

VM/ESA Release 2.2

April 6, 1994

Announcement Number: 294-159

Document's Table of Contents:

- [Abstract](#)
 - [DESCRIPTION](#)
 - [EDUCATION SUPPORT](#)
 - [TECHNICAL INFORMATION](#)
 - [ORDERING INFORMATION](#)
 - [TERMS AND CONDITIONS](#)
 - [CHARGES](#)
-

(Corrected on April 6, 1994) The Licensed Products List attachment has been revised.

Abstract

[What does reducing the cost of computing mean to you?](#)

- Does it mean enhanced systems management, or automation of service tasks?
- Does it mean increased availability or improved performance?
- Does it mean reduced out of pocket expense?

[If you need to reduce costs and need more flexibility in your VM system, VM/ESA\(R\) Release 2.2 will be an ideal solution for your company.](#)

[This new set of enhancements to the VM/ESA operating system addresses key customer needs. Through improvements in systems management, guest operating system support, additional hardware support, and other additional functions, VM/ESA continues to help customers reduce the cost of operation.](#)

[Cost savings can be realized through the new spool backup command, that significantly reduces the amount of time and the number of tapes required for backup. New enhancements allow a "cap" on the amount of processor resource a user may consume and proportion out the excess. Problem determination information can now be obtained without reinitializing the system. The systems programmer has more flexibility when collecting data for problem diagnosis. These enhancements save time and increase the availability of the system.](#)

As in each previous release of VM/ESA, VM is dedicated to provide faster and higher quality service. Service in VM/ESA has improvements in performance and testing capability, while reducing manual steps in applying preventive service. Additionally, improvements have been made in identification of customer-modified code when applying preventive service.

Data-in-memory techniques improve guest response time and elapsed batch time for any VM guest. Use of this function for minidisk caching provides improved performance and flexibility for CMS users too.

VM/ESA Release 2.2 further reduces cost of computing by supporting the new lower cost of computing processors announced today. In addition, guest support is provided for new ES/9000(TM) architecture facilities. Horizontal and vertical growth options and workload distribution are enhanced through extensions to transparent connectivity across system images.

Some additional enhancements to reduce your cost of computing include the ability to share user IDs, easier access to applications, new and improved CMS Pipelines stages for application development, and GCS improvements.

VM/ESA Release 2.1 will be withdrawn from marketing at the general availability of VM/ESA Release 2.2. Program services for VM/ESA Release 2.1 will continue to be available. Effective March 31, 1995, program services for VM/ESA Release 2.0 will no longer be available.

Price: Charges are unaffected by this announcement.

Planned Availability Date: June 10, 1994

(R) Registered trademark of International Business Machines Corporation

(TM) Trademark of International Business Machines Corporation

IN BRIEF . . .

- +-----+
o Reduces cost of computing and increases system availability with time-saving system management improvements through:
 - A faster spool backup function that is up to 10 times faster
 - The ability for a "cap" on processor resource consumed
 - Distributing excess processor resource proportionally
 - Improved system availability through new problem determination and diagnosis capabilities
- o Reduces VM/ESA systems maintenance costs by improving performance and further automating the install and service process.
- o Data-in-memory techniques improve guest response time and elapsed batch time up to 50% for any VM guest, or 60% combined with virtual disk.
- o Provides guest support for new ES/9000 architecture facilities.
- o Provides flexibility by supporting the full range of IBM's ES/9000 family, including the new 9221s, and 9021 10-way.
- o Enhances growth options and workload distribution by extending transparent connectivity across system images.
- o Improves performance and flexibility for caching CMS minidisks.

- o Increases user productivity through the use of an automated common access tool for applications, VMLINK.
- o Improves security measures with new LOGON BY function which allows up to 8 users to serially log on to a shared user ID using their own user ID's password.

DESCRIPTION

Do you want to lower your computing costs?

VM/ESA has continually reduced the day-to-day cost of operation. In VM/ESA Release 2.2, customers may realize improved performance, better CPU utilization, tape volume reduction, system programmer productivity, and improved CPU availability.

IS Operations Productivity

A new command, SPXTAPE, has been added to improve spool file backup and recovery of large volumes of spool files. Not only has elapsed time been improved, now fewer tape volumes are required for the backup in comparison to the old SPTAPE command. SPXTAPE loads and saves spool and system data files, such as image file libraries or saved segments, onto tape. It also has the ability to load files from tape to the spool file system. SPXTAPE has greatly improved performance characteristics relative to the current SPTAPE command. Laboratory measurements have shown a ten-fold reduction in elapsed time and a 30% reduction in tapes required. Much larger reductions in tape requirements are possible for customers with many small spool files. This improved performance makes it practical to back up spool files on a regular basis, improving your ability to guard against data loss.

VM/ESA Release 2.2 has improved the way scheduler distributes CPU resource to users. A maximum limit can be placed on the user's "share" to limit CPU consumption and prevent users from running away with the system. The surplus CPU resources can be distributed among users so that excess resources can go to users in need, in proportion to user's "shares".

Improved Systems Availability

Customers who have a problem with their system, now have the capability to obtain a full CP dump without a re-IPL. This new capability to dump the entire system is like a hard ABEND dump without taking the system completely down. After the dump has been taken, customers can resume their operation with no loss to temporary disks or virtual machines, including V=R and V=F machines.

Enhancements to the system's data collection facilities (TRSOURCE) allow greater control over the information collected. This ensures the correct information is saved and system degradation due to the data collection is minimized.

IS Service Maintenance Productivity

Service process improvements continue to make it easier to maintain and update VM/ESA. Customers on VM/ESA Release 2.2 can create a private version of an updated part and test it prior to actually committing the update to the software inventory. In addition, the Product Service Upgrade (PSU) procedure for applying RSUs has been enhanced with additional automation in the area of RSU planning. This automation includes identification of local modifications which need to be reworked and helps in eliminating a manual time consuming and error prone process when dealing with local modifications.

Increased Performance

Improvements in function in VM/ESA affect different users in different ways. All virtual machines that use IUCV or APPC for communications will benefit from improved IUCV/APPC performance, through a reduction in path length.

CMS minidisk cache support has been enhanced, resulting in improved performance. Also, customers no longer need expanded storage for caching CMS minidisks.

Do you want some VM guest performance improvements?

In VM/ESA Release 2.2, minidisk caching has been upgraded to provide caching of a full track of DASD in main storage, expanded storage or a combination of both. The flexibility is added to use and set the size of main storage as well as expanded storage portions of the cache. New commands have been added to specify the devices to be cached. Any VM guest can now cache its data.

Increased Performance

Guest systems can do more work in less time with the ability to cache. Prior to VM/ESA Release 2.2, only CMS users could reap the benefits from minidisk caching. Now performance improvements benefit both guests and CMS users.

Laboratory measurements using VSE guest workloads have shown response time and batch elapsed time reductions of up to 50% and processor capacity improvements of up to 7% through the use of minidisk caching. Minidisk caching makes use of main and/or expanded storage to reduce DASD read I/Os. Accordingly, the degree of performance benefit depends upon the extent of DASD read activity in the workload and the amount of storage that is made available.

In applicable cases, minidisk caching can be used in conjunction with virtual disks in storage to achieve even greater improvements. Laboratory measurements using a VSE guest workload have shown elapsed time reductions of up to 60% and processor capacity improvements of up to 10% through the combined use of minidisk caching and virtual disks in storage.

What else is here for guest systems?

VM/ESA continues to invest in new architecture support. VM/ESA Release 2.2 provides the preferred guest support for utilizing the Asynchronous Data Mover Facility (ADMF) in ES/9000 processors, as announced in a May 1993 statement of direction. ADMF is a new hardware feature used to move data between expanded and central storage asynchronously from the CPU. This will allow subsystems, such as DB2(R) on MVS guests, to offload the data movement from the CPU, placing the demand on the channel subsystem, providing the potential for improved internal throughput.

VM/ESA Release 2.2 will support the ESA/390(TM) Subspace Group Facility for guest use as announced in a February 1993 ES/9000 processors statement of direction.

PVM Console Services for VSE

For VSE guests, VM/Pass-Through Facility (PVM) Version 2 (5684-100) Release 1.1 will provide new function that will enable VSE guest users direct access to VM terminals. This support is, however, limited to VM terminal access only, and does not provide for LU 6.2 communication between VSE and VM that VTAM(R) on VM provides.

This function, delivered via an APAR VM57538 to PVM Version 2 Release 1.1, will be available May 27, 1994. It includes a VTAM application that can be installed on your VSE guest, to connect to a PVM V2 server on the VM host system.

Does VM/ESA support the new hardware announced today?

VM/ESA Release 2.2 announces support for the new processors and enhancements announced today, including the ES/9000 Model 9121 enhancements (refer to IBM Hardware Announcement 194-085) of guest support for the Asynchronous Data Mover and the Subspace Group Facility.

Also supported are the new ES/9000 Model 9221 Models (IBM Hardware Announcement 194-086). These expand the capabilities of the air-cooled, rack-mounted family. These new models expand performance and functional capabilities of the 9221 processors by utilizing new technology and processor design.

In addition, VM/ESA Release 2.2 is the only VM operating system to support the new ES/9000 Model 9021-9X2 in basic mode. This 10-processor machine offers a high-end growth option to VM customers exceeding the capacity of their existing processor (IBM Hardware Announcement 194-084).

In addition, VM/ESA Release 2.2 announces support for the Controlled Unit Initiated Reconfiguration (C.U.I.R.) feature of the 3990-6 Enhancements (IBM Hardware Announcement 194-051). The automatic control provided by C.U.I.R. will greatly simplify the actions required by operations personnel to manage 3990 service requirements and will assist in the avoidance of errors caused by the manual actions in use

today.

Do you manage multiple VM systems?

VM/ESA's inherently distributed multiple virtual machine structure has been enhanced to enable customers to more easily add system images as their need for additional computing power increases. Existing VM facilities such as ISFC, APPC/VM and CSE in conjunction with VM/ESA Release 2.2 enhancements make it easier for customers to distribute applications and users across available real machines without replacing existing hardware.

Managing Multiple Systems

With VM/ESA Release 2.2, users of inter-user communication vehicle (IUCV) have improved flexibility. Servers that use IUCV for communications no longer have to reside on the same system as the requesting virtual machines. IUCV, in conjunction with Inter-System Facility for Communications (ISFC), will transparently locate the target server within a communications services (CS) collection and will route the connection to that target.

Servers and other virtual machines that use IUCV or APPC for communications will benefit from improved IUCV/APPC performance. A multiple processor (MP) capable server now has the ability to use IUCV and APPC from multiple virtual processors on a single virtual machine. CPU utilization may be improved, more clients can be supported by the server, and server performance may be improved.

Connectivity Improvements

For those customers who use ISFC, fully interconnected communication services (CS) collections are no longer necessary. Applications within a CS collection can communicate with each other without having a direct connection between the source and target systems. ISFC will route the communication through the intermediate system(s). This applies to APPC as well as to the new IUCV support through ISFC. This reduces the need for the number of channel-to-channel (CTC) adapters necessary to support a CS connection, thereby reducing cost.

Do you want basic VM function and improved productivity?

A common access tool, VMLINK, to link disks and directories has been added in VM/ESA Release 2.2. End users can easily determine what applications are on the system, linking and accessing disks without contacting support personnel. In addition, VM/ESA Release 2.2 now has the ability to have up to 8 users use a single ID at different times, each user having their own password. VM/ESA Release 2.2 has enhanced CMS Pipelines to include new and improved stages. CMS now support dynamic time zone changes. For customers using SFS, backup enhancements now allow other products to more effectively

backup/restore SFS data. In addition, VM/ESA Release 2.2 has enhanced the REXX Level 2 Stream I/O functions to support the creation of fixed record format SFS and minidisk files.

Improved Worker Productivity

VMLINK will help both the general user as well as the VM system support personnel. It is a menu-driven common access tool and an Application Program Interface (API). It allows end users to easily determine what applications are available on the system and it performs the necessary links and accesses to disks or shared file system directories under the covers through the use of nicknames. If information changes, a single update can be made in the NAMES file(s). Users no longer need to remember the access commands. Calls to support personnel can be reduced.

Auditability Improvements

With the new LOGON BY function, customers can have improved security measures with the ability to have up to 8 users serially logon to an id using their own id's password. This enhances the security and auditability of privileged accounts like MAINT and OPERATOR, that naturally tend to have multiple users. Accounting records can be cut to determine who had access to the account at what time.

Note: If an external security manager is installed, it approves/disapproves the LOGON BY request using its own authorization mechanisms, which may be different from CP's. If you are a customer using RACF(TM), RACF Version 1.9.2 (5740-XXH) supports LOGON BY with RACF APAR #VM57305. If you are a customer using DIRMAINT, DIRMAINT Version 1.4 (5748-XE4) supports LOGON with DIRMAINT APAR #VM57852.

