

White Paper

**Do you trust your data enough
to risk your neck?**

*The Sarbanes-Oxley Act holds executives
personally responsible for accurate
and timely financial reporting*

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Introduction

"Can I trust our data enough to risk my neck?" That's what CEOs and CFOs of small, medium and large companies are asking themselves these days. Unfortunately, they probably don't.

The new Sarbanes-Oxley Act (also known as SOX) holds top executives personally responsible for the accuracy and timeliness of the financial data they report.

Before SOX, integrating and cleansing enterprise data was not high on the list of IT priorities. Now, CIOs and IT managers are on the spot to provide trustworthy data.

Data can be untrustworthy for many reasons. One is that data resides in various databases. All enterprises have data in at least two -- and typically three or more -- applications: ERP, payroll, manufacturing, home-grown, distribution, point of sale, transportation, healthcare, insurance, or other systems.

Progressive organizations have built data warehouses or data marts. But many of the same problems persist. Independent data marts will each have their own extract process and transformation rules. This leads to multiple versions of the truth— untrustworthy data that cannot be relied on for financial reporting.

Even centralized data warehouses or data marts can have problems if the underlying data extracts are undocumented, incomplete or not audited. There may be a single version of the truth, but it may be wrong.

For companies that rely on the IBM eServer iSeries to run their business, Coglin Mill's RODIN¹ is an effective solution. Since 1995, RODIN has been used to automatically integrate, cleanse and document data from multiple databases into a repository of trustworthy data. The result: a single version of the truth that everyone can rely on.

This white paper explores:

- the three key requirements of the Sarbanes-Oxley Act (SOX)
- typical data problems
- how Coglin Mill's RODIN ensures trustworthy data for SOX reporting

¹ Rodin, pronounced row-dan, was the French sculptor whose "The Thinker" statue is part of the Coglin Mill logo

Three key requirements of the Sarbanes-Oxley Act

Companies face some real challenges in complying with three key sections of the Sarbanes-Oxley Act.²

- Section 302: Financial Reports
 - Standards for tracking and reporting
 - CEOs & CFOs personally responsible for accuracy of financial statements
 - Personal penalties from fines to jail

Implementing defined standards is not easy. Who, what, where and when must be addressed. Tracking and reporting defined standards is also challenging. Manual processes are error prone and time consuming.

- Section 404: Internal Controls
 - Assess internal controls
 - Report on internal controls
 - Assess effectiveness of controls and procedures

To create an internal control report, management must first identify all of the data sources used in financial reporting and then determine the validations and audit processes (if any) associated with the extraction of data from each of these. This is difficult to do when there's no central place for data, rules and documentation. When there are only manual processes, it is next to impossible to assess the effectiveness of controls and procedures. Not only are these hard to document, but also to apply. The operator must follow procedures, report on exceptions and basically "get it right" every time.

- Section 409: Real-time Disclosure
 - Disclose information on material changes in financial condition on "rapid and current" basis

Acquisitions, divestitures and reorganizations make it difficult to reflect current and historical financials accurately and in a timely manner. Missing, unreliable or incomplete data caused by these business upheavals will ultimately affect internal forecasts. This will lead either to failure to report changes in financial condition or even to erroneous reports. Therefore, collection and aggregation of data from multiple divisions and business units must not only be reliable, but also must be done immediately, rather than over weeks or months.

² For more details on the Sarbanes-Oxley Act, visit <http://www.aicpa.org> (American Institute of Certified Public Accountants) or www.fei.org (Financial Executives Institute).

SOX challenges facing IT Managers

The additional burden of the Sarbanes-Oxley financial reporting requirements is a critical business issue today. IT and financial teams are expected to produce more information in less time, and top management must sign off on the accuracy.

Manual or query-based extract and consolidation processes carry a high overhead and are prone to error. Costs increase while productivity decreases.

Gaining secure access to data in various transaction systems is a problem every business faces. Data in transaction systems is spread out and formatted for transactions, not for easy access or reporting.

