



MetaSuite
Technical White Paper
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MetaSuite : Advanced Data Integration And Extraction Software



Content

<u>CAPITALIZE ON YOUR VALUABLE LEGACY DATA</u>	<u>3</u>
<u>THE DATA INTEGRATION AND EXTRACTION FOR YOUR BUSINESS INTELLIGENCE</u>	<u>4</u>
<u>PRODUCT ARCHITECTURE</u>	<u>4</u>
METASTORE	5
METAMAP	6
METAGENERATE CODE GENERATOR	6
<u>UNPRECEDENTED EASE OF USE FOR DATA INTEGRATION AND EXTRACTION</u>	<u>6</u>
SOURCE AND TARGET SPECIFICATION	6
SOURCE AND TARGET MAPPING	8
<u>APPLICATION DEPLOYMENT</u>	<u>9</u>
<u>EXCEPTIONAL PRODUCTIVITY</u>	<u>10</u>
HIDES LEGACY SYSTEM COMPLEXITY	10
EASY-TO-USE GRAPHICAL INTERFACE	10
FASTER AND SIMPLER EXTRACTION APPLICATION DEVELOPMENT	10
SIMPLIFIED MAINTENANCE	11
IMPROVED DOCUMENTATION	11
META DATA-DRIVEN	11
<u>SUPERIOR PROCESSING PERFORMANCE</u>	<u>11</u>
UNIQUE SINGLE-PASS ARCHITECTURE	11
FASTER AND MORE FUNCTIONAL THAN DATABASE GATEWAYS	12
<u>BENEFITS SUMMARY</u>	<u>12</u>



Capitalize on your valuable legacy data

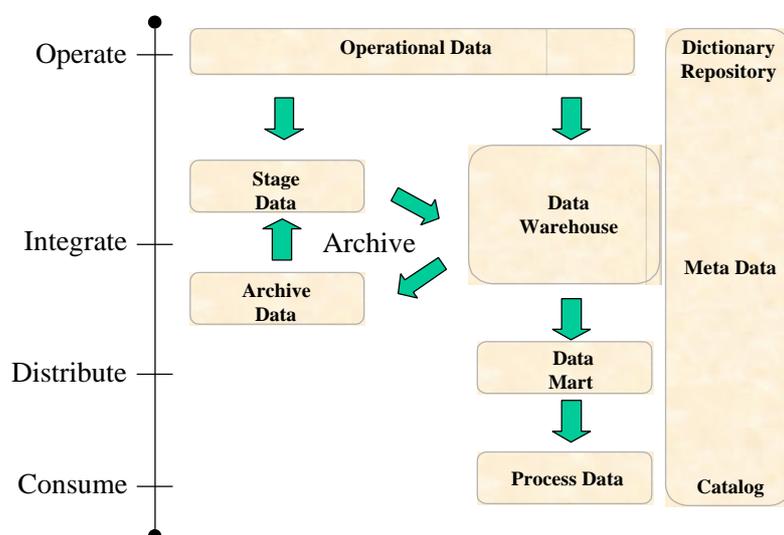
MetaSuite is data integration and extraction software that enables you to rapidly move large volumes of data into your relational database of choice. MetaSuite automates the integration and extraction of data sources so you can capitalize on enterprise data in your e-business, customer relationship management, and other business-critical initiatives. MetaSuite delivers the productivity, power, and performance to meet the needs of business-critical applications including :

- Data Warehouses / Data Marts
- Operational Data Stores
- Application Migration

MetaSuite is the fastest way to move large volumes of data into your business intelligence environment. MetaSuite simplifies the creation, maintenance, and deployment of complex data extraction tasks, enabling your IT department to:

- Extract large volumes of data within tight batch window restrictions
- Deploy projects faster
- Reduce project costs
- Respond rapidly to business requirements for enterprise data

MetaSuite extends and integrates with your solution for data warehousing and business intelligence.



