IBM System Automation for OS/390 V2.2 Provides Comprehensive Parallel Sysplex Management and Automation Functions

Overview

System Automation for OS/390 (SA OS/390) plays an important role in building the end-to-end automation of Project eLiza. The unique functions of SA OS/390 V2.2 can help customers with single z/OS™ or OS/390 systems and Parallel Sysplex® clusters to ease management, help reduce costs, and increase application availability. SA OS/390 is designed to automate I/O, processor, and system operations. It includes “canned” automation for IMS™, CICS®, Tivoli® Workload Scheduler, and DB2®.

Parallel Sysplex Application Automation: SA OS/390 V2.1 introduced extremely powerful new concepts, including sysplex-wide grouping of resources, dependencies, and goals that make Parallel Sysplex automation a reality. You can manage any number of stand-alone systems and clusters from a single point-of-control, even from an easy-to-use Java™-based GUI. In addition, you can move applications and related timers inside a sysplex.

Policy-Based Self-Healing: Automation policy can be shared or cloned across the enterprise, which can reduce complexity, implementation time, coding, and support effort. You can add new resources or systems without rewriting scripts. The policy can now be built more easily using more cloning variables and more predefined and self-configured message rules.

Integration

• SA OS/390, a NetView® application, integrates with Tivoli Enterprise™ solutions such as Tivoli Enterprise Console® (TEC) and Tivoli Business Systems Manager (TBSM). TBSM can act as status observer for SA-monitored resources.
• A single NetView is designed to provide seamless automation of both system and network resources.
• SA OS/390 includes improved support for the leading disaster recovery solution, the Geographically Dispersed Parallel Sysplex™ (GDPS™), which uses SA OS/390 as the automation platform.

Processor Operations (ProcOps) and I/O Operations:

• Remote IBM ® server zSeries systems can now be controlled via Simple Network Management Protocol (SNMP) without any additional PC or networking other than an existing processor LAN.
• I/O operations can support Dynamic CHPID management and manage FICON™ directors.

SAP R/3 High-Availability Automation: The integrated SA OS/390 solution combines the concepts of automation, high availability, and transparent failover. Today’s complex environment offers the SAP systems administrator significant monitoring and management challenges. This solution covers the current SAP and related components that run on z/OS.

Key Prerequisites

The target system can run in any IBM and non-IBM hardware environment that supports one of the following:

• OS/390 V2.10 (5647-A01)
• z/OS (5694-A01), R1, or later
• Tivoli NetView for OS/390 R4 (5697-B82)
• Tivoli NetView for z/OS (5697-ENV), V5.1, or later

At a Glance

System Automation for OS/390 (SA OS/390), a Project eLiza foundation, provides policy-based self-healing:

• Powerful and flexible cluster-wide policy to help reduce complexity, implementation time, coding, and support
• Comprehensive Parallel Sysplex management and automation functions including single system image, single point of control, and unique Parallel Sysplex application automation
• Policy-based, e-business automation that can start, stop, monitor, and recover z/OS UNIX® applications and resources
• Unique SAP R/3 High Availability automation
• Integration with Tivoli enterprise solutions including network management
• Easy-to-use GUI
• Comprehensive “canned” automation for IMS, CICS, TWS, and DB2

For ordering, contact:
Your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL Reference: LE001

For a detailed description of the hardware and software prerequisites, refer to the Technical Information section.

Planned Availability Date

September 27, 2002
SA OS/390 V2.2 Highlights

Integrated Automation: SA OS/390 V2.2 and NetView for OS/390 V1.4, or higher, enable unique, seamless automation of both system and network resources. To help reduce installation and maintenance effort, the system and network automation can run in a single NetView address space. Managers such as TBSM can act as status observer for SA-monitored resources, which can help reduce the effort to implement monitoring and associated overhead while increasing monitoring accuracy.

More Automation

• When applications are moved to other systems, related timers are moved as well. Forgotten or missing timed actions no longer occur.