Application Developer Productivity

With CMS Pipelines, customers can develop products much faster. In VM/ESA Release 2.2, a number of new stage commands have been added. Many of the existing commands have also been improved to provide additional function. These new and enhanced commands provide improvements in record selection, running host commands, string handling, and creating user-written stages. For example, a few of the improvements are:

- The new FRTARGET/TOTARGET stage commands allow for record selection based on the results of another stage's output.
- The new CRC stage command gives the ability to verify that a file has been correctly transmitted.
- The new GATE stage command provides a way to end portions of a pipeline. This is useful when used with stage commands such as IMMCMD, DELAY, or STARMMSG which wait for external events.
- The Words, Wordseparator, Fields and Fieldseparator operands can now be used with LOCATE, NLOCATE, XLATE, and ZONE. This allows you to do things like locate the third word in a record regardless of the column location.

For people who do not have access to the CMS Pipelines Reference, Help for Pipelines has been enhanced to include Related Help. Related Help makes it easier to view the Help files of stage commands that are related to the stage command you are viewing. Related Help also offers an easy method to invoke the previously available Help Pipe Task.

Improved Systems Availability

Dynamic time zone changes are now supported by CMS, so it is no longer necessary to re-IPL CMS in order to get correct file time stamps after a time zone change.

CMS logical segment support no longer requires the SYSTEM SEGID file to be copied to the S-disk when only logical segment addresses are changed, thus reducing the number of times CMS must be resaved and re-IPLed.

Data Integrity Improvements

Functions have been added to the Shared File System (SFS) to track the date and time of the last change that has been made to the objects data, attributes, authorizations, name, location or associated control file. This will allow backup products to determine whether an object needs to be backed up. Customers save time since only changed files are backed up. Other enhancements include programming interfaces that return the size of the file and all of its associated catalog data. This will allow backup products to more easily determine storage requirements. Also, a method to create migrated files is provided so a backup product can restore a migrated file without causing it to be recalled.

Is GCS up with the times?

In VM/ESA Release 2.2, GCS provides support to allow an application running on GCS the ability to exploit VM/ESA Data Spaces. VM Data Spaces provides access to a maximum of 1024 2GB (GB = gigabytes) blocks of in memory data storage per virtual machine. Prior to VM/ESA Release 2.2, the maximum was 2GB total. This supplies significant storage constraint relief for those applications with large amounts of data and also allows for faster passing of data between CMS and GCS virtual machines. As part of the data space support, GCS has extended diagnostic capabilities to handle data spaces. GCS will also now support a GCS group consisting of XA and XC mode virtual machines, partially removing the restriction that all members of a GCS group have to be the same mode. This allows an easier migration to the new release of GCS for those applications who do not currently support VM Data Spaces and XC mode.

To enhance communications between members of a GCS group, GCS has provided a new interface to allow applications to dynamically create, delete, and retrieve a NAME/TOKEN pair. This can be used to pass information between processes running in the same virtual machine or applications running in different virtual machines. This allows applications to reduce or eliminate use of IUCV for tasks where performance is critical. It also allows recovery of a single virtual machine or task without having to bring down the entire GCS group. This can have a major positive impact on network reliability. In addition, several serviceability enhancements have been made to GCS.

PRODUCT POSITIONING

VM/ESA Open Systems Strategy

VM/ESA's Open Systems strategy positions VM to play a key role in heterogeneous, multi-vendor environments by providing the infrastructure on which solutions are implemented to meet our customers' business needs. These environments include hardware and software from both IBM and OEM vendors encompassing mainframes, intelligent workstations, terminals, and other peripheral devices. Interoperability and portability are key elements of this infrastructure.

Interoperability is enabled in VM/ESA environments with the support for industry standard protocols for communications across local area networks (LANs) and wide area networks (WANs). In addition to the basic communications protocols, VM will support industry standard services such as the Open Software Foundation** (OSF**) Distributed Computing Environment (DCE) where these services fill functional needs in our customers' environments.

VM will continue to enhance its portability characteristics to extend its participation in the Open Distributed Systems environment. Selected industry standard interfaces such as IEEE POSIX will be implemented on VM/ESA to support POSIX-compliant applications.

IBM recognizes that POSIX standards are a subset of what is needed to satisfy world-wide customer requirements for portability. In particular, customers in Europe and Asia require conformance to the X/Open Portability Guide, XPG4** after 1995. Some US companies are also requiring XPG conformance. Extending the VM POSIX direction to include conformance with the XPG4 guidelines in open, distributed environments is part of the VM/ESA Open Systems Strategy.

As an extension to the VM Open Systems Strategy, IBM is investigating how it can incorporate the use of Graphical User Interfaces (GUI) with existing user functions. A large number of VM users access applications on VM through the use of workstations. Many of these workstations run operating systems that make use of graphical interfaces such as windowing. The X Window** System provides a technology base that:

- Provides a network transparent protocol
- Can be distributed from a host system
- Is widely available on workstation operating systems

The Open Software Foundation's Motif** provides a window management and presentation system that presents users with a windowing environment that can be integrated with their existing workstations. The X Window System and Motif are currently available for use by applications on VM/ESA with the IBM Transmission Control Protocol/Internet Protocol (TCP/IP) program product.

IBM is investigating the use of the Motif protocol for use with common user functions such as file and reader management, file editing and communications. To that end, IBM will be making prototype applications available to customers. These prototype applications will illustrate how GUI applications

can be used with VM/ESA and will aid IBM in determining the direction for providing end-user GUI capabilities on VM/ESA. IBM will be making these prototype applications available using the online service of the "S/390(R) Developers Association". This is an electronic conferencing service available on TalkLink through the Advantis** network.

IBM is providing these prototypes to demonstrate to VM/ESA customers the use of GUI applications using VM, and to allow customers to comment to IBM on the applicability and usefulness of these types of applications on VM. These prototypes will be made available in the second quarter of 1994.

** Product or company name is a trademark or registered trademark of its respective holder.

STATEMENT OF GENERAL DIRECTION -- DCE ON VM/ESA

On February 9, 1993, and again on May 20, 1993, IBM announced the following Statement of Direction (SOD) stating the intent to support the Open Software Foundation's Distributed Computing Environment (OSF DCE) on the VM/ESA operating system platform:

DCE is a collection of technologies selected by the Open Software Foundation (OSF) based on industry acceptance and technical merit. The purpose of DCE is to support fully integrated distributed computing in a heterogeneous multi-vendor environment. In the complex, rapidly changing world of open systems, the DCE is an infrastructure on which solutions can be implemented to meet our customers' business needs. It is designed to address today's challenges and accommodate new technologies of the future.

To further address market requirements regarding the open systems environment, IBM has added plans for the introduction of DCE support for VM/ESA. IBM intends to support selected components of the OSF DCE as client/server enabling services on the VM/ESA platform. VM/ESA's support of OSF DCE will allow VM applications to participate in the DCE environment. Each of the IBM supported DCE implementations will interoperate with other DCE-compliant systems. OSF DCE plays a key role on each of the IBM systems, enabling enterprise integration for our customers by providing interoperability across complex, distributed computing environments.

Today, IBM is providing additional information about its plans for implementing DCE on the VM/ESA operating system platform.

The OSF DCE integrates a comprehensive set of leading technologies designed to support distributed execution of tasks and resource sharing in heterogeneous, networked computing environments. The intent of the VM/ESA support is to facilitate the development of DCE-based applications, and significantly enhance the interoperability characteristics of the VM system in heterogeneous multi-vendor computing environments.

The DCE support on VM/ESA will enable VM to participate in a DCE cell and support DCE Remote Procedure Call (RPC)-based client and server applications. VM support will be directed at components of the DCE Executive. It is IBM's intent for VM/ESA to support all of the components of the DCE Executive in the future.

The DCE Executive consists of the following components:

- DCE Remote Procedure Call (RPC) VM/ESA will provide the complete structure for connection-less RPC. RPC provides a facility for calling a procedure on a remote system as if it were a procedure on the local system. RPC also provides a high level programming model which masks the application from the underlying details of the communications network.
- DCE Threads VM/ESA will provide support for the DCE Threads application programming interface (API). The DCE Threads service allows a user to create and control multiple threads of execution within a single process. The user threads library implementation is based on IEEE POSIX 1003.1c (previously, 1003.4a).
- DCE Cell Directory Service (CDS) Client The DCE CDS Client provides access to the DCE CDS Server on another system in the DCE Cell(1). The DCE Directory Services provide consistent naming throughout the distributed environment. This allows users to identify resources such as RPC-based servers, files, or print queues by name and gain access to them without needing to know their location in the network.
- DCE Security Service Client The DCE Security Service Client provides the API to access the DCE Security Server on another system in the DCE Cell. The DCE Security Server provides user registration, authorization, and authentication services for distributed applications.
- DCE Distributed Time Service (DTS) Server and Client The DCE DTS provides time services that enable distributed applications to determine event sequencing, duration, and scheduling.

(1) A DCE Cell is an administrative customer-defined domain that consists of a set of network-connected client and server nodes. A DCE Cell requires at least one DCE Cell Directory Server and one DCE Security Server.

STATEMENT OF GENERAL DIRECTION -- POSIX ON VM/ESA

On February 9, 1993, and again on May 20, 1993, IBM announced the following Statement of Direction (SOD) stating the intent to support selected Institute of Electrical and Electronic Engineers (IEEE) POSIX standards on the VM/ESA operating system platform:

The Institute of Electrical and Electronic Engineers (IEEE) Technical Committee on Open Systems (TCOS) has defined a base set of operating system services which are intended to provide greater system consistency across unlike operating environments. These services are formally defined in a set of standards known as POSIX**, a Portable Operating System Interface for Computer Environments. They were developed from an open forum by technical professionals from many companies, including IBM. The implementation of POSIX services on IBM operating system platforms will enhance our customers' ability to interoperate with operating environments from other vendors and to support POSIX-compliant applications.

To further address market requirements regarding the open systems environment, IBM has added plans for the introduction of selected POSIX standards on VM/ESA. IBM intends to support IEEE 1003.1 (System Interfaces) and applicable Federal Information Process Standard (FIPS 151), and IEEE 1003.1c (Threading, previously 1003.4a) POSIX standards on VM/ESA. As additional POSIX standards and other worldwide open standards become formally approved, IBM will evaluate the applicability of those standards on VM/ESA to satisfy customers' requirements, and will implement them as appropriate.

Today, IBM is announcing that it is adding IEEE 1003.2 Shell and Utilities to the suite of POSIX standards it intends to support on VM/ESA. The POSIX Shell and Utilities will provide a UNIX style application development environment on VM. It will also provide application services on VM for the development of POSIX-based applications.

EDUCATION SUPPORT

The appropriate curriculum will be updated, as necessary, to include the enhancements in this announcement.

Details of the education support will be provided by product availability through separate Education Announcement letter(s).

Descriptions of all classroom and self-study courses are contained in the Catalog of IBM Education (G320-1244).

Call Skill Dynamics(TM), An IBM Company, at the toll-free number, 800-IBM-TEACH (426-8322), for schedules and enrollments.

TECHNICAL INFORMATION

Specified Operating Environment

Hardware Requirements: VM/ESA Release 2.2 requires an IBM ESA/370(TM) or ESA/390 processor. See the General Information Manual for more information.

Software Requirements:

- VM/ESA Release 2.2 requires:
 - IBM High Level Assembler (5696-234)
 - EREP VM (5654-260)
 - Device Support Facilities -- ICKDSF VM (5684-042); both the CMS version of ICKDSF and an IPL-able, stand-alone version of ICKDSF (5747-DS1) are supplied with VM/ESA Release 2.2. Note: For VM/ESA orders, the above prerequisite products are pre-installed. Therefore, when ordering the VM/ESA System DDR, the customer must already be licensed for these products or a separate order must be placed for each of these products.
- Optional Security Product
 - RACF Version 1 (5740-XXH) Release 9.2 (or its equivalent), if a security product is needed. If you would like RACF LOGON BY support, RACF APAR #VM57305 is required.
- VM/ESA Release 2.2 DFSMS/VM(TM) Function Level 221 requires:
 - ISPF Version 3 (5684-043) Release 2.0 or subsequent release is needed for installation and during DFSMS/VM usage. ISPF is not required if the customer is using only the 3495 Tape Library Dataserver support of FL221.

