



Database Design Made Easy™

*ERwin, the industry-leading data modeling solution, creates and maintains databases, data warehouses, and enterprise data resource models. ERwin models visualize data structures in a manner that helps you organize and manage more effectively, mitigating the complexities of data, database technologies, and deployment environments. ERwin helps you quickly develop databases while dramatically improving their quality and maintainability.*

## Data—The Most Critical Business Asset

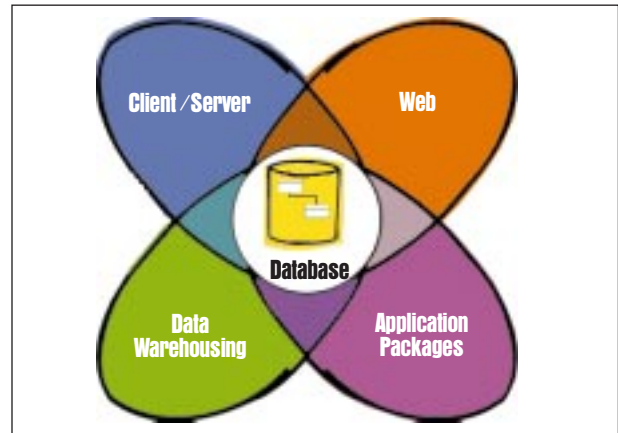
E-commerce. Supply-chain management. Data warehousing. The success of any business application depends on how well its databases are designed and implemented. Contrary to expectations of just a few short years ago, today's applications must readily adapt to meet new business opportunities or overcome competitive pressures. Companies that fail to deliver the right information and Internet capabilities to their customers risk a significant loss in market-share. Similarly, if companies do not understand and leverage their current information assets, they are squandering their most valuable competitive advantage.

## Successful Information Management

Today's organizations must expand their approach to information management. They must improve their ability to rapidly deliver and maintain applications, while increasing their understanding of and ability to leverage their information assets. For many organizations—both large and small—ERwin and its superior modeling capabilities represent essential parts of their modernized information management strategy.

When used at a project level, ERwin delivers exceptional results. Database administrators (DBAs), application developers, and data warehouse developers use ERwin to design, build, and maintain databases. ERwin models become the means to communicate between these professionals and also with business people, such as a user of a data warehouse or a planning officer.

At the corporate level, information resource planners and data administrators use ERwin to inventory their information assets, visualize corporate data requirements, and establish data standards and usage policies. Whether change is thrust upon companies by external industry regulation, a merger or acquisition, or competitive pressures, ERwin helps professionals understand the impact of change and develop a plan for adaptation.



ERwin provides a central blueprint, ensuring consistency, reuse, and integration of all corporate data.

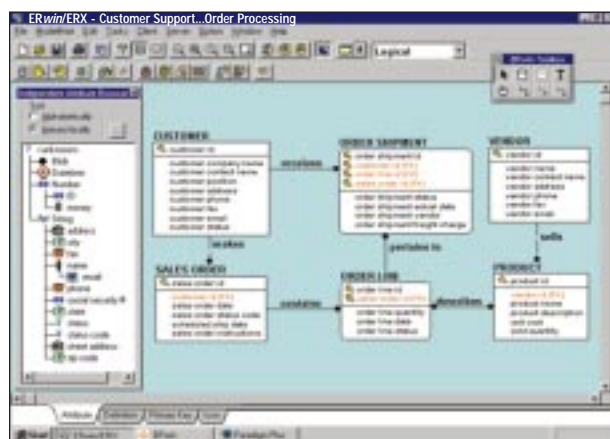
## Setting The Standard For Modeling And Design Productivity

ERwin makes it easy to design a database. Just point and click to create a graphical entity-relationship (ER) model of your data requirements and data usage rules. Double-click on objects to add the details and descriptions of entities, relationships, and attributes with task-specific editors.