• Jobs that are not controlled by SA OS/390 can be managed by a new operator dialog.

• An improved user interface is available for IMS, CICS, and Tivoli Workload Scheduler.

• Network automation supports:
  - Registering an application with VTAM® application node recovery
  - Issuing recovery commands for all applications registered with VTAM application node recovery when VTAM has restarted
  - Listing applications registered for application node recovery
  - Listing by applications major nodes that are in use

UNIX System Services Automation

Today’s business environment requires multitiered applications that span z/OS and z/OS UNIX system services. SA OS/390 can automate such e-business applications as if they were running on just one platform. A new automation infrastructure can start, stop, monitor, and recover z/OS UNIX applications and resources like TCP/IP ports and UNIX files.

SAP R/3 High-Availability Automation

Today’s complex environment offers the SAP systems administrator significant monitoring and management challenges. IBM delivers an integrated high-availability solution using SA OS/390 that combines the concepts of automation, high availability, and transparent failover.

• Critical and non-critical components are monitored and restarted automatically.

• Alerts are posted.

This solution covers all SAP and related components that currently run on z/OS. This new high-availability solution uses SA OS/390 code base together with a redesign of the SAP central instance concept. It exploits Automation Resource Manager, Dynamic Virtual IP Addresses, shared Hierarchical File System, and DB2 data sharing to provide minimum system outages along with maximum automation.

For more information, visit:

Easier Automation

• More cloning variables can support a higher number of system-specific configurations.

• More preconfigured message rules for applications which can reduce implementation effort.

• Self-configuration of automation tables automatically selects message rules when a known application is added to the policy.

• Definition of notify operators can be shared across the enterprise, which can reduce implementation effort and increase consistency.

Improved Automation Control

• Logging of policy changes provides an audit trail.

• A statistics report of automated actions can be used to demonstrate the value of automation.

• An HTML or flat file policy report enables easy creation of automation documentation.

ProcOps

Remote zSeries systems can now be controlled via SNMP without additional PC or networking other than an existing processor LAN. The ProcOps PC has been removed. Integration into customization dialogs makes ProcOps customization easier. ProcOps determines the processor type, model, and processor serial number of machines in the zSeries and S/390® CMOS processor families at run time. This eliminates the need to specify the explicit machine type. ProcOps supports Linux target systems running on zSeries and S/390 processors in LPAR or basic mode.

I/O Operations

I/O Operations can support Dynamic CHPID management and manage FICON directors.

msys for Operations — The z/OS Built-in Self-Healing

z/OS Managed System Infrastructure for Operations (msys for Operations), a z/OS base element, incorporates well-proven automation technology provided by NetView and SA OS/390 into z/OS. All msys for Operations functions are also available to SA OS/390 customers:

• Provides self-healing for some critical system and sysplex resources

• Simplifies the day-to-day operation of a z/OS Parallel Sysplex

• Monitors sysplex-specific events to help avoid single points of failure, such as no alternate couple data set (CDS), or sysplex-wide outages due to operator errors or system load

Critical resources in a sysplex that are provided with these self-healing mechanisms are CDS, System Logger, or Write to Operator (WTO) buffers.
With msys for Operations, you can easily manage all the systems in a Parallel Sysplex cluster, coupling facilities (CF) and their structures, and CDS. By automating typical operator tasks and events in a Parallel Sysplex, it reduces operations complexity and improves system recovery, enhancing the availability of Parallel Sysplex clusters. Distinct displays of relevant information allow greater operational awareness, providing ease of manageability. With one interactive command, you can also back up a coupling facility to a spare CF:

- Drain the CF
- Rebuild its structures in the spare CF
- Release the structure connections
- Reconnect them to the spare CF

Additionally, msys for Operations resolves situations such as WTO buffer shortages or system logger failures through its built-in automation technology.

