



Licensed Program Specifications

IBM Information Management Software Licensed Program Specifications Release: Version 13 Product Number 5635-A04

Information Management System (IMS™) Version 13 is a licensed program that operates under the IBM® z/OS® operating system. IMS includes an enterprise database server that provides hierarchical database management services and a strategic enterprise transaction server that provides data communications and transaction management services.

The IMS Version 13 Database Manager (IMS DB) provides database management for transaction managers such as IMS Version 13 Transaction Manager and Customer Information Control System (CICS®). The IMS Version 13 Database Manager processes concurrent database calls for a wide variety of applications.

Application programs access IMS databases through IMS DB by using the IMS Universal drivers or Data Language/I (DL/I).

The IMS Version 13 Transaction Manager (IMS TM) provides a database-independent, transaction processing environment for database managers such as IMS Version 13 Database Manager and DB2® for z/OS.

The IMS Version 13 Transaction Manager:

- Manages an IMS TM terminal network.
- Stores and shares IMS message queues among multiple IMS TM systems, and routes messages between terminals and applications.
- Provides connectivity to other IMS TM subsystems and non-IMS TM subsystems.
- Provides connectivity and web solutions by working with the IBM WebSphere® family of products.
- Schedules application programs to access IMS DB databases and DB2 for z/OS databases, and non-database files through the Generalized Sequential Access Method (GSAM).
- Provides system control facilities for system definition, restart, recovery, performance, and tuning.

- Runs continuously through the year, with no required shutdown for daylight saving time.

The IMS Version 13 Database Manager:

- Allows access to the data for multiple users from a single instance of the data.
- Controls concurrent access to the data to maintain integrity for all updates.
- Maintains only one instance of data while providing concurrent access to the data.
- Manages the physical location of the data. Application programs that access and manipulate the data do not need to know where the data resides.

Specified Operating Environment

Machine requirements

The processor that IMS Version 13 runs on must meet the following requirements:

- An IBM z/Series machine running in z/Architecture® mode (ESA mode is not supported by IMS Version 13)
- Capable of running z/OS Version 1 Release 13 or later
- A 64-bit processor
- A processor that supports the Long Displacement Facility of the z/Architecture

For more information about IBM 64-bit processors, see System z® Hardware at ibm.com/systems/z/hardware/.

System console requirements

The console requirements of z/OS Version 1 Release 13 or later apply.

Tape unit requirements

IMS supports IBM 3590 and later tape units (or equivalent products) for installation and maintenance. IMS supports the tape block sizes greater than 32760 bytes for the output of the

Database Image Copy utility (DFSUDMP0) and Online Database Image Copy utility (DFSUICP0).

Coupling facility requirements

Sysplex data sharing (including data caching and VSO data sharing) with IRLM V2.3 requires a coupling facility level 9 or later. Shared queues, shared-EMH support, and the OM Audit trail also require a coupling facility level 9 or later. System-Managed Duplexing requires a coupling facility level 12 or later, and bidirectional CF-to-CF links (such as HiperLink, ICB link, or IC link).

DASD requirements

During the binding of the IMS control blocks load modules (specifically, during the bind of the IMS VTAM® control blocks load monitoring module), both the binder work data set SYSUT1 and IMS.SDFSRESL library must reside on a device that supports a record size of 18 KB or greater. For all other system libraries and working storage space, any device that is supported by the operating system is allowed.

For IMS database storage, any device that is supported by the operating system is allowed within the capabilities and restrictions of Basic Sequential Access Method (BSAM), Queued Sequential Access Method (QSAM), Overflow Sequential Access Method (OSAM), and Virtual Storage Access Method (VSAM).

Restriction: IMS does not support VSAM Extended Addressability (EA).

Data sets that reside in the extended addressing space (EAS) of extended address volumes (EAVs) require IBM System Storage® DS8000® devices at microcode level R4.0 via bundle 64.0.175.0 or higher.

You must preallocate and format the write-ahead data set (WADS) on a DASD device that supports Extended Count-Key-Data (ECKD™) architecture.

The fast replication function of the Database Image Copy 2 utility (DFSUDMT0) requires DASD controllers that support one of the following features:

- The concurrent-copy feature of DFSMS
- The FlashCopy® feature of the IBM Enterprise Storage Server® (ESS)
- The SnapShot feature of the IBM RAMAC Virtual Array (RVA) storage system

FlashCopy and SnapShot might require microcode from IBM to activate their functionality. Also, the source and target data sets (databases and image copies) must reside on the same ESS or RVA hardware.