MetaSuite forms a key component of your data warehouse solution by providing the ability to move large volumes of data into a relational database. MetaSuite provides a broad range of powerful data transformation capabilities to deliver that data in the appropriate form of various types of analyses.

The data integration and extraction for your business intelligence

MetaSuite provides a complete solution for defining and deploying high-performance processes for moving data into your business intelligence environment. MetaSuite is designed to simplify the tasks of designing, maintaining and deploying data extraction applications to access and transform proprietary databases and data file sources into formats ready for loading into your business intelligence environment. It is the only solution that provides the full range of native data access capabilities, including support for relational, multi-record structured files, and hierarchical files. MetaSuite supports native access to most file formats. Further, MetaSuite applications are performance-oriented, utilizing a unique "single pass" processing architecture for optimal computer resource usage and for flexibility to meet constrained mainframe batch processing windows.

MetaSuite delivers tremendous value with its powerful ability to quickly deploy high-performance integration and extraction applications and significantly reduce the time, cost, and risk over traditional approaches involving complex, general-purpose ETL tools, manual coding or gateway technology.

Product Architecture

MetaSuite's architecture [cfr. Figure 1] provides a highly productive development environment for

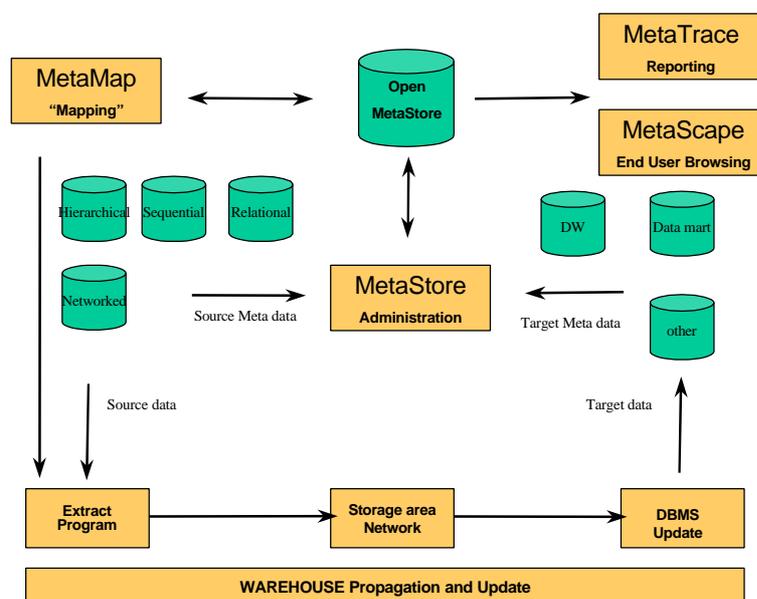


Figure 1 : MetaSuite Architecture



management of meta data, design and maintenance of extraction applications, and generation of efficient extraction programs.

MetaStore

MetaSuite employs a meta data-driven application development methodology with technology implemented in a client/server configuration, making it the most user-friendly development technology available today. Meta data is collected and maintained within the development environment MetaStore, which provides the basis for documenting the business and technical specification for the integration and extraction applications created to migrate data to the open systems platforms. Such meta data is a key component of successfully implemented data warehouses, data marts, or packaged applications. MetaSuite shares its meta data with any other technology because it is stored in an ANSI standard relational model.

MetaStore provides the graphical user interface [cfr. Figure 2] for management of source and target meta data in MetaSuite. It has the ability to import meta data from COBOL, PLI, IDMS, IMS, C structures and RDBMS catalogues to capture technical definitions for extraction application sources and targets. MetaStore automates the meta data collection process and supports all COBOL constructs and data types, as well as all relational database constructs and data types. MetaStore also allows the user to extend meta data file definitions with additional validations rules and constraints, such as valid values, data value ranges, and date format validations.

