

Key Features Highlights

*Move from IMS/DB (DL/I)
to RDBMS*

*Automated and customizable
relational structure generation*

Automated data migration

User programs unchanged

Equal or better performances

User friendly management tools

Cross-platform environment

*More security and integrity
granted by modern RDBMS*



H2R® - Legacy Data Migration from HTWC

H2R is a unique data and application migration tool that allows hierarchical IMS/DB or DL/I data structures to be easily moved to a relational database system such as Oracle or IBM UDB. H2R utilizes robust migration and run-time facilities, along with a high-performance transparent gateway, providing the ability to maintain data in a relational organization, while offering seamless integration with legacy applications.

H2R is an optional component of XFRAME® from HTWC. XFRAME offers the most complete solution set on the market for migrating and rehosting mainframe workloads on open systems such as UNIX, Linux, and Windows.

Performance & Integration

H2R offers a new level of flexibility in resolving issues with legacy data access and is specifically designed for use in mission-critical, enterprise environments.


For many companies, critical business information is stored in hierarchical formats based on legacy mainframe technology.

Access to this information is often hindered by an inability to integrate the data with newer technologies and applications.

H2R was designed to overcome this issue, unlocking new system capability while maintaining full access by existing legacy applications.

Database performance is a critical issue and new solutions should not introduce new bottlenecks. With the powerful migration and run-time capabilities of H2R, you can expect database performance that will equal or exceed that of the legacy environment.

Relational organization allows for faster and easier searches, which are difficult or impossible with IMS/DB and DL/I data structures. In addition, the ability to mix both traditional access methods and direct SQL commands enhances performance and simplifies data retrieval.



In the small number of cases where certain types of IMS data structures can lead to slower browsing in the relational environment, H2R has been designed to efficiently address the issue through specific index creation and direct reading operations.

Once migrated, programs can be easily maintained and enhanced. New functionalities can be added to take full advantage of relational database features, existing data can be integrated with new tables and data sources, and more powerful inquiries and updates can be performed using SQL commands.

Data hosted in the new relational database are now immediately accessible to both legacy applications and all modern systems and technologies, such as J2EE and .NET

Data Migration & Environment Definition

H2R is equipped with a powerful DL/I Data Structure Analyzer to perform the automated data migration. The Data Structure Analyzer collects all the necessary information from PSB and DBD sources, allowing H2R to generate a mainframe-side application to export existing IMS/DB data, and a set of import programs for the relational database.

These programs resolve differences between source and target databases, such as data coding, field type, redefines, dirty fields, and more. If necessary, import programs allow you to retain specified fields when moving from an EBCDIC to an ASCII environment, maintaining the same processing sequence. In this case, conversion of data coding for these fields will take place dynamically, during run-time access.

Using information gathered by the Data Structure Analyzer, H2R automatically generates what is needed to create tables, indexes, and constraints. This information is stored in a set of tables, allowing easy access by the H2R run-time system along with any additional user processes.

H2R makes use of one COBOL/SQL program for each physical, logical, and index IMS database. All these modules are automatically generated during the off-line conversion process, using the information collected by the Data Structure Analyzer, and dynamically loaded at run-time.

This modular approach provides the ability to optimize system performance by incorporating information which is not available in the data definition, or to diagnose and fix problems, without affecting other databases.



More Features

*Program source unchanged
CBLTDLI & PLITDLI interfaces*

EXEC DLI interface

*Compatible DB operation codes
(i.e. GE, GN, etc.)*

Compatible return codes

*Possibility to mix IMS/DB access
with direct SQL command*

Data integrity

The Transparent Gateway

A key component of H2R is the high-performance transparent gateway, allowing legacy applications seamless access to data in relational structures. Like the entire XFRAME solution set, H2R was designed to minimize application code changes and prevent disruptions to ongoing business.

Two different modules are provided to ensure no changes are needed to existing applications or end-user interfaces:

Standard entry points:

this module uses the same commands used by the IMS DB/DC standard entry points (CBLTDLI, PLITDLI), manages the parameters list prepared by user programs and normalizes it for H2R kernel calls.

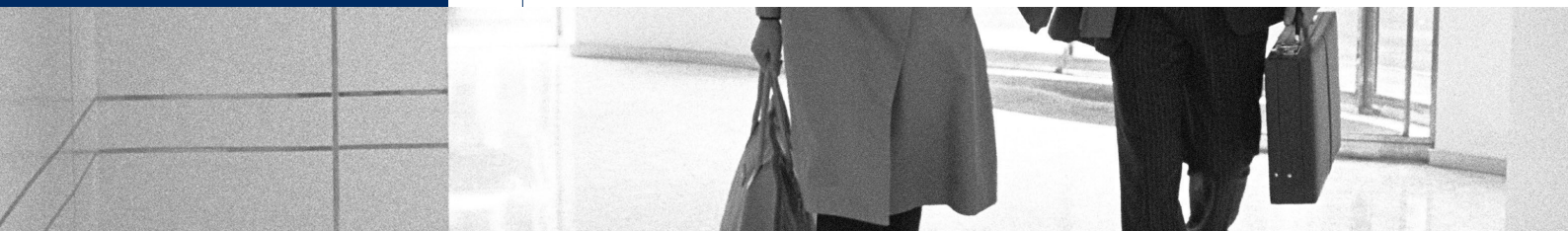
High Level Program Interface (HLPI):

This module automatically transforms all EXEC DLI statements into the corresponding call-level requests, as expected by the standard entry point module.