- VM/Directory Maintenance Version 1 (DIRMAINT) Release 4.0 (5748-XE4) will require service level 416 or higher from PUT
 - 9305 or later, or the SDO Refresh feature from 4Q93 or later, if minidisk management function is needed.
 - RACF Version 1 (5740-XXH) Release 9.2 (or its equivalent), if a security product is needed.
 - ADSTAR(TM) Distributed Storage Manager (5648-020) if the Migration Level 2 (ML2) function of DFSMS/VM is needed.
 - TCP/IP Version 2 (5735-FAL) Release 2.0 to access the IBM 3495 Tape Library Dataserver for processors capable of 3490/3490E tape I/O, but incapable of 3495 Tape Library Data Server control.
 - IBM SAA(R) AD/Cycle(R) Language Environment(R) (5688-198) Release 1.1 or later is needed during DFSMS/VM usage
 - If the space management function is needed and/or
 - If other processors (that do not have native support of the IBM 3495 Tape Library Dataserver) will use TCP/IP to request
 - 3495 functions from DFSMS/VM
 - Program Development Facility (PDF) Version 3 (5684-123) Release 2.0 or CMS Utilities Feature to use the BROWSE and EDIT functions
 - Remote Spooling Communications Subsystem Networking (RSCS) Version 2 Release 3 or later for remote operations
 - IBM Compiler for REXX/370 (5695-013) and IBM Library for REXX/370 (5695-014) if the compiled REXX installation-wide exit or a compiled ACS REXX exit is desired
- VM/ESA ScreenView Feature FL Release 2.0
ScreenView FL Release 2.0 is an optional feature with a one-time workstation download charge. It requires a Programmable Workstation running OS/2(R) Version 2.0. Refer to the ScreenView General Information Manual (GC33-6450).
- VM/ESA ScreenView Feature FL Release 1.1
ScreenView Feature FL Release 1.1 which requires a PS/2(R) running OS/2 Version 1.3, is an optional feature (with a one-time download workstation charge for either level of ScreenView). Refer to the ScreenView General Information Manual for further details.
- VM/ESA Release 2.2 Installation via CD-ROM requires IBM Optical Media Attach/2 Enabler Kit (5622-138). See Software Announcement
- 293-269, dated May 20, 1993, for additional details.
- VM/ESA publications received via the online-displayable format require a BookManager(R) READ licensed program to view. Online books shipped on CD-ROM may also be viewed by the IBM Library Reader(TM) licensed programs for DOS and OS/2, which are shipped, at no additional charge, on publications CD-ROMs. BookManager products also have prerequisite product requirements. Specific details are available in the BookManager announcement documentation.

User Group Requirements: This announcement satisfies or partially satisfies requirements from one or more of the world wide user group communities, which include Australasian SHARE/GUIDE (ASG), COMMON, COMMON Europe, GUIDE International, G.U.I.D.E. Europe, Japan GUIDE/SHARE (JGS), Guide Latin American (LAG), SHARE EUROPE and SHARE Incorporated. List of requirements satisfied:

G05HPX90010 Allow Capability to Place a Cap on CPU Usage
G05VCP92004 VM/ESA Scheduler: "Reverse Robin Hood"
SOVMSM91803 VM Scheduler Should Provide Resource Capping
SOVMSM91803.1 VM Scheduler Should Provide Resource Capping
CSVMM89211 (partial) CMS Pipelines to be fully integrated into CMS
SOVMSM86002 Need improved spool backup/restore capability over SPTAPE.
SOVMSM88048 (partial) SPTAPE usability enhancements
SOVMSM90809 Need ability to offload spool files to tape by file characteristics
G05VMI88023 (partial) ISF Diagnostics
SOVMSM93013 VMSES/E enhance VMFBLD for a private, temporary copy of an Object
SOVMSM93021 (partial) VMSES/E Performance
SOVMSM93016 (partial) VMSES/E Enhanced Automation of RSU Process
SOVMSM93006 (partial) VMSES/E Tool to package products
SOCMSX86013 (partial) Sendfile -- useability enhancements
SOCMSX92010 Provide a way to access an SFS directory really R/O for COPY & XEDIT
SOCMSX92016 CSL validate function enhance to accept a namedef
SOVM93006 (partial) Monitor should collect processor spin time and the number of times a lock is held.

SOVM93031 Detect Current "running User" with VM/ESA state sampling

SOVM93002 (Partial) Inaccurate User State Sample Data

In addition to the User Group requirements, a number of Fixed-in-Next APARS have been answered in VM/ESA Release 2.2 as of February 1994:

VM51304 Record Manager out-of-storage while XEDITing very large files causes CMS to die
VM53227 MSPIPDEB069E BLKSZ mismatch using BLOCK/DEBLOCK VBS - Incompatibility between 370 and ESA
VM54027 Query GCSLEVEL does not output the SERVICE LEVEL
VM54612 Without IPLing CMS, updates to the SYSTEM SEGID file causes ABENDs
VM54649 Invalid sense data, CP didn't allow guest's sense to complete
VM55140 HCPUNT soft ABEND dumps 1 2 & 3 don't preserve the gen regs
VM55224 File pool server system error DMS4AD 31 due to conflicting work request blocks
VM55312 Stop request interception invalidly presented to RGUEST
VM55493 Disc user enable cmd range device process end after first error msg
VM55628 OS type commands will give error when SFS threshold is reached
VM55682 Error 41 running CPFMTXA EXEC
VM55822 Writing to dialed device in FULLSCREEN CMS doesn't get processed
VM55932 While in NOTE, IMPCMSCP is set OFF and SENDFILE does not work
VM56122 Duplicate file ids in the XEDIT ring due to using the CTL option could cause data integrity problems

VM56145 Vague error messages result when TAPE LOAD is issued to load files to a directory where the user has zero blocks allocated within the filepool

VM56243 ABENDIOL008 in logoff, trying to destroy VDEVLOCK w/wait task

VM56307 Unclear msg and ABEND when issue UPDATE cmd w/packed update file

VM56309 CMSSERV (CUT fails in XA/XC mode

VM56322 SPTAPE problems on DUMP and LOAD

VM56458 DDR DUMP NUC/CPVOL no nucleus dumped - HCPDDR723E

VM56500 No account record type 08 logoff user without vmdlnked hcpuso

VM56568 CPACCESS with SYNCH option via DIAG8 response to buffer failed

VM56618 Term BREAKIN GUESTCTL does not work while disconnected

VM56661 ABENDBVM003 DIAL DROP SKELETON VMDBK

VM56695 2nd level terminal hung with X-CLOCK after LOGOFF

VM56799 DMS5GR abends on RC 7 from CMSSTOR during free storage reclaim

VM57234 VMFDEOPT doesn't recognize a file has been optimized by VMFOPT

VM57356 HCPPCW's simulation of write-event-data cannot handle a single

VM57499 DMSFNS doesn't time stamp files correctly when using the CP Dynamic Nucleus Configuration

VM57616 Minidisk defined over CP directory cylinders causes MDC problems

VM57669 HCPPTS didn't have an upward boundary when going through system address segment table

Planning Information

Installability:

370 Applications

The CMS in VM/ESA Release 2.2 is the last release of CMS to run in a 370-mode virtual machine. Users still needing 370-mode CMS support are encouraged to run their 370 applications using the 370 Accommodation facility which became available in VM/ESA Release 2.1. 370-mode virtual machines will continue to be provided for use by guest operating systems and by applications which do not run on CMS. Many 370 applications can run unaltered in XA/XC mode. By testing the applications with 370 accommodation, customer can be assured their applications will run in XA/XC virtual machines under future releases of CMS.

Other VM-related Information

ACF/VTAM(TM)

IBM intends to offer a new version of ACF/VTAM for VM/ESA, which will provide support for Systems Network Architecture Advanced Peer-to-Peer Networking(TM) (SNA APPN(R)). A statement of direction for this support was announced in ACF/VTAM Version 4 Release 1 for MVS/ESA(TM) (see Software Announcement 292-168, dated March 25, 1992).

The new version will bring APPN dynamics to your VTAM network providing both APPN and subarea networking concurrently. In fact, you can have application sessions between any combination of APPN and traditional network environments. This not only gives you the many benefits of APPN, but also a gradual way to convert your network to it. Dynamic location of logical units, dynamic route calculation, dynamic addition, deletion and movement of network nodes, dynamic integration of LANs and WANs are just a few of the many benefits obtained when making the transition to APPN.

VM/ESA Licensed Products in VMSES/E format as of January 1994

VM/ESA licensed products that have implemented VMSES/E format to allow for a consistent and common service process are as follows:

5798-DWD	RTM 1.5.2	12/92	RealTime Monitor
5684-111	WLFS 1.1.1	3/93	Workstation LAN File
			Services
5684-142	LANRES 1.2.0	3/93	LAN Resource Extension
			and Services
	LANRES 1.2.1	6/93	
	LANRES 1.2.2	12/93	LAN Resource Extension
			and Services
5648-038	SLM 1.1.0	3/93	Software License Monitor
	SLM 1.1.1	6/93	
5684-096	RSCS SECP	3/93	B1 security feature
5684-100	PVM 2.1.1	6/93	Pass-Through Facility/VM
5654-007	ANO 1.1.0	6/93	Automated Networking
			Operations (not 370)
5686-037	VSAM 2.2	6/93	(ESA 2.1 and above only)
5648-020	ADSM 1.1.0	7/93	Automated Data Storage
			Management
5684-096	RSCS 3.1.1	9/93	
	LFS 1.1.0	10/93	LAN File Server
5684-137	VMBATCH 2.2	11/93	
5684-157	HMF 1.1.1	12/93	Host Management Facility
5688-226	ESSL/370	12/93	Engineering Scientific
			Subroutine Lib.
5688-216		6/94	AD/Cycle C/370(TM)
			Compiler V1.2.0
5688-188		6/94	C/370 C Specific Library
			V2.2.0

RSU exploiters

RSCS	1/28/94	(9401) - quarterly
PVM	1/28/94	(9401) - semi-annual

Migration Services: IBM offers migration services to customers moving from prior VM platforms to the VM/ESA Release 1.5 370 Feature or VM/ESA Release 2.2. These fee-based services can assist local account teams engaging in migration activities, or provide direct support to customers. Support is provided in:

- Planning, installing and tailoring VM/ESA
- Migrating VM and VM guests
- Migrating other IBM and vendor products
- Service and PTF application

- Performance Tuning
- Integrating systems and LANs

The migration services offered will be based on the customer's specific configuration and services selected. If you would like more information in these areas,

- Contact your IBM representative or
- Call 800-IBM-3333 and ask for extension STAR 100
- FAX your name and number for more information to 607-752-6080
- Send a note via Internet to WEDOFORU@VNET.IBM.COM or via IBM mail to USIB4EPL at IBMAIL.

S/390 Developers Associations: A new membership program has recently been unveiled for software developers using S/390 platforms. The program is called the S/390 Developers Association. The goals of the program are to enhance communication between S/390 customers, independent software vendors (ISVs) and IBM's S/390 development organizations and to provide assistance to ISVs in obtaining the resources necessary to develop and support solutions on S/390 platforms.

The previously announced membership program, Your Connection to VM, is being combined with this new program. There is no fee for membership in the S/390 Developers Association and many of the services provided are identical to those previously available. (For complete terms and conditions, see the application kit.) The S/390 Developers Association provides an online conference service, through TalkLink, that is available to S/390 customers as well as ISVs. The section of the service available to customers contains bulletin boards, news and announcements concerning S/390 and IBM tools for the various platforms. The developers only section contains special bulletin boards, IBM internal development tools and news for developers.

The S/390 Developers Association provides additional support for developers with technical and marketing services. Technical support includes porting information, White papers with IBM views on technical topics, access to testing facilities (at a minimal fee) and special developers prices on IBM hardware and software. Marketing support provides for inclusion in S/390 product catalogs, listings in the National Solution Center Database, and software replication and distribution services from IBM Software Manufacturing. The MVS, VM and VSE development organizations will also offer special, invitational programs that provide developers with technical disclosures, early access to platform products and special marketing opportunities.

Customers that wish to participate in the online service of the S/390 Developers Association should call TalkLink at 800-547-1283 to request a subscription application. Software developers who would like to join the S/390 Developers Association or would like additional information should call 800-627-8363 and request an application kit.

VM Customer Satisfaction Line: The VM Customer Satisfaction Line, 800-4-CARE-VM (422-7386), gives customers a direct path into product development for voicing concerns about VM.

This customer satisfaction line is not intended to circumvent or replace existing IBM product support channels, such as the IBM Support Center or contacting your IBM representative. However, if you believe you have exhausted all other avenues in IBM's support structure, and continue to have concerns regarding VM that need to be addressed, contact 800-4-CARE-VM.

The VM customer satisfaction line, 800-4-CARE-VM, is available Monday through Friday, 9 a.m. -- 5 p.m Eastern time. Other times, you can FAX your concern to 607-752-6080, or send a note via Internet -- VMCARES@GDLVM7.VNET.IBM.COM or IBM MAIL -- IBMMAIL(USIB4V82).

Applications supporting VM/ESA Release 2.2: Many products, IBM and Vendor, are currently committed to support VM/ESA Release 2.2 at the general availability of VM/ESA Release 2.2 are listed in the IBM Licensed and Vendor Product Attachment section. IBM provides this list for customer information purposes only, and IBM makes no warranties or representation regarding the vendor products.

Security, Auditability and Control

The announced program uses the security and auditability features inherent in the virtual machine and the System/370(TM), ESA/370 and ESA/390 architecture. The security and auditability of VM/ESA is the same for ESA/390 and ESA/370 architectures.

User management is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

ORDERING INFORMATION

The following advance publication General Information Manual (GC24-5550) is available now. To order, contact your IBM representative.

Current Licensees

Current licensees of VM/ESA must order this release via MES. Ordering instructions are scheduled to be mailed from the IBM Software Manufacturing Company to all current licensees by two weeks after the general availability of VM/ESA Release 2.2.

The CD-ROM product package will be available on June 10, 1994 in the US.

