Maximize Your Return on Big Data

May 15-18, 2012
Using Metadata Manager for System Impact Analysis in Healthcare

David Bohmann & Suren Samudrala  
Sr. Data Integration Developers  
UT M.D. Anderson Cancer Center
About M.D. Anderson

- Established in 1941 by State of Texas, UT System
- Located in Houston’s Texas Medical Center
- Focused on three areas - Patient Care, Cancer Research and Education
- Employs over 18,000 staff, faculty and volunteers
- Consistently ranked #1 in Cancer Care by US News & World Reports
- Locations in the US and affiliations abroad
Agenda

• M.D. Anderson’s Metadata Management Journey
• Our Metadata Manager Configuration
• Impact Analysis Case Studies
• Outcomes and Benefits
• Demo
• Lessons Learned
• Future Plans and Suggested Features
• Q&A
Drivers for Metadata Management

• Active Metadata Management strategy in place since early 2000’s

• Solutions were home-grown and capable, but difficult to maintain

• We needed a solution that could manage both technical and business metadata in a more automated fashion

• Recommendation - A focused, hands-on, proof of concept (POC) would prove tool abilities and build a case for cost justification
Proof of Concept Parameters

• Use small subset of well-known data from Clinical Data Warehouse

• Show that the solution can complement or interact with other Vocabulary Management tools and demonstrate the following characteristics:
  • Capture metadata from data model through to BI report
  • Provide support for interaction with custom metadata stores
  • Provide visual interactive and standard reporting output for users
  • Provide searchable metadata querying and browsing
POC Conclusions

• The Metadata Manager toolset is powerful and relatively easy to use

• The data lineage, impact analysis and catalog URL link features provide immediate value for very little effort

• The product repository is open and can be leveraged in number of additional ways using SOA and XML technologies

• Future releases of the product provide advanced features and connectivity that would be advantageous to our metadata strategy

• We Bought It!
Our Metadata Manager Configuration

**Current**

- PowerCenter Advanced Edition 9.1
- Metadata Manager
- Business Glossary
- Custom Metadata
- Data Integration Analyst (RTM)
- Oracle, SQL Server & OBIEE

**Future**

- PowerCenter Advanced Edition 9.1
- Metadata Manager
- Business Glossary
- Custom Metadata
- Data Integration Analyst (RTM)
- Oracle, SQL Server & OBIEE
Case Studies: Challenges

- Customer needs to alter an existing hospital source system field in some way (lengthen, alter mapping)
- Field names have many variations across all systems involved
- Need initial impact estimates from all downstream systems in less than two-three weeks’ time
- Large projects with Institutional visibility, so impact analysis and final estimates need to be accurate to allow proper planning of timelines for project
- ETL team resources for coding are limited to a short period once work begins, so ETL and database impact estimates need to be accurate for maximum leverage
Case Studies: Action Plan for Searches

• Load any related database resources into MM

• Refresh PowerCenter metadata, using above resources

• Use Catalog Advanced Search feature to “crawl” across all metadata resources and return comprehensive list of impacted objects

• Use wildcard name variations for maximum coverage with specific AND/OR criteria as needed
Case Studies: Expected Output

• Output entire result set to Excel for further analysis, rollup and estimate to project team

• For initial estimate, provide count of impacted objects for:
  • Informatica objects by folder and type
  • Oracle objects by schema name and type
  • Other objects (BI) as required
Case Studies: Features Used

• Create, configure and load metadata resources, schedule refresh loads as needed

• Linking feature (v9) not critical due to catalog search

• Advanced Search using ‘All’ or specific ‘Catalog’ search feature

• Saving searches to Shortcuts menu for reuse and sharing
Features Used – cont’d

• From Search Results within Metadata Manager:
  • Select object to view and confirm properties
  • Click object to show all details in Catalog page
  • Right-click object to show lineage diagram
  • Under Actions menu, export results to Excel

• After cleanup in Excel, can filter, sort, and group results for final presentation
Case Study 1: Field Length Expansion

- Customer supporting hospital system wants to increase field length in a column from 6 to 7 digits (Referral Number, MRN)

- Customer needs:
  - List of impacted objects that will need to be modified in order to accommodate the longer field
  - Time estimate needed to make and test modifications
  - Delivery is less than 3 weeks to meet aggressive implementation deadline
Case Study 1: Referral Number Results

Initial analysis out in **5 days** - saved us 2 weeks!

