

Tech Notes

---

# Migrating from CA AllFusion™ ERwin® Data Modeler to Embarcadero® ER/Studio®

A step-by-step guide to migrating to a next-generation data modeling solution

April 2009

---

## Corporate Headquarters

100 California Street, 12th Floor  
San Francisco, California 94111

## EMEA Headquarters

York House  
18 York Road  
Maidenhead, Berkshire  
SL6 1SF, United Kingdom

## Asia-Pacific Headquarters

L7. 313 La Trobe Street  
Melbourne VIC 3000  
Australia

## INTRODUCTION

The volume of data is growing dramatically and the structures of the databases that house that data are more complex than ever before. Companies are now looking to their data models to help them understand their data assets in new and intricate ways. Data models that might have once focused solely on understanding the structure of the database for application developers, are now being called on to solve fundamental business questions like, “what is the single definition of a customer?”. As companies look toward solving these business problems they need to take advantage of the high end features available in data modeling tools. When ERwin users look at things like metadata impact analysis and traceability, they realize it’s time to make a change.

This paper discusses the how and why of making that change, and how upgrading to ER/Studio can be done in a way that preserves the intellectual capital of legacy data models, while minimizing the impact of the change. With the numerous next-generation features and benefits as compared to ERwin, hundreds of Embarcadero customers have found ER/Studio to be an extremely productive and cost-effective alternative.

## BENEFITS OF ER/STUDIO OVER ALLFUSION ERWIN DATA MODELER

### SUPERIOR MODEL FILE SYSTEM TECHNOLOGY

ER/Studio allows users to create multiple, mutually independent physical models from one common logical model *within the same* .dm1 file; ERwin requires *multiple* files to achieve the same effect thus losing the traceability between the logical and physical artifacts. ER/Studio’s separate but integrated approach offers the user a complete, easy to understand solution for synchronizing and updating logical models, physical models and live databases without having to manage and synchronize many loose files. These features enable administrators to:

- Support database applications existing on heterogeneous database platforms such Oracle and Microsoft while maintaining traceability to the original logical model.
- Prototype applications on non-production systems such as Access and subsequently move them to a more robust RDBMS, such as Oracle, Sybase or Microsoft, without having to manage multiple files.
- Maintain physical data models for test, development and production environments within a single environment.
- Impact analysis and traceability provided via “Where Used” capabilities.

### SUPERIOR METADATA IMPACT ANALYSIS AND TRACEABILITY

ER/Studio provides features for maintaining the traceability between the original logical model and multiple physical models. Coupled with ER/Studio’s ability to maintain multiple models within the same file, impact analysis is far easier and more reliable than with ERwin. In addition to reports, ER/Studio also provides a “Where Used” feature which includes the following capabilities:

- “Where Used” identify where logical business entities are used in multiple physical models to assess usage, impact analysis and general data enterprise.
- “Where used” also identifies logical entities that have been ‘denormalized’ in physical database designs.
- “User-defined” mappings allow the modeler to map two disparate logical and physical models when a bottom-up approach is needed.

An example of “Where Used” showing two physical tables with different names derived from a single logical entity is shown in Figure 1:

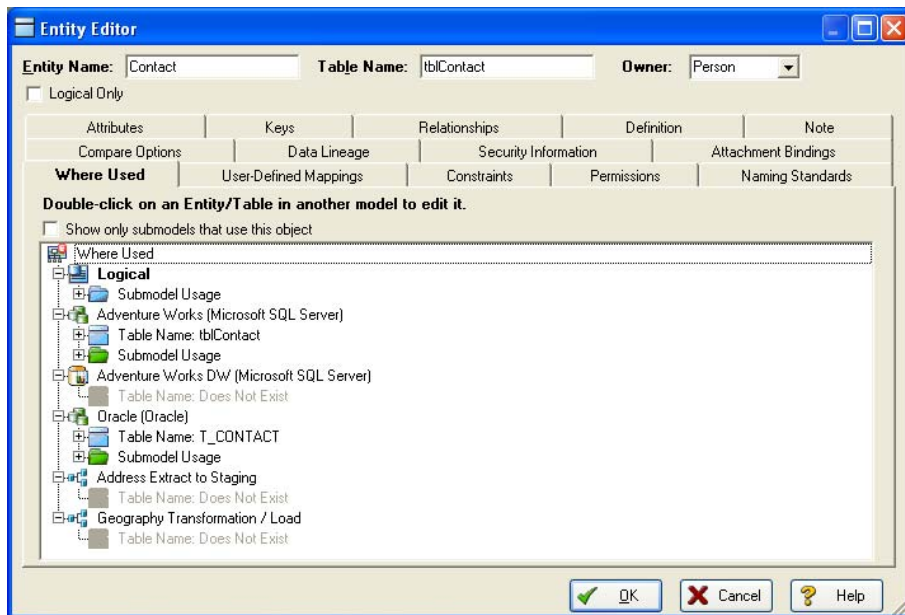


Figure 1 Entity Editor

## SUPERIOR VISUAL DATA LINEAGE FEATURES

Documenting data lineage between systems is more critical than ever as data models are leveraged for SOA implementations, data warehouse projects, CDI/MDM projects and other data integration purposes. ER/Studio offers modelers visual data lineage functionality to visually represent how data is mapped between systems. This allows modelers to drive source/target mappings from the model rather than managing them separately in, say, an Excel spreadsheet or Access database. The data flow components are also integrated with ER/Studio's Where Used technology to provide impact analysis of what entities/tables are involved in what data flow processes.

## SUPERIOR DIAGRAM LAYOUT FEATURES

A common challenge to data modelers is producing a readable diagram. ER/Studio provides the industry's most effect options for automatic layout of diagrams. These options are particularly useful when reverse engineering from source that do not contain diagram information, such as .sql DDL files and database catalogues.

Users can choose from the following general layout types:

- Circular
- Orthogonal
- Tree
- Hierarchical
- Symmetric
- Tree
- Disconnect Elements

Each of these layout types contains extensive options to ensure that the resulting diagram is readable and understandable.

## SUPERIOR DIAGRAM NAVIGATION

ER/Studio is designed to dramatically increase user productivity through superior navigation of large, complex data models. This saves time when searching for deeply buried elements in a model. ER/Studio provides a number of features to assist with the management of large models, such as:

- Multiple levels of nested Submodels (i.e. Submodels of Submodels of Submodels...), allowing modelers to present simpler "subset" diagrams that focus on specific areas of interest.
- Numerous navigational aids, including:
  - Interactive panning and zoom features in the main diagram window.
  - Relationship navigation enabling the user to move to the entity at the far end of a relationship; this feature automatically pans through the diagram if necessary.
  - An Overview Window enabling the user to pan through the diagram via a thumbnail view.
  - A Zoom Window to display items under the mouse cursor in a separate window at 100% magnification. This is useful for examining detail of a complex diagram when the main diagram window is at a very low level of magnification, e.g. "zoomed out".
  - A variety of significantly superior diagram object display options such as:
    - Displaying logical names alongside physical names if preferred
    - Displaying indexes bound to tables
    - Displaying "Attachments" (i.e. UDPs) on entities/tables
    - Displaying 'code' objects (procedures, materialized views, functions, etc) on the diagram display

## **SUPERIOR MODEL PUBLISHING AND COMMUNICATION**

ER/Studio Enterprise includes a web portal that allows for “near” real-time publication of the information contained in the ER/Studio repository (offered with the Enterprise Edition). The portal allows developers, DBAs and business analysts to browse, search and report on the model metadata via a web browser. It drastically streamlines the process of communicating the models by offering a “self-service” method for publishing the information. The data architects no longer need to refresh reports any time a model changes. The portal has a separate reporting repository that is optimized for searching and reporting that is kept in synch with the ER/Studio repository via an ETL process.