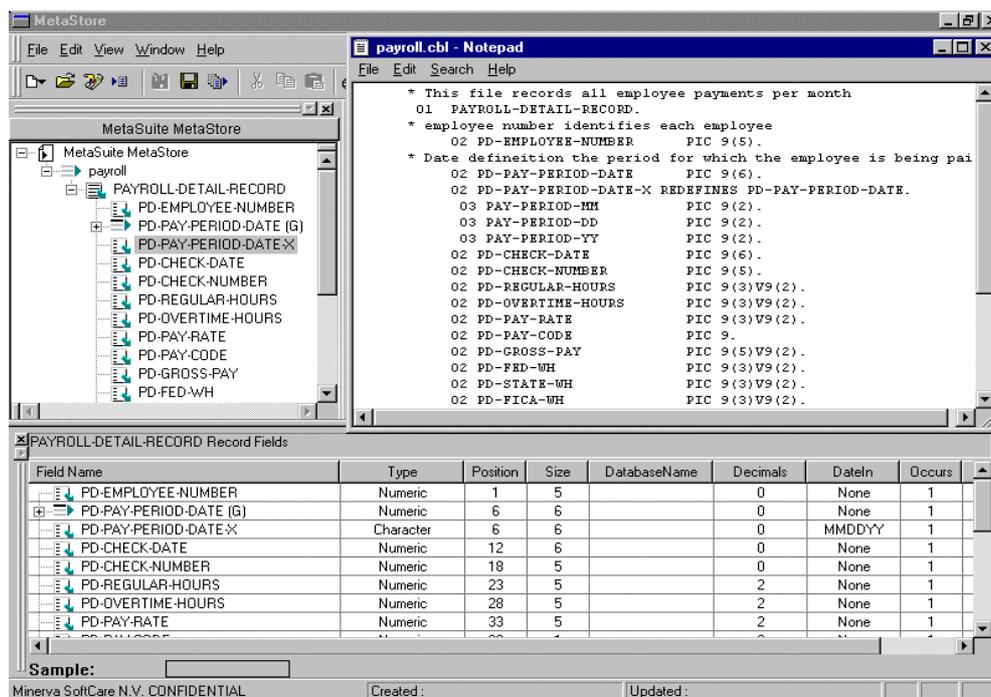


Figure 2 : MetaStore graphical user interface



MetaMap

MetaSuite MetaMap provides a powerful and highly automated solution for creating and maintaining data integration and extraction applications. These applications are designed graphically using the meta data collected by the MetaStore and stored in the MetaStore. MetaSuite supports a rapid application design methodology that allows users to iterate through the data mapping/rule-specification process to quickly achieve high-quality, performance-oriented applications. Extraction applications are created through an intuitive graphical design tool. Business rules are specified for source selection and filtering, target selection, and mapping through easy-to-use dialogs.

MetaGenerate Code Generator

MetaSuite's code generator generates the integration and extraction application and corresponding execution scripts and transports these to the hosts for compilation and execution. Extraction programs are generated in COBOL and use native data access methods to ensure optimum performance. Further, all generated applications automatically provide detailed audit reports and extraction statistics to assist with the data extraction results validation.

Unprecedented ease of use for data integration and extraction

MetaSuite's intuitive development interface dramatically simplifies the creation and maintenance of powerful data extraction programs. Applications are created through MetaSuite's modeling interface which enable application construction in three primary steps.

Source and Target Specification

MetaSuite has full-featured capabilities to extract and transform data from a wide variety of file and database formats to a variety of open systems target types. Source files and target tables are displayed in a tree-structured list and selected [cfr. Figure 3]. Source and target selection options include specifying how the data is to be processed, ranging from sequential random, or key matching for input processing and target format types for output processing.