Data that has not been transformed and consolidated leaves room for multiple interpretations and inconsistent business rules, which leads to multiple answers to the same question, and potentially, non-compliance due to wrong information

Many organizations want to be able to audit, trace and scan transactions for anomalies while providing secure access to relevant data across various levels of the organization.

Without a repository of detailed and cleansed data, corporate reporting tools (whether based on SQL queries or predefined OLAP data cubes) can only provide half of the solution.

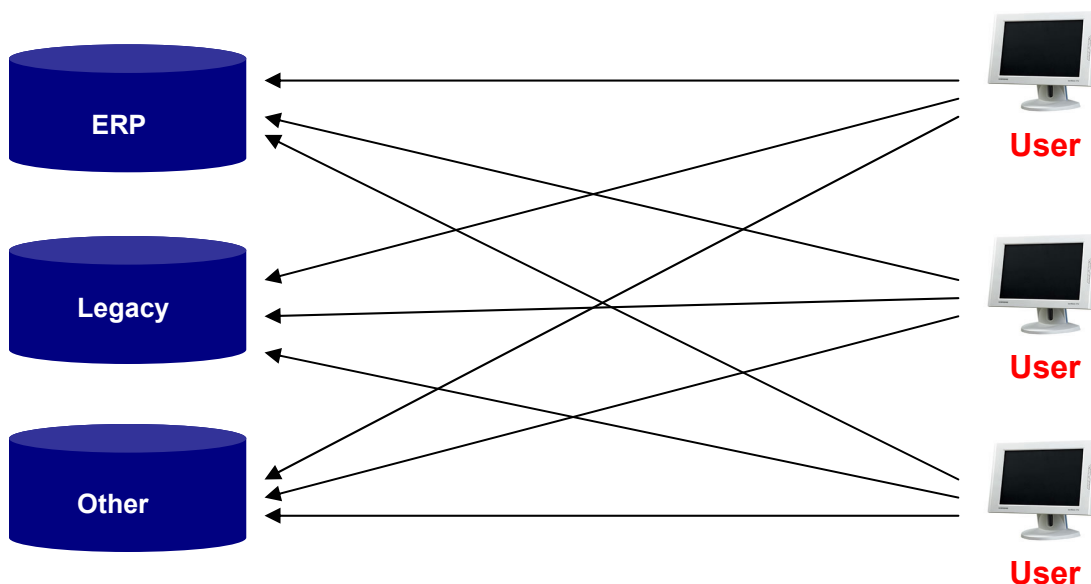
The inability to automatically identify, set aside and audit errors in transaction data increases costs exponentially as workers try to hand-code and manually search through programs for this information.

Enterprises need to have employees spend less time gathering data and more time analyzing the data.

Typical data problems

There are many reasons why data can be untrustworthy.

One reason is that data resides in various databases. All organizations have data in at least two and typically three or more types of applications: ERP, payroll, manufacturing, home-grown, distribution, point of sale, transportation, healthcare, insurance, or other systems.



Each application will have its own way of storing data within the database. Even worse, as more and more companies rely on heterogeneous platforms for different applications, the data may be stored in incompatible databases.

Consider dates, for example. Many applications, such as JD Edwards, have a different or unique way of handling dates. Most legacy applications simply use numeric fields, rather than true date fields, and store the data in one of several different formats (e.g., yyyymmdd, cyymmdd, mmddyyyy, etc.). If you have three different applications with three different date types, you automatically have a data integrity problem.

Since most basic query tools cannot efficiently handle these disparate date formats, programmers end up writing programs and create staging tables to integrate the data. Over time, as more and more extracts are created, those staging tables become a nightmare to manage.