**Accelerated Model Design.** ERwin's powerful user interface provides many instinctive, easy-to-use features to enable the rapid development of models. "On-Diagram Editing" lets you make changes without having to open editors. "Relationship Navigation" allows you to move quickly across large models to pinpoint an entity's parents or children. You can use color to highlight objects or communicate special meanings, and you can normalize data structures or correct entity attribute assignments simply by dragging and dropping attributes.

**Design Process Automation.** ERwin intelligently automates the design process. For example, ERwin enables you to create a dictionary containing reusable attributes, ensuring consistent names and definitions across your database design—and across other projects. Special model validation reports identify where critical information has not been provided, and in many cases, you can provide the missing information directly in the reporting interface.

**COMPUTER  
ASSOCIATES®**  
Software superior by design.



ERwin's independent attribute browser lets you reuse attributes across your model.

**Submodeling.** ERwin lets you conquer large enterprise models by dividing them into smaller, more manageable subsets, allowing individual modelers to focus on specific subject areas. Because information often needs to be communicated between many specialized groups of users, ERwin provides "Stored Displays," which enable you to create multiple graphical views of the whole model or any of its subject areas.

## Designing The Database

**Logical And Physical Design.** ERwin automatically maps entities, attributes, and relationships to tables, columns, and physical relationships. It migrates keys across tables, as specified by the physical relationships between tables. ERwin also transforms logical constructs, such as many-to-many relationships, into physical implementations. ERwin's powerful graphical interface assists you in quickly adding the physical properties of your selected database and optimizing your physical design for database-specific implementation. ERwin maintains database views as part of the physical design, allowing changes in the base tables to be automatically reflected in the view definition.

**Reverse Engineering Capabilities.** Existing data assets and expertise can speed the delivery of new systems and improve their overall quality. ERwin lets you quickly reverse-engineer existing systems and incorporate these designs as part of your new development effort. You can also create template models containing reusable design components and apply them to new models, jump-starting your data design process.

**Extensive Platform Support.** Because IT organizations often rely on many different database platforms, ERwin supports a wide selection of server and desktop databases. ERwin is uniquely tuned to work with each of these database environments, enabling you to optimize your database design and maximize the performance of your database. ERwin models can be used to generate the same design to multiple platforms, or to convert an application from one database platform to another.

## Creating The Database

ERwin provides an intelligent way to design a database and one of the fastest methods for building one. It automatically generates database definition language (DDL), and stored procedure and trigger code specifically optimized for the characteristics of your target database. ERwin also establishes a live, native connection between the database design and the database, enabling both forward and reverse engineering.

ERwin includes a set of optimized referential integrity trigger templates, as well as a rich cross-database macro language that lets you customize your own triggers and stored procedures. Thousands of lines of code can be generated automatically—dramatic proof of the productivity of model-based development.

From the physical design, ERwin generates full definitions of the following, as appropriate for the target database:

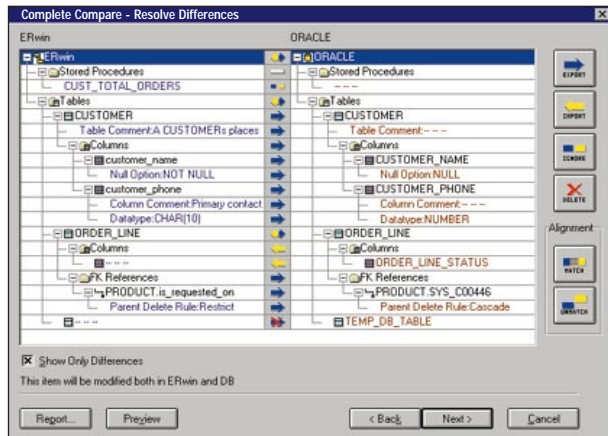
- Databases/tablespaces
- Tables and views
- Columns with defaults and domain constraints
- Primary keys, foreign keys, and indexes
- Stored procedure and trigger code
- Volumetric and other physical properties—in support of specific database functionality

Some modelers prefer to generate their databases directly from ERwin. Others, in organizations with strict controls over their database environment, are required to generate SQL scripts that are reviewed and implemented by a DBA. ERwin is flexible enough to work within the established processes of your organization.

