



Licensed Program Specifications

APL2 for CMS and TSO Application Environment Version 2 Release 2 Program Number 5688-229

IBM* APL2* Application Environment is a subset of the APL2 Licensed Program (5688-228). It provides the APL2 environment necessary to run APL2 application packages that have been written using the full APL2 product (5688-228).

New Features

This release includes the following new features:

- Cooperative Processing—The cooperative processing features available on the mainframe have been extended to include communication with workstations running APL2 on AIX*, OS/2*, and Sun** Solaris** using Transmission Control Protocol/Internet Protocol (TCP/IP).
- Statement Separator—This extension to the APL2 language allows for multiple APL2 expressions on one line. The diamond character is used for the statement separator. The addition of the diamond provides language compatibility with APL2 on workstations. Diamond is also part of the proposed extended APL standard (ISO 8485).
- Auxiliary Processors—Extensions have been made to the APL2 stack processor (AP 101) and the APL2 object processor (AP 211) that increase compatibility with those processors on workstation APL2 implementations. AP 101 now has dynamic LIFO/FIFO switching and stack flush capability on both CMS and TSO. AP 211 has a new RENAME command and the ability to read files created on the AIX,

OS/2, and Sun Solaris platforms and unloaded to the mainframe.

- Performance—The performance of the concatenate primitive has been improved for many cases.

Specified Operating Environment

Machine Requirements: APL2 Application Environment Version 2 Release 2 is designed to run on any IBM System/370* or IBM System/390* that includes the extended floating point feature and meets minimum storage requirements; processors such as the 9000, 9370, 43XX, and 30XX can meet these requirements. APL2 Application Environment Version 2 Release 2 uses the IBM 3090* vector facility as available.

Supported processors must have sufficient storage to meet the combined storage requirements of the host operating system, access methods, database system, interactive subsystem, APL2 Application Environment (including the installed auxiliary processors), and GDDM* when used. The extended floating-point feature is required for both APL2 Application Environment and GDDM.

APL2 Application Environment does not use the APL assist feature that is available on certain models of the System/370.

Table 1 lists virtual and auxiliary storage estimates under CMS.

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** Sun and Solaris are trademarks of Sun Microsystems, Inc.

Table 1. APL2 Storage Requirements under CMS

VM system	Virtual machine type	Saved segment storage	VM storage per user
SP or HPO		1.25M	4M virtual machine (1M is work-space)
XA or ESA	370	Below 16M, 1.25M	4M virtual machine (1M is work-space)
		XA	4M virtual machine (1M is work-space)
		Below 16M, 0.25M	4M virtual machine (1M is work-space)
		Above 16M, 1.00M	4M virtual machine (1M is work-space)

Note: "M" is one megabyte, or 1048576 bytes.

Approximately 20M of disk storage is required in order to install APL2.

In addition to the space shown, use of the optional global shared variable processor (GSVP) adds a requirement of 0.25M to the saved segment storage.

Estimates for virtual and auxiliary storage under TSO are listed in Table 2. All numbers are approximations with only one significant digit.

Table 2. APL2 Storage Requirements under TSO

	MVS/XA* and MVS/ESA*		MVS/370
	Below 16M	Above 16M	
Private	0.3M	0.6M - 1000M	0.9M - 8M
LPA	0.3M	0.8M - 2M	1M - 2M
Total	0.6M	2M - 1000M	2M - 10M

Note: "M" is one megabyte, or 1048576 bytes.

If the APL2 Application Environment is not installed in the MVS link pack area (LPA) then the **Total** shown is required in each user's private TSO region. When only the APL2 Application Environment is installed, the LPA usage may be even smaller than shown. The wide ranges in the

Private (and hence also **Total**) rows are primarily due to variations in the user's active workspace size.

In addition to the space shown, use of the optional global shared variable processor (GSVP) adds a requirement to the MVS common storage area (CSA or extended CSA) for at least 60K, and perhaps considerably more, depending on the SMSIZE specified when starting the GSVP.

Programming Requirements: APL2 Application Environment operates under the following operating system environments (minimum release is indicated):

- MVS/Enterprise Systems Architecture (ESA) System Product (SP), Version 4 Release 1, with TSO/E (5695-047 or 5695-048)
- MVS/System Product (SP), Version 3 Release 1, with TSO/E (5685-002 or 5685-001)
- MVS/System Product (SP), Version 2 Release 2, with TSO/E (5665-291 or 5740-XC6)
- MVS/System Product (SP), Version 1 Release 3 or later, with TSO/E (5740-XYN or 5740-XY5)
- VM/Enterprise Systems Architecture (ESA), Version 1 Release 1 (5684-112)
- VM/Extended Architecture (XA), Release 2.1 (5664-308)
- VM/System Product (SP), Release 6 (5664-167).

Note: Installation of APL2 under TSO/E requires SMP/E Release 6 or later.

APL2 Application Environment is designed to operate with the following related licensed programs:

- APL2 (5688-228)
- IBM DATABASE 2* (DB2*), Version 2 Release 3 (5740-XYR)
- Structured Query Language/Data System (SQL/DS*), Version 3 Release 3 (5688-004)
- Graphical Data Display Manager (GDDM), Version 2 Release 3 (5684-007 or 5665-356)
- Interactive System Productivity Facility (ISPF) Dialog Manager, Version 2 Release 2 for VM/XA* or VM/SP (5684-018 or 5664-285)
- Interactive System Productivity Facility (ISPF) Dialog Manager, Version 2 Release 3 for MVS (5665-319)
- TCP/IP, Version 2 for VM (5735-FAL)
- TCP/IP, Version 2 for MVS (5735-HAL)

Note: Later versions, releases, and modifications are supported, unless explicitly stated otherwise. Certain configurations (such as use of the IBM 3090 vector facility) may require a release later than the minimum release indicated.

Licensed Program Materials Availability:

Restricted materials: No. This licensed program is available without source licensed program materials.

Supplemental Terms

Testing Period

- Basic License: two months.
- DSLO License: none.

Installation/Location License: Not applicable. A separate license is required for each machine on which the licensed program will be used.

Usage License: Not applicable.

Type/Duration of Program Services: Central service, including the IBM Support Center, will be available until discontinued by IBM with a minimum of six months written notice.

Warranty

This program is warranted as specified in the IBM license.

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March 1994



Printed in U.S.A. on Recycled Paper

GH21-1063-02