## **SUPERIOR META MODEL AND PRODUCT EXTENSIBILITY**

### **META MODEL EXTENSIBILITY**

ER/Studio’s widely leveraged ‘Attachments’ system feature is designed to allow users to ‘attach’ new and unique metadata to any portion of a data model for user-specific needs. This helps to ensure the data model can be leveraged by an organization for a wider audience, allowing the data models to offer more than just ‘classic’ entity, attribute, datatype, and relationship information.

Attachments allow organizations to include metadata that document anything from data governance policies, to data stewardship, to workflow information. ER/Studio also allows an architect to incorporate security classification schemes, map privacy policies to the data or document relevant compliance laws.

### **PRODUCT EXTENSIBILITY THROUGH THE AUTOMATION INTERFACE USING VBA**

ER/Studio allows users to utilize built-in VB macros to gain programmatic access to the entire application ‘shell’. Users can modify one of dozens of existing macros or build their own macros to extend the existing functionality to meet their specific business needs. Examples of simple macros include exporting the model to an Excel spreadsheet, import reference values from Excel, data type converters, primary and foreign key constraint generator, and many others.

## **SUPERIOR METADATA CAPABILITIES**

Both ER/Studio and ERwin offer dictionary systems which allow creation and access to reusable components such as domains, rules, valid values, etc. However, the similarities end there. ER/Studio’s Data Dictionary system and Where Used interfaces ensure infinite levels of object traceability.

### **THE DATA DICTIONARY IN ER/STUDIO PROVIDES MODELERS WITH THE FOLLOWING:**

- It is reusable and importable across disparate ER/Studio model files (without the need for a collaborative Repository).
- It is recursive in that reusable objects can be used within other reusable objects (e.g. a Default can be created once, and then reused in many Domains).
- It includes a much wider set of reusable objects (e.g. Attachments, Domains, Reference Values, Naming Standards Templates, Attachments, Defaults, Rules, Template Procedures and Triggers and more) than ERwin.

- It offers superior metadata traceability through Binding Information Interfaces found in the Data Dictionary and other key objects to quickly display where elements (e.g. Domains) have been bound in the diagram in order to assess the impact of change.

With the Enterprise version of ER/Studio, the data dictionaries can be shared dynamically across any model in the repository allowing an architect to enforce standards enterprise wide. Changes to an enterprise dictionary object will propagate to any model leveraging that object.

## PLAN THE CONVERSION

Planning lays the groundwork for the conversion project which helps avoid many potential pitfalls and landmines. It also helps determine the time and effort needed for the process.

## PERFORM AN INVENTORY AND ASSESSMENT OF CURRENT MODELS

The first step in converting to another modeling product is to understand the investment in the current modeling product. This involves identifying and analyzing all the models that have been produced in ERwin.

If ERwin's model manager is being used, the inventory is easy. The models should all reside in the model manager; however, you should verify that all of the models are in fact being kept in ERwin's model manager.

If they are not in the model manager, the process may be much more difficult. It is necessary to identify all models in use throughout the organization. In the best case, there will be only a few enterprise models that have grown over the years that need to be converted. More likely, there will be many models distributed across the organization in various departments. They may live on a developer's or DBA's personal computers, various network drives or even in someone's email inbox. The important thing is to create an inventory of the models that exist, where they are located, and who owns and maintains them.

After completing the initial inventory, the next step is to determine which models are in use and the nature of their usage. This will determine the time and resources needed in the conversion effort. Many companies have hundreds of models throughout their organization. Some of these may be under active development and change. Some of them may be effectively complete and subject to no or little change. Some of them may be antiquated and no longer in use. Identifying the usage of models will determine which models require conversion and will help estimate the resources and time needed for conversion.