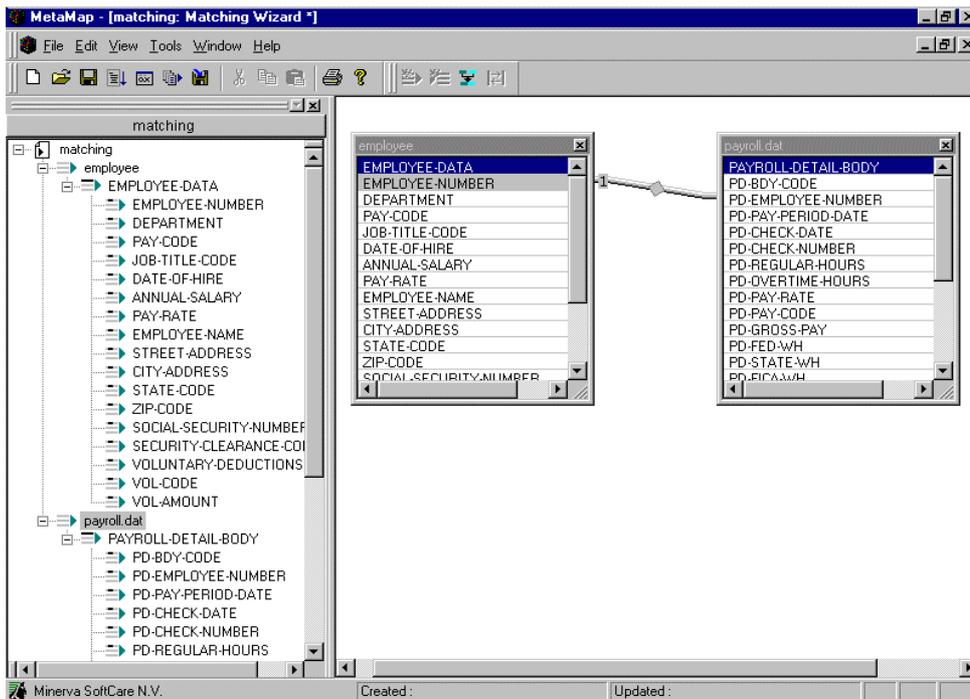


Figure 3 : Source and Target Specification

Source and target selections can be filtered using simple dialog menus that support complex IF-AND-OR conditions [cfr. Figure 4].

