornerstone of application development, storing technology-independent definitions of applications and business logic. Designer/2000 enables the generation of Developer/2000 and Power Objects applications, web applications, and PL/SQL client and server logic.



Designer/2000 generates web applications from the same definitions as client/server applications, allowing developers to make just-in-time decisions about deployment of applications. Developer/2000 and Power Objects applications can also both be deployed on client/server or the web without any changes, enabling effortless enterprise-wide portability.

Two factors which most affect developer productivity are the learning curve associated with a new tool or technology, and the amount of code that has to be written to complete an application. To overcome these obstacles, Oracle's tools use a combination of computer based training (CBT), cue cards, and re-entrant wizards, which explain product and general concepts, guide developers through the process of performing tasks, and automate the creation of models and applications. The wizards, in particular, are invaluable in terms of the consistency they bring to the development approach, and the accuracy and maintainability of the application.

Oracle offers a consistent development interface across all its tools through an integrated set of design and development components. The object navigator or browser hierarchically sets out the architecture and content of an application. WYSIWYG editors are used to provide visual representations of applications or models. Property palettes are an intuitive and productive way to view and modify the properties or attributes of application objects. Each tool also incorporates an integrated code editor for defining and debugging application code in PL/SQL or BASIC.

Oracle is committed to supporting open standards such as Microsoft's ActiveX and ODBC. Oracle's tools also ensure that developers can build applications that adhere to corporate GUI and coding standards and guidelines. Standards are implemented through templates and default object settings that are automatically inherited when new applications are created. The proliferation of object libraries and reusable components in the tools enables developers to easily reuse existing objects, from simple widgets to complex applications.

Portability has always been a trademark of Oracle's products, and Oracle's tools continue the tradition. Developer/2000 and Power Objects applications may be developed on Windows or the Macintosh and deployed on these platforms or on the web. In addition, Developer/2000 is available on OS/2 and Motif client desktops. Developer/2000 servers provide the ability for applications to be deployed on character mode terminals or on the web, without requiring the product or applications to be installed on a client machine.

Oracle offers organizations the ability to build applications for small and large numbers of users using small or large development teams. Power Objects makes use of object orientation to give developers a leg up when creating applications. Its integration with the database ensures applications that perform well. Developer/2000 extends this foundation with strong team development functionality and the ability to partition application logic, ensuring reduced network traffic and more concurrent users. Designer/2000's shared multi-user repository is the key to enabling the creation of enterprise-scale applications and facilitating cross-divisional standardization and reusability. It also allows developers to make flexible decisions about the tool they will use to deploy applications.

Oracle is the only tools vendor to offer a tightly integrated product set covering the entire systems life cycle. The richness of functionality and scalability inherent in Oracle's tools have resulted in a market leadership position, endorsed by customers. Oracle extends its offering with leading-edge web technology that protects investments in current architectures, while delivering all the benefits of the web. Oracle's tools have helped customers move from character-based systems to client/server, and now, to the web. They will take *you* into the future.

Oracle Designer/2000

Model-driven Solutions for Enterprise Scale Development

Oracle Designer/2000™ empowers your organization to deliver enterprise solutions for your corporate business imperatives. All staff, business process experts, business analysts, systems designers, and application developers derive team synergy from a shared repository complemented by an integrated suite of modeling tools and system generators. Designer/2000 frees you to design and deliver accurate and timely enterprise systems that are adaptable to your changing business application needs.

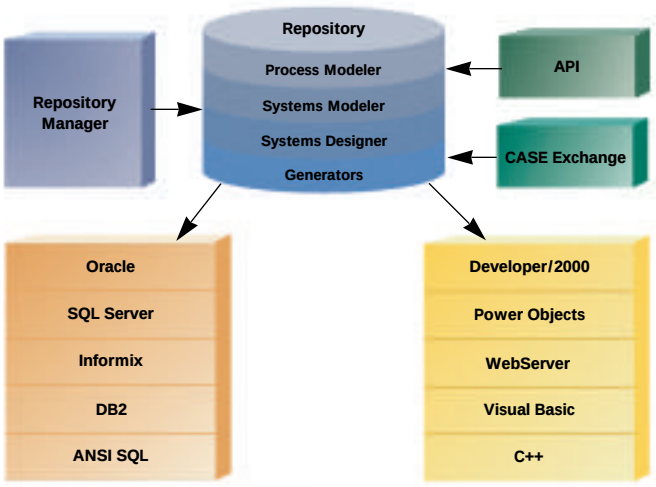


Figure 1 *Designer/2000 architecture*

Business Process Reengineering

Utilize the Designer/2000 Process Modeler to analyze and redesign fundamental business processes through management-focused techniques. Build multimedia process flow models, complete with icons, sound, images, and full-motion video, to capture business process definitions and the organizational agents that execute them. Process animation brings your time-scaled process models to life as they illustrate issues and opportunities that challenge your organization. With business process engineering techniques, organizations gain a profound understanding of business opportunities and the methods necessary to pursue them.