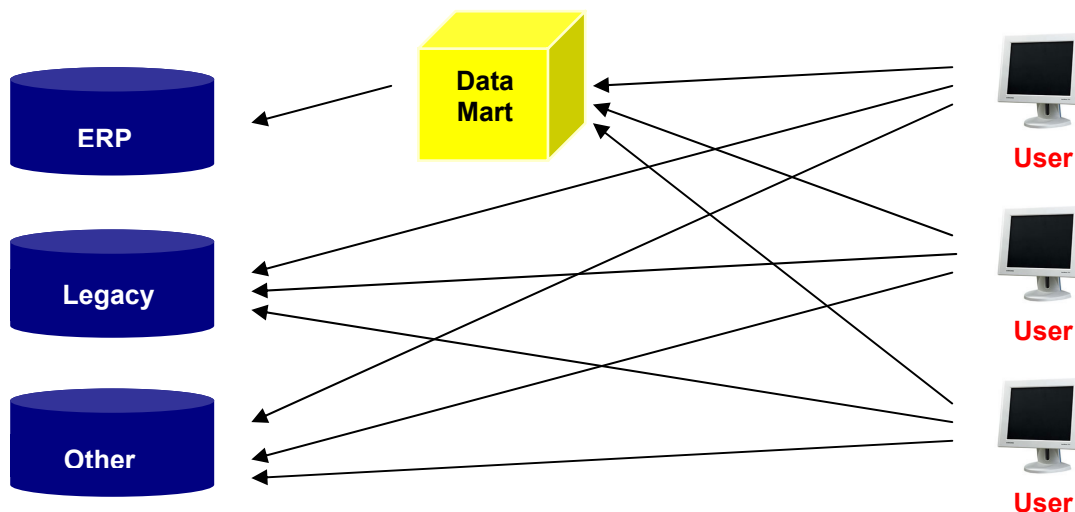
Of course, the problem extends far beyond dates. Many pieces of information are common across applications, but will be stored differently. This mandates some form of

conversion or transformation and each programmer will do things differently. Different rules will be applied, different levels of exception reporting and error handling will be implemented (if at all). Documentation probably won't exist. This situation was already a nightmare to manage before SOX. Now it is completely unacceptable.

Organizational changes exacerbate data reliability problems. For example, let's say the NE sales region (01) is split into two separate regions (01 and 09). Then let's say the sales manager is creating a sales forecast and wants a report on customer XYZ's history over the last 3 years. The customer is now in region 09, but two years of history was in 01. How do you automatically reconcile those numbers and ensure that you correctly report on XYZ without duplicating sales figures? If duplicated sales eventually end up in a financial report, you have a SOX compliance problem. Where is it documented that the split occurred and how the history was handled? How are you going to prove that there was a control in place to correctly change reporting based on this split?

Progressive organizations have addressed some or all of these issues by building data warehouses or data marts. While this is the correct approach, if not done correctly many of the same problems will persist. If independent data marts are implemented, each will have its own extract process and transformation rules. This will undoubtedly lead to multiple versions of the truth—untrustworthy data that cannot be relied on for financial reporting.

Even centralized data warehouses or data marts can have problems if the underlying data extracts are undocumented, incomplete or not audited. There may be a single version of the truth, but it may be wrong.

