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## 1 Successfully Replace IBM IMS Databases

Old database technology causes high cost and complicates the utilisation of new technology for central IT applications. Furthermore, there are less and less developers and system technicians knowing the old technology. This applies to hierarchical databases such as IBM IMS DB as well as for network and other non-relational databases such as Cincom TOTAL, ICL IDMS, Fujitsu (Siemens) UDS, Unisys DMS, Bull IDS2, CA Datacom, Software AG ADABAS and others.

We present ways that allow you to preserve the functionality of your applications while migrating to SQL databases without risk.

### Heterogeneity is Fact

Large companies always needed to process large amounts of data very fast every day. For this type of “Big Data” they preferably used the extremely rapid IBM IMS databases. The large and complex applications implement the company’s core-business and process reliably billions of transactions every day. In parallel, the companies have established relational databases such as ORACLE, Microsoft SQL

Server, IBM DB2 and others, to respond to the needs of real-time processing and flexible ad-hoc queries. The data in the different systems usually is synchronised by using ETL processes.

### Good Reasons to Migrate

A lot of companies have the replacement of IMS databases on their agenda – for good reasons:

- High cost and multiplied efforts due to the parallel usage of different databases, the additionally required (ETL-) processes and the protection of the consistency.
- IMS databases lack the flexibility and the fast unlimited access to the data offered by relational databases.
- The know-how for the applications implemented in COBOL and PL/I is dwindling as well as the necessary technical know-how for IMS.
- The introduction of new technologies (Mobile, Cloud, etc.) is difficult.

However, the hurdles for the replacement of IMS databases are extremely high: The business-critical applications are very large, very complex, very old and in most

cases the existing documentation is unsuitable for the migration projects.

### Replacing IMS Databases Successfully

Being a successful provider of generative tools for more than 40 years, we rely on full automation of all changes necessary in the applications to replace the IMS databases. Our tools automate the migration and the modernisation and also support re-implementation. Depending on requirements, these solutions can freely be combined and even allow for changes in strategy during the project.

All changes to the source code will be implemented using a transformation factory that is perfectly configured for the task. This way, you achieve maximised automation, highest quality, minimal test effort, minimal freezing and you are able to eliminate the risks.

Our customers confirm that they could ensure the long-term functionality of their enterprise applications with our solutions

### The Migration

Your applications contain all the information about the actually used IMS data model, i.e. which data structures of which segments of what IMS databases are used. Our tools extract this information and derive the mapping rules for a new or an already existing relational data model. Based on these and further rules the COBOL and / or PL/I code will be transformed fully automated. All IMS database accesses will be replaced by SQL accesses with all trimmings.

The resulting applications look and operate as if

they were directly implemented for a relational database system by a very sophisticated programmer. Hence, they are readable and maintainable. Our customers confirm that.

- the completely automated transformation slashes the risks and the test effort
- during the migration project, they could develop in parallel and the modifications were integrated automatically
- the relational database system can even be changed during the project
- extremely short freeze period are to be expected
- no footprint or vendor lock-in is produced.

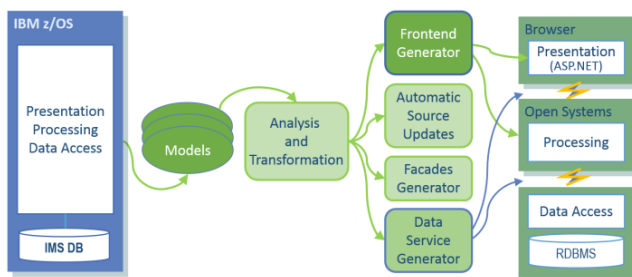
### The Modernisation

COBOL and PL/I are still excellent for the implementation of business logic in the back end. But, for the presentation layer as well as for the data access layer there are more modern techniques and environments available today like .NET, Java, etc. These layers can be connected smoothly and with excellent performance using automatically generated interfaces and intelligent adapters.

Using our solutions, this type of modernisation can be automated. As explained above regarding the migration, the data model used by the applications as well as the rules for the automated transformation into a relational model will be determined. The entire code associated with to the data accesses can be extracted into a separate data access layer. Clearly readable and therefore really maintainable

data access modules will be produced fully automatically in modern language like C#, Java, etc.

Our clients confirm that their confidence in our technology was justified and that the use of Delta's



tools reduced the test effort by 90%.

## The Re-implementation

You would like to implement the functionality of your IMS applications with new databases and new languages but the experts with IMS know-how have already retired and documentation serves maintenance and not re-development purposes?