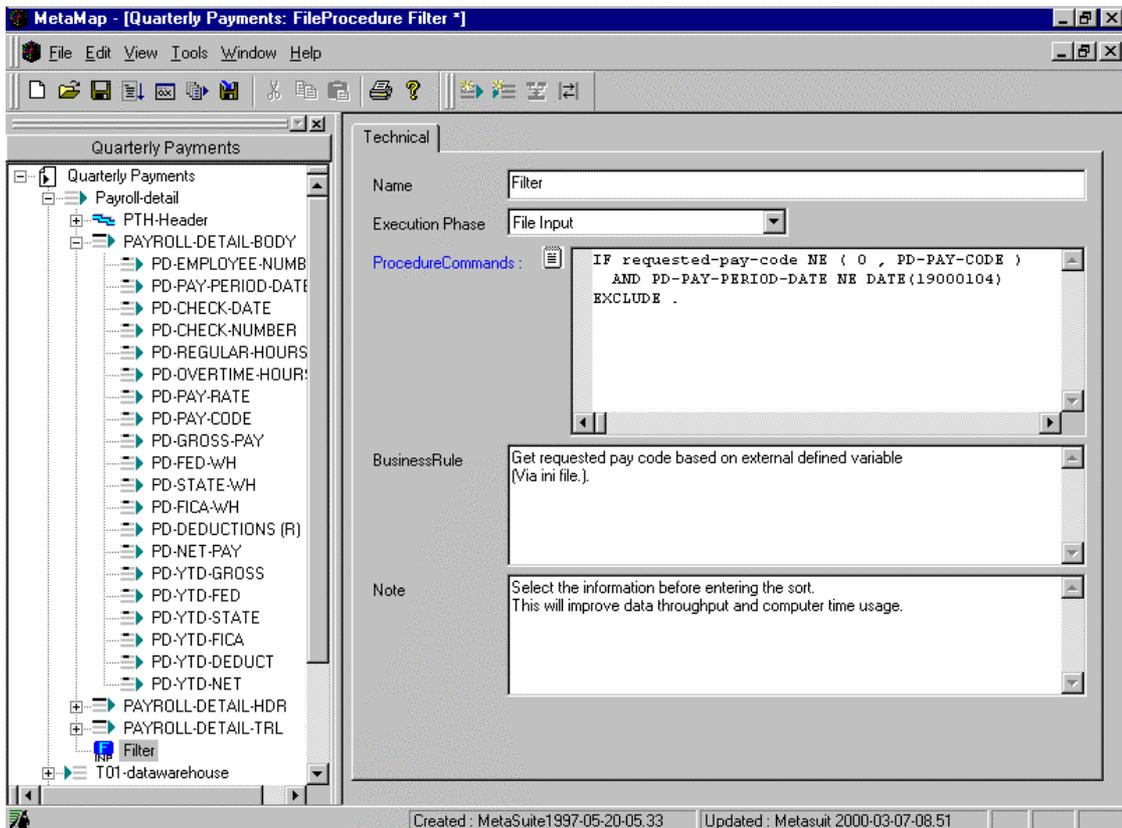


Figure 4 : Input Filter Definition



Source and target selections can be sorted using simple dialog menus that support ascending, descending, and ordering options [cfr. Figure 5].

