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## Highlights

- Provides high speed data load for HDAM, PHDAM, HIDAM, PHIDAM, HISAM, and SHISAM databases
  - Uses sophisticated sorting algorithms to improve the performance during database reloading
  - Includes a Load API for a faster initial load capability
  - Initializes IMS databases, both Full-Function HALDB and non-HALDB databases, and pre-formats Root Addressable Areas
  - Generates statistical reports about data sets, segments, and segment pointers
  - Program Number: 5655-M26
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# IMS High Performance Load

## *Reload IMS Full-Function and HALDB Databases*

IMS™ is IBM's premier transaction and hierarchical database management system. IMS was designed for high availability, superior performance, growth and capacity, and full database integrity. The ability to operate and manage this highly complex IMS system and database environment determines the Total Cost of Operation (TCO). The IBM® IMS Tools lowers TCO by equipping IMS system programmers and IMS database administrators (DBAs) with the facilities they need to effectively monitor and manage this mission-critical environment. The IBM IMS Tools provide automation, validation, and auditing of all database and transaction management activities.

The *IMS High Performance Load* tool reloads data that was unloaded by the *IMS High Performance Unload*, *IMS Database Reorganization Expert*, or the standard *IMS Reorganization Unload* utility. The *IMS High Performance Load* improves performance through sophisticated sorting algorithms. It supports Full-Function and HALDB databases and logical relationships and secondary indexes.



## IMS High Performance Load

When an IMS database is initially created, unloaded for maintenance, restructuring, or IMS database reorganization, the *IMS High Performance Load* product is used to reload the data back into the IMS database. The data could be created by the *IMS High Performance Unload* tool, the *IMS Database Reorganization Expert* tool, or the standard *IMS HD Reorganization Unload* utility that comes with the IMS product.

When the reloading of data is initiated by the *IMS Database Reorganization Expert* product, the *IMS High Performance Load* program is driven during the reorganization along with the rebuilding of the index data sets and the image copying of the databases.

## IMS Database Solution Key Component

The *IMS High Performance Load* product is part of two IBM Solutions. The first is the *IMS Database Solution Pack* as shown in Figure 1, and the second is the smaller *IMS Database Utility Solution* as shown in Figure 2.

IMS Database Solution Pack	
> IMS High Performance Load	IMS High Performance Unload
IMS Database Reorganization Expert	IMS Online Reorganization Facility
IMS Index Builder	IMS High Performance Prefix Resolution
IMS High Performance Pointer Checker	IMS High Performance Image Copy
IMS HALDB Toolkit	IMS Library Integrity Utilities
IMS Database Repair Facility	IMS Database Sensor

Figure 1: *IMS High Performance Load* in the *IMS Database Solution*

If the data was unloaded in a compressed format, the *IMS High Performance Load* product can reload the compressed data without first decompressing it. The *IMS High Performance Load* tool is fully integrated with

IMS DBRC and it supports dynamic allocation making it unnecessary to include a JCL DD statement for each database that is being loaded.

IMS Database Utility Solution	
> IMS High Performance Load	IMS High Performance Unload
IMS HALDB Toolkit	IMS Index Builder
IMS High Performance Image Copy	IMS Database Reorganization Expert
IMS Database Sensor	

Figure 2: *IMS High Performance Load* in the *IMS Database Utility Solution*

## IMS Database Types Supported

The *IMS High Performance Load* tool supports both IMS Full Function and IMS High Availability Large Database (HALDB) databases including HDAM, HIDAM, HISAM, SHISAM, PHDAM, and PHIDAM database types. It also supports IMS non-HALDB and HALDB databases with logical relationships and secondary indexes.

The *IMS High Performance Load* tool uses a specialized sort engine, called the Physical Sequence Sort for Reload Utility, to sort data prior to the database reload to improve performance. It also uses a space management utility, called the Bitmap Resetter Utility, to adjust the storage bitmap for HDAM, HIDAM, PHDAM, and PHIDAM databases to allow denser packing of the IMS database blocks.

For IMS HALDB databases, the *IMS High Performance Load* tool can automatically create the Indirect List Data Set (ILDS) and it can optionally initialize each partition during the loading of the data.

## Initializing IMS Databases

The *IMS High Performance Load* tool can load an IMS database much faster than the traditional method of loading the database with an IMS DL/I application. There are additional benefits in using the *IMS High Performance Load* tool to load empty databases as the tool can also initialize the

IMS HDAM, HIDAM, HISAM, SHISAM, PHDAM, and PHIDAM databases. For HDAM databases and each PHDAM partition, the entire Root Addressable Area can be preformatted. The *IMS High Performance Load* tool also includes a Load Application Programming Interface (API).

## Generates Statistical Reports

The *IMS High Performance Load* tool generates statistical reports about data sets, segments, and segment pointers that can be useful in tuning IMS databases.

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"DATA SET STATISTICS"
DBNAME = PHD00100 PARTITIONS = 1 ORG = PHDAM ACCESS METHOD = OSAM

PARTNAME = PHD001A PART ID = 00001
RMINAME = DFSD0C40 MAX INSERT = 400 NBR OF RAPS = 5 MAX RBN = 45,000

DS GROUP = 001 OF 001 DDNAME = PHD001AA BLKSIZE = 8,192 LRECL = 8,192
DISTRIBUTED FREE SPACE = (000,00) SCAN = 0
THRESHOLD OF LIMITED FREE SPACE BLOCK = 536 (LARGE SEGSIZE 536 )
NUMBER OF TOTAL BLOCKS = 66,741
NUMBER OF BITMAP BLOCKS = 2
NUMBER OF LIMITED FREE SPACE BLOCKS = 21,741
NUMBER OF FULL BLOCKS = 4,349
NUMBER OF FREE BLOCKS = 44
AVERAGE SIZE OF FREE SPACE ELEMENT = 4272.3

NUMBER OF HDAM ROOT SYNONYM CHAINS = 86,674
AVERAGE NUMBER OF ROOTS / SYNONYM CHAIN = 2.6
NUMBER OF ROOTS NOT ON SYNONYM CHAINS = 78,810
NUMBER OF ROOTS ON SYNONYM CHAINS = 221,190
NUMBER OF ROOTS OUT OF RANDOMIZED BLOCK = 0
NUMBER OF HDAM RAPS USED = 165,484
NUMBER OF HDAM RAPS UNUSED = 59,516
NUMBER OF HDAM OVERFLOW BLOCKS = 21,741

NUMBER OF SEQUENTIAL WRITES = 66,741
NUMBER OF DIRECT READS = 2
NUMBER OF DIRECT WRITES = 2

NUMBER OF DSPB ROUTINGS = 0
HIGHEST LENGTH OF DATA IN DSPB = 0
AVERAGE LENGTH OF DATA IN DSPB = 0.0

NUMBER OF DSPB ROUTINGS(OVERFLOW) = 0
HIGHEST LENGTH OF DATA IN DSPB(OVERFLOW) = 0
AVERAGE LENGTH OF DATA IN DSPB(OVERFLOW) = 0.0

```

Figure 3: *IMS High Performance Load* Data Set Statistics Report

These reports can help analyze IMS HALDB partition randomizing parameters as shown in Figure 3. The *IMS High Performance Load* tool stores all of the reports it generates in the IMS Tool Knowledge Base (ITKB) repository for centralized viewing and historical analysis.

## For more information

To learn more about the IBM IMS Tools product line, please contact your IBM representative or IBM Business Partner, or visit: [ibm.com/software/data/db2imstools/products/ims-tools.html](http://ibm.com/software/data/db2imstools/products/ims-tools.html)

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Route 100  
Somers, NY 10589

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