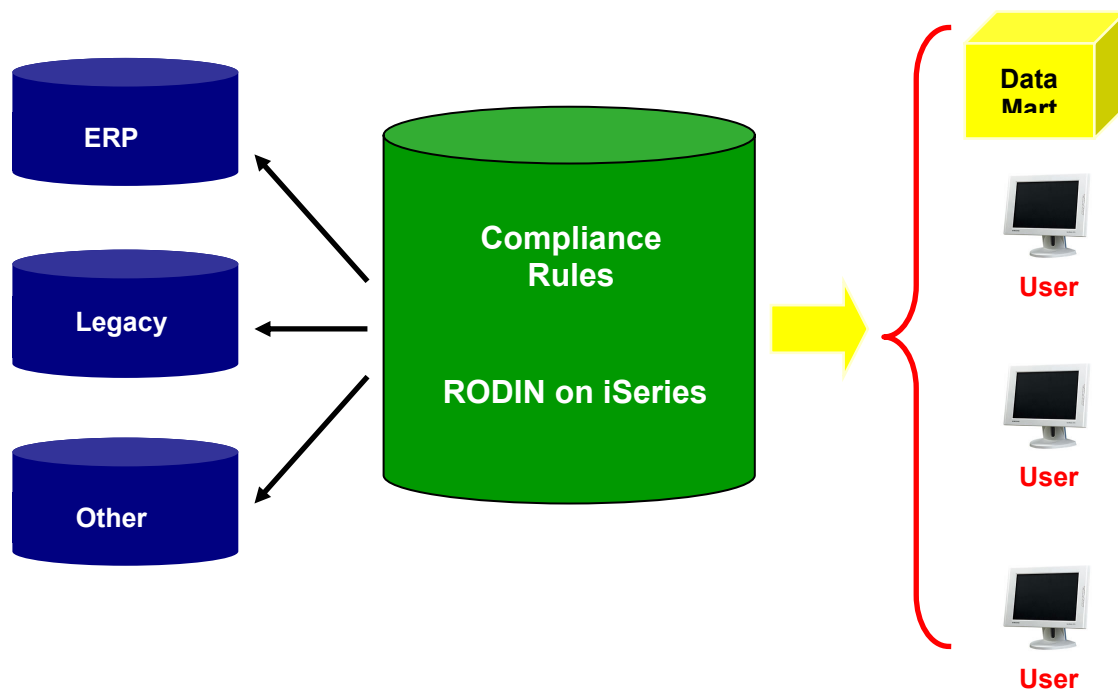


The RODIN data integrity solution

RODIN is a solution for data integrity problems. RODIN enables enterprises to:

- consolidate the data from various sources
- create and simultaneously apply the business rules to all source data
- complete the necessary transformations (e.g., decimals, dates, etc.)
- report, audit, and account for errors
- automatically document the process through an active meta-data repository

The result is a single version of the truth that is complete, accurate and documented.



Coglin Mill's RODIN streamlines SOX compliance through data integrity

RODIN enables complex or simple rules to be developed in a fraction of the time it takes to manually write them. The meta-data repository automatically captures the rules and changes so everyone is working from a single version of the truth.

The sections below explain how RODIN reduces risk and helps you comply with the three key SOX mandates.

RODIN and Section 302 (Personal Responsibility): no surprises for your CEO and CFO

Obviously, C-level executives will not get personally involved in the data integration process. They will instead require that their IT managers get it right. The IT manager will probably be required to give his or her personal guarantee to the CFO and CEO that the data is reliable.

It is hard enough to simply identify the data sources and define the proper business rules and cleansing processes. It is even more difficult and time consuming to do the necessary programming manually, especially within a shortened timeframe.

RODIN is the key to successfully building an integrated, reliable data repository in a small fraction of the time it would take to do so manually.

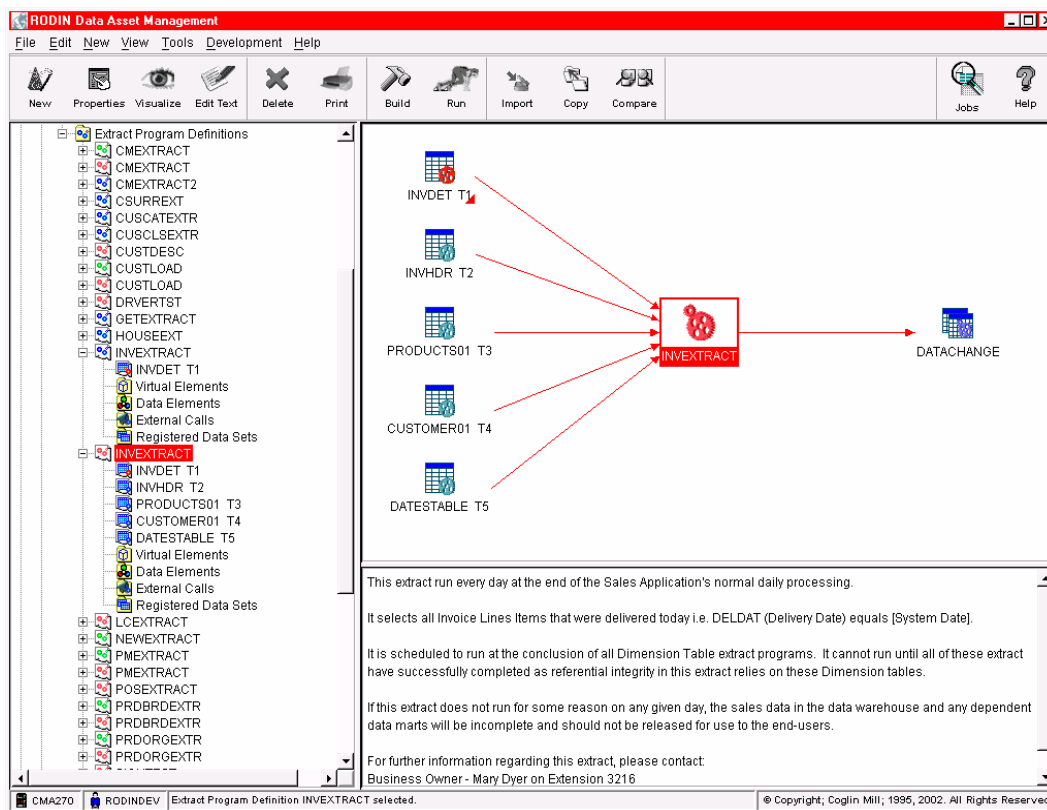
**RODIN and Section 404 (Internal controls):
know where your data comes from**