Withdrawal of Marketing of VM/ESA Release 2.1

VM/ESA Release 2.1 base product will be withdrawn from marketing, June 10, 1994. The following feature numbers are no longer orderable and will be withdrawn:

5839, 5849,
7844, 7845, 7846, 7847, 7848, 7849, 7850, 7851,
7852, 7853, 7854, 7855, 7856, 7857, 7858, 7859,
7087, 7185,
8185, 8186, 8187, 8188, 8189, 8190,
8260, 8261,
2406,

6349, 6350, 6351, 6352, 6353, 6354, 6355, 6356, 6357,
 6555,
 6294, 6295, 6296, 6297, 6298,
 6345, 6346, 6347, 6348,
 6131, 6132, 6133, 6134,
 6570, 6158, 6178, 6250, 6251,
 6122, 6123, 6124, 6125, 6126, 6127, 6128, 6129, 6130,
 6252, 6253, 6254, 6255, 6256, 6257, 6258, 6259,
 6293, 6552,
 6358, 6359, 6372, 6373, 6374, 6375, 6376, 6377, 6378

Program Services

Program services for VM/ESA Release 2.1 will continue to be available.

Effective March 31, 1995 program services for VM/ESA Release 2.0 will no longer be available, VM/ESA Release 2.0 B1 security feature will still be marketed and serviced.

New Licensees

Shipments will begin on the planned availability date.

New users of VM/ESA should specify:

Type	Model
5684	112

Basic License: To order a basic license, specify the program number and feature number 9001 for asset registration. For a graduated one-time charge or graduated monthly license charge specify one of the following feature numbers as applicable and corresponding to the group that contains the designated machine.

Also, specify the feature number of the desired distribution medium.

ScreenView

To order the ScreenView Workstation Master, specify the Optional Machine-Readable Material feature number 7896 for ScreenView FL1.2.0 or feature number 7895 for ScreenView FL1.1.1. The Workstation Master cannot be used until Workstation feature number 2421 for a one-time charge is ordered. To order Workstation feature number 2421, specify program number 5684-112 and feature number 9998 for asset registration. Then specify feature number 2421 for a one-time charge and the quantity of workstations to which the ScreenView Workstation Master will be downloaded (maximum quantity 250).

VM/ESA Release 2.2 (5684-112)

Group	Basic Graduated	Basic Graduated
	OTC Feature Number	MLC Feature Number
18	0826	0808

20	0827	0809
25	0828	0810
28	0829	0811
29	4776	4774
30	0830	0812
31	4777	4775
32	0831	0813
35	0832	0814
38	0833	0815
40	0834	0816
50	0835	0817
60	0836	0818
70	3990	3988
80	4658	4656

OTC = One-Time Charge

MLC = Monthly License Charge

CMS Utilities Option (Feature Number 7893)

Group	Basic Graduated	Basic Graduated
	OTC Feature Number	MLC Feature Number
18	2699	2596
20	2739	2597
25	2740	2598
28	2754	2599
29	4850	4848
30	2755	2626
31	4851	4849
32	2756	2627
35	4313	2628
38	4314	2655
40	4315	2656
50	4333	2657
60	4334	2658
70	3994	3992
80	4662	4660

Multiple Operating System -- PR/SM(TM) (MOSP): For a graduated one-time charge or graduated monthly license charge, specify the following feature number corresponding to the group that contains the designated machine:

Group	MOSP	MOSP
	Basic Graduated	Basic Graduated
	OTC	MLC
	Feature Number	Feature Number
18	0016	0001
20	0017	0002
25	0018	0003
28	0019	0004
29	0020	0005
30	0021	0006
31	0022	0007
32	0023	0008
35	0024	0009
38	0025	0010
40	0026	0011
50	0027	0012
60	0028	0013
70	0029	0014
80	0030	0015

CMS Utilities Option (Feature Number 7893)

Group	MOSP	MOSP
	Basic Graduated	Basic Graduated
	OTC	MLC
	Feature Number	Feature Number
18	0076	0061
20	0077	0062
25	0078	0063
28	0079	0064
29	0080	0065
30	0081	0066
31	0082	0067
32	0083	0068
35	0084	0069
38	0085	0070
40	0086	0071
50	0087	0072

60	0088	0073
70	0089	0074
80	0090	0075

Note: The group can be determined by referring to the Exhibit for IBM System/370 and System/390(R) Machines (Z125-3901) or the Exhibit for Non-IBM Machines (Z125-3902)) that are associated with the IBM Customer Agreement (Z125-4575).

Single Version Charging: To elect Single Version Charging, the customer must notify and identify to IBM the prior program and replacement program and the designated machine the programs are operating on.

Version-To-Version Upgrade Credit: To upgrade from a prior program acquired for a one-time charge to a replacement program using a version-to-version upgrade credit, the customer must notify and identify to IBM the applicable prior program and replacement program participating in the upgrade credit.

Basic Machine-Readable Material: The VM/ESA Release 2.2 is installed via the VM/ESA System DDR and is available on either 6250 tape, 3480 cartridge, or CD-ROM. This can be ordered through the VM/ESA base product (5684-112) or via the VM/System Delivery Offering (SDO). The VM/ESA Release 2.2 deliverable is the VM/ESA System DDR. It is refreshed as needed.

Note: If VM/ESA is ordered through the VM/System Delivery Offering (SDO), SDO provides the following advantages when ordering VM/ESA, optional features and other licensed products:

- Single point of ordering for multiple products/features
- All ordered products/features delivered together
- All products/features refreshed periodically
- Product and service requisites are verified and resolved.

Additionally, starting with VM/ESA Release 2.2, SDO will now provide the ability to order and install either the product tape version of the optional licensed products (current SDO format) or a pre-installed version of the optional licensed products (enhancement for VM/ESA Release 2.2). (Previously only VM/ESA was pre-installed, now other licensed products will be pre-installed.) Details about the product list for both product tape and pre-installed products will be available on HONE in the VM/ESA SDO HELP Information within the configurator, CFPROGS. See SDONEWS for the most up-to-date SDO news. Information on the content of the current SDO is contained in SDOPLAN on MKTTOOLS.

For all VM/ESA Release 2.2 orders, the following prerequisite products are pre-installed on the System DDRs:

- EREP (5654-260)
- ICKDSF (5684-042)
- HLASM (5696-234)

Therefore, when ordering VM/ESA Release 2.2, the customer must be licensed for the product or a separate order must be placed for the product.

To order the VM/ESA Release 2.2 System DDR, select the feature number of the desired distribution medium:

Feature Number	Distribution Medium
----------------	---------------------

3401	6250 mag tape
3404	3480 tape cartridge
3410	CD-ROM

Also, select the feature number of the desired pre-built System DDR:

Environment	Feature Number
3380 SysDDR Release 2.2	7889
3390 SysDDR Release 2.2	7890
9345 SysDDR Release 2.2	7891
FBA SysDDR Release 2.2	7892
CD-ROM ALL SysDDR Release 2.2	5879

Note: CD-ROM contains all four system DDRs, all unpriced features of VM/ESA, and national language translation files.

Installation via CD-ROM requires the IBM Optical Media Attach/2 program (5621-264). See the IBM Optical Media Attach/2 Enabler Kit (5622-138) announcement (293-269), dated May 20, 1993 for more details.

Note: DFSMS/VM is automatically shipped with VM/ESA Release 2.2.

National Language Translation Features: If you are ordering VM/ESA Release 2.2 via 6250 tape or 3480 cartridge, for the VM/ESA Release 2.2 national language translations, select the feature number above of the desired pre-built System DDR and the feature number below for the desired translation tape.

Note: If ordering VM/ESA Release 2.2 via CD-ROM -- you do not need to order the following feature number(s) to receive the translation file(s).

Environment	Feature Number	
5912	Release 2.2	Spanish
5552	Release 2.2	German
5476	Release 2.2	Japanese Kanji
5094	Release 2.2	Simplified Chinese

VM/ESA Release 2.2 offers National Language translation for Message Repositories, HELP files, and other Panels or Files depending on the function translated.

The following components/features are supported by VM/ESA in the following National Languages:

- German -- CP, CMS, REXX, CMS Utilities, ScreenView Feature FL Release 2.0
- Japanese Kanji -- CP, CMS, REXX, CMS Utilities, DFSMS/VM, ScreenView,
- Spanish -- CP, CMS, REXX, ScreenView
- Simplified Chinese -- CP, CMS, REXX, CMS Utilities

If ordering via 6250 tape or 3480 cartridge, with the exception of the VM/ESA Message Repositories, which are included on the DDRs, these translated files are packaged on separate media. The customer must order both the base feature number and the translated feature number(s).

Customization Options: Select the appropriate feature number(s) to customize your order to specify the delivery options desired. These features can be specified on the initial or MES orders.

Example: If publications are not desired for the initial order, and for future updates, specify feature numbers 3470 to ship media only, and 3480 to ship media updates only. In the future if publication updates were required, order an MES to remove feature number 3480, and the publications will ship with the next release for the program.

Initial Shipments

Feature	Description
---------	-------------

3444	Serial Number Only (suppresses shipment of media and documentation)
------	---

3470	Ship Media Only (suppresses initial shipment of documentation)
------	--

3471	Ship Documentation Only (suppresses initial shipment of media)
------	--

Update Shipments

Feature	Description
---------	-------------

3480	Ship Media Updates Only (suppresses update shipment of documentation)
------	---

3481	Ship Documentation Only (suppresses update shipment of media)
------	---

3482	Suppress Updates (suppresses update shipment of media and documentation)
------	--

Expedite Shipments

Feature Description

3445 Local IBM Office Expedite (for IBM use only)

3446 Customer Expedite Process Charge
(\$30 charge for each product)

Expedite shipments will be processed to receive 72-hour delivery from the time the IBM Software Manufacturing Company (ISMC) receives the order. ISMC will then ship the order via overnight air transportation.

Optional Machine-Readable Material: To order, select the feature number for the desired distribution medium and the feature number of the desired optional material.

Feature Number	Distribution Medium
3401	6250 mag tape
3404	3480 tape cartridge
3410	CD-ROM

Optional Material	Tape or Cartridge	CD-ROM
	Feature Number	Feature Number

CMS Utilities for Release 2.2	7893	7893
3800 Image Libs for Release 2.2	7894	5879
ScreenView FL 1.1.1 for Release 2.2	7895	5879
ScreenView FL 1.2.0 for Release 2.2	7896	5879
Restricted Source for Release 2.2*	7897	5879

ScreenView is translated into Spanish and Japanese. ScreenView FL1.2.0 is also translated into German. If you would like ScreenView in one of the these languages, you must also specify the feature number below:

Translated Optional Features	Tape or Cartridge	CD-ROM	Number
	Language	Feature Number	
ScreenView FL 1.1.1	Japanese	5416	5879
ScreenView FL 1.2.0	Japanese	5501	5879
ScreenView FL 1.1.1	Spanish	5573	5879
ScreenView FL 1.2.0	Spanish	5555	5879

* Contains "RESTRICTED MATERIAL OF IBM"

DSLO License: To order a DSLO license, specify the program number, feature number 9901 for asset registration, and the feature number for a graduated one-time charge or graduated monthly license charge that corresponds to the group containing the designated machine.

VM/ESA Release 2.2

Group	DSLO	DSLO
	Basic Graduated	Basic Graduated
	OTC	MLC
Feature Number	Feature Number	Feature Number
18	0858	0842
20	0859	0843
25	0860	0844
28	0861	0845
29	4780	4778
30	0862	0846
31	4781	4779
32	1800	0847
35	1801	0848
38	1802	0849
40	1803	0850
50	1804	0851
60	1805	0852
70	3991	3989
80	4659	4657

CMS Utilities Option (Feature Number 7893)

Group	DSLO	DSLO
	Basic Graduated	Basic Graduated
	OTC	MLC
Feature Number	Feature Number	Feature Number
18	4742	4696
20	4743	4697
25	4744	4698
28	4745	4699
29	4854	4852
30	4746	4728

31	4855	4853
32	4747	4729
35	4748	4730
38	4749	4731
40	4750	4732
50	4751	4733
60	4752	4734
70	3995	3993
80	4663	4661

Multiple Operating System -- PR/SM (MOSP): For a DSLO graduated one-time charge or DSLO graduated monthly license charge, specify the following feature number corresponding to the group that contains the designated machine:

VM/ESA Release 2.2

Group	MOSP DSLO	MOSP DSLO
	Graduated	Graduated
	OTC	MLC
Group	Feature Number	Feature Number
18	0046	0031
20	0047	0032
25	0048	0033
28	0049	0034
29	0050	0035
30	0051	0036
31	0052	0037
32	0053	0038
35	0054	0039
38	0055	0040
40	0056	0041
50	0057	0042
60	0058	0043
70	0059	0044
80	0060	0045

CMS Utilities Option (feature number 7893)

Group	MOSP DSLO	MOSP DSLO
	Graduated	Graduated
	OTC	MLC
Group	Feature Number	Feature Number

18	0106	0091
20	0107	0092
25	0108	0093
28	0109	0094
29	0110	0095
30	0111	0096
31	0112	0097
32	0113	0098
35	0114	0099
38	0115	0100
40	0116	0101
50	0117	0102
60	0118	0103
70	0119	0104
80	0120	0105

Ordering a DSLO feature will result in IBM maintaining a record of this customer location as a DSLO user only. All material for the DSLO license must be ordered by the basic licensee. If a user selects DSLO, no other feature numbers are valid for this order and no program materials or updates will be shipped. Unlicensed Documentation: A program directory, one copy of the following printed publications, and one copy of VM/ESA Online publications on CD-ROM are supplied automatically with the basic machine-readable material:

Title	Order Number
VMSES/E Introduction and Reference	SC24-5444
VM/ESA Service Guide	SC24-5527
VM/ESA Licensed Program Specifications	GC24-5439
VM/ESA Planning and Admin Guide	SC24-5521
VM/ESA Online Library CD-ROM	LK2T-5764

VM/ESA Installation Guide (informal)

Note: The VM/ESA Installation Guide is no longer available as a formal published document, in order to allow for the most up-to-date information changes. Instead, the VM/ESA Installation Guide is sent with the product and contains a planning and step-by-step installation guide. If customers would like to have planning information prior to ordering the product, the VM/ESA Installation Guide is also available through the IBM Support Center or via SoftwareXCEL by ordering PTF UM98122. The Installation Guide is not part of the bills-of-form for the release and it is not an orderable entitled book.