The DASD storage requirements for the following items are described in the *Program Directory for Information Management System Transaction and Database Servers V13.0 (GI10-8914)*:

- SMP/E system entries
- SMP/E data sets
- Target libraries
- Distribution libraries
- Install process
- Optional machine-readable material

Large sequential data set support hardware requirements

No specific hardware is required for the large sequential data set support that was introduced in IMS Version 10. However, to take advantage of this support, hardware that has more than 65,535 tracks must be used.

Multiple Systems Coupling hardware requirements

When the physical link is channel-to-channel (CTC) and is dedicated to IMS, Multiple Systems Coupling (MSC) requires the System/370 CTC adapter or a logical channel on the IBM 3088, ESCON®, or Fiber Channel connection (FICON®). MSC FICON CTC support requires that at least one IMS system be installed on an IBM zSeries® machine with the FICON channel and FICON CTC microcode. The other side (IMS) can be any processor with a FICON channel.

Parallel RECON access hardware requirements

The parallel RECON access function requires a Parallel Sysplex® environment and DFSMS Transactional VSAM Services (DFSMSStvs). Therefore, parallel RECON access requires Coupling Facility (CF) hardware in the System z sysplex.

Remote Site Recovery hardware requirements

Remote Site Recovery (RSR) requires:

- A Sysplex Timer® (if either data sharing or workload is spread across multiple CPCs)
- A high-bandwidth control unit (such as a 3172)
- At least one tape unit at the tracking site

Coordinated Disaster Recovery support for IMS and DB2 requires that the DB2 logs reside on devices that support Extended Remote Copy (XRC).

zIIP utilization hardware requirements

One or more IBM System z Integrated Information Processors (zIIPs) must be online on the machine at the time an IMS Connect or IMS ODBM address space is started in order to have any threads authorized by IBM to execute on a zIIP executed on a zIIP for that execution instance. If no zIIPs are online when the address space is started, no work will be moved to a zIIP.

Programming requirements

IMS Version 13 has base software requirements. Some individual functions have additional software requirements. For software requirements for individual functions, see *IMS Version 13 Release Planning* (GC19-3658).

Operating system requirements

IMS Version 13 and its various functions have specific operating software requirements.

Before you install IMS Version 13, check with your IBM Support Center or check either Information/Access or Service Link for additional preventive service planning (PSP) information. The PSP upgrade name for IMS Version 13 is IMS1300.

The z/OS service levels that are required for installation and execution are described in the *Program Directory for Information Management System Transaction and Database Servers V13.0* (GI10-8914).

Base software requirements

The base IMS Version 13 system runs on z/OS Version 1 Release 13 or later. Certain features and functions have additional software requirements.

IMS Version 13 requires the following minimum version, release, or modification levels:

- z/OS Version 1 Release 13 (5694-A01) or later
 - When running IMS Version 13 on z/OS Version 1 Release 13, APARs/PTFs OA36172/UA61786 and OA39392/UA66823 must be installed.
 - IBM High-Level Assembler Toolkit (5696-234) Version 1 Release 5, a separately orderable feature of z/OS.

- z/OS V1R13.0 Security Server RACF[®] V1R13.0 or later, or an equivalent product, if security is used. RACF is available with the IBM SecureWay Security Server for z/OS (a separately orderable feature of z/OS).
- IRLM Version 2.3 or later (5635-A04), if data sharing is used. IRLM Version 2.3 is delivered with IMS Version 13.

When using multiple IMS systems:

 - On the same z/OS system, you need only one IRLM.
 - Of different release levels on the same z/OS system, you can use one IRLM or you can use two or more IRLM address spaces. If two or more IMS systems share data and are running on the same z/OS system, they should use the same IRLM.
 - On different z/OS systems for inter-processor block-level data sharing, you must have one IRLM on each z/OS system.

IMS Version 13 also operates in a virtual machine (VM) under control of z/OS. This environment is intended for use in a program development, testing, and non-XRF production environment.

The VM environment has the following restrictions:

- The Log Analysis utilities might yield inaccurate time-stamp results.
- If you run the IMS Version 13 Transaction Manager under VM for production purposes and have specific throughput or terminal response-time requirements, plan to benchmark under VM to ensure that the proposed configuration meets your performance needs.

System-Managed CF Structure Duplexing is recommended, though not required, for the Resource Manager resource structure.

Coordinated Disaster Recovery support for IMS and DB2 requires the IMS Version 13 Remote Site Recovery (RSR) Recovery Level Tracking (RLT) feature.

CICS subsystems supported

CICS Transaction Server for z/OS Version 3.2 (5655-M15) or later can connect to either the IMS Version 13 Database Manager (DB) or, using the appropriate TM interface, the IMS Version 13 Transaction Manager.