RODIN is driven by meta-data, which makes it ideal for managing internal controls:

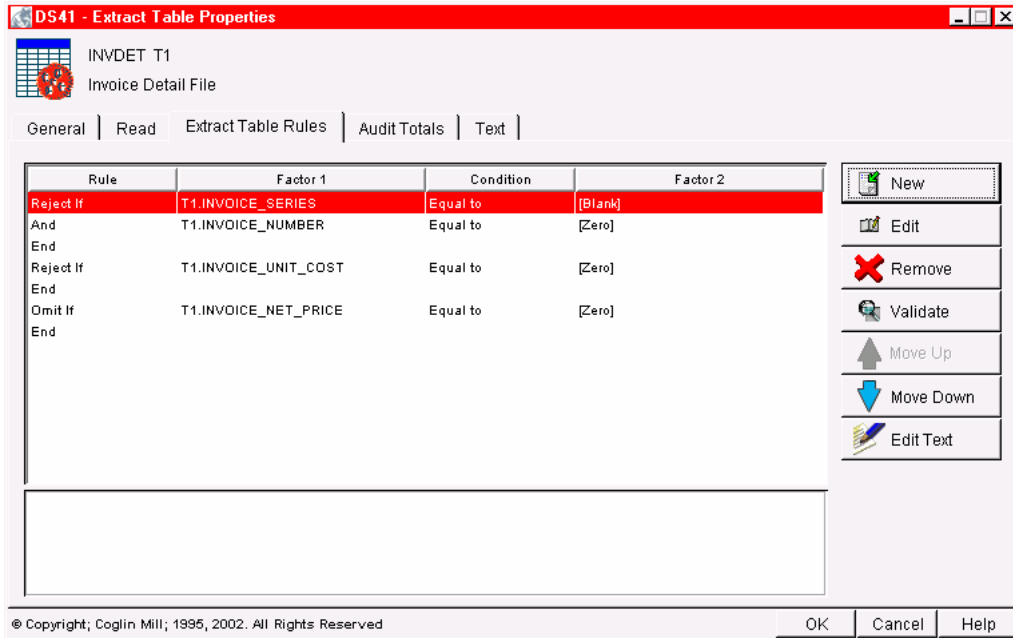
- Business rules and transformations are documented and clearly visible
- Error reports and comprehensive audit reports for each extract are automatically generated
- Information and knowledge from across the enterprise are consolidated into an active meta-data repository for detailed auditing and validation

This section illustrates five key internal control features of RODIN.

1. RODIN's advanced graphical interface shows where the data came from, how it was transformed, where it was loaded, and provides for unlimited descriptive meta-data to document these processes.