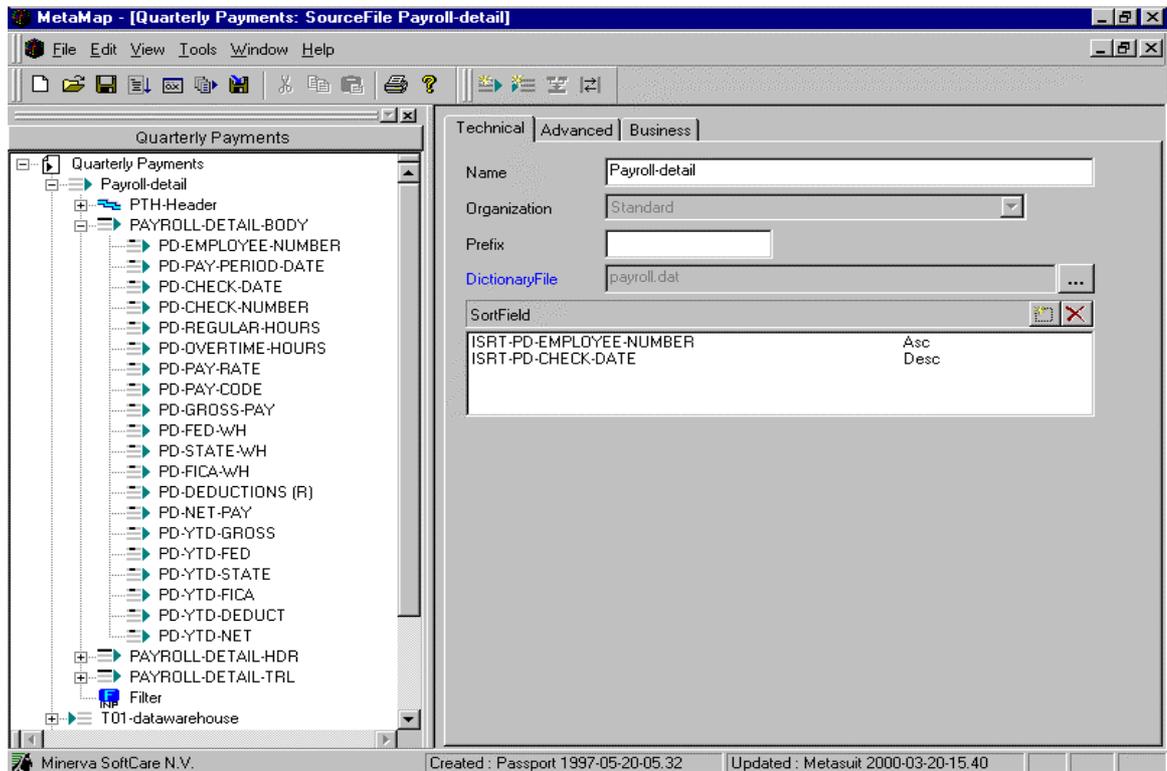


Figure 5 : Sorting options

Source to Target Mapping

Fully integrated into the MetaSuite's data mapping facility are automatic transformations for all major data types including dates. Where more than one option is available, users may select the option they desire through simple wizards. Custom transformation rules may be specified in MetaSuite's powerful scripting language.

MetaSuite meets the mapping and conversions requirements for all major data sources. These include normalization (the ability to map multiple occurring source fields from one source record to individual target rows (one for each occurrence value), concatenation (combining two or more source fields into one target field) and calculations using addition, subtraction, multiplication, division, and exponentiation. MetaSuite also enables users to call external subroutines directly from the generated applications for their convenience [cfr. Figure 6].



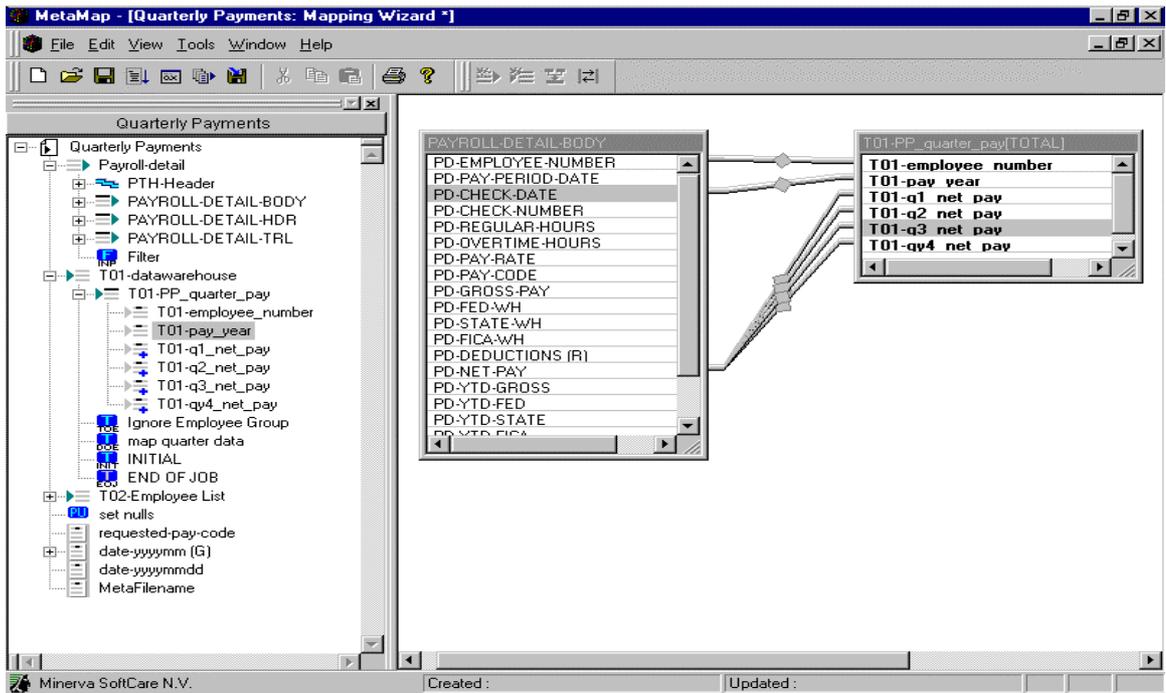
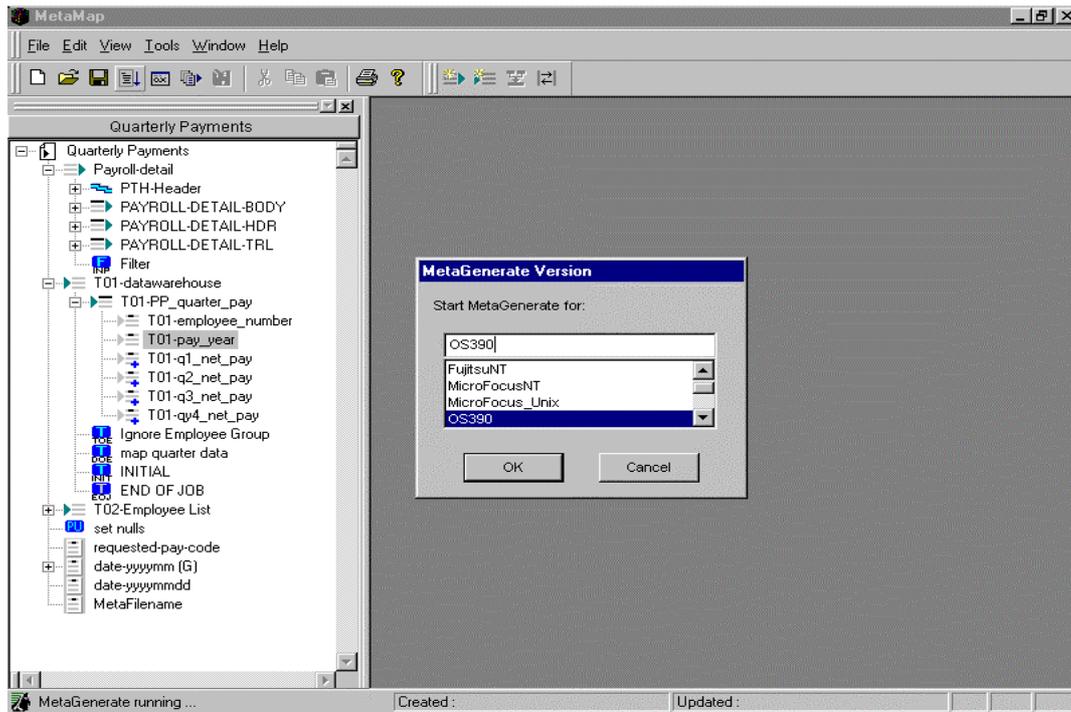