One copy of each of the non-basic unlicensed printed publications listed below can be obtained by specifying the no-charge feature number. If this feature number is not ordered, the publications will not be shipped with the product.

Feature Number: 7092

Title	Order Number
Non-Basic Unlicensed Publications	
General Information Manual	GC24-5550
Introduction & Feature Summary	SC24-5651
Conversion Guide & Notebook for SP, HPO, ESA 370	SC24-5654
Conversion Guide & Notebook for XA, ESA	SC24-5525
REXX/EXEC Migration Tool	GC24-5607
Group Control System	SC24-5531
Connectivity P,A,O	SC24-5448
Running Guest Operating System	SC24-5522
Performance	SC24-5642
SFS & CRR P, A & O	SC24-5649
Virtual Machine Operation	SC24-5523
System Operations	SC24-5528
CMS Primer	SC24-5458
CMS User's Guide	SC24-5460
CMS Command Reference	SC24-5461
XEDIT User's Guide	SC24-5463
XEDIT Command & Macro Reference	SC24-5464
REXX/VM User's Guide	SC24-5465
REXX/VM Reference	SC24-5466
Master Index & Glossary	GC24-5518
CP Commands & Utility Reference	SC24-5519
CMS Pipelines Reference	SC24-5592
REXX/VM Primer	SC24-5598
CMS Pipelines User's Guide	SC24-5609
Messages & Codes	SC24-5529
Application Development Guide	SC24-5450
Application Development Reference	SC24-5451
Application Development Guide -- Assembler	SC24-5452
Application Development Reference -- Assembler	SC24-5453
Application Migration Guide	SC24-5454
Programmer Guide to SRPI	SC24-5455
CP Program Services	SC24-5520

Dump Viewing Facility	SC24-5530
ESA/XC Configuration Principles of Operation	SC24-5594
CPI Communications User's Guide	SC24-5595
SAA CPIC Reference	SC26-4399
ESI RACROUTE MACRO Reference	GC28-1366
SAA CPI Resource Recovery	SC31-6821
ICKDSF User's Guide & Reference	GC35-0033
CMS Application Multitasking	SC24-5652
DFSMS/VM Installation and Customization	SC26-4704
DFSMS/VM Messages and Codes	SC26-4707
DFSMS/VM Planning Guide	GC35-0121
DFSMS/VM Stor Admin Guide & Reference	SH35-0111
DFSMS/VM Overview	GH35-0112
DFSMS/VM Removable Media Service	SC35-0141

One copy of the following printed publications is supplied automatically with the optional machine-readable material. These publications will be available after product availability:

Title	Order Number
-------	--------------

CMS Utilities

CMS Utilities Feature	SC24-5535-01
-----------------------	--------------

ScreenView FL 1.1.1

General Information for ScreenView	GC33-6450-02
------------------------------------	--------------

ScreenView User's Guide	SC33-6451-01
-------------------------	--------------

ScreenView Application Development Guide	SC33-6452-01
---	--------------

ScreenView Application Development Reference	SC33-6453-01
---	--------------

ScreenView FL 1.2.0

General Information for ScreenView	GC33-6450-03
------------------------------------	--------------

ScreenView User's Guide	SC33-6451-02
-------------------------	--------------

ScreenView Application Development Guide	SC33-6452-02
---	--------------

ScreenView Application Development

Reference

SC33-6453-02

Additional copies of all unlicensed publications will be available for a fee after product availability. These copies may be ordered from your IBM representative, through the system library subscription service (SLSS) or by direct order.

All of the above printed publications may be ordered by using one bills-of-form number, SBOF-3294, except the DFSMS/VM and ScreenView publications.

Displayable Softcopy Publications

The VM/ESA books (licensed and unlicensed) are offered in online displayable book format on the product media and shipped automatically, except the DFSMS/VM and ScreenView publications.

All unlicensed online books are also available on CD-ROM SK2T-2067, the IBM Online Library Omnibus Edition: VM Collection.

The VM Collection also contains libraries for approximately 60 products that run on VM/ESA. This will be generally available in the United States at general availability of the VM/ESA Release 2.2 product and 30 days after general availability in the other world trade countries. For a list of kit contents, see your marketing representative.

One copy of the CD-ROM Collection Kit is orderable with the product at no additional charge by specifying Feature number 7090. If you order VM/ESA Release 2.2 for installation via CD-ROM, you still must order 7090 if you would like the CD-ROM Collection Kit.

Additional copies of the CD-ROM Collection Kit (SK2T-2067) are available for a fee through SLSS or by ordering product code 5636-PUB and the following feature numbers:

Program Number	Feature	Description	Charge
5636-PUB	2100	ANN CHG CD-ROM VM/ESA	\$400
	5100	CD-ROM CKIT VM/ESA	N/C

The collection kit is also available on 3480 tape cartridges, available through SLSS (SK2T-2069) or by using product code 5636-PUB and the following feature numbers:

Program Number	Feature	Description	Charge
5636-PUB	2101	ANN CHG CART VM/ESA	\$2000
	5101	3480 CART CKIT VM/ESA	N/C

The online books can be used with the BookManager Read licensed programs in any of the Read-supported environments. They can also be used with the IBM Library Readers in DOS and OS/2 environments. The IBM Library Readers have the same functions as the BookManager READ/DOS and READ/2 licensed programs except the Library Readers can only be used to view IBM-produced online books. Both IBM Library Reader are supplied at no additional charge with online books on CD-ROM. Online books CD-ROMs also contains programs that allow you to upload the displayable books to a VM or MVS host for viewing with IBM BookManager READ/VM or READ/MVS (the VM and MVS READ programs

are not included on online books CD-ROMs but can be licensed from IBM).

Terms and conditions for use of the displayable book files and the IBM Library Readers are described in a document included with all online documentation.

Source File Publications: VM/ESA Release 2.2 manuals are not offered in source file form.

Licensed Documentation: The following licensed material will be available from IBM at general availability. To order, contact your IBM representative.

The first copy is available at no charge to licensees of basic material by specifying the 7089 feature number. Use the 8XXX feature number to order additional copies for a fee.

Title	Form Number	Single Copy Feature Number	Additional Copy Feature Number	Softcopy Number	Online Book	Price
VM/ESA CMS						
Diagnosis						
References	LY24-5244	7089	8202		Yes	\$ 23.75
VM/ESA CMS						
Data Areas &						
Control Blocks	LY24-5245		8203		Yes	19.00
VM/ESA						
Diagnosis						
Guide	LY24-5250		8204		Yes	16.25
VM/ESA CP						
Diagnosis						
Reference	LY24-5251		8205		Yes	100.00
VM/ESA CP						
Data Areas &						
Control Blocks	LY24-5253		8206		Yes	60.75
VM/ESA CP						
Diagnosis						
Reference						
Summary	LX24-5260		8207		No	10.00
DFSMS/VM						
Diagnosis	LY27-9589		8208		No	8.95

Licensed books indicated in the list above, together with the unlicensed books as previously indicated, are available on the online books (tape or CD-ROM) shipped automatically with the product. If you would like to order additional copies of the automatically shipped "VM/ESA Online Library CD-ROM" (LK2T-5764) feature number 7098 for a fee, you may order feature number 8211.

Title	Form Number	Single Copy Feature Number	Additional Copy Feature Number	Softcopy Number	Online Book	Price
-------	-------------	----------------------------	--------------------------------	-----------------	-------------	-------

VM/ESA Online

Library

CD-ROM LK2T-5764 7098 8211 Yes \$25.00

All of the above VM/ESA licensed publications may be ordered by using one bill-of-form number, LBOF-3295:

Title	Form Number	Feature Number	Price
-------	----------------	-------------------	-------

VM/ESA Licensed Book

Bill-of-Form LBOF-3295 8210 \$229.95

All of the licensed and unlicensed VM/ESA service publications may be ordered by using one bill of forms number, LBOF-3296:

Title	Form Number	Feature Number	Price
-------	----------------	-------------------	-------

VM/ESA Service Library

Bill-of-Form LBOF-3296 8209 \$390.25

Source program listings will no longer be available in Microfiche format with VM/ESA. Customers must use the View Program Listings (VPL) facility, currently available to all IBM personnel worldwide and available to US customers via ServiceLink. The VPL facility provides online viewing of program listings. For customers with access to VPL, such as through SoftwareXcel Extended, the information previously included in the optional microfiche features can be accessed, at general availability, with the base product and Program Temporary Fix (PTF) program listings. Those customers without access to VPL may contact their IBM representative.

Subsequent updates (technical newsletters or revisions between releases) to the publications shipped with the product will be distributed to the user of record for as long as a license for this software remains in effect. A separate publication order or subscription is not needed.

TERMS AND CONDITIONS

The terms for VM/ESA, as previously announced (Software Announcement 293-271), licensed under the IBM Customer Agreement are unaffected by this announcement.

CHARGES

The charges for VM/ESA are unaffected by this announcement.

For additional product information, refer to Software Announcements 292-318, dated June 16, 1992; 292-659, dated November 10, 1992; or 293-271, dated May 20, 1993. IBM Licensed Products List

Product Name	Version/ Release/ Program Modification Number	Level
--------------	--	-------

Advanced Communication Function for Network

Control Programs 5668-854 4.2.0, 4.3.1

5668-738 5.4.0

5688-231 6.1.0, 6.2.0

Advanced Communication Function for Network Control Programs (ACF/NCP) supports the IBM 3745 adapter which provide connectivity for Ethernet Version 2 or IEEE 802.3 local area networks (LANs). By using Internet Protocol (IP), ACF/NCP Version 6 provides for the routing of traffic across a Systems Network Architecture (SNA) network from a workstation on such a LAN to a workstation on another LAN, or to a host-based Transmission Control Protocol/IP (TCP/IP) application.

ACF/NCP 5648-063 7.1.0

ACF/NCP Version 7 Release 1 provides an additional frame relay enhancement, the Boundary Network Node (BNN) attachment capability. In addition to synchronous data link control (SDLC) communication link and token-ring, peripheral devices can now be attached at the NCP boundary by frame relay virtual circuits. In particular, this enhances the interoperability of the 3745 with the IBM 3174 establishment controller and the RouteXpander/2 products.

Advanced Communication Function for System

Support Programs (ACF/SSP) 5664-289 3.7.0, 3.8.0

5654-009 4.1.0

This offering is a licensed program that provides generation and utility functions to users of the ACF/NCP and the Emulation Program (EP).

ACF/VTAM(TM) 5684-095 3.4.1

VTAM provides open network capabilities for data communications in VM, MVS, and VSE.

Automated Data Storage Management 5648-020 1.1.0

Automated Data Storage Management (ADSM) allows workstation users to recover lost or damaged data using a friendly windowed graphical and command line interface and allows workstation users to archive low-used files to the ADSM server, freeing up valuable workstation and LAN storage resources.

Automatically backs up files, directories, or subdirectories using a centrally scheduled, policy-managed facility and tracks backup and archive data on the ADSM server, using a high-performance mirrored data base. Efficiently uses storage space by creating cached copies of data on disk storage before migrating files to less expensive storage media.

AD/Cycle Prolog 5696-309 1.1.0, 1.1.1

IBM SAA(R) AD/Cycle(R) Prolog is a high-level, high-productivity programming language based on mathematical logic.

Application Prototype Environment 5668-808 2.1.0, 2.1.1

Application Prototype Environment Version 2 includes a large number of useful tools for the development of APL applications by end users. It also enables the developer to utilize relational data bases easily with a full screen table update facility and with query.

APL2(R) 5688-228 2.1.0

APL2 is a very high-level, general purpose programming language, widely used in areas as diverse as financial decision modeling, graphics, engineering, data base access and scheduling applications. Powerful primitives, simple and consistent syntax, interfaces with other products, and interactive support combine to make APL2 a highly-productive, programming environment.

Application System 5648-018 3.2.0

Application System is an integrated decision support system. From simple ad hoc inquiries to the development of complex applications, the interactive system enables you to make business decisions based on facts.

ASSEMBLER H 5668-962 2.1.0

Basic translator for System/370 and System/370 XA computers.

BrowseMaster 5688-224 2.1.0

Publishing Systems BrowseMaster is a program that assists in preparation of documents formatted for IBM Page Printers. A utility is provided to view merged text and graphics on an IBM 3270 family display devices. BrowseMaster also contains utilities that assist in AFP(TM) and in preparation of Computer-aided Acquisition and Logistics Support (CAL) technical documents that contain text, graphics, and images.