Visual Systems and Design Modeling

The Designer/2000 systems and design modeling components enable analysts to leverage process-based models or create new ones. The information and function modeling diagrammers are used to construct models that capture business and user needs by recording the logical and physical structures required in business systems.

Model-Driven Systems Development

Designer/2000's repository-driven requirements models speed the construction and ongoing maintenance of production systems. For Developer/2000, Oracle WebServer Option,™ Oracle Power Objects,™ and Visual Basic applications, GUI layout, database access, server logic, and application logic are automatically created, incorporating flexible application partitioning for optimal client/server processing. Employ well-defined templates to ensure enterprise-wide, consistent application user interfaces that adopt the native look and feel and layout standards defined in the repository, whether the deployment target is the World Wide Web, Windows, Macintosh, or Motif.

Open Repository

Non-Oracle repositories and tools are easily integrated into the Designer/2000 environment. Use the Designer/2000 open Application Programmer Interface (API) to integrate third-party tools and applications, or customize your own interfaces. Alternatively, employ Oracle CASE Exchange® to import or export entity, function, and process model information with other popular repository frameworks and tools. Your investment in your system's specifications is protected regardless of the frameworks you have chosen.

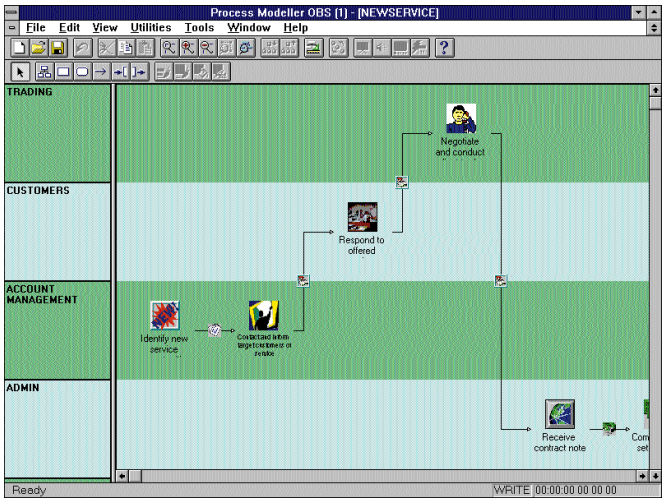


Figure 2 *Designer/2000 Process Modeller*

DESIGNER/2000 OVERVIEW

Process Modeling

Visualize and dramatically improve fundamental business processes with Designer/2000's process modeling capabilities **(Figure 2)**. Gain significant competitive advantage, reduce costs, and improve quality by understanding inter-organizational dependencies and process-cycle durations. Identify proposed and existing multilevel organization units, and view them in an easily understood form. Apply icons to identify process steps and their interactions, and enter cost and timing parameters for each process step. Use process animation and multimedia to reveal issues and opportunities to management and users as they watch process steps execute from start to finish in a time-scaled environment. Collect further information and perform ad hoc analysis through interfaces to popular desktop spreadsheets. Promote a shared vision of change through the real-time availability of process models in the Designer/2000 repository.

Systems Modeling

Designer/2000 simplifies rapid model-driven development through powerful and intuitive industry-standard modeling methods. Use entity relationship **(Figure3)**, function hierarchy, dataflow, and matrix modeling techniques **(Figure 4)**, or reuse definitions from process models to capture the structure and inter-relationships of all systems objects. Through the Designer/2000 repository, control the sharing and reuse of application objects across multiple projects. Use the intuitive windowing environment to integrate popular desktop applications into your diagrams, and publish your diagrams through Object Linking and Embedding (OLE 2).

Designer/2000 employs a repository object navigator for advanced navigation and display of an entire repository's structure. Improve team and personal productivity through drag-and-drop object reuse, easy property and relationship modification, and the creation of fully documented reports on the structure and content of your shared business repository.

The clarity and ease of use of the system's modeling tools, combined with its sophisticated navigation facilities, ensures a solid foundation for the design and implementation of applications and data warehouse solutions.