For more information, visit:

http://www-1.ibm.com/servers/eserver/zseries/msys/msysops

Project eLiza

With systems that self-optimize, self-configure, self-heal, and self-protect, Project eLiza helps you to start removing the complexity of ever-expanding e-business infrastructures and overcome systems management challenges. SA OS/390 contributes to the foundation Project eLiza by providing policy-based self-healing and building the base for msys for Operations. msys for Operation is a built-in z/OS self-healing component. The unique automation technology of SA OS/390 plays a key role in building the end-to-end automation of Project eLiza. For additional information, visit:

http://www.ibm.com/servers/eliza

Fewer Prerequisites

To address requirements for lower prerequisites, SA OS/390 can run in a sysplex environment to use Cross-System Coupling Facility (XCF) only (without MQSeries®) for communication between the automation manager and the automation agents.

Running SA OS/390 without MQSeries is only recommended when you reenter lost requests and increased recovery time can be tolerated. Therefore, IBM recommends the use of MQSeries V5.2 with Shared Queue support for highest reliability of the automation environment.

Product Positioning

With SA OS/390 V2.2, IBM continues to deliver systems management products for single z/OS or OS/390 systems and Parallel Sysplex clusters that can help you increase your competitiveness by increasing your business application availability and help reduce operations and systems management costs.

SA OS/390 V2.2 is especially valuable if you have one or more of the following needs:

- Improve business application and Parallel Sysplex availability
- Help reduce operations costs
- Reduction of automation implementation and maintenance costs
- Leverage manpower through reduced education requirements
- Preparation for Project eLiza end-to-end self-healing
- Integration of automation with Tivoli enterprise-wide systems management solutions
- Integration of automation with network automation
- Implementation of a GDPS
- Automation of Parallel Sysplex applications
- Easier management of a Parallel Sysplex cluster
- Automation of e-business applications
- Increased SAP R/3 availability
- Management and verification of I/O configuration
- I/O configuration that is safe, reliable, and fast
- Remote system and operator console access and automation

Hardware and Software Support Services

SmoothStart™ Installation Services

IBM Installation Services are provided for SA OS/390 by IBM Global Services or your IBM Business Partner at an additional cost. For additional information, contact your IBM representative and ask for Installation Services.

Reference Information

- Software Announcement 200-145, dated May 16, 2000
- Software Announcement 200-352, dated October 3, 2000
- Software Announcement 200-352, dated September 11, 2001
- Software Announcement 200-352, dated February 19, 2002
- Software Announcement 200-352, dated October 3, 2000
- Software Announcement 200-352, dated February 27, 2001
- Software Announcement 200-352, dated March 5, 2002
- Software Announcement 200-352, dated June 12, 2001
- Software Announcement 200-352, dated October 23, 2001
- Software Announcement 200-352, dated October 6, 2000

Trademarks

- zSeries, the e-business logo, z/OS, IMS, GDPS, Geographically Dispersed Parallel Sysplex, FICON, and SmoothStart are trademarks of International Business Machines Corporation in the United States or other countries or both.
- OS/390, Parallel Sysplex, CICS, DB2, NetView, VTAM, S/390, and MQSeries are registered trademarks of International Business Machines Corporation in the United States or other countries or both.
- Java is a trademark of Sun Microsystems, Inc.
- UNIX is a registered trademark of the Open Company in the United States and other countries.
IBM US
Announcement
Supplemental Information

August 13, 2002

Technical Information

Hardware Requirements: SA OS/390® V2.2 runs in a virtual storage environment on any IBM or Non-IBM system configuration with sufficient storage that supports OS/390 or z/OS™.

SA OS/390 Processor Operations: SA OS/390 Processor Operations supports monitoring and control functions for:

- S/390® microprocessor-based processors (such as 9672, 9674, 2003, or 3000)
- All CMOS and zSeries processors that can be operated via Operations Command Facility (OCF)

SA OS/390 Processor Operations supports logical partitioning of any of these processors that also support logical partitioning.