## Iterative Development And Database Maintenance

ERwin overcomes the problems found in other model-based development tools. Other tools work well until the model becomes out of sync with the physical implementation, resulting from manual database changes. Without painstaking effort to update the models with these changes, they quickly fall into disuse.

ERwin's groundbreaking "Complete Compare" technology automates model and database synchronization. This innovative technology compares the model with the database, displays all the differences, and then allows you to select which differences should be moved into the model and which should be generated into the database. If you have selected to move model changes into the database, ERwin automatically generates a database alter script. ERwin will even preserve the existing data in the database by generating unload/reload code when needed. Done manually, this process often requires the creation of several thousand lines of code.

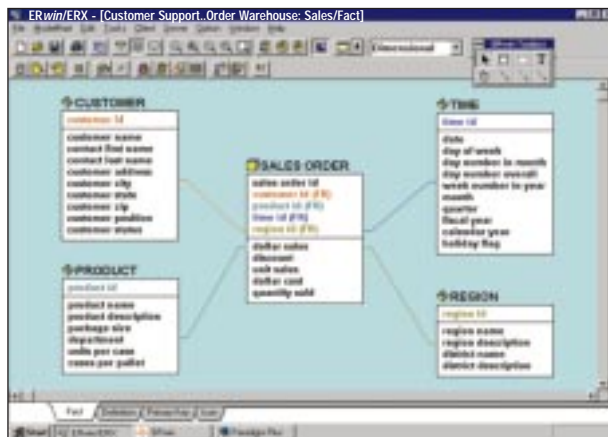


*Complete Compare automatically detects any differences and allows changes to be migrated from model-to-database or database-to-model.*

## Designing Data Warehouses And Data Marts

The performance, usability, and, ultimately, the value of a data warehouse is determined by its underlying design. Warehouses should be optimized for data access and high-volume data analysis, and they must be built with an understanding of the data sources within your organization.

Modelers can use *ERwin* to design transactional systems, data marts, and data warehouses in one integrated environment. *ERwin* provides data warehousing-specific modeling techniques—like Star Schema and Snowflake dimensional modeling—helping ensure that the resulting data warehouse is optimized for the performance and analysis needs of the user. *ERwin* also captures and documents a rich set of information about the warehouse, including data sources, transformation logic, and data management rules. *ERwin*'s volumetric calculations let you estimate the initial size and growth of your database, enabling efficient allocation of system resources for peak performance.



*ERwin supports dimensional modeling techniques to help you design high-performance data warehouses.*

**DecisionBase™** is CA's complete family of solutions for creating, managing, and leveraging your data warehouse environment. *ERwin* participates in this family as the data modeling component. Rounding out the DecisionBase solution are components for data extraction, transformation, and movement, integrated business intelligence tools, and a management environment for a complete end-to-end warehouse solution.

## Enterprise Scalability With ModelMart® Enterprise Modeling

**ModelMart**, the industry-leading model management environment, provides a practical set of scalability services that are seamlessly integrated with *ERwin*. ModelMart allows modelers to efficiently work together. It enhances productivity by allowing modelers to share and reuse *ERwin* objects and models. With ModelMart, modelers can even update the same model concurrently. Checks enable modelers to view each others' changes and come to agreement about which changes will remain in effect. ModelMart provides:

- Intelligent conflict resolution
- Detailed change management
- Powerful versioning and restoration
- Comprehensive, role-based security
- Large model management
- Standards and reuse support
- Library management
- Enterprise-wide reporting

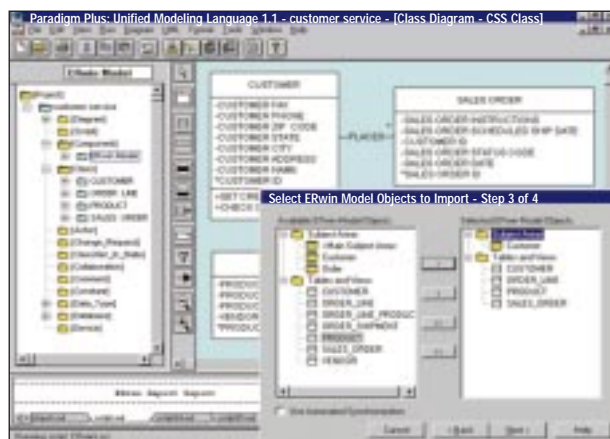
## Design Coordination Across Business Processes, Data, And Applications