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From: Bohmann, David
Sent: Monday, November 22, 2010 2:38 PM
To: Jeffery, Norma R
Cc: DeLeon, Victor H; Syed, Rafi A; Chen, Ophelia; DeFord, Linda L; Page, Melody
Subject: REFERRAL_NUM EIW Impact Analysis

Hi Norma-
Below is a fairly comprehensive analysis result of the effect of altering the REFERRAL_NUM field that has been proposed, where EIW and IDB are concerned.

Total unique objects impacted across Informatica (our ETL tool) and Oracle database (for sources and targets) is **142**. I have cut the results up in the attached spreadsheet into those two main areas to add a bit more clarity to the analysis.

Also, this result should only serve to help gauge the scope and reach of the impact rather than a total detailed assessment or any attempt at time estimates to complete the conversion itself. That will likely be a separate exercise for us to come at a later time.

Please let us know if you have any questions about the spreadsheet or any other concerns.

Thanks,
David
Case Study 1: MRN Results

- Initial analysis completed in just **3 days**!
- Over 100 objects found but **no changes required**

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**From:** Dewey, Beth  
**Sent:** Friday, January 06, 2012 11:00 AM  
**To:** Bohmann, David  
**Subject:** Power Center questions

Hi,

A coworker sent me a PowerPoint presentation for Power Center impact analysis, very nice! I am working on a project for Medical Record Number (MRN) expansion in the Siemens system (CARE). How would we get a review for the MRN like Norma Jeffries received for the Referral Number?

**Thanks,**  
**Beth Dewey**  
Sr. Business Systems Analyst  
Clinical Applications & Support

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**Good data Travels fast!!**

**From Metadata Manager, of course!!**
Case Study 2: ICD-9 to ICD-10 Conversion

- Hospital systems will be impacted by upcoming conversion to ICD-10 diagnosis and procedure codes
- Potential 4:1 expansion ratio of new codes to existing codes in some cases
- Customer needs:
  - Verify all existing ICD-9 fields can handle new ICD-10 codes
  - List of impacted database, ETL and BI objects that need to be changed as a result of the code conversion
  - Time estimate needed to make and test modifications
Case Study 2: Initial Results

• At least three weeks in time savings initially for one project resource

• Lineage diagram and detailed drill-down of ETL objects heavily used in upstream/downstream impact analysis

• Advanced search results list used to build confirmation list of impacted objects obtained through other methods

• Detection of ‘orphan’ objects very useful
Case Studies: Benefits Realized

- **Huge time savings** for department resources, over manual analysis and SQL script writing
- Timely delivery of impact analysis allowed project teams to **proceed on schedule**
- Initial analysis produced **pinpoint list** of all impacted objects requiring modification, if any
- Confirmed or **altered assumptions** about extent of expected impact and prior planning to accommodate such changes
- **Bottom line** – Metadata Manager helps us to **create value**!
Demo

Demo
Demo Learning Points

• How to search in Metadata Manager using Advanced Search feature

• How to turn raw search results from Metadata Manager into useful impact analysis reports in Excel

• How to alter Metadata Manager default configurations to accommodate export of large search result sets
Start Advanced Catalog Search

Main Catalog Browser
Enter/Modify Search Criteria
# Viewing Search Results List

In All...: Found 34 result(s) matching the search criteria.

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Viewing Search Results – Details

Select this…

…To get the details!
Viewing Catalog Detail from Search
Saving Search Criteria

Give it a name and description.
Export Results to Excel

Don’t forget this!
How Do We Make the Output Useable?

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“Full Path” is the key!
Leverage Excel Features & Macros

These are your Friends!

Standard Column Headings
Valuable Excel Output For Analysis

Oracle Objects Summary

Informatica Objects Summary

Detailed Output
Increasing Output Results – KB Article

- When you publish an item in Metadata Manager Excel format, only the first 200 objects of the item are published. The following message will be displayed on the Excel file:

- Note: Results List limited to 200 objects.
- Hence, to increase the number of objects being published, do the following:

- Add the following parameter in the 
  $INFA_HOME/server/tomcat/shared/classes/imm.properties file (8.x)

  or  $INFA_HOME/tomcat/shared/classes/IMM.properties (9.x):

    Publish.MaxObjects=XXX

  Where XXX is the number of objects to be published.