SA OS/390 System Operations: The SA OS/390 System Operations base program can run on any processor supported by NetView® for OS/390 or Tivoli® NetView for z/OS.

SA OS/390 I/O Operations: The SA OS/390 I/O Operations base program can run on:

- Any 3090™ (model J) or 3090 — 9000T processor that has at least one ESCON® channel installed and defined to the IOCP
- Any ES/9000®, or higher, processor

ESCON Multiple Image Facility is required for enhanced status support.

Software Requirements: This section defines the minimum programming requirements for SA OS/390 V2.2 and its operating environments. Specific functions of SA OS/390 may require additional products or higher levels of the products listed below.

SA OS/390 is executed as an application on the OS/390 or z/OS operating system. SA OS/390 support is provided at the listed levels or subsequent levels that are upward-compatible, unless otherwise stated. Upward compatibility means that functions provided by the earlier releases are still supported.

Programming Requirements for All Functions

- OS/390 V2.10 (5647-A01) for single systems automation functions
- OS/390 V1.1, or later, (5694-A01) for sysplex automation functions
- Tivoli NetView for OS/390 R4 (5697-B82) or
- Tivoli NetView for z/OS V5.1 (5697-ENW)

OS/390 or z/OS Optional Priced Features: Hardware Configuration Manager for the I/O operations GUI

Other Program Products

- MQSeries® 2.1 for OS/390 (5655-A95) for single system automation functions
- MQSeries for OS/390 V5.2 (5655-F10) with shared queues for sysplex automation functions

Withdrawal: Processor Operation — PC is withdrawn beginning with SA OS/390 V2.2 and is no longer available. Remote zSeries systems can now be controlled via SNMP without any additional PC or networking other than an existing processor LAN. Integration into customization dialogs makes ProcOps customization easier.

Compatibility: SA OS/390 V2.2 is upwardly compatible with SA OS/390 V2.1 (5645-006) and SA OS/390 V1.3 (5645-005). The single point of control is supported in this mixed environment. Automation Control Files (ACF) from AOC/MVS can be migrated. Policy databases back to AOC/MVS R2 can be converted automatically.

The generated backlevel ACF can be used by:

- SA OS/390 R3
- AOC/MVS R4, if “ignore syntax errors” is activated

The recommended migration starts with the automatic conversion of your policy database and its usage also for backlevel systems. You can then implement SA OS/390 V2.2 on one system and expand it system by system without having two policy databases, thus avoiding integrity and productivity issues.

The gateway processing including SDF and SENDCMD (now called INGSEND) is also compatible back to AOC/MVS.

For easy migration, SA OS/390 can interoperate with ESCON Manager. Also the ESCON Manager API and commands are still supported. For more information, refer to Appendix E of System Automation for OS/390 V2R2 Planning and Installation (SC33-7038).

Performance Considerations: Compiling the REXX CLISTs, which are part of the product, will improve performance. The REXX compiler must be ordered separately.

User Group Requirements: This announcement satisfies or partially satisfies requirements from one or more of the worldwide user group communities:

- Australasian SHARE/GUIDE
- COMMON
- COMMON Europe
- GUIDE International
- G.U.I.D.E. Europe

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**System Integrity**

IBM will accept APARs where the installation of this licensed program causes an exposure to the system integrity of OS/390 and/or z/OS. This program is intended to run unauthorized.

**OS/390 and z/OS System Integrity Applies:** Yes

**Security, Auditability, and Control**

The announced program uses the security and auditability features you have selected in Tivoli Netview for OS/390 and Tivoli Netview for z/OS. This is either inside Tivoli Netview itself or in the SAF you have implemented. You can then use security and auditability features of Tivoli Netview for OS/390 or Tivoli Netview for z/OS to protect SA OS/390 commands. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

### Ordering Information

**SA OS/390 V2.2 Collection (BookManager® and PDF)**

The SA OS/390 V2.2 Collection contains the SA OS/390 V2.2 product books in both BookManager and PDF softcopy formats on CD-ROM. If this collection is refreshed three months after planned availability, an updated collection will be automatically sent to SA OS/390 V2.2 licensees.