Figure 6 : Source to Target Mapping

Application Deployment

The last step for creating an extraction application via MetaSuite is generating the application and related execution scripts and transporting it to the designated host. This process occurs directly from the Application Manager GUI. Users simply select the host platform from a pull-down menu and generate the application and run script. Options include MVS for production applications and Windows NT for testing and pre-production validation. MetaSuite is designed to support a client/server development environment for maximum development productivity, including Micro Focus COBOL for NT or Fujitsu COBOL for NT for simulation. Once the generation process is completed, the application and execution script is transported to the host for execution testing and scheduling.





Exceptional Productivity

MetaSuite provides exceptional development productivity, enabling you to deliver projects faster with less risk and lower cost.

Hides Legacy System Complexity

MetaSuite requires no legacy data knowledge. Its GUI handles the translation of business requirements to the coding specifications. As a result, you can manage your resources more effectively by:

- Re-deploying your more expensive and scarce COBOL programmers to other strategic initiatives
- Reducing project deployment time and improving implementation quality by bypassing the knowledge transfer from the business analyst to the programmer.

Easy-To-Use Graphical Interface

MetaSuite's state-of-the-art GUI is far more productive than hand-coding extraction applications by offering:

Faster and simpler extraction application development

The GUI conforms to the latest client/server standards and comes with many features designed to streamline and automate the application development process. Features include auto-mapping interfaces for graphical program building, pre-defined conversion translations, and flexible process-flow



configurations. Building and maintaining extraction applications with MetaSuite is performed at the graphical business-rule level, not at the programming-code level.