Example:

- To increase the number of objects to be published to 500, set the value of the parameter to the following:

  Publish.MaxObjects=500

- This will increase the limit to 500 objects.

- Restart Metadata Manager service after setting the value of this parameter for the changes to take place.
Default Excel Output - Limited

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Make the imm.properties changes:

`CUSTOMER MODIFIABLE PROPERTIES

# URL of mail server
mail.host=http://hostname.yourdomain.com

# Max number of child objects (or sub-folders) displayed under a Metadata tree folder.
MetadataTree.MaxFolderChilds=200

# Max number of lineage objects to export to Excel
Publish.MaxObjects=800

# Lineage Property
Lineage.showSynonym=true
Lineage.Flow.DefaultUpstreamGenerationLimit=1
Lineage.Flow.DefaultDownstreamGenerationLimit=1
Lineage.Flow.DefaultNumberOfGenerationsToContinueLineage=1
Lineage.Debug.ShowPerformanceDebugMessages=false

# Max Number of SAP tables to be extracted in one call
SAP_MAX_TABLES=300

# Miti Validation level (Possible values are NONE, BASIC, ADVANCED)
MITI_VALIDATION_LEVEL=BASIC

# Login timeout interval for source database connections (in seconds)
# value of zero indicates default JDBC driver timeout
Source_DB_Conn_Login_Timeout=0`
# Default Excel Output - Unlimited

![Excel Table](image)

**Informatica Metadata Manager & Business Glossary**

**Run On:** April 19, 2012 7:21 PM

**Results List**

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Lessons Learned

• Do a POC or evaluation to make sure Metadata Manager will do what you need it to do

• If your POC is successful and you acquire MM, don’t assume you’re a MM expert – hire some help!

• Multiple deployment configurations for MM are possible, given your hardware constraints (see “split domain install” whitepaper)
  • Single install, same PC version
  • Separate installs, two diff PC versions
  • Shared server, dedicated servers, etc.
More Lessons Learned

• Don’t dedicate a separate IS for MM, this only creates problems for ETL developers, use PowerCenter IS

• Advanced Searching using wildcards will require some “tweaking” and refinement to get exactly right

• For lineage diagrams to be complete and accurate, need to pay attention to how resources are loaded and linked in the resource manager part of the tool

• If considering AD or LDAP as authentication scheme for your MM deployment, plan for this ahead of time to avoid making this change post-deployment.
Features We Love

• Users on initial rollout to department love these features:
  • Open access to metadata not available via database login
  • Drill-down details given to them by lineage diagrams
  • Potential of Custom metadata connects to access “forgotten metadata” from the past
  • Saving searches and lineage diagrams for reuse and sharing
  • Access to Informatica ETL metadata via the interface without a PowerCenter client
Future Plans

• Ongoing MM use on the ICD-10 conversion project
• Use Metadata Manager to convert, manage and dynamically update custom in-house Metadata Catalogue
• Use Business Glossary to define and load business terms and link them to existing catalogs resources
• Convert MM Security model to LDAP authentication
• Use custom connector to Oracle SQL Developer Data Modeler (SDDM) to access data model metadata
Suggested New Features

- More automated reporting or exporting of search results to Excel (distinct object lists, etc.)
- For search results within MM, allow for sorting, filtering, add/remove columns and searching within result set
- Improved Custom Metadata integration UI
- Add inverse search operators in drop-down list
- Add expression builder to search string text box
Suggested New Features – cont’d

• Right click menu should provide:
  • ‘Copy/Paste’ menu items for editing
  • A way to output a parent object and its child(ren) right to Excel (similar to database describe function)

• Extend the URL API so that Catalog and BG interfaces are “pop-up” friendly and suitable for other UI integration
Questions?
Thank You

Contact Info

David Bohmann
dmbohman@mdanderson.org

Suren Samudrala
srsamudr@mdanderson.org