To upload BookManager softcopy and create softcopy repositories, the SoftCopy Librarian is the strategic tool for uploading and managing BookManager files on a z/OS or OS/390 host or server, and on LANs and workstations. SoftCopy Librarian, a free program provided on the softcopy tools disk of the CD-ROM collections, outperforms the previous Softcopy Receiver Tool for uploading books and also provides you with management functions for your bookshelves and book files. Because the Softcopy Receiver Tool is no longer supported, you should migrate to the SoftCopy Librarian now. SoftCopy Librarian runs on Windows® 95, or later, and Windows NT® 4.0, or later. The latest versions of the SoftCopy Librarian can be downloaded from the following site:


The following publications are contained in the OS/390 CKit CD (SK2T-6700).

<table>
<thead>
<tr>
<th>Title</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed Program Specification</td>
<td>SC33-7037</td>
</tr>
<tr>
<td>Planning and Installation</td>
<td>SC33-7038</td>
</tr>
<tr>
<td>Customization and Programming</td>
<td>SC33-7035</td>
</tr>
<tr>
<td>Defining Automation Policy</td>
<td>SC33-7039</td>
</tr>
<tr>
<td>User’s Guide</td>
<td>SC33-7040</td>
</tr>
<tr>
<td>Messages and Codes</td>
<td>SC33-7041</td>
</tr>
<tr>
<td>Operator’s Commands</td>
<td>SC33-7042</td>
</tr>
<tr>
<td>Programmer’s Reference</td>
<td>SC33-7043</td>
</tr>
<tr>
<td>Program Directory</td>
<td>GI10-9748</td>
</tr>
<tr>
<td>Memorandum to Licensees</td>
<td>GI10-9757</td>
</tr>
</tbody>
</table>

**Planning Information**

**Customer Responsibilities:** For an easy-to-use automation guide, refer to Redbook Automation Using Tivoli NetView OS/390 V1.3 and System Automation OS/390 V1.3 (SG24-5515). You can also download the guide at:


**Direct Customer Support:** Direct customer support is provided by IBM Support Line. This fee service can enhance your productivity by providing voice and electronic access into the IBM support organization. IBM Support Line will help answer questions pertaining to usage, how-to, and suspected software defects for eligible products. Installation and technical support is provided by IBM Global Services. For more information on services, call 800-IBM-4YOU (426-4968).

**Packaging:** SA OS/390 V2.2 will be shipped on one SMP/E installable tape, which makes up the basic package. The tape includes SA OS/390 V2.2.
Current Licensees

Current licensees of SA OS/390 V2.1 will be sent a program reorder form that can be returned directly to IBM Software Delivery and Fulfillment. Reorder forms are scheduled to be mailed by two weeks after planned availability. Reorder forms returned to IBM Software Delivery and Fulfillment will be processed within 10 work days of receipt. When the new release is available, the previous release will no longer be available.

New Licensees

Shipment will begin on the planned availability date:

- Orders entered after the planned availability date will be assigned a scheduled date for the week following order entry.
- Orders entered with a scheduled date before the planned availability date will be shipped SA OS/390 V2.1.
- Orders entered with a scheduled shipment date after planned availability will be shipped SA OS/390 V2.2. Unless a later date is specified, an order is scheduled for the week following order entry.

New users of SA OS/390 V2.2 should specify machine type/model 5645-006.

Basic License: To order a basic license specify the program number and feature number 9001 for asset registration. Specify feature number for “PSLC Base, 1 MSU” for a monthly license charge (MLC). When a new release is available, prior releases will no longer be available.

Parallel Sysplex© License Charge (PSLC) Basic License: To order a basic license, specify the program number and feature number 9001 for asset registration. Specify the PSLC Base feature. If applicable, specify the PSLC Level A and PSLC Level B, and PSLC Level C, and PSLC Level D features and quantity.