Information structures in a company are typically more stable than either business processes or applications. Because of this stability, data provides a key integration point across all types of designs. *ERwin* enables you to link your data designs with CA's **BPwin®** for business process modeling and with CA's **Paradigm Plus®** for UML-based application component modeling.

*BPwin* process models can be synchronized with *ERwin* data models. This synchronization enables you to reuse common logical data definitions and to verify that your information resources optimally support your business processes.

*Paradigm Plus* and *ERwin* provide a strong solution to the impedance mismatch between object technologies and relational databases. These products enable developers and DBAs to gain significant productivity in trying to identify the best means for object-oriented applications to persist their data in relational databases.

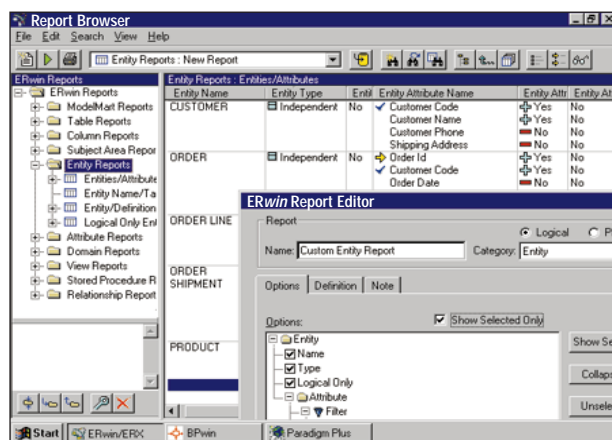




ERwin's integration with Paradigm Plus enables organizations to more easily reuse and share data and application components. This helps keep your data model aligned with your component model and application generation.

## Reporting And Publishing To Match Specific Needs

ERwin's Report Browser provides both predefined and customized report formats. When creating customized reports, you can define the content of the report, select the objects to be included, and format individual items for printing or on-screen display.



ERwin's report browser lets you select from a rich set of predefined reports or easily define reusable, customized reports.

Your reports can be exported in a variety of formats for use in other vendors' products, such as Microsoft Word and Excel. Reports are editable online enabling you to quickly update model information prior to printing or exporting. ERwin also includes an easy-to-use graphical banded report writer that provides complete control over the appearance of reports.

For groups of people who need to review designs under development, CA's **Model Navigator** provides dynamic read-only access to ERwin models—preventing unauthorized users from inadvertently updating models—as well as the ability to build and execute reports.

CA's **Model Web Publisher** delivers an economical solution enabling you to publish static model information on the Web using a standard Web browser. Models published on the Web can be customized and annotated according to the needs of your audience.

ERwin is part of the **ADvantage™** family of products, a foundation for building, deploying, and managing applications. **ADvantage** consists of process and project management, change and configuration management, modeling and design, and knowledge publication and visualization. **ADvantage** strengthens your ability to automate critical application life cycle processes and to thrive in the increasing complexity and rate of change in today's e-business climate.

## Supported Environments

### Databases:

- Ingres® II
- CA-Clipper®
- DB2
- dBASE
- FoxPro
- HiRDB
- INFORMIX
- InterBase
- Microsoft Access
- Microsoft SQL Server
- ODBC 2.0, 3.0
- Oracle
- Paradox
- Rdb
- Red Brick Warehouse
- SAS
- SQL Anywhere
- SQLBase
- Sybase
- Teradata

### Platforms:

- Windows 95, 98, NT 4.0

**For more information, call 1-800-78-ERWIN,  
or visit our website at [www.cai.com](http://www.cai.com)**

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