Version/
Release/
Program Modification
Number Level

Product Name

Computer Aided Design Integration 5684-064 1.1.2

IBM Computer-Aided Design Integration (CADI) has two features: the CATIA** Feature and the CADAM** Feature. They provide interactive functions to generate, assemble, and extract bills-of-material (BOMs) and related data from CAD models. They also provide interactive connectivity to IBM Product Engineering Support, integrating the control and flow of data between the CAD system, the engineering data base.

CATIA Application Architecture (CAA) Solutions Version 4.1.0

CPW/Automated Test Tool	5627-ATT
CATIA/CADAM Coupler	5627-CCC
Data Management -- Access	5627-CDA
Data Management	5627-CDM
Distributed Services	5627-CDS
Object Manager	5627-COM
2D Wireframe & Annotation	5627-DR2
IGES Interface	5627-IGI
Image Design	5627-IMD
Library	5627-LIB
Data Management -- Library	5627-LIC
3D Parametric Var. Model.	5627-PA3
Exact Solids	5627-SOE
Solid Mock-up	5627-SOM
CPW/Software Environment	5627-SWE
3D Wireframe	5627-WF3

CATIA Mechanical Design (Mech) Solutions Version 4.1.0

Assembly Modeling	5627-ASS
Drafting	5627-DRA
Draw-Space (2D/3D) Integ.	5627-DRS
Feature-Based Design	5627-FEA

CATIA Shape Design & Styling (SDS) Solutions Version 4.1.0

Advanced Surface Design	5627-ASU
Free Form Design	5627-FRF
Geodesic	5627-GEO
Surface Design	5627-SUD

CATIA Manufacturing (MFG) Solutions Version 4.1.0

Manufacturing Infrastructure	5627-NCB
Fixed Axis Milling	5627-NC3
Multiple Axis Milling	5627-NC5
Lathe	5627-TUR
Milling Analysis	5627-MAA
Robot & Control Definition	5627-ROC
Cell Design & Robot Program	5627-ROS

CATIA Analysis & Simulation (ANS) Solutions Version 4.1.0

Analysis Infrastructure	5627-ANI
ANSYS Interface	5627-ANS
ELFINI Solver	5627-ELF
Finite Element Modeler	5627-FEM
Kinematics	5627-KIN

NASTRAN Interface 5627-NAS
Scientific Presentation Manager 5627-SPM

CATIA Equipment & Systems Engineering (ESE) Solutions Version 4.1.0

Electric Development & Support Modeling 5627-ELD
Electric Wire Bundle Install 5627-ELW
System Schematics 5627-SCH
Space Analysis 5627-SPA
Space Navigation 5627-SPN
3D Tubing Design 5627-TU3

The CATIA Application Architecture Solutions Version 4 (CAA Solutions) are the framework for CAD/CAM/CAE/PIM solutions for industrial companies, enabling flexible growth and implementation of fully integrated complementary applications.

Product Name	Version/ Release/ Program Modification Number	Level
--------------	--	-------

COBOL/370(TM)	5688-197	1.1.0
---------------	----------	-------

COBOL/370 Version 1 is the SAA-conforming COBOL language compiler supporting Language Environment/370. The program provides the run-time environment and library of run-time services for COBOL/370 application development and execution.

Cross System Product/Application Development	5668-813	3.3.0
--	----------	-------

Cross System Product/Application Execution	5668-814	3.3.0
--	----------	-------

Cross System Product/Application Development and Cross System Product/Application Execution are IBM Systems Application Architecture(R) (SAA) Application Generator.

Distributed Automation Edition (TM) --

Communications System/VM	5684-057	1.2.2
--------------------------	----------	-------

Distributed Automation Edition -- Host Link/VM	5684-059	1.2.2
--	----------	-------

Distributed Automation Edition is a set of licensed programs that provides a standard application program interface to plant floor devices and other communication facilities. The products allow the user to develop manufacturing or process control applications on S/370(TM).

Data Base EDIT	5798-DLL	1.3.3
----------------	----------	-------

Data Base EDIT (DBEDIT) makes relational data maintenance and update quick and easy. Using DBEDIT, users can add, delete, and update records in relational data base tables. They can also display data base records at any time.

Document Composition Facility	5748-XX9	1.4.0
-------------------------------	----------	-------

IBM's most powerful VM text composition program, Document Composition Facility (DCF) provides for markup, full-page composition, and printing of text documents local or remote.

Data Facility Sort/CMS	5684-134	2.1.0
------------------------	----------	-------

Data Facility Sort/CMS (DFSORT/CMS) is intended to be an inexpensive, easy-to-use, high-performance, sort and merge program to meet the needs of the native CMS environment.

DMS/CMS	5684-113	2.1.0
---------	----------	-------

DMS/CMS is a simple and fast panel generation tool used in application development.

DW/370	5684-091	2.1.0, 2.2.0
--------	----------	--------------

DisplayWrite(R) System/370 (DW/370) is a host-based editor, formatter, and print server, providing basic to advanced functions for creating, revising and formatting text for business and technical professionals.

ECFORMS(R)	5684-164	2.1.0
------------	----------	-------

Electronic Forms Management System, lets you design and complete form online, and route them electronically to remote locations.

Emulation Program	5735-XXB	1.4.0, 1.6.1, 1.8.0, 1.9.0
-------------------	----------	-------------------------------

1.10.0, 1.11.0

1.12.0

Emulation Program allows ACF/NCP to operate in Partitioned Emulation Program (PEP) mode.

ESSL/370 5688-226 2.2.0

Engineering and Scientific Subroutine Library (ESSL) accelerates applications by replacing comparable subroutines and in-line code with high-performance tuned subroutines. ESSL uses algorithms tailored to the specific operational characteristics of the System/390 or System/370 platforms.

Font Library Service Facility 5668-890 1.1.0

Library Service Facility (FLSF), batch and interactive font utility program that services font libraries (for IBM 382x, 383x and 3900 AFP printers).

Graphics Access Method/SP 5668-978 1.3.1

Graphics Access Method/SP (GAM/SP) provides basic host programming support for the full range of functions provided in IBM Graphics Systems.

Graphics Attachment Support PRPQ 5799-AXX 1.3.8, 1.3.9

Graphics Attachment Support PRPQ (GASP) is a graphics interface language that provides device support for dual screen graphics applications.

Product Name	Version/ Release/ Program Modification Number	Level
--------------	--	-------

GDDM(R) 5684-007 2.3.0

GDDM-GKS 5668-802 1.1.1

GDDM-IMD 5668-801 2.1.1

GDDM-IVU 5668-723 1.1.1

GDDM-OS/2 Link 5688-113 1.1.0

GDDM-PGF 5668-812 2.1.1

GDDM-REXX 5664-336 1.1.0

GDDM-PCLKF (Feature) 1.1.0

GDDM is a family of related products offering comprehensive business graphic support for a variety of output devices such as displays, workstations, printers and plotters. Application programs call GDDM routines to do alphanumeric or images, or to create business charts. Applications may also use graphic input and display to perform functions with information such as cartographic data that is meaningful only when a pictorial format is used.

GDDM 5684-168 3.1.0

GDDM-GKS 5668-802 1.1.2

GDDM-IMD 5668-801 2.1.2

GDDM-IVU 5668-723 1.1.2

GDDM-PGF 5668-812 2.1.2

GDDM Version 3.1.0 has been improved over Version 2.3.0 to provide users with better performance, usability, and workstation exploitation.

GDDM/graPHIGS(TM) 5688-093 2.2.4

GDDM/graPHIGS Programming Interface Version 2 expands support of Programmer's Hierarchical Interactive Graphics System (PHIGS) with extensions designated as PHIGS PLUS. These add capabilities, such as lighting, shading, depth cueing, and graphics primitives, that take advantage of the high-performance rendering capabilities of the 6095 Graphics Processor. It includes support of the American National Standards Institute/International Organization for Standardization (ANSI/ISO) standard FORTRAN binding and standard Computer Graphics Metafile (CGM) picture file format and the ISO PHIGS C binding. It provides mainframe connectivity for graPHIGS host distributed applications running to a RISC System/6000(R) processor via TCP/IP and the IBM 3172 Interconnect Controller as well as the graPHIGS gateway.

Graphical Display and Query Facility 5688-169 2.2.0

Graphical Display and Query Facility (GDQF) enables users to access and manipulate graphics, image, and text information.

GeoManager(R) 5685-105 1.1.3, 1.1.4

GeoManager provides IBM Geographic Facilities Information System (GFIS) offerings with relational data base support with SQL/DS(TM) in VM environments and provides graphic query capability for low-cost

terminals. Graphic maps can be accessed, viewed and attributes may be modified using 3270 type terminals. A user-friendly, menu-driven interface provides interactive ease of use.

GPG 5688-050 2.2.5, 2.2.6

GPG is a set of programs which enable asset management and facilities mapping applications to utilize IBM hardware and software products to create, maintain, and display data.

High Level ASSEMBLER 5696-234 1.1.0

High Level ASSEMBLER is the default translator for VM, MVS and VSE (upwardly compatible with Assembler H Version 2).

Host Management Facilities 5684-157 1.1.0, 1.1.1

Host Management Facilities (HMF), a productivity aid for system programmers and operators; provides function necessary to actively and automatically monitor and control subsystems and applications, schedule and synchronize automated support activities, and manage system performance.

Interactive System Productivity Facility 5684-043 3.2.0

Interactive System Productivity Facility (ISPF), an interactive, menu driven facility permits organization of dialogs in a variety of ways.

Interactive System Productivity

Facility/Product Development Facility 5684-123 3.2.0

A Product Development Facility for ISPF (ISPF/PDF) is a tool to create and maintain applications.

Language Environment/370 5688-198 1.2.0

SAA(R) AD/Cycle(R) Language Environment/370 is a new product that combines the library functions for the compilers with a common set of services, protocols, and linkage conventions to offer a wide set of functions. Its capabilities include easing language restrictions, improving interlanguage communications and providing a solid base to begin code sharing and code reuse.

Product Name	Version/ Release/ Program Modification Number	Level
--------------	--	-------

LANRES/VM	5684-142	1.2.1, 1.2.2
-----------	----------	--------------

LANRES/VM establishes a server environment on VM to allow NetWare** clients transparent access to mainframe resources. Customers who use LANRES/VM can save time and leverage skilled resources while they provide their NetWare clients with improved services. These services include disk serving, print serving, data distribution, and centralized LAN administration. Disk serving allows workstation hard disks to be stored as single files on VM. To the end user, there is no difference between files stored on VM DASD and files stored on hard drives on the NetWare server. Print serving provides for both LAN-to-host and host- to-LAN printing. Data distribution allows authorized VM users to manipulate files and directories controlled by NetWare. LAN administration allows authorized users to perform LAN administration tasks. Connectivity options include channel-attach, SNA LU6.2, and TCP/IP. All NetWare clients are supported. LANRES/VM Release 2.2 supports later versions of NetWare and has improved performance of Release 2.1.

LAN File Services/ESA 5684-039 1.1.0

LAN File Services/ESA enhances the overall value of your network by making mainframe disk space available to workstation users and letting them share information with one another. No more uploading and down- loading files between LAN workstations and your mainframe. OS/2 LAN Server, TCP/IP NFS, and VM/ESA users all have transparent access to files stored on mainframe DASD. Everybody has access to the same data, nobody has to change the way they do it. In effect, your mainframe's DASD works like another disk drive on the OS/2 LAN Server, so you won't quickly outgrow your disk space. LAN File Services/ESA requires no application programming. You do not have to install it on your users' workstations -- only on LAN servers and your mainframe. The performance of LAN File Services/ESA will compare favorably to the performance of a local work-station based server. You can put storage-intensive files like multimedia images and graphics on host-systems DASD and display them at workstations.

Mathematical Program System/Extended/370 5668-739 2.2.2

The IBM Mathematical Programming System Extended/370 (MPSX/370) provides solutions for linear and separable mathematical programming problems. Vector Facility support is optimized for vector processing, and its use is transparent. MPSX/370 is used to optimize operations and investments common to most organizations. Some of the best-known applications include resource allocation, production scheduling, fleet scheduling, network management, portfolio selection, and the transshipment of goods.

NetView(R) 5756-051 2.3.0

NetView is the core program in IBM's commitment to network and systems management from a central or remote site.

NetView DM 5684-017 1.2.0

NetView DM allows centralized distribution for software and data.

NetView File Transfer Program VM 5684-048 1.1.1

NetView File Transfer Programs (FTP) provide high-performance, bulk data transfer between SNA and OSI systems.

NetView Performance Monitor 5684-001 1.6.0

NetView Performance Monitor 5654-011 2.1.0

NetView Performance Monitor (NPM) is a licensed program that provides information associated with customer communication networks needed for performance management, network accounting and problem determination. Customers using NetView, ACF/VTAM and ACF/NCP can realize the benefits of NPM. NPM is a VTAM application provided to aid network support personnel in managing the performance and growth of communications networks. NPM runs as a VTAM application program on an MVS or VM-based processor. NPM collects performance data from VTAM, from network components such as NCPs and 3X74s, and from products gathering performance information in different network environments such as Local Network Manager (LNM). NPM can run in a network supporting X.25, Frame Relay, LAN token-ring and Ethernet standards.