If there is more than one program copy in a Parallel Sysplex, the charge for all copies is associated to one license by specifying the applicable PSLC feature numbers and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex. For all other program copies, specify the PSLC No-Charge (NC) Identifier feature on the licenses.

## PSLC PSLC Basic License

<table>
<thead>
<tr>
<th>Machine MSU Capacity</th>
<th>PSLC Feature Number</th>
<th>PSLC Basic License MLC Feature Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0001</td>
<td>PSLC Base, 1 MSU</td>
</tr>
<tr>
<td>2</td>
<td>0002</td>
<td>PSLC Base, 2 MSUs</td>
</tr>
<tr>
<td>3</td>
<td>0003</td>
<td>PSLC Base, 3 MSUs</td>
</tr>
<tr>
<td>4 to 45</td>
<td>0004</td>
<td>PSLC Level A, 1 MSU</td>
</tr>
<tr>
<td></td>
<td>0005</td>
<td>PSLC Level A, 42 MSUs</td>
</tr>
<tr>
<td>46 to 175</td>
<td>0006</td>
<td>PSLC Level B, 1 MSU</td>
</tr>
<tr>
<td></td>
<td>0007</td>
<td>PSLC Level B, 10 MSUs</td>
</tr>
<tr>
<td></td>
<td>0008</td>
<td>PSLC Level B, 50 MSUs</td>
</tr>
<tr>
<td>176 to 315</td>
<td>0009</td>
<td>PSLC Level C, 1 MSU</td>
</tr>
<tr>
<td></td>
<td>0010</td>
<td>PSLC Level C, 10 MSUs</td>
</tr>
<tr>
<td></td>
<td>0011</td>
<td>PSLC Level C, 50 MSUs</td>
</tr>
<tr>
<td>316 or more</td>
<td>0012</td>
<td>PSLC Level D, 1 MSU</td>
</tr>
<tr>
<td></td>
<td>0013</td>
<td>PSLC Level D, 50 MSUs</td>
</tr>
<tr>
<td>NA</td>
<td>0014</td>
<td>PSLC NC IDENTIFIER</td>
</tr>
</tbody>
</table>

Example 1: For a single machine with 11 MSUs, the PSLC features would be:
- A5DP — quantity 1
- A5DQ — quantity 8

Example 2: For two machines in a Parallel Sysplex, which have an aggregation of 60 MSUs, the PSLC features would be:
- PSLC chargeable license #1:
  - A5DP — quantity 1
  - A5DR — quantity 1
  - A5DT — quantity 5
  - A5DU — quantity 1
- PSLC no-charge license #2: AFEE — quantity 1

Workload License Charge (WLC) Basic License: To order a basic license, specify the program number and feature number 9001 for asset registration. Also, specify the feature number of the desired distribution medium.

Variable Workload License Charge Features

<table>
<thead>
<tr>
<th>VWLC Feature Description</th>
<th>VWLC Feature Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base, Level 1 includes 45 MSUs</td>
<td>0460</td>
</tr>
<tr>
<td>Additional qty, Level 1 up to 175 MSUs</td>
<td>0480</td>
</tr>
<tr>
<td>Registration Base, Level 1 incl 1 MSU</td>
<td>3702</td>
</tr>
<tr>
<td>Registration additional quantity Level 1 up to 175 MSUs</td>
<td>3703</td>
</tr>
<tr>
<td>Additional qty, Level 2 176 — 315 MSUs</td>
<td>3704</td>
</tr>
<tr>
<td>Registration additional quantity Level 2 176 — 315 MSUs</td>
<td>3705</td>
</tr>
<tr>
<td>Additional qty, Level 3 316 — 575 MSUs</td>
<td>3706</td>
</tr>
<tr>
<td>Registration additional quantity</td>
<td></td>
</tr>
</tbody>
</table>
**Growth Opportunity License Charge (GOLC)**

To order a GOLC software, specify the program