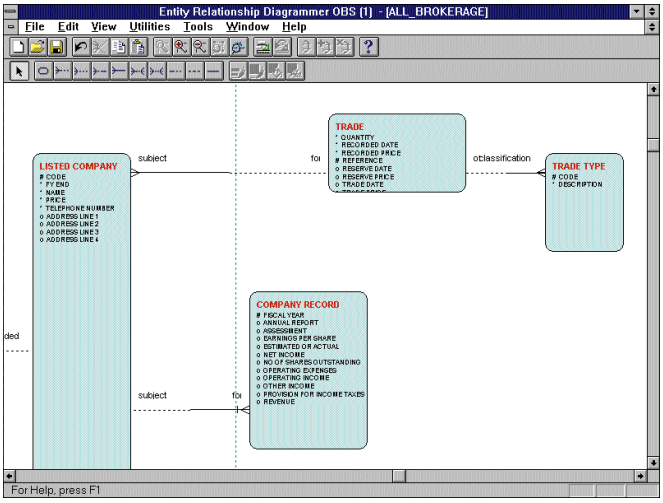


Figure 3 *Designer/2000 Entity Relationship Diagrammer*

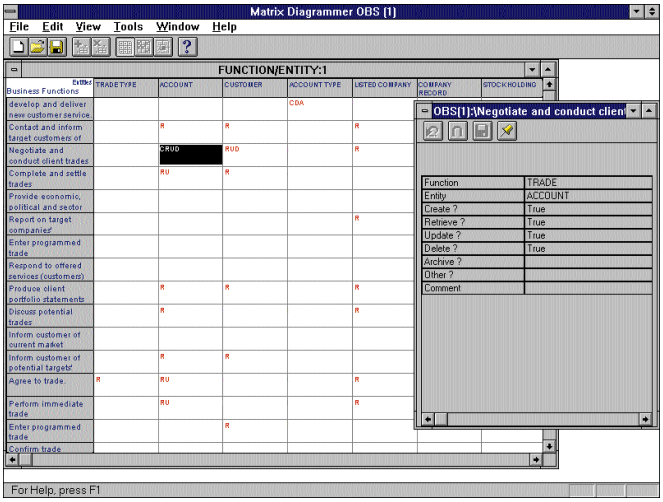


Figure 4 *Designer/2000 Matrix Diagrammer*

Systems Design

Utilize Designer/2000 to implement distributed client/server and web-based systems. Take direct developer input, or use the design wizards to rapidly derive systems designs from your requirements definitions. Your data structure and Developer/2000, Oracle Power Objects, or Visual Basic program designs materialize quickly and accurately.

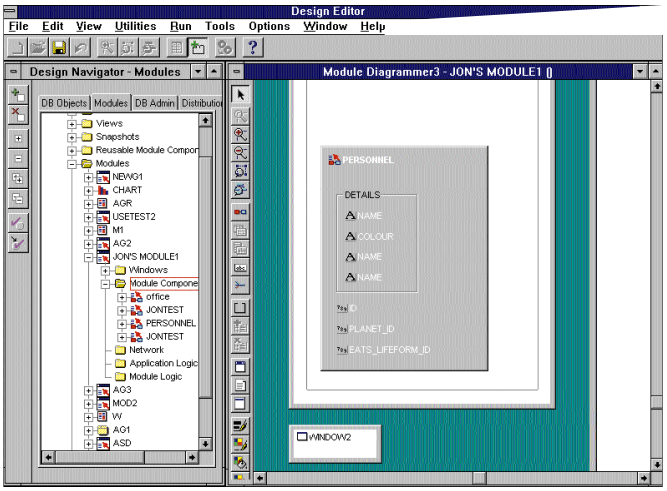


Figure 5 *Designer/2000 Integrated Design Editor*

Use an integrated suite of diagrammers and navigators to create and manipulate table details, foreign keys, and data validation rules. In addition, define server-based triggers along with their triggering conditions, functions, and procedures. Designer/2000 makes client/server code partitioning easier than ever—register your rules declaratively as client, client/server, or server implementations in preparation for the generation of balanced client/server applications.

Harness powerful module diagrammers to define the structure of your applications, their component program modules, and the interactions among them by simply dragging and dropping reusable components onto your desktop. Intelligent, graphical syntax-directed construction and modification of procedural definitions of PL/SQL, JavaScript and BASIC provide the full range of required functionality for leading programming environments.

User preferences and templates define the overall visual and semantic characteristics of the generated systems, creating a reusable styleguide and eliminating inconsistent and inefficient screen painting. Designer/2000 delivers the tools you need to rapidly design and implement client/server and web-based applications, while ensuring that they can be changed quickly and accurately in accordance with evolving business needs.

A Universal Design Model

Generate high-quality programs for Developer/2000, the web, Oracle Power Objects, and Visual Basic with support for client-side application logic integrated with the event model for the target platform. Realize your database design options with open server generation and design recovery for all Oracle database types, as well as DB2, Sybase, SQL Server, and ODBC databases.