Another point to consider is the nature of the models. Some models may be application specific and very physically oriented. They arose to manage a specific database, generate DDL and make changes to the structure. These typically have little or no "logical" information, and may not even have a logical model. In this case, it may be less costly to use ER/Studio to reverse engineer the live database rather than convert the ERwin model. Reverse engineering ensures that models exactly match the database structure they are meant to support. This removes the need to validate the model structure for accuracy after the conversion and avoids potentially losing information such as storage parameters, triggers, stored procedures and other physical objects, which may not migrate during the translation. Further, these types of models are often not kept in synch with the database implementation.

Unfortunately, reverse engineering from the live database will only work for a small subset of models. Mature data models contain much more information than is contained in the implemented database. Logical information such as subject areas, business rules, business names and definitions cannot be reverse engineered from the database catalog. This information is too vital to lose. The target audiences of the models have grown outside the technical arena. Many business analysts rely on the logical data models as roadmaps to guide them in producing reports instrumental to marketing campaigns, customer profiling and inventory analysis. Note that with these types of models, the physical models should be compared and synched with the target databases to ensure that the physical models are current and correct prior to conversion to ER/Studio.

## DEFINE A CONVERSION PROCESS

A process for converting ERwin files and models to ER/Studio should be defined. Key decisions that will need to be made as part of this process include:

- Which models are to be converted to ER/Studio?
- When should the models be converted?
- Should ERwin physical models be validated and synched prior to conversion? Or should this process be applied to the resulting ER/Studio models?
- Who will perform the conversion?
- Who will be responsible for verifying the resulting conversion?
- Who will be responsible for future maintenance of the ER/Studio models?

### KEY FACTORS TO CONSIDER INCLUDE:

- Are the models stable and effectively complete? Or are they still under active modification?
- What type of databases, if any, are the models used to maintain? Are the database(s) maintained via tools other than the modeling tools?

## CONVERSION PROCESS

The conversion process is designed to help maintain investments in legacy models and model metadata managed in ERwin 3.5.2, 4.1.x or ERwin r7.x, and to ensure a seamless transition to ER/Studio.

The process of converting from ERwin® to ER/Studio depends on the version of ERwin® in use. Converting from pre-4.x and pre-r7x versions of ERwin® is a simple task. ER/Studio has a native ERX import which can be leveraged to directly import the model into ER/Studio, which maximizes the amount of information imported into ER/Studio.

In version 4.0 and later, the ERX export is no longer available. Fortunately, an add-on to ER/Studio is available to import and export metadata from a variety of sources. This not only allows you to import models from ERwin 4.1.x or r7.x, but allows you to integrate your model metadata to a wide spectrum of other BI, ETL and metadata interchange formats.

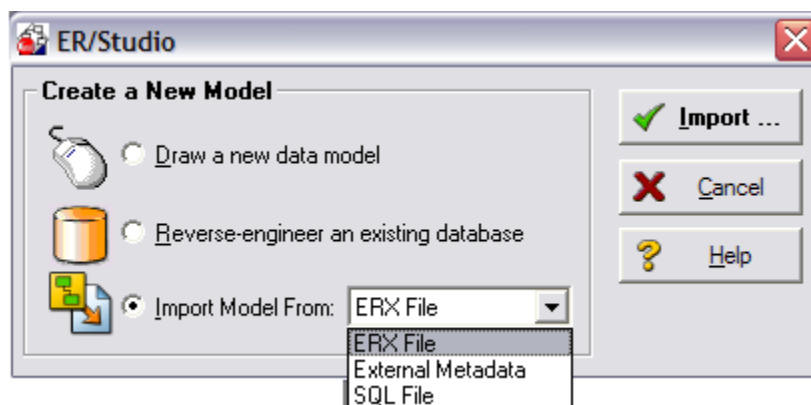
For a complete list please refer to the Embarcadero Technologies website (<http://www.embarcadero.com/products/erstudio/MIRModelBridges.xml>).

