



Gain a clear understanding of complex application database relationships

IBM **Information Management** software

IBM Optim Database Relationship Analyzer

Highlights

- ***Automatically analyze database relationships across applications***
- ***Discover all, or specific database relationships, based on your parameters***
- ***Identify hard-to-find relationships defined and enforced by the application logic***
- ***Compare database images to validate changes and preserve data integrity***
- ***Promote consistent database administrative activities***

How can you ensure data integrity to support application development initiatives?

Most of the ERP, CRM and custom applications that drive your business operations rely on complex relational database technology. It is not uncommon for application databases to contain dozens, hundreds or even thousands of database tables and just as many data relationships. Database administrators are often challenged to navigate through the database schema to ensure the referential integrity of the data each time a new application enhancement or upgrade is developed. The complexity of relational databases is not limited to large-scale systems. Even an application database of less than a dozen tables can support complex relationships and be accessed from other applications,

making it more challenging for DBA's to navigate and manage database relationships effectively.

Relational data, by its very nature is fragmented, making it difficult to recognize related information, let alone manipulate it. The referential integrity of the data must remain intact, yet database administrators have no sure way to account for every possible database relationship. Complete intelligence about data relationships is almost never fully defined in the database management system (DBMS) catalog. Data relationships often exist in the "real world" that cannot be recorded in the DBMS. To compensate, these real-world data relationships are defined and enforced by the application logic and must be understood and maintained. Adding to the complexity is the challenge of

managing data relationships across heterogeneous database management systems, legacy data and differing database schemas.

Without access to a generalized technology, there is no easy way to determine how an anticipated change to the application database schema will impact the referential integrity of the data. Related data must be analyzed and understood to make its business use in the enterprise application more apparent. Once these challenges are addressed, accuracy is improved, data is more usable, and it is easier to implement enterprise data management strategies, such as database archiving, test data management, data masking and more. So, what are your alternatives?

Analyzing data relationships to improve accuracy and data integrity

The IBM® Optim™ Database Relationship Analyzer provides the capabilities to discover, record, refine and manage groups of database tables and relationships that support a single business application or an entire enterprise application environment.

Optim provides a complete view of database relationships, essential for planning application upgrades, initiating database and data relationship

changes, enhancing or adding new application functionality, as well as database cleanup, migration and testing.

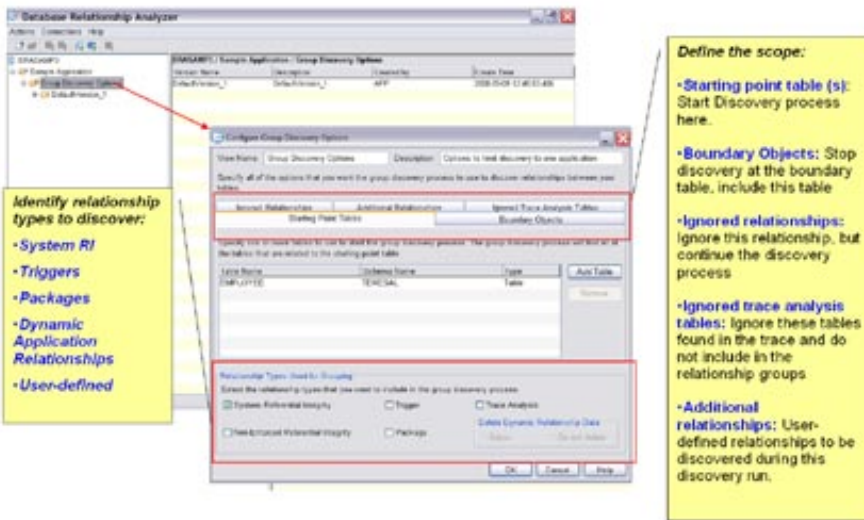
Now you can discover and save the database relationship information as “groups” and manage these relationship groups across your enterprise application environment. For example, discover relationships that are hard to find and manage, such as those associated with monthly or year-end applications and dynamic or transient applications. Identify relationship groupings to preserve the referential integrity of the data for other data management activities, such as archiving, test data management, data masking, backup and recovery and replication with other tools. Group related tables based on how they are used in the application environment, for example inventory, sales and payroll, and other uses. To help you improve database management, the Optim Database Relationship Analyzer includes the following components: Group Discovery, Trace Analyzer and Integration APIs.