Client Application Generation

Use Designer/2000 to automatically build Developer/2000 applications. Generated applications include multi-screen layouts **(Figure 6)**, sophisticated reports, navigation through menus, buttons and pop-lists, client-side application logic, and full database access functionality—all derived from the designs stored in the Designer/2000 repository. Templates drive the appearance of a rich collection of GUI controls on generated screens, such as images, dialogs, pop-lists, radio groups, check boxes, iconic buttons, and more. Designer/2000 generates applications that not only run on multiple platforms with full native look-and-feel, but also exploit each platform's native features, such as OLE 2 and OCX controls. Employ the same design

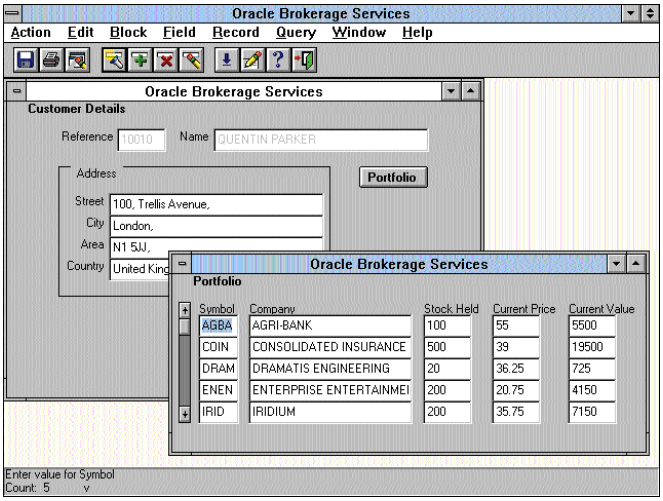


Figure 6 *Developer/2000-generated application*

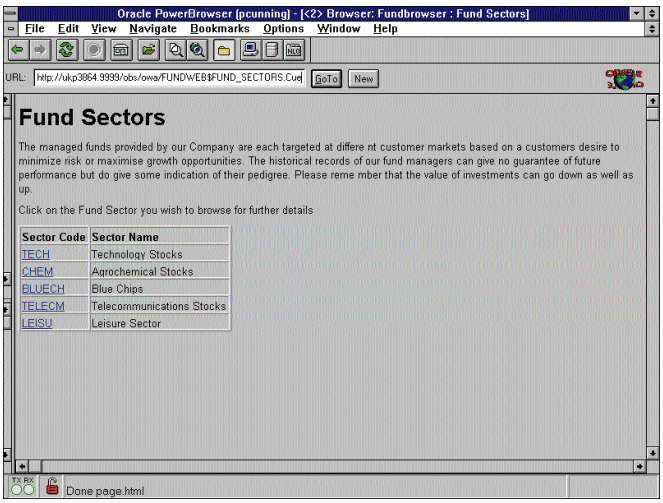


Figure 7 *Web-generated application viewed through Oracle PowerBrowser™*

model to generate Oracle Power Objects, Oracle's uniquely powerful development environment for BASIC developers, complete with unrivaled database integration and networking capabilities.

Alternatively, leverage the investment in a design by generating GUI layouts, database access logic, and transaction management code for Visual Basic using the same repository-held design model. Productively deliver common user interfaces for multiple implementation environments using this open generation approach from an enterprise-wide design repository. Further refine generated applications from directly within Developer/2000, Power Objects and Visual Basic. A regeneration process ensures that custom modifications are synchronized and consistent with the Designer/2000 repository. Reverse engineer installed database servers and applications into Designer/2000 to drive future enhancements and maintenance.

Integrating Databases and the Web

Designer/2000 exploits the sophistication of the World Wide Web as a business systems platform. It elevates the web from a simple, static information publishing mechanism to an environment capable of supporting complex applications. Designer/2000 removes the need for mass software distribution whenever the application changes, effectively solving one of the major problems faced by companies moving to client/server applications.

Use Oracle WebServer™ and Designer/2000 to provide the needed integration between web application development tools and database servers. Extend the modeling and team-working benefits of Designer/2000 to deploying database applications on the web using the Designer/2000 WebServer Generator. The same modeling techniques and repository-based definitions used for client/server applications, are leverated by Designer/2000 to generate and deploy web applications.

C++ Object Layer Generation

Improve the cost-effectiveness of server-oriented programming with the Designer/2000 C++ Object Layer Generator. The Designer/2000 C++ Object Layer Generator is useful to any C++ programming project that needs a persistent store for objects.

Open Server Generation

Designer/2000 completes the delivery of enterprise applications and warehouse solutions with the creation of server-side components for a wide range of databases. Create models of snapshots, role-based security, server-side application logic in triggers, stored procedures and functions, and data storage parameters for Oracle servers. Develop distributed implementation models through the partitioning of application components at specific servers and nodes. Reverse engineer production server definitions to give developers and administrators access to sophisticated diagramming tools for management and maintenance of distributed servers.

In addition to Oracle server definitions, Designer/2000 enables forward and reverse engineering of TABLES, VIEWS, CONSTRAINTS, INDEXES, and DOMAINS for Personal Oracle Lite,™ Rdb, SQL Server, DB/2, and ODBC compliant databases. Use Designer/2000 to rapidly convert distributed systems design into working databases, as well as to effectively manage existing servers.

Oracle Developer/2000

Productivity

Developer/2000 incorporates an integrated set of builders **(Figure 8)** for creating forms, reports, charts, queries, database objects, and procedures. These components use powerful declarative capabilities to create applications from database definitions without writing a single line of code.