## CONVERTING FROM COMPUTER ASSOCIATES ERWIN 3.5.2

**Note:** Before beginning the import process, you need to use Erwin 3.5.2 and save the model as an ERX file by going to **File > Save As...** and selecting ERX from the file type drop down.

ER/Studio lets you import ERX files from ERwin 3.5.2 directly. To import an ERX file, perform the following:

1. Launch ER/Studio.
2. Go to **File > New**.
3. Select the third option **Import Model From**:



4. Select **ERX file** from the dropdown list
5. Click the **Import** button
6. Browse to the ERX file you want to import.
7. Click **Open**. ER/Studio imports the ERX file and creates a dm1 file with a logical and physical model.
8. The file name defaults to the name of the ERX file. Go to **File > Save** to save the model to your local drive or a network drive.
9. You may also opt to insert the models into ER/Studio Repository if it is installed. In this case go to **Repository > Diagrams > Add...** ER/Studio launches a dialog to initialize some diagram information, such as author, diagram name, project etc.



## CONVERTING FROM ALLFUSION ERWIN DATA MODELER 4.1.X AND R7.X

ER/Studio can import metadata from ERwin 4.1.x .er1 or ERwin r7 .erwin files by leveraging its add-on module MetaWizard. You must first save your .er1 or .erwin file in their XML format. If you have ERwin installed on the same machine as ER/Studio, the bridge will do this for you by leveraging the ERwin API.

**Note:** If you do not have ERwin on the same machine as ER/Studio, you need to save the .er1 file as an .xml file *prior* to importing into ER/Studio.

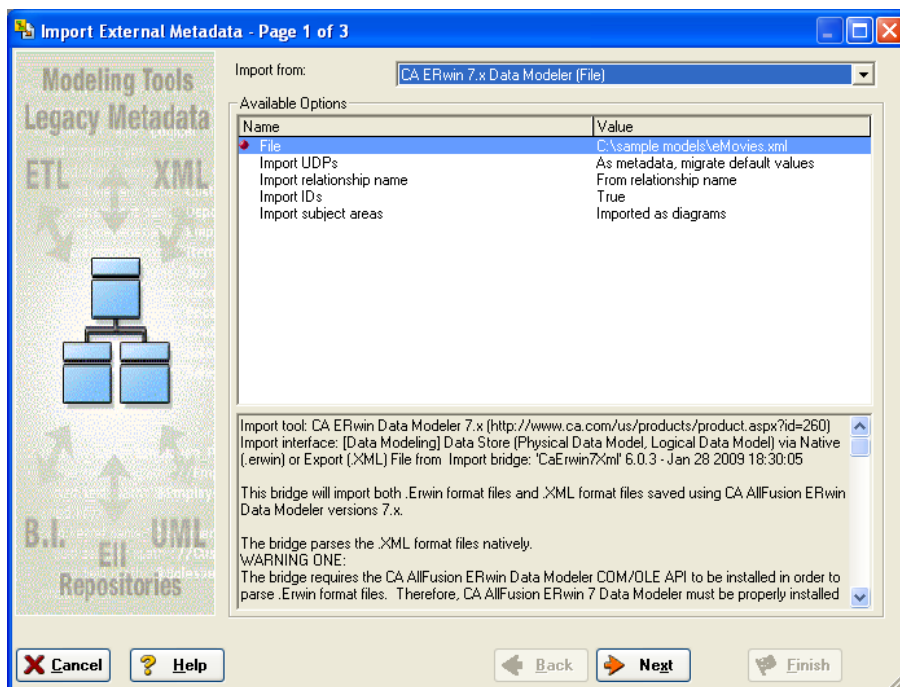
ERwin 4.1.x .er1 and r7 .erwin files are notorious for having corrupt data. Before saving the file as an .xml file, you should run their diagnostic check on the .er1 file.

Use Erwin to clean up the file, go to **Tools > Diagnostics....** This cleans up the .er1/.erwin file before the import into ER/Studio. Once the repair is complete, you can go to **File > Save As...** and select .xml as the file type. If you intend to have the bridge convert the .er1 or .erwin file to .xml then just proceed to the conversion steps.