Unlike other solution providers, we believe that there are limits to automation. Namely, when it comes to real paradigm change like it is inevitable for the re-implementation with modern languages. We promote easily maintainable and legible code, but not the transformation of COBOL into a kind of "J(ava)obol".

With our solutions for Application Knowledge Extraction, we help you to understand and to assess your existing applications in detail and to derive the specifications for the re-implementation from the applications' analysis. In addition, we can generatively produce the layers for the data accesses and the presentation as described above. You will obtain

clearly readable and therefore really maintainable modules in modern language like C#, Java, etc.

## And What About the Transaction Environment?

Within the frame of the replacement of IMS DB you also will think about the future design of the online applications. Depending on the new target environment – may it be classic TP monitor or a browser based environment with Java or .NET Application Server or micro services – the applications' code for IMS TM (formerly IMS DC) or IBM CICS has to be transformed, too. With our solutions you can automate such transformations as well. This way, you are also able to automate the construction of a modern service-oriented application architecture (SOA).

## Let's work together

The possibilities described above show principle directions. They are flexible and can be combined and implemented gradually or at once. Since both the starting points as well as the objectives are different for each customer, we offer customized and perfectly tailored solutions.

How do you want to replace your IMS databases? Migrating or modernising or re-implementing the applications? We will be pleased to present our solutions and we look forward to discuss your requirements and objectives.

Many enterprises have developed their business-critical core applications in PL/I. Such systems have grown over years – or even decades – and have been further developed and adapted to new requirements. Naturally, they became larger and more com-

plex and presumably include a lot of dead code. Their present architecture doesn't comply with the originally intended architecture. Often the original programmers are not available anymore and the maintenance has been carried out by a number of different developers.

**2 Insurance company LVM Versicherung selects AMELIO Logic Discovery for PL/I for Proof of Concept**

*"Searching for a tool that analyses our PL/I applications fully automated, completely, quick and reliable, we found Delta and AMELIO. In particular the quality and depth of the analyses and the high level of PL/I competence of Delta have convinced us."*  
*Peter Nübel, division manager contract systems II, LVM Versicherung*

To efficiently and securely solve such tasks, it is indispensable to understand the functionality of each application and how the programs interact with each other.

Normally, existing documentations describe how specific calculations are executed but they don't describe what the application does and what special situations must be considered. The original developers cannot be asked anymore. As a result, the only reliable source of information is the source code itself.

But how can you reliably extract the relevant information from the code?

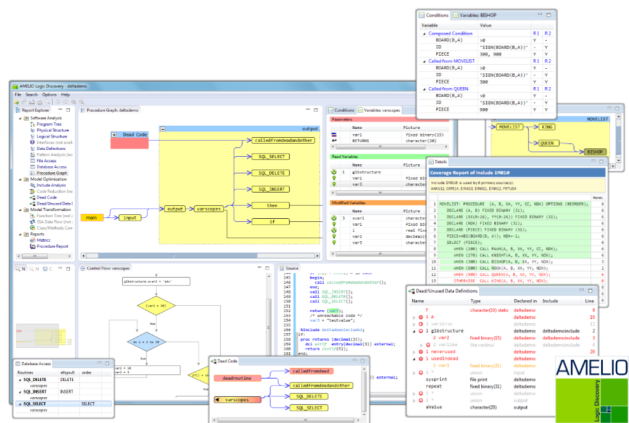
**AMELIO Logic Discovery for PL/I**

AMELIO Logic Discovery reliably and efficiently analyses large and complex PL/I applications and

helps developers to understand their systems.

AMELIO Logic Discovery for PL/I ...

- ... derives knowledge about the functionality of the application from the implementation details,
- ... separates the application logic from the technical infrastructure,
- ... analyses not only selectively but also considers the relations between the programs,
- ... works model-oriented and provides the analysis results as language-neutral documentation,



- ... is configurable and can be perfectly tailored to the requirements of a (modernization) project.



For further details have a look at our [Flyer "AMELIO Logic Discovery for PL/I"](#).

The LVM Versicherung (LVM insurance) in Münster, Germany, has developed its business-critical applications in PL/I and was looking for a solution

for deep source code analyses to support the further maintenance and modernization.

On the basis of exemplary applications from LVM, we have presented the goals and concepts of AMELIO Logic Discovery. The shown analyses and their presentation have convinced LVM. That is why LVM has now decided to evaluate the functionality and performance of AMELIO Logic Discovery even more detailed as part of a Proof of Concept.