Developer/2000 sets new ease-of-use and productivity standards for client/server and web development through the use of rapid application design (RAD) techniques, object orientation, built-in computer-based training, and a unified client, application server, and database server architecture.

The Developer/2000 interface consists of a powerful and easy-to-use combination of object browsers, tabbed dialogs, property palettes, and a WYSIWYG GUI interface. Applications are quickly created using the re-entrant wizards **(Figures 9 and 10)**, or through inheritance of reusable components from the Object Library **(Figure 11)**.

Organizational standards are easily applied through customizable application templates and default settings for each object. Industrial-strength reports are modified interactively using the intuitive live data previewer in the report builder. Extending Developer/2000 applications with client and server-based logic is easy using the Procedure Builder, a unified client and server PL/SQL editing and debugging environment. Developers also have the option of generating complete Developer/2000 applications directly from models created using Oracle's Designer/2000.

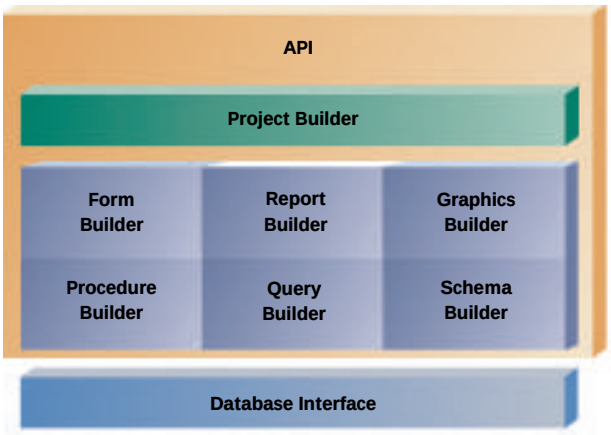


Figure 8 *Developer/2000 architecture*

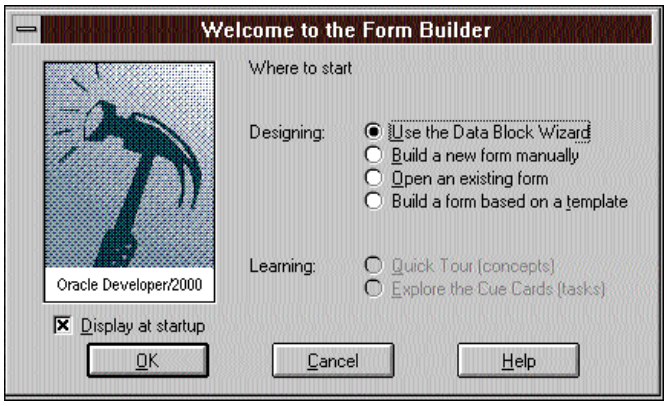


Figure 9 *Developer/2000 Form Builder wizard*

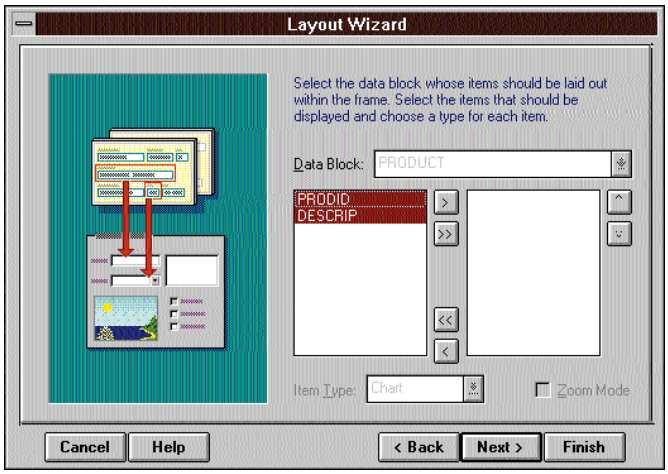


Figure 10 *Wizard-based interface*

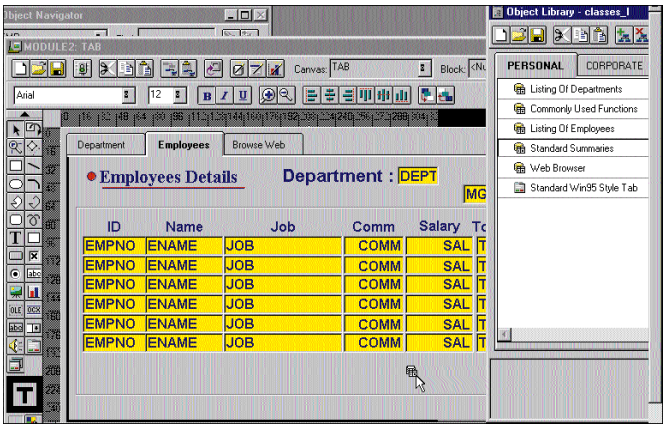


Figure 11 *Using the Object Library*

Developer/2000 offers an environment for development teams of all sizes. The integrated Project Builder manages all application components and external components (such as multimedia content), and enables the components to be opened with the appropriate tool. The Project Builder also facilitates easy deployment of completed applications by incorporating components into a single file. Configuration management, including check-in, check-out, version labeling, and difference reporting is provided through interfaces to popular source and version-control packages.