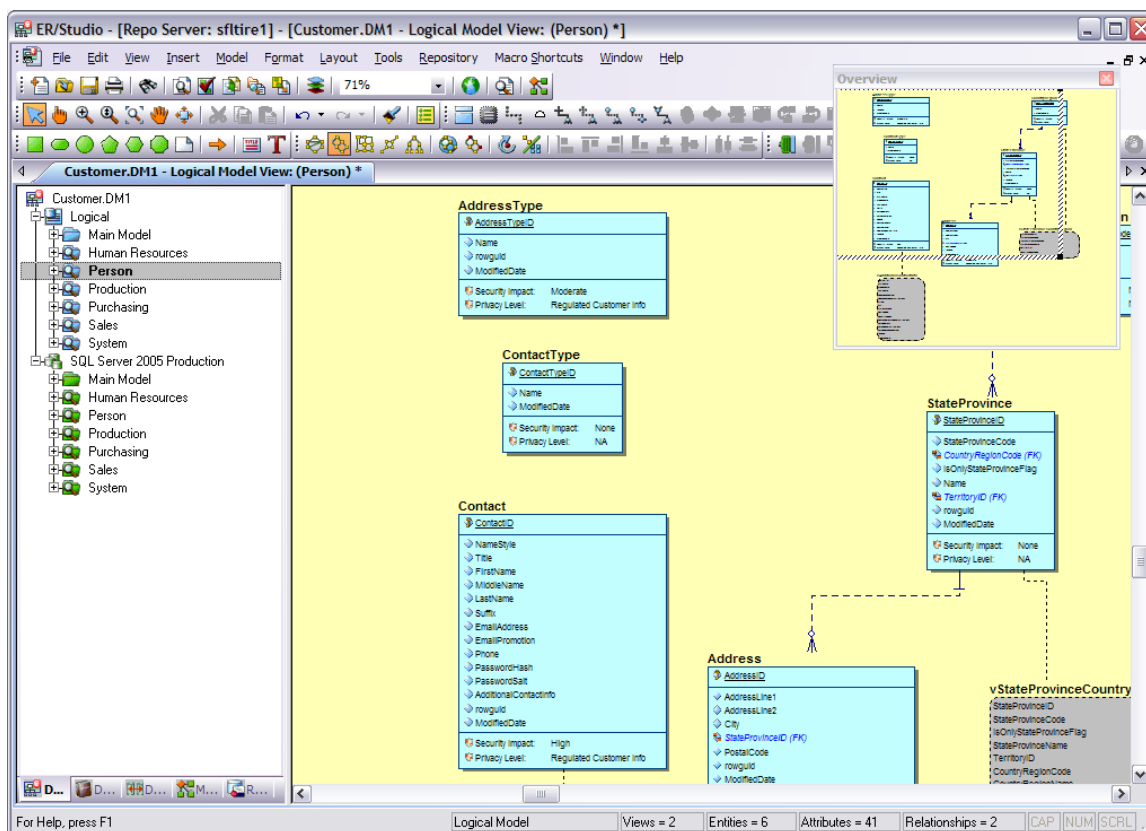
**Note:** You may need to contact Embarcadero Technologies for a trial license of MetaWizard. Import and Export Bridges are separately licensed. Contact [sales@embarcadero.com](mailto:sales@embarcadero.com).

To import an ERwin .xml/.er1/.erwin file, perform the following:

1. Launch ER/Studio.
2. Go to **File > New**.
3. Select the last radio option, **Import Model From:**.
4. Select **External Metadata** from the list. This launches MetaWizard.



5. Select CA AllFusion ERwin 4.x Data Modeler or CA AllFusion 7.x Data Modeler from the list.
6. Browse to the ERwin .xml file that you previously saved or the .er1/.erwin file if you intend to have the bridge do the conversion.
7. Click Next. MetaWizard validates the XML file for any errors or inconsistencies.
8. Click Finish. ER/Studio imports the Logical and Physical model.