After the completion of each database access, a return code indicating a positive acknowledgement or the type of a detected error is returned to the requestor. Return codes, supplied by the relational data base system, are translated and made compatible with the original IMS/DB system, and passed back to the user program, in the same way and at the same location.

DL/I scheduling and terminating concepts are also efficiently reproduced. Batch application execution is performed under the control of a utility program, using the same name as the original application, allowing programs to run with the same list of parameters.

Recovery, backup, reorganization, and performance optimization by tables partitioning or other routines, are all provided by the target relational database. Specific utilities are provided with H2R to facilitate data access through IMS command logic and to collect database access statistics.



More Features

Data available for new technologies (i.e. J2EE, .NET)

Management through RDBMS tools

Dedicated program access

Flexible tuning and debugging

XIMS Compatibility Toolkit

H2R is designed as an optional module for XFRAME from HTWC. XFRAME is a robust mainframe rehosting environment built to handle any size mainframe workload, both online and batch.

A core component of XFRAME is the high-performance XCICS Transaction Server, built to run CICS mainframe applications on UNIX, Linux, and Windows. In addition to CICS applications, IMS/DC applications can be easily migrated using the XIMS Compatibility Toolkit.

The XIMS toolkit allows original IMS/DC and DB programs to run unchanged under control of the XCICS Transaction Server, taking full advantage of its proven architecture, which ensures both high performance and stability.

Transaction integrity, security, and data recovery are managed directly by XCICS engine. With XIMS, IMS/DC and DB application may be moved to XCICS without any changes in the program coding or format sources.

The XIMS transparent gateway enables online programs to perform the same input/output commands that were performed on the legacy system. It provides support for input and output data formatting, terminal communication, passing control to another program, and most other functions.

Original IMS format files (FMT) are automatically translated into standard BMS modules, while XIMS provides automatic and dynamic conversion between MSG segments and BMS data structures.

Dialog with terminals flows as before, without any change in user programs or screen layout. Programmers can continue to maintain and develop applications in familiar way, using IMS/DC calls and writing FMT files.

Together with H2R, the XCICS Transaction Server and the XIMS Compatibility Toolkit provide a complete solution for rehosting IMS/DB and DC applications on open systems.

All of these features combine to make XFRAME from HTWC the most complete mainframe rehosting solution on the market.

XIMS Features Highlight

Rehost IMS/DC applications to UNIX/Linux/Windows

Runs on the top of well-proven XCIICS Transaction Server

Program source code runs unchanged

Full support for Formats and Messages

Multiple Platform Capability and Flexibility

To provide as much flexibility as possible, H2R has been coded in the two languages available on the most common platforms, the C programming language and COBOL.

Migration tools, which run only once during the conversion phase, have been developed using C language, and they may run on UNIX, Linux, or Windows servers. All I/O run-time and data access routines have been coded in COBOL II.

H2R is available for the following platforms:

- Linux
- HP-UX
- Solaris
- AIX
- z/OS
- Windows

The XIMS Compatibility Toolkit is available for all platforms supported by the XFRAME mainframe rehosting solution.



XFRAME Platform Availability

XFRAME runs on the most popular UNIX systems

- Solaris (SPARC)
- HP-UX (PARISC & Itanium)
- AIX (POWER)

Linux (RedHat, Suse, and others) on the following architectures

- i386 (Intel Pentium/Xeon)
- s390 (31bit z/Linux)
- s390x (64bit z/Linux)

Microsoft Windows Server 2003, on the following architectures

- i386 (Intel Pentium/Xeon)

Please visit our website, www.htwc.com, for the most current list of supported platforms.



Overview HTWC®

HTWC is a leading developer and vendor of rehosting and application management solutions. HTWC was founded with a focus on large organizations, helping to confront and resolve problems with enterprise systems, particularly the difficulty in integrating and modernizing legacy environments.

HTWC has specialized in mainframe rehosting and software management solutions since 1987.

Currently, HTWC labs develop products for rehosting analysis, migration, conversion, and reengineering of legacy software. The integration of these products guarantees a reliable, flexible, and cost effective solution for our customers.

Further information

For further information on the XFRAME® products please visit our website www.htwc.com
For specific questions, please contact us at info@htwc.com

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