Scalability

Scalability comes easily to Developer/2000 developers. It is inherent in the multi-tiered architecture of the product. It is explicit in the unparalleled support for server functionality, such as array DML, database cursors, bind variables, savepoints, and result sets. It is definitive in the drag-and-drop client/server object partitioning which reduces network traffic between client and server to a single round-trip. And it is evident in the embedded features that allow Developer/2000 customers to scale from 5 to 5,000 users, from megabytes to gigabytes of data, and from decision-support

to complex OLTP applications. Developer/2000's flexible multi-tier architecture supports Oracle7™ application servers or third-party application servers such as TP monitors, ensuring scalability from the desktop to the enterprise.

Openness

Standards-based interaction between Developer/2000 and other applications and tools is enabled through OCX/ ActiveX controls, OLE (Object Linking and Embedding), and DDE (Dynamic Data Exchange). Support for a variety of multimedia formats is complemented by an open API, giving developers the flexibility to extend Developer/2000 applications and integrate other components into them.

Developer/2000 not only offers the best integration with Oracle databases, but also provides transparent access to all major databases including Rdb, SQL Server, Informix, Sybase, and DB/2. Database access is provided through direct database drivers as well as through the Developer/2000 API and Oracle Gateways.

A number of interfaces to third-party products are available through members of the Open Tools Initiative. These interfaces include configuration management tools, testing tools, CASE and modeling tools, workflow engines, transaction processing (TP) monitors, and many others.

Web Publishing

The power and flexibility of Developer/2000's report builder is available to developers to deploy the same reports in a client/server environment as well as on the web. Reports generated for the web in HTML or Adobe's .pdf format provide the degree of presentation quality and precision that is critical for publishing enterprise-wide information. The drill-down capabilities, embedded links to other web pages, integrated charts and automatically generated tables-of-contents in web reports, ensure a productive and intuitive environment for users to navigate through corporate information.

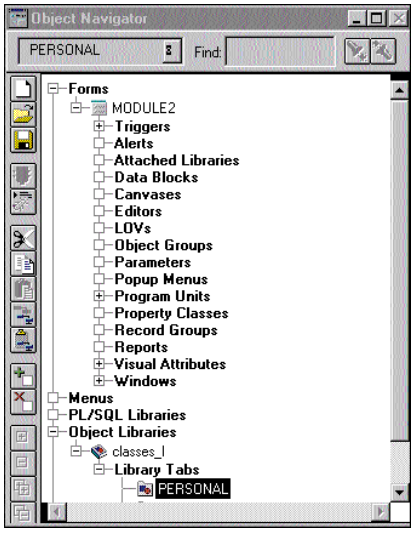


Figure 12 *Oracle Developer/2000 Object Navigator*

Deploy information on demand with dynamically generated reports that contain accurate and current corporate data using the Developer/2000 Reports Server, freeing up client resources in the process. Alternatively schedule reports to run and refresh periodically, eliminating redundant database processing.

Web Transactions

The challenge for organizations is to leverage the benefits of the World Wide Web, such as lower cost of deployment, while leveraging and maintaining investments in client/server applications. WebDeveloper™ provides the answer through technology that delivers the benefits of client/server and the web in a single application. WebDeveloper employs Java, the emerging standard for web applications, for the application user interface while utilizing the powerful Developer/2000 processing engine on an application server to handle events and interact with the database. Client/server applications run unchanged in any Java-aware web browser (including the Network Computer), and without the need to install runtime or application software on any client. Developers can leverage all the GUI and transaction processing benefits of client/server while eliminating deployment and maintenance costs through an approachable web interface, all without writing any extra code or learning any new languages.

Summary

Developer/2000 leads the second generation client/server revolution with the first scalable development tool. Developer/2000 Release 2 extends that advantage with the most approachable development environment, even better scalability, and the unmatched ability to deploy complete applications, unchanged, on all major GUI platforms, character mode, and the web.

Oracle Power Objects

Oracle Power Objects is Oracle's visual development tool that allows BASIC developers to develop mobile, client/server, and intranet applications. It combines strong database integration with established industry standards such as OLE and ActiveX, new techniques including visual object orientation, Netscape's plug-in architecture for intranet-enabled applications, and a unique drag-and-drop metaphor for ease of use. It is the most productive way for Windows and Macintosh developers to rapidly build robust web and workgroup information systems.