- 2. Business rules and transformations are clearly visible and defined via a simple yet powerful scripting language. These rules both are part of the meta-data and are implemented by RODIN as compiled object code for efficient and reliable native processing on the iSeries server.



3. You never need to write an error report. Every RODIN extract process produces a standardized error report which describes each error condition. The erroneous data is trapped, and after correction easily can be re-processed.

```

EXT1190                                RODIN LOAD ERROR REPORT                Page: 1
Environment : S320 RODIN Demonstration Environment
Controlling Job: RUNRDNEXT              User Profile: RODINADM              Job Date: 2002-06-07
Job Number   : 017657                  Job Step ID : 0000001
Extract Program: CMEXTRACT Customer Masterfile Extract Program
                                                RRN# in $1CUSTMAST
-----
EXR0001 Transaction rejected by user defined rule for file CUSTMAST      1         2
EXF0003 STATESL1 record not found. Key values used were: PE              3
EXR0001 Transaction rejected by user defined rule for file CUSTMAST      4         10
EXF0003 STATESL1 record not found. Key values used were:                 11
EXR0001 Transaction rejected by user defined rule for file CUSTMAST     12         13
EXF0003 STATESL1 record not found. Key values used were: AN              14
EXF0003 STATESL1 record not found. Key values used were:                 15
EXR0001 Transaction rejected by user defined rule for file CUSTMAST     16         22
EXF0003 STATESL1 record not found. Key values used were:                 23
EXR0001 Transaction rejected by user defined rule for file CUSTMAST     24         39
EXF0003 STATESL1 record not found. Key values used were: PE              40
EXR0001 Transaction rejected by user defined rule for file CUSTMAST     41         57
EXF0003 STATESL1 record not found. Key values used were: PE              58
EXF0003 STATESL1 record not found. Key values used were:                 59

Error count summary by Error ID:
      EXF0003 = 8
      EXR0001 = 51

EXR0001 - User defined rule for table CUSTMAST
          Reject If CUSTOMER_ADDRESS_LINE_3
          Equal to [Blank]
          End
Total Number of CUSTMAST records rejected in error by extract program CMEXTRACT = 59
*** End of Report ***
    
```

- Similarly, RODIN automatically generates a comprehensive audit report for each extract process. All error and audit information is retained in RODIN's meta-data repository indefinitely and can be recalled via screen inquiry at any time.

```

EXT1180          RODIN LOAD AUDIT REPORT          Date: 2002-06-07   Page: 1
Environment : S320 RODIN Demonstration Environment      Type : *PROD
Job Name : RUNRDNEXT          Journaling/Commitment Control : *INACTIVE
Job Number : 017657
User Profile: RODINADM

Job Step ID : 0000001  RUNRDNEXT Command
Number of Extract Jobs : 1      Data Set Updates Started: *YES      Error Recovery Mode: *NO
Start Date : 2002-06-07      Time : 10.18.45
End Date : 2002-06-07      Time : 10.19.13
Elapsed Time: 0 Hours 0 Minutes 28 Seconds      Step End Status: Completed Normally
Extract Program: CHEXTRACT Customer Masterfile Extract Program
Start Date : 2002-06-07      Time : 10.19.03      Transaction records read : 1847
End Date : 2002-06-07      Time : 10.19.07      Transaction records omitted : 11
Transaction records rejected : 175
Transaction records processed : 1661
Associated records retrieved : 4765
Interface records written : 1661
Number of Data Sets updated : 1
Job: 017656
Data Set Update: CUSTOMER_DIMENSION
Start Date : 2002-06-07      Time : 10.18.48      Interface records read : 1661
End Date : 2002-06-07      Time : 10.19.11      Interface records Rejected : 0
Data Set records written : 1661
Data Set records updated : 0
Data Set records recalculated : 0
Data Set total records updated: 0
Number of Totals in Data Set : 0
Elapsed Time: 0 Hours 0 Minutes 23 Seconds
Idle Time : 0 Hours 0 Minutes 15 Seconds

Data Set size statistics - as at 2002-06-07 10.19.13
CUSTOMER_DIMENSION
Number of Records : 1,661
Deleted Records : 0
Data Space Size : 569,344 bytes = 556.00 KB
CUSTOMERS01 Index : 139,264 bytes = 136.00 KB
Total Size : 708,608 bytes = 692.00 KB

*** End of Report ***
    
```

5. RODIN consolidates information and knowledge typically scattered in Word documents, spreadsheets, emails, Post-it notes and people's minds into an active meta-data repository for detailed auditing and validation. All this information is stored in DB2 tables on your iSeries. It is also available to all interested parties through their browser via automatically generated HTML pages.