9. The file name defaults to the name of the ERwin file name with an extension of .dm1 (ER/Studio native file extension). Go to **File > Save** to save the model to your local drive or a network drive.
10. You may also opt to insert the models into ER/Studio Repository if it is installed. In this case log into the repository and go to **Repository > Diagrams > Add Diagram...** ER/Studio will launch a dialog to initialize some diagram information, such as author, diagram name, project, etc., shown in Figure 2.

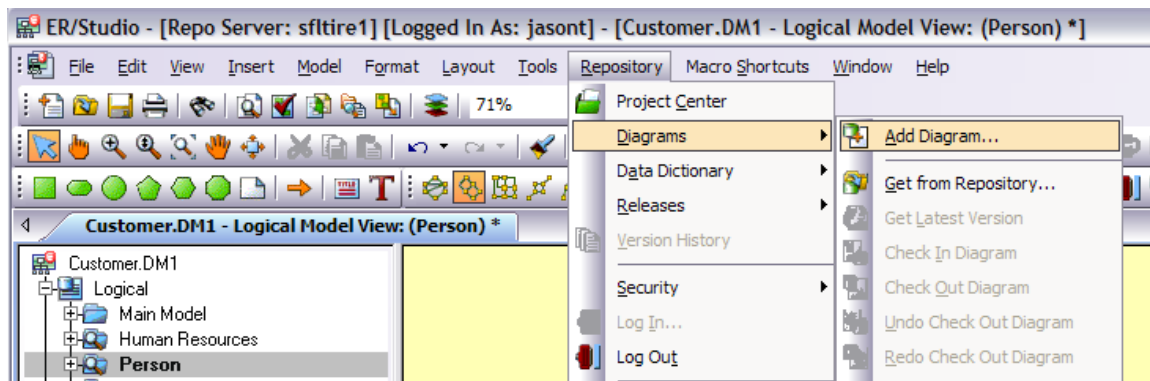


Figure 2 Add Diagram in ER/Studio Repository

## VALIDATION OF CONVERSION PROCESS

In addition to converting the basic model objects such as entities, attributes, table, columns, etc, ER/Studio translates the ERwin file to ensure that other critical data is preserved, such as:

- ERwin Diagram Aesthetics (Layout, Color, Font, etc)
- ERwin Subject Area Importation
- ERwin UDP Importation
- ERwin Domains, UDTs, Rules and Defaults
- ERwin definitions and notes for model objects

Some physical information may be lost in translating the .xml files from version 4.1.x or r7.x, such as:

- ERwin triggers and procedure code
- ERwin macros
- Table storage parameters
- Storage objects

After the conversion is complete, comparing the ER/Studio model to the live database can recover much of this physical information. The comparison will also help validate that the physical structure of the tables, columns and foreign keys migrated properly.

Validating the logical metadata can be a little more complex. ER/Studio offers a variety of Microsoft® Excel reports via its extensive automation interface. Entity and attribute metadata, submodel usage of entities, domain usage and object definitions can be exported into lists for analysis. These reports can also be compared to reports generated from ERwin to assist in the validation.



Embarcadero Technologies, Inc. is a leading provider of award-winning tools for application developers and database professionals so they can design systems right, build them faster and run them better, regardless of their platform or programming language. Ninety of the Fortune 100 and an active community of more than three million users worldwide rely on Embarcadero products to increase productivity, reduce costs, simplify change management and compliance and accelerate innovation. The company's flagship tools include: Embarcadero® Change Manager™, CodeGear™ RAD Studio, DBArtisan®, Delphi®, ER/Studio®, JBuilder® and Rapid SQL®. Founded in 1993, Embarcadero is headquartered in San Francisco, with offices located around the world. Embarcadero is online at [www.embarcadero.com](http://www.embarcadero.com)