Everything You Need to Build Database Applications Fast

Oracle Power Objects includes all the tools you need to start building powerful database applications today: a fully integrated database session manager for creating and administering database objects; a graphical view designer; intuitive forms and report builders; the Personal Oracle Lite local database; and a BASIC editor, debugger, and compiler.

Oracle Power Objects' integrated development environment speeds the development of mobile, client/server, or intranet applications

Automatic data binding of visual controls occurs through drag and drop. The controls include:

- Optimized native database drivers for Personal Oracle Lite, Personal Oracle7, and any Oracle7 Server
- Integrated ODBC drivers with drag and drop upsizing from PC databases using the Object Browser
- 17 data-aware controls with automatic support for transaction integrity, row-level locking, and binary datatype support for multimedia applications
- Portable native controls and Windows ActiveX controls, including those from Crystal Reports and Crescent software.

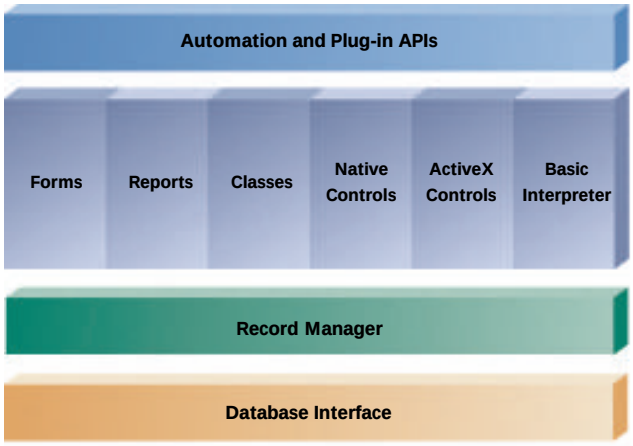


Figure 13 *Oracle Power Objects architecture*

Create Reusable Objects—Visually

Reusable object classes—from individual widgets to full applications—are visually designed. Simply drag and drop the sample classes included, or those you have created, to build new forms or reports. All modifications to parent objects are automatically inherited by child instances across applications.

Use the object browser to manage both client and server side application components, move them with a simple drag and drop.

Web and Workgroup Development in a Single Tool

Netscape compatible plug-in support enables any Power Objects application to run within plug-in compatible browsers for easy creation of intranet database applications. Embed Internet content into your applications with the PowerBrowser ActiveX control. Publish your reports on the internet with the Crystal Reports HTML option.

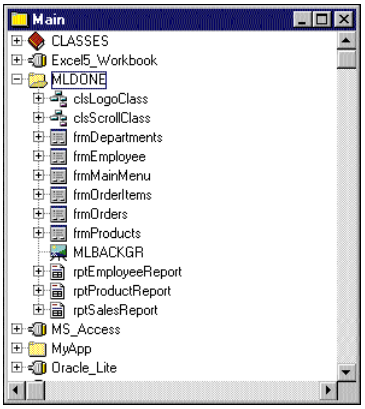


Figure 14 *Oracle Power Objects browser*

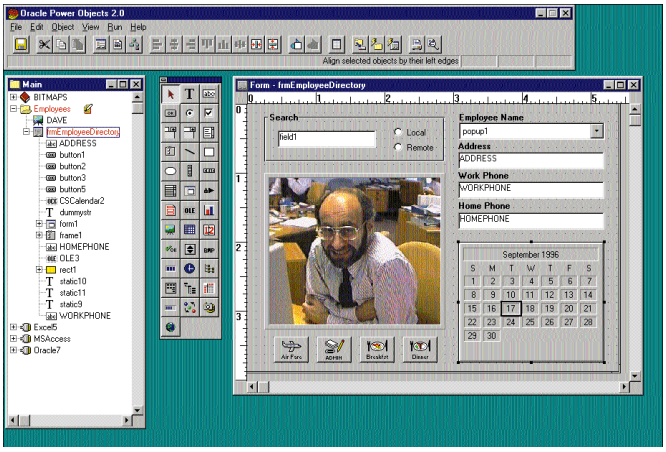


Figure 15 *Oracle Power Objects designer*

Deliver Powerful Mobile Applications

Oracle Power Objects includes the Oracle Lite local database requiring under 1MB RAM, which combined with the small footprint of Power Objects enables you to deploy light-weight database applications easily with two way replication support between an Oracle7 Server.

Fast 32-bit Applications, ActiveX Controls for Windows 95 and NT

Generate high performance 32-bit applications for Windows 95 and NT. Build Windows 95-style applications using the 18 ActiveX controls included. Integrate Power Objects with other applications using the built-in OLE automation server.

All of the Functionality Across All of the Platforms

Use the portable native controls and reusable classes to deploy to any Windows machine including 16-bit desktops, or any Macintosh or Power Macintosh. Generate royalty-free executables and deploy them with no runtime interpreter DLLs.