NetView/Access 5684-028 1.3.2

NetView/Access maximizes control of terminal networks (includes automation of routine network management tasks and procedures).

NPSI 5668-981 1.4.3

NPSI 5668-719 2.1.0

NPSI X.25 5688-035 3.4.0, 3.5.0,
3.6.0, 3.7.0

Versions 2 and 3 of the X.25 NPSI program offerings provide users of the ACF/NCP with the capability to attach IBM Communication Controllers to data transmission services supporting interfaces complying with CCITT Recommendation X.25. Version 2 of X.25 NPSI operates in the 3725 Communication Controller, while Version 3 operates in the 3720 and 3745 Communication Controllers.

Network Routing Facility 5668-963 1.3.0, 1.4.0,
1.6.0, 1.7.0,
1.8.0, 1.9.0

Network Routing Facility (NRF) provides a path between NCP-attached terminals to allow message routing between terminals without going through a host processor. The program resides in the IBM Communications Controller.

Product Name	Version/ Release/ Program Modification Number	Level
--------------	--	-------

Network Supervisory Function 5685-003 1.5.0

X.25 SNA Network Supervisory Function (NSF) is a corequisite of X.25 SNA Interconnection (XI), which enhances SNA connectivity by providing the X.25 data communication equipment interface to IBM communication controllers. X.25 SNA NSF provides management and control functions for XI and allows the communication network management operator to manage SNA and X.25 resources.

NSI 5668-951 1.5.0, 1.6.0

Non-SNA Interconnection (NSI; 5668-951) Releases 5 support the IBM 3745, 3720, and 3725 Communication Controllers and the most current releases of ACF/NCP Versions 4 and 5, operate in VM environments in addition to MVS and VSE, allow for enhanced performances via delay compensation, and provide transparency support for BSC ASCII terminals. NSI allows BSC RJE and BSC multi-leaving terminals, and host BSC subsystems to communicate with host BSC subsystems through the SNA backbone network, thus reducing communication line costs. NSI Release 6 is dedicated to NCP Version 5 Release 4. It is expected to be the last release of NSI.

Network Terminal Option 5735-XX7 1.4.0, 1.5.1,
1.7.0, 1.8.0,

1.9.0, 1.10.0

Network Terminal Option (NTO) Release provides for NTO capabilities with ACF/NCP. NTO is a software protocol converter for the following devices:

- IBM 2740
- IBM 2741
- IBM 3780
- TWX Models 33, 33ASR, and 35
- World Trade Teletypewriter Terminals

NTuneMON 5648-077 1.1.0
 NTuneMON provides monitoring capabilities for NCP Version 7, Version 6, Version 5, and Version 4. NTuneMon replaces the SSP Version 3 NCPMON Feature.

NTuneNCP 5648-089 1.1.0
 NTuneNCP in conjunction with NTuneMON provides online interactive tuning capabilities for NCP Version 7, Version 6, Version 5, and Version 4 Release 3.1.

OfficeVision(R)/VM 5684-084 1.2.0
 OfficeVision/VM is a comprehensive set of office functions for Windows** and DOS workstations, and traditional terminals.

Office Support Program/VM 5684-104 2.1.0
 Office Support Program/VM (OFSP/VM) Version 2 is the kernel product of Office Vision/VM Asian Language Series that provides the Japanese support for the member of Office Vision Family of the office systems applications. This program provides a common set of office functions for non-programmable terminals, PS/55 workstations using PS/55 Japanese DOS.

Overlay Generation Language/370 5688-191 1.1.0
 Overlay Generation Language (OGL/370) enables creation of electronic forms for use by PFS in formatting Advanced Function Presentation(TM) (AFP) print jobs.

Product Engineering Support 5684-065 1.1.3
 IBM Product Engineering Support (PES) provides a comprehensive set of bill-of-material (BOM) functions supporting product evolution from conceptualization through shipment and service. It also provides management functions to track and control the engineering change and work-flow process, throughout the product evolution cycle, and it interfaces to engineering/planning systems (for example, COPICS/MAPICS(R)).

PL/I MVS and VM 5688-235 1.1.0
 PL/I MVS and VM provides significant investment protection through support of existing applications without requiring recompile or re-link edit (with some exceptions), incremental application enhancement ability, as well as enhancement and maintenance of investments in existing programming skills through languages of choice and mixed language applications. It provides the capability to compile PL/I language applications for execution in Language Environment/370 Version 1.2 in both the VM and MVS environments.

Print Management Facility/VM 5664-310 1.1.0
 Print Management Facility/Virtual Machine (PMF/VM) provides several utilities and 62-character sets, in source form, in support of the Advanced Function Printing(TM) (AFP) capabilities of the IBM 3800 Printing Subsystem Model 3 and the IBM 3820 Page Printer.

	Version/ Release/ Program Modification	Number	Level
Product Name			

Page Printer Formatting Aid/370 5688-190 1.1.0

Page Printer Formatting Aid/370 (PPFA/370) is batch programs which create AFP resource which control the way information is printed on a page (form definitions).

Professional Document Manager (MVS and VM) 5648-005 1.1.0
 SAA AD/Cycle Professional Document Manager -- MVS and VM (PrDM/MVS and PrDM/VM) simplifies documentation management as an integral part of application development.

Print Services Access Facility 5664-312 1.1.0
 Print Services Access Facility (PSAF/VM), an interactive, menu driven AFP feature allows users to schedule print jobs effectively with desired options.

PSF(TM)/VM 5684-141 2.1.1
 Print Services Facility(TM) provides full support for AFP printers.

PVM 5748-RC1 1.4.0
 VM/Pass-Through 5684-100 2.1.0, 2.1.1
 VM/Pass-Through Facilities is used to access a VM system, including the one to which the terminal is attached. Using PVM, another system can be accessed, logged on to, and used in a defined network as though the terminal were directly connected to that system. Pass-Through Version 2 supports system connectivity options, including channel-to-channel (CTC), ESCON(R) channel-to-channel, 3088, BSC, and shared SNA links.

QMF(TM) 5706-255 3.1.1
 QMF allows users with limited data processing experience to design data base queries, develop customized applications, and produce a wide variety of reports and charts.

Resource Access Control Facility 5740-XXH 1.9.2
 RACF is the strategic IBM security product that provides facilities for the implementation and the monitoring of the information security policies of the enterprise on MVS and VM systems. RACF protects information by controlling access to it. It also controls what you can do on the operating system and protects your resources. RACF provides this security by identifying and verifying users, authorizing users to access protected resources, and recording and access attempts.

REXX/370 COMPILER 5695-013 1.2.0
 REXX/370 LIBRARY 5695-014 1.2.0
 The above 2 products compliment the REXX interpreter and provide significant run-time performance improvements and protection of REXX-coded assets.

Remote Spooling Communications Subsystem 5684-096 3.1.0, 3.1.1
 Remote Spooling Communications Subsystem (RSCS) provides data and file transfer and print spooling services efficiently for VM systems.

Real Time Monitor VM/ESA 5798-DWD 1.5.2
 Real Time Monitor VM/ESA (RTM VM/ESA) was designed as a real-time monitor and diagnostic tool for monitoring, analysis and problem solving. It can be used to monitor system performance, performance of a particular virtual machine or real device, and has the ability to monitor certain events occurring on the system.

Screen Definition Facility II VM 5664-307 1.3.0
 Screen Definition Facility (SDF II VM) aids application programmers develop user-interface specifications with high productivity and quality.

SearchManager/370 5684-143 1.1.0, 1.2.0
 The IBM solution for full-text retrieval of documents containing text graphics, and/or images.

Structured Query Language Master/VM 5684-136 1.1.1, 1.1.2
 SQL Master/VM SQL/DS DBA Support Tools (5684-136) is an IBM offering that works with the SQL/DS (5688-103) licensed program to automate many of the manual data base administrator functions required to support the SQL/DS data base within the VM environment. The program automates many labor-intensive data base support functions.

Structured Query Language/Data System 5688-103 3.4.0
 Structured Query Language/Data System (SQL/DS) is a full-function, relational data base management system.

Product Name	Version/ Release/ Program Modification Number Level
--------------	--

TCP/IP 5735-FAL 2.2.0

TCP/IP provides a robust collection of protocols and applications for Open networking.

The Information Facility 5654-015 2.1.4
 The Information Facility (TIF) provides an application creation facility for the user who does not have programming skills of a data processing professional. The beginning user is guided by a basic set of menus designed to facilitate development of simple applications. As application requirements become more complex, more advanced menus are available that can be tailored to fit the needs of departments within an organization.

Target System Control Facility 5688-139 1.1.0
 Target System Control Facility (TSCF) is a NetView application that runs on MVS/ESA or MVS/XA(TM). This product enables a NetView operator to control and monitor multiple target systems at local or remote sites from a central system. Target systems can be IBM ES/9000, ES/3090(TM), 308X, 4381,

processors running MVS, VM, VSE, or TPF operating systems. Through TSCF, operators at the focal point system can monitor and control the target operator and system consoles to perform activities such as:

- Initial Machine Load (IML)
- Initial Program Load (IPL)
- Time-of-day clock setting
- System initialization
- Hardware reconfiguration
- Wait state detection

VM Batch Facility 5684-137 2.2.0

VM Batch Facility executes batch jobs in a VM environment.

VM/DIRMAINT 5748-XE4 1.4.0

VM/DIRMAINT provides users interactive means to manage, maintain and modify the control statements in VM directories.

VM/Performance Reporting Facility 5684-073 1.2.0

The VM/Performance Reporting Facility (VM/PRF) produces reports of system utilization and performance from monitor data written from VM/XA(TM), SP or VM/ESA systems. These reports can be used to analyze and tune VM/XA SP or VM/ESA system performance. Release 2 includes new reports and history file data, including information on DASD seeks and shared file systems.

VS COBOL II 5668-958 1.4.0

VS COBOL II adds support for the 31-bit virtual addressing feature of the VSE/ESA(TM) Version 1 Release 3 operating system. With this 31-bit addressing support, the VSE/ESA user has more freedom to define or refer to large data areas, files and tables, and to create a larger overall application program. The VS COBOL II Release 4 compiler and the object programs it produces can be run in either 24-bit or 31-bit addressing mode.

VS FORTRAN 5668-806 2.6.0

This program primarily supports Engineering/Scientific users. It has been designed to support new application development while retaining support of existing applications developed under VS FORTRAN 1.0. Parallel support provided includes the automatic generation of parallel code that allocates pieces of the job to multiple processors. Language extensions are provided to give programmers greater flexibility to create and manage parallel processing programs.

VSE/VSAM 5686-037 2.2.0

VSE/VSAM is the access method for the VSE operating system. It also has found wide acceptance among VM customers. VSE/VSAM is designed to operate with direct access devices and to support both direct and sequential processing.

3270 PC FTP 5664-281 1.1.1

The IBM 3270-PC File Transfer Program, a host-based IBM licensed program that allows files to be transferred from the host to a workstation for offline data manipulation, updating, or correction. It also allows the transfer of local data to the host.

(TM) Trademark of International Business Machines Corporation

(R) Registered trademark of International Business Machines Corporation

** Product or company name is a trademark or registered trademark of its respective holder.

Vendor Application List

IBM provides this list for customer information purposes only, and IBM makes no warranties or representation regarding the products. For all product information, contact the vendor.

Candle** Corporation for:

OMEGAMON** for VM

OMEGAMON for VM provides real-time and historical reporting of VM performance information, response time, system resource utilization, system bottlenecks, and exceptional conditions that pose a threat to system availability or throughput. System programmers, performance analysts, and data center personnel are typical users of this product.

ETi Solutions for:

CMAP** (Command Monitor Analysis Program)

CMAP and its companion products for PROFS(R), OfficeVision, SAS, and FOCUS provide a comprehensive, efficient, and easy to use facility for monitoring and analyzing CMS application activity at the command level. CMAP shows in detail where resources devoted to CMS are being used. CMAP can be applied to these major areas: Performance Analysis, Capacity Planning, User Behavior Analysis, Accounting, and Management Information. This information assists systems staff and management to plan for future growth, analyze and improve performance, identify user training requirements, cancel unused licensed products, and surcharge programs for accounting purposes. CMAP and its options for PROFS, OfficeVision, SAS**, and FOCUS** provide a complete performance management facility to maximize the efficiency of available system resources.

VM/ACCESS**

VM/ACCESS is an extension of the CMS operating system that allows multiple CMS users to have simultaneous read and write access to a CMS minidisk. VM/ACCESS eliminates the CMS minidisk sharing problem. It is a true multi-user file system. VM/ACCESS requires no modifications to CMS, minidisks, or programs and is transparent to the end user.

ETOOLS**

Provides a facility where, in the event of accidental or other file erasure, the individual minidisk user has complete and immediate control over file recovery. The recovery process is not backup-dependent and therefore reflects all changes up to the instant of erasure. In addition, ETOOLS provides facilities to defragment files and minidisks, locate and correct all common file and minidisk errors, and provide useful information about the user's minidisk files.

Legent Corporation for:

Explore** for VM Release 4.0

VM performance monitor that provides real-time and batch reporting capabilities. Workstation support is available for multi-platform reporting.