Discover all data relationships within a single application environment

The Group Discovery process enables finding the database relationships based

on a user-defined set of parameters. For example, you can specify a starting point table, boundary objects, tables and relationships to ignore, and additional relationships to find. The discovery process can be run to analyze the entire database catalog or discover the relationships specific to a selected starting point table. You can also take advantage of the group validation feature to compare one version of a table/relationship group to another to determine if any changes have occurred in the DBMS environment or in the applications that reference the tables in the groups.

For example, you need to add a salary table to a payroll application and you want to see the impact that change will have on the other tables. You can use the group discovery process to obtain a before and after view of the database and then perform a group validation to automatically pinpoint the differences. First run the group discovery process on the original database to get a baseline. Then add the salary table to the database and run the group discovery process again to get a current version and view of related groups. Next, select that new version to compare to the baseline. The differences display automatically.



The Optim Data Relationship Analyzer discovers database relationships based on your search parameters.

Trace data relationships across different application environments

Trace Analyzer complements the Group Discovery process to find database relationships that are enforced by the application and not defined in the database catalog. This function assesses the SQL trace information and parses the SQL (DDL and DML) statements that were issued during a specific application run period. Optim considers tables to be related if they are referenced in the SQL statements that were issued by the same application. The Trace Analyzer supports DDL and DML statements, such as CREATE, ALTER, INSERT, DELETE, UPDATE and SELECT.

For example, you make changes to the data schema and want determine if any external SQL applications, such as the payroll application, access the tables that you have deleted or renamed, so you can update the source code. First, you would run the SQL trace on your database for a period of time when it would be accessed by the external applications. Next, you would run the Trace Analyzer based on the SQL trace information. Finally, simply run the Group Discovery process using input from the Trace Analyzer to discover the relationships between the updated payroll tables and the external applications.

Support for integrated application program interfaces

Integration API contains a set of SQL views and stored procedures that are defined on the Optim Database Relationship Analyzer metadata database and enable retrieving group and table relationship information. You can use these views and stored procedures to retrieve group information and table relationship information. In fact, any DBMS tool or application can use the views to retrieve information that might be helpful in managing your environment. DBMS applications can call these stored procedures. Optim provides sample code statements that you can use to create a sample program to call integrated stored procedures.

Obtain a complete view of your application database environment

The capability to discover and understand the data relationships within a single application or across integrated applications offers several benefits. The capability to find table relationships can help you perform impact analysis across databases before deleting or modifying database elements, for example, renaming table columns.

The group validation feature helps analyze relationship information before

and after changes are made, such as deleting or adding a table and validating runtime table interactions. The SQL trace analysis feature helps you find application enforced data relationships that are not defined in the DBMS catalog and makes it easier to observe the runtime table interactions of external applications that access your database. Understanding the data relationships makes it easier to identify and remove duplicate or unused objects to optimize the database and help improve performance. A clear picture of the data relationships can also help preserve the referential integrity.

Promote database accuracy and consistency

It is essential to have a clear picture of all relationship data to ensure data consistency and keep the data relationally intact. The relationship data is used to fast track various data management practices including archiving, backup and recovery, creating practical testing environments and understanding relationships in replication subscriptions.

Through integration with the IBM Optim Data Growth Solution, IBM Optim Test Data Management Solution and the IBM Optim Data Privacy Solution, the Optim Database Relationship Analyzer provides the capabilities to analyze interrelated

application database environments in less time, migrating referentially intact and complete sets of related data to reduce risk, and improving database management to lower costs.

About IBM Optim Integrated Data Management Solutions

IBM Optim Integrated Data Management Solutions offer proven, integrated capabilities to manage enterprise application data from requirements to retirement. With Optim, teams can share data artifacts (like models, policies and metadata) to align data management with business goals and improve collaboration. Today, organizations of all types leverage Optim to improve performance, streamline database administration, speed application development, and enable effective governance. Optim delivers better business outcomes, at lower cost, with less risk, while providing capabilities that scale across enterprise applications, databases and platforms.

For more information

To learn more about IBM Optim Integrated Data Management Solutions, contact your IBM sales representative or visit: www.ibm.com/software/data/optim-solutions/.



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