Simplified maintenance

Data warehousing and migration projects are iterative, which means hand coding extraction applications make maintenance cumbersome and costly because the code needs to be modified for each change. To simplify and speed the ongoing maintenance tasks, MetaSuite uses a meta data architecture, which significantly enhances its value in the maintenance stage.

Improved documentation

MetaSuite applications are self-documenting to simplify the task of creating programmer documentation. Business users then have meta data information available to help them understand the data they are analyzing.

Meta Data-Driven

MetaSuite takes a unique, graphically oriented, meta data-driven approach to the extraction process, enabling you to keep pace with rapidly changing business requirements. The meta data, which is automatically captured in the meta data repository, defines the technical, editing and validation information related to the fields and applications and minimizes the reliance on specific COBOL programmer expertise and recollection of the program specifics. MetaSuite's powerful impact analysis search and reporting features enable you to quickly view which applications are affected by change. MetaSuite's change process is much simpler and less time-consuming than re-writing extraction code, allowing you to respond to rapidly changing business requirements and ultimately reducing your ongoing maintenance costs.

Superior Processing Performance

MetaSuite delivers the high performance needed to meet the requirements of large-scale data warehouse applications.

Unique Single-Pass Architecture

MetaSuite provides a unique, single-pass processing capability, which improves the efficiency and performance in the extraction and migration of the data. Rather than having to process mainframe data



multiple times for various selection criteria, this single-pass capability allows a single program to process:

- **Multiple sources** : usually data needs to be joined from two or more sources
- **Multiple records within a source** : IMS and other legacy systems typically have multiple record structures
- **Multiple targets** : creation of various sort and selection criteria

MetaSuite's powerful single-pass capability significantly reduces the time required for extraction, enabling you to shrink batch window time frames even while scaling up data volumes. It takes fewer CPU cycles, which also reduces operating costs. And MetaSuite simplifies the scheduling process by decreasing the number of programs to manage and schedule. Unlike MetaSuite, other extraction tools require separate programs for each source, each record in a source, and each target, resulting in multiple passes through the data, greater consumption of computer resources, and more schedule complexity for batch windows – which is unacceptable.

Faster and More Functional Than Database Gateways

A commonly considered alternative for extracting mainframe data is a database gateway. Gateways can be a good way to access databases for smaller ad-hoc queries, or are a good fit where bi-directional interaction with the database is required. However, MetaSuite is a far superior option for data warehousing, which typically involves extracting large amounts of data. MetaSuite, with its native access, extracts data much faster than gateways, which must work through interfaces and are hampered by network performance issues.

MetaSuite extracts and restructures hierarchical data structures, common with IMS, while gateways need non-relational structures pre-flattened, which limits the value of this alternative. MetaSuite provides outstanding ease-of-use, much better performance, scalability, functionality and the ability to deal with complex data structures.

Benefits Summary

MetaSuite provides a comprehensive set of features for creating, maintaining, and deploying data integration and extraction applications targeting relational databases. It offers exceptional development productivity, the ability to handle the complexity of legacy systems, and delivers the performance required to meet the needs of large-scale data warehousing projects. Key features include:



- An easy-to-use graphical interface (no need for “experts”)
- Deep integration and extraction supporting a broad range of database and file formats
- RDBMS load image file and script target support
- Automatic conversions and translations of data types (EBCDIC to ASCII and others)
- Highly optimized extraction processing performance (single pass architecture)
- Rapid creation, maintenance, and deployment of applications (reduced cost, time)
- Comprehensive meta data of extraction process business and technical rules (shared with CWM)
- Better performance and value than gateway technologies

In summary, MetaSuite is simply the fastest way to move large volumes of data to your business intelligence environment while reducing project risk and costs.