### Convince Yourself

Do you also have business-critical core applications in PL/I and are you looking for a way to analyse them fully automated and reliable? Please get in

## 3 Updates available for ADS on Eclipse and SCOUT<sup>2</sup>

touch with us. We would be pleased to demonstrate the performance of AMELIO Logic Discovery on the basis of your examples.

For [ADS on Eclipse](#) and [SCOUT<sup>2</sup>](#) numerous Generation Reports are available that improve understanding applications and significantly improve working with Delta tools.

Generation Reports document e.g.:

- Which lines of a macros will be used by a program or which lines by all programs? This allows to recognize “dead” code blocks. This information helps you to further develop and also to re-develop your macro framework.
- Which parameter will be addressed in macros and programs and which values are assigned to

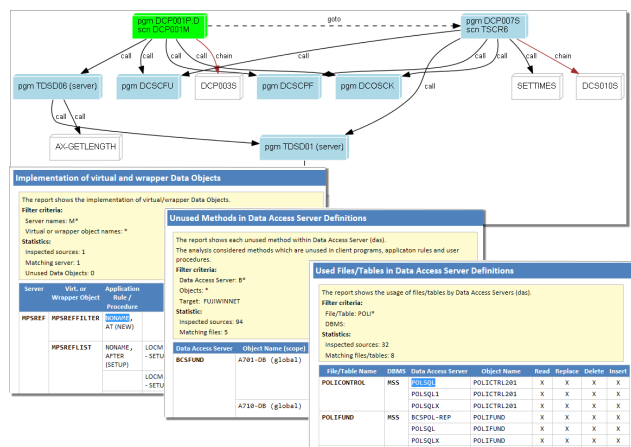
these parameters?

- Which files are used in which programs with which file functions?
- Program calling trees incl. the parameter structures transferred during the calls.

The information in these reports is collected during the program and server generations with ADS release 6.1.

### Data Access Server Reports

Generation Reports now also analyze the data ac-



cess servers generated with DBI.

Detailed information about Data Access Server is provided:

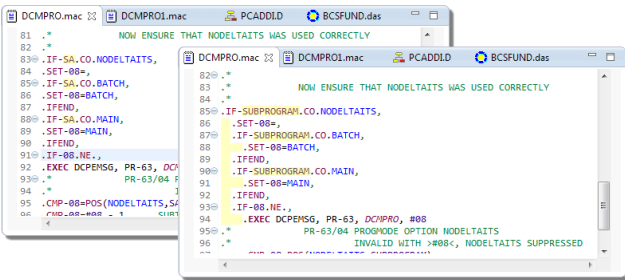
- Which tables or files are used in these servers?
- Which virtual or wrapper objects are declared in files servers?
- Which of these aren't used?
- Which access methods are offered for the data objects in a server?

- Which data access servers are used in programs incl. cascaded server calls?

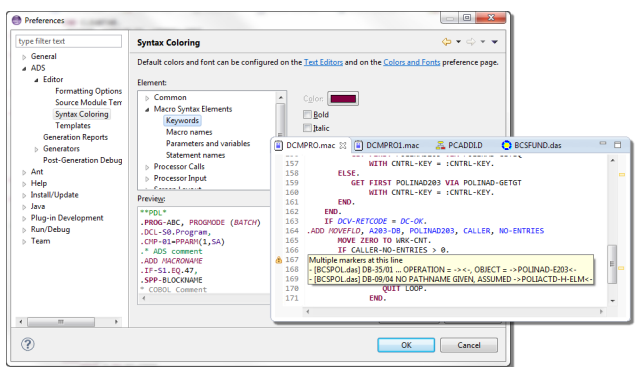
These reports help to understand the Data Access Server and the application structures, without the need of studying the source code in detail. They offer additional information for the revision or improvement of the access modules and application packages which already exist for decades.

**Further Updates for ADS on Eclipse and SCOUT<sup>2</sup>**

Since ADS 6 it is possible to use the modern macro syntax. Now meaningful names can be assigned to parameters, the readability of ADS modules can also be increased with line indentation.



The optimizer enables you to convert your macros, programs, screens and data access servers automatically to the new syntax.



In the ADS-Eclipse-Editor 6.4 color coding indicate the different syntax type and underlined the messages.

The file attributes of a module and information about performed generations of this module are listed in a separate Eclipse view. Until now this information had to be collected by separate tools from different sources.

Do you want to get to know the modern develop-

More newsletters and our newsletter administration can be found here:  
[www.delta-software.com/newsletter](http://www.delta-software.com/newsletter)