DB2 for z/OS subsystems supported

The IMS Version 13 Transaction Manager can be connected to any of the following DB2 for z/OS products:

- DB2 11 for z/OS (5615-DB2) or later
- DB2 10 for z/OS (5605-DB2) or later
- DB2 for z/OS Version 9.1 (5635-DB2) or later

IMS/DB2 Coordinated Disaster Recovery Support requires the IMS Version 13 Remote Site Recovery (RSR) feature, and requires the databases to be registered with Recovery Level Tracking (RLT).

WebSphere MQ subsystems supported

IMS Version 13 supports WebSphere MQ Version 7.0.1 or later.

IMS/DB2 Coordinated Disaster Recovery Support requires the IMS Version 13 Remote Site Recovery (RSR) feature, and requires the databases to be registered with Recovery Level Tracking (RLT).

Intersystem communication subsystems supported

The IMS Version 13 Transaction Manager can be connected to the following products by using intersystem communication (ISC):

- IMS Version 13 (5635-A04).
- IMS Version 12 (5635-A03).
- IMS Version 11 (5635-A02).
- CICS Transaction Server for z/OS Version 3.2 (5655-M15) or later. For the IMS Version 13 ISC TCP/IP function, CICS Transaction Server for z/OS Version 5.1 or later, the Extended Terminal Option (ETO) feature, and IMS Connect are required.
- User-written software.

Multiple Systems Coupling subsystems supported

The IMS Version 13 Transaction Manager can be connected to the following versions of IMS by using MSC:

- IMS Version 13 (5635-A04)
- IMS Version 12 (5635-A03)
- IMS Version 11 (5635-A02)

Programming languages used to write IMS Version 13

IMS Version 13 is written in High Level Assembler Release 5, PL/X, C, C++, and JDK Version 6.

Programming languages supported

You can write IMS applications in the supported versions of the following languages:

- Ada
- COBOL for OS/390® & VM
- Enterprise COBOL for z/OS
- Enterprise PL/I for z/OS
- IBM High Level Assembler for z/OS & Java™ & z/VSE®
- Java, using the IBM 31-bit SDK for z/OS, Java Technology Edition, V6
- PL/I for z/OS and OS/390
- TSO/E REXX
- VS Pascal
- z/OS C/C++

Application programs supported

All application programs that are supported under IMS Version 11 and IMS Version 12 are still supported under IMS Version 13.

Compatibility

IMS Version 13 can coexist with previous versions, so existing applications and data can be used without change. Migration and coexistence support is provided for IMS Version 11 and IMS Version 12.

Some general coexistence considerations are:

- Certain functions of IMS Version 13 can coexist with IMS Version 11 and IMS Version 12, with the appropriate coexistence APARs applied.
- You must build new application control blocks (ACBs) for all existing program specification blocks (PSBs) and database definitions (DBDs).
- An all-system generation and a cold start are required for online systems (DBCTL, DB/DC, DCCTL). All data sets must be formatted when IMS is initialized the first time.
- If you are installing multiple copies of IMS systems at different release levels in the same processor, the latest version of the IMS SVCs must be used by all the IMS systems.
- The IMS dump formatting module (DFSADFMD0) installed in the host z/OS system must be from the most recent IMS release. The Offline Dump Formatter from IMS Version 12, IMS Version 11, or IMS Version 10 works without modification, if the appropriate formatter libraries are used.

- The old IMS static resource cleanup module, DFSMRCL0, is no longer shipped with IMS Version 13. DFSMRCL0 was used in IMS Version 8 and earlier.

All currently supported versions of IMS use a dynamic resource cleanup module (DFSMRC20).

Recommendation: If you have not already done so, remove the DFSMRCL0 zap installed in EAVTRML and the LPA direct pointer to the IMS SDFSRESL data set.

- For DB/DC and DCCTL online systems, the MFS format library data set is a required data set, regardless of whether MFS is used. DBCTL systems do not require an MFS format library.
- Utilities and logs
You might need to change programs that process the log because some log records that are created by database changes have been modified.
- **Extended Checkpoint restriction:**
You cannot use extended checkpoint to restart applications across different releases of IMS.

Licensed program materials availability

Restricted materials - Yes. This licensed program is available with source licensed program materials for some modules designated as "RESTRICTED MATERIALS OF IBM". In addition, some modules are available without source licensed program materials. The modules are available in object code. The remaining modules are available with source licensed program materials.

The source licensed program materials are available as optional materials. They are written in Assembler and PL/I.

Supplemental terms

Designated machine identification

Designated Machine Identification Required: Yes.

Testing period

- Basic License: Two months.
- DSLO License: Not applicable.

Location license

- Not applicable. A separate license is required for each designated machine on which the licensed program materials will be used.

Use-based charges/usage restriction

- Not applicable.

Type/duration of program services

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October 2013

Printed in USA

GC19-3663-00