FAQS/ASO for VM Release 3.41

Full VM console automation, scheduling, basic spool management, and VM BATCH job processing system.

XCOM 6.2** - VM

XCOM 6.2 is a high-speed, high-volume file transfer product supporting over 20 platforms. XCOM 6.2 utilizes APPC/LU6.2 to create a true peer-to-peer environment.

Multi-image Allocation/VM** Releases 3.0 and 4.0

Supports automatic sharing of tape drives between a mix of VM and MVS systems. Drives remain online to all systems continuously.

Multi-image Console/VM** Releases 3.0 and 4.0

Extends MVS console to allow control of VM system from MVS console and allows MVS commands to be issued from a VM system.

TPX**/VM

Is a VTAM-based session manager running in a VM environment under GCS.

NetSpy**

Is an network performance monitor.

Macro 4, Inc. for:

VPAC** (VM Performance-Accounting-Control) 2.5

VPAC is a fully integrated performance monitoring, accounting, and control package. It provides VM users with comprehensive and accurate information relating to system usage and performance, allowing improvements to be easily achieved. Also provided is a load-leveler to prevent individual users from overcommitting resources.

Tubes VM** 1.9

VM session manager facility. Eliminates logon or dial commands. Accesses 12 virtual machines concurrently. Includes VTAM interface which allows VTAM users to have all facilities of Tubes VM without requiring VM/VTAM.

Deskpad** 1.3

Provides e-mail and filing, diary, meeting scheduling, and company wide communications.

Tubes VTAM** 2.3

VTAM session manager. Provides concurrent access to 999 multiple VTAM sessions and facilities switching between sessions without loss of context. Includes message routing and scripting, reduction of network bottlenecks, SPY facility, demo/view, and cut/paste. Supports Windows.

Lockmaster** 1.3

Eliminates I/O problems with VSE lockfile in shared DASD environments. Program intercepts Lockfile requests and services them at CPU speed. Improves terminal response time, increase batch throughput and eliminates redundant DASD files. Provides on-screen display of statistical information on status of Lockmaster and VSE Lockfile and automatically sends messages about potential problems to selected users.

Relay Technology, Inc. for:

DB/CENTER**

Provides comprehensive solutions for operation, administration, and monitoring of local and remote SQL/DS data bases. The integrated components allow the data base administrator (DBA) to efficiently perform: data base maintenance, performance monitoring and reporting, data migration, automated archiving, data editing, production reporting, and centralized data base administration.

DB/MONITOR**

Is a comprehensive utility for monitoring and reporting on the real-time performance of SQL/DS data bases. With its 12 displays and 25 reports the DBA can monitor important thresholds of data base activity and reliably resolve data base performance problems.

DB/REORGANIZER**

Is a full-function utility for maintaining objects and data stored in SQL/DS data bases. DB/REORGANIZER enhances data base administrator (DBA) productivity and improves data base performance by automating many of the steps required to migrate, reorganize, and alter SQL/DS objects.

DB/RESTORE**

Allows data base administrators (DBAs) to quickly and easily restore and optionally forward-recover individual tables from SQL/DS data base and user archives.

DB/REXX**

Is a REXX-to-SQL/DS interface, including full RXSQL compatibility. It provides the REXX application programmer with the same powerful SQL language functionality available to other high-level languages.

SQLMAP**

Is an application and data base analysis tool that simplifies and automates the process of tuning SQL/DS queries and programs.

KPROBE**

Is an interactive, full-screen dump analysis tool that runs under CMS to investigate causes of system failures, providing a central vehicle for diagnosing and maintaining information about any given dump.

Relay/Transfer**

Provides fast, error-free file transfer between mainframes and PCs. Any type of file can be transferred, and common mainframe/PC file format conversion problems are avoided.

Relay/3270**

Provides total software 3270 emulation to PCs through normal phone lines. No 3270 boards or cables are required. With Relay/Transfer, can perform file transfer in the background while terminal sessions are active.

V/SEG-PLUS**

Is systems software to automate SPOOL and System Data File management, including real-time backup of purged SPOOL files and of newly created SDFs using CMS files for backup and restore. Includes capability for distribution of DCSS/NSS management responsibility, with complete control and auditing.

V/SOLVER**

Is a full-function system reliability tool designed to enhance the integrity and maintain the stability of VM systems. It makes it easy to perform operational activities without impacting system performance, and includes system ABEND recovery and reliable forcible user removal.

X-CUA**

Is an object-oriented, CUA-compliant GUI application development toolkit which uses the X Window System to enable true windowing from VM/CMS, using REXX and C language interfaces. X-CUA applications written in C are portable to AIX and UNIX platforms.

XMENU**

A full-screen menu design system and application execution environment for the IBM 3270 family of terminals, including interactive creation and manipulation of menus.

SAS** Institute Inc. for:

The SAS System is a modular and integrated system of software for enterprise-wide information delivery. Distinguishing the software is its ability to:

- Make enterprise data, regardless of their source, a generalized resource available to any user or application that requires it.
- Transform enterprise data into meaningful information for a broad range of applications.
- Deliver that critical information to those who need it when they need it through a variety of interfaces tailored to the needs and experience of the individual computer user.

The functionality of the SAS System is built around the four data-driven tasks common to virtually any application -- data access, management, analysis and presentation.

The SAS System is modularly designed to give organizations the flexibility to license only the functionality they need. As their needs grow and change, additional components can be added on in a completely integrated manner. The SAS System includes the following components: Base SAS** Software the foundation of the SAS System, base SAS software offers a powerful English-like data language and essential data management, analysis, and presentation capabilities.

SAS/ACCESS**

Is a family of transparent read/write interfaces linking the SAS System with popular data base management systems.

SAS/AF**

Is an interactive applications development facility for building menu-driven front-ends to SAS System applications.

SAS/ASSIST**

Is a task-oriented, menu-driven, point and click interface that allows end users to put the SAS System's most popular power features to work without knowing a word of syntax.

SAS/CALC**

Is an electronic spreadsheet for financial analysis and modeling. It supports 3-D spreadsheets and spreadsheet linking, and offers extensive programmability.

SAS/CONNECT**

For communications between the SAS System running on multiple remote hosts. This link allows for transparent transfer of data and applications among different operating environments.

SAS/EIS**

Is a menu-driven EIS development tool with ready-to-use applications oriented toward executive-level, decision-making: financial analysis, project management, forecasting, quality improvement, and many others.

SAS/ENGLISH**

Is a natural-language interface for querying and reporting data.

SAS/ETS**

Is for econometrics and time series analysis including forecasting, financial modeling, and business planning applications. It includes capabilities for time series analysis, linear and non-linear systems simulation, loan amortization, depreciation, and row-and-column financial reporting.

SAS/FSP**

Is for interactive data entry with table look-up and cross-field validation, data editing, and query. Data entry screens can be designed to simulate laboratory logbooks or business forms. A letter-writing facility is also included for mail/merge applications.

SAS/GRAPH**

Is for device-intelligent and device-independent high-resolution graphics for business and analytical applications. Users can produce charts, scatter plots, contour plots, 3-D plots, bar graphs, maps and other graphics forms using a broad selection of built-in fonts and patterns.

SAS/IML**

Is an interactive matrix programming environment designed for analysts, statisticians, and researchers. The software gives users the power of built-in matrix and vector operators as well as the flexibility of a complete programming language for advanced statistical and mathematical applications.

SAS/INSIGHT**

A highly interactive tool for graphical data analysis. The software enables users to explore data through a variety of graphic displays. All observations are linked, so changes in one graph show immediately in all others.

SAS/LAB**

Is for interactive, guidance-driven analysis.

SAS/OR**

Is for operations research, project management, and decision support. It handles general assignment problems; performs critical path analysis and linear programming; determines minimum cost flow, maximum flow, and shortest path through a network; and supports graphic display of network models and Gantt charts.

SAS/PH-Clinical**

Created for the pharmaceutical industry, the software puts powerful, easy-to-use technology into the hands of clinicians, physicians, and clinical data processing professionals for improved drug and biotechnology research.

SAS/QC**

Is a variety of specialized tools for statistical quality control and design of experiments.

SAS/SHARE**

Allows concurrent access to data.

SAS/STAT**

Is a comprehensive library of advanced statistical analysis tools for regression analysis, analysis of variance, common factor and component analysis, discriminant analysis, scoring and a host of other multi-variate and non-parametric techniques.

SAS/TOOLKIT**

For writing customized SAS procedures, informats, formats, functions, and call routines.

SAS/TUTOR**

Is a library of online training courses for SAS System users.

Sterling Software for:

VM:Account**

Collects accounting data and turns it into meaningful management reports for billing, capacity planning, and decision support.

VM:Archiver**

Allows users to archive CMS files from their own minidisks and shared file system directories to less expensive storage media. Lowers storage costs and provides easy access to archived data.

VM:Backup**

Performs reliable and efficient backup of SFS, CMS, and Non-CMS data. The restore process provides quick data recovery for single files or your entire system following system or disk failures or the accidental corruption of data.

VM:Batch**

Provides reliable batch processing for the VM environment. Allows interactive programs to run as background tasks. Frees users to continue working on priority tasks and allows you to balance your system workload.

VM:Director**

A complete and efficient directory and DASD management system for VM. It significantly reduces the time required to manage the resources defined in your VM directory and prevents costly errors.

VM:Manager**

Is an extension to the VM operating system. This single solution tackles four major requirements for maintaining an efficient and cost-effective data center: Automated Operation, Security and Recovery, Service Level Management, and Storage Management.

VM:Monitor**

Allows VM users to monitor performance on their system and automatically or manually decide which actions to take to remove performance bottlenecks.

VM:Notekeeper**

Is a note log manager for users of PROFS and OfficeVision/VM(TM). Helps avoid disk-full conditions, makes more efficient use of disk space, and reduces demands on your help desk and support staff.

VM:Operator**

Is an automated console and message management system for VM. It allows you to minimize human intervention by automatically recognizing and responding to messages.

VM: Prorex**

Is a REXX compiler for VM. It reduces the costs to create, maintain, and execute REXX programs.

VM:Schedule**

Allows end users and data center staff to automate the execution of all tasks and jobs on the VM system. Scheduling can be based on date and time or on the occurrence of an event, thereby helping to improve your machine utilization and maximize your computing resources.

VM:Secure**

Is a complete security and directory management system for VM. Allows you to control access to system resources, manage disk space, and audit system activity.

VM:Sort**

Allows users to sort data contained in CMS files to speed processing and provide reporting as needed.

VM:Spool**

Is a spool information and management system. It helps prevent spoolfull conditions and the resulting application downtime.

VM:Tape**

Is a tape drive and tape volume manager for VM. Replaces potentially error prone manual tape catalog procedures with a fully automated tape control and tracking system.

SyncSort Incorporated for:

Syncsort/Backup** (SYBACK**) Release 2.4D

Is backup/restore/copy program for VM. Significantly minimizes SIO's, Ttime, Vtime, Elapsed time & tape use. Improves system throughput and device and channel utilization. Provides Disaster Recovery capabilities, user catalog of backups, tape pool management, backup scheduling, and full-screen interfaces.

SyncSort CMS** Release 6.3G

Provides high performance sort/merge/copy to minimize CPU time and SIO's. Selects & reformats records, eliminates non-essential fields, summarizes and converts data and generates multiple output and/or creates detailed, customized reports from a single sort.

Syncsort/Archive** Release 1.1C

Is a high-performance, end-user oriented file management utility for the VM environment. Syncsort/Archive System maximizes an installation's use of online DASD by providing a safe and easy way to store files offline and easily retrieve them when they are needed.

Syncsort Directory Manager** (SSDM) Release 1.4

Addresses problem of DASD fragmentation. Reclaims small, unusable extents by creating larger, contiguous ones at volume, pool or device type level. Locates new space, moves data to it, updates CP Directory to point to new location and de-allocates old space.

Velocity Software, Inc for:

ESAMAP**, the VM/ESA Monitor Analysis Program

Processes VM/ESA (ESA Feature) monitor data and produces printed reports, printer plots, and condensed history files. Individual resource configuration, contention, and utilization reports are also produced for the Processor, Storage, Paging and Spooling, and Input/Output subsystems.

ESAMON** Real-Time Monitor

Collects and processes VM/ESA (ESA Feature) monitor data, producing interactive real-time and historical displays and graphics, monitor raw data files, and condensed history files. Individual resource configuration, contention, and utilization displays are also produced for the Processor, Storage, Paging and Spooling, and Input/Output subsystems. Customized displays can be created to examine any aspect of VM performance.

Virtual Software Systems, Inc. for:

Virtual Tape (VTAPE**) 3.2.0

Provides virtual 3420, 3480, and 3490 tape drive simulation. Virtual tape drives can be used by all VM guests as if they were real tape drives. Tape data is stored in library data bases that can be shared by multiple VM systems.

Virtual PARS (VPARS**) 3.2.0

Provides shadow data bases for users of the IBM Transaction Processing Facility (TPF). This facility allows multiple VM guests to share a TPF system and maintain private copies of modified records.

** Product or company name is a trademark or registered trademark of its respective holder.

(TM) Trademark of International Business Machines Corporation

(R) Registered trademark of International Business Machines Corporation