RODIN
Data Asset Management

[Data Acquisition](#) | [Data Management](#) | [Data Delivery](#)

R410 RODIN V4R1 Demonstration Environment

INVOICELIN - Invoice Line Items Table

[General](#) | [Data Elements](#) | [Dimensions](#) | [Indexes](#) | [Totals](#) | [Authorities](#) | [Extract Programs](#) | [User Exits](#)

Data Management
[Data Sets](#)
[Data Elements](#)
[Calendars](#)

Data Sets
[BRANDDIM](#)
[BRANDSLS](#)
[CALENDAR](#)
[CROSSREF](#)
[CUSCATDIM](#)
[CUSCLSDIM](#)
[CUSPRDSUM](#)
[CUSPRDTS](#)
[CUSTDIM](#)
[CUSTOMERS](#)
[FAMILYDIM](#)
[HOUSEDATA](#)
[INVOICELIN](#)
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[SLSREPDIM](#)
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[SURRCUST](#)
[Back To Top](#)

General
 This is a Detail Level data set which contains Invoice Line Item data for each Invoice which is raised in the source application SALES.
 It is updated on a daily basis whenever extract program INVEXTRACT is run to bring today's Invoice transactions into the data warehouse.

Data Set Type: Summary
 CCSID: 00037

Data Elements

Name	Description	Type	Len	Dec	Origin	Update	Repeating	Accumulate Option	CCSID	Replace Condition
BASEPRICE	Invoice Base Price	Numeric	11	2	Interfaced	Daily	No	Accumulate		ALWAYS
COMMVALUE	Commission Paid per line	Numeric	11	2	Interfaced	Daily	No	Accumulate		ALWAYS
COMPANY	Company Number	Character	5		Interfaced	Daily	No	Replace		ALWAYS
CUSTNUMBER	Customer Number	Character	10		Interfaced	Daily	No	Replace		ALWAYS

**RODIN and Section 409 (Real-time Disclosure):
rapid reporting on accurate, integrated data**

With RODIN, organizations have the controls, visibility and audit information required by SOX.

The financial team no longer spends all month preparing financial reports and just a few days analyzing them. The data is available in hours or days, rather than weeks, enabling section 409 compliance.

Of course, the obvious business benefit is that executives can react to a changing financial situation much sooner.

Summary & Conclusion

In July 2002, Congress passed and President Bush signed the Sarbanes-Oxley Act which:

- 1) holds executives personally responsible for the accuracy and completeness of the financial data they report
- 2) requires that appropriate internal controls be in place
- 3) requires that material disclosures be rapid and current

Integrated and "clean" data is the absolute requirement for accurate reporting.

Unfortunately, in many companies, data is stored in incompatible formats in multiple databases. Companies that have grown by acquisition or merger may even store data on different platforms and in multiple database management systems.

Coglin Mill's RODIN solution automatically extracts, transforms and loads data into a single repository on the iSeries.

RODIN can consolidate data from multiple iSeries databases and from other databases, including DB2 UDB for Unix and Windows, DB2/390, Oracle, Microsoft SQL Server, Informix and Sybase, and mainframe structures such as IMS, Adabas and VSAM.

The integrated RODIN data repository provides CEOs and CFOs a complete, accurate picture of their company. They can rest easy. So can the IT Manager, who has found the solution.

For more information about RODIN, or to set up a demo, contact Pete Wangen at Coglin Mill in Rochester, Minnesota: 507/282-4151x45.