Building on the Standards You Know

Take advantage of today's desktop standards: BASIC for programming events, OLE automation for integrating applications, ActiveX controls to build true Windows 95 style applications, ODBC drivers to integrate all your data, and Crystal Reports Version 5.0 Professional for quick and easy database reports.

Oracle Procedure Builder

Productivity

Oracle Procedure Builder is a powerful environment for editing, compiling, debugging, and partitioning PL/SQL procedural logic. Its functionality is not only a key part of Developer/2000, but is also available separately for use by DBAs and all application developers.

Procedure Builder excels in enabling the customization of Developer/2000 application code as well as in the creation and modification of application and database server logic.

Procedure Builder's convenient editing and debugging facilities reduce the cost of developing batch programs that previously required large, cumbersome scripts. Locate, view, and manipulate client as well as server code from a single, unified window, and use the PL/SQL distributed debugger and interpreter **(Figure 16)** to quickly isolate and correct application errors.

Double-click on a source line to set and remove break points and apply conditional break points to further isolate problem areas in your code. Once execution of a procedure has been interrupted, browse the current call stack, examine and modify variable states, and even execute arbitrary PL/SQL statements. As you incrementally advance program execution, the current PL/SQL source location is automatically tracked and displayed. This integrated, incremental approach enables you to create a procedure, and quickly move through the process of editing, compiling, running, and debugging it directly on the client or on any remote server where the logic resides. Procedure Builder replaces the traditional monolithic, multi-tool edit-compile-link-debug cycle with small, interwoven steps.

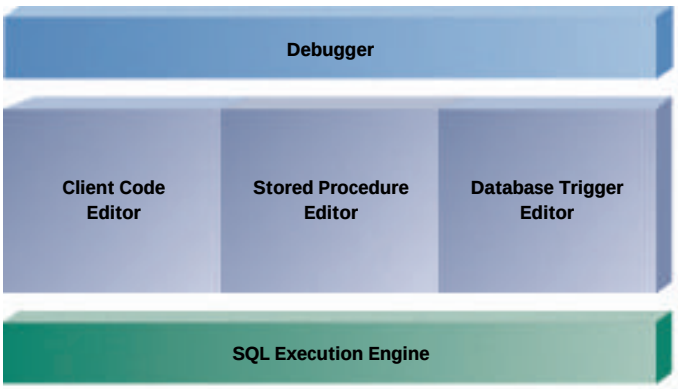


Figure 16 *Oracle Procedure Builder architecture*

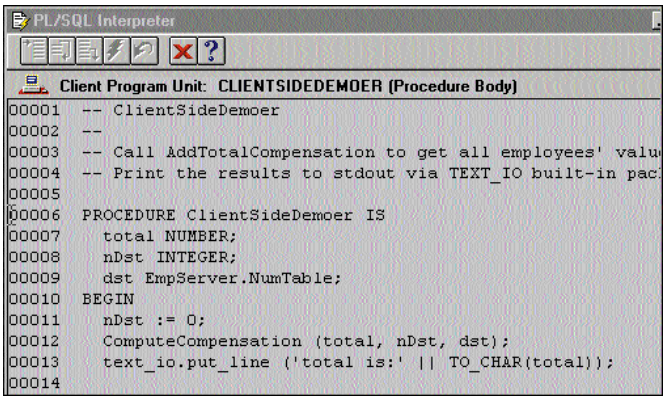


Figure 17 *Procedure Builder - PL/SQL Interpreter*

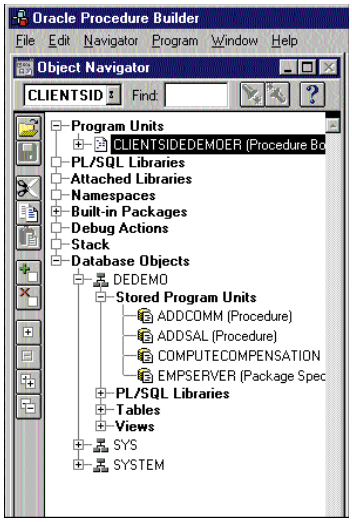


Figure 18 *Procedure Builder Object Navigator*

Scalability

Procedure Builder provides a fast and effective way to perform application partitioning. To partition application logic, simply drag the client object onto an application server or database server **(Figure 17)**, and it becomes a stored procedure or database trigger. Procedure Builder's unique distributed debugging feature enables developers to transparently debug application logic across client and server after it has been partitioned.

With Procedure Builder it is easy to create, maintain, and reuse libraries of PL/SQL procedures and share them among multiple applications. Dramatically reduce runtime memory requirements and improve performance by dynamically loading PL/SQL libraries as needed, so that procedures persist in memory for quick reuse during application execution.

Unifying Client and Server

The power of Procedure Builder lies in its unique ability to manage client and server code. It gives developers all the editing and debugging functionality they expect, and its distributed debugging and application-partitioning capabilities complete the unification of a true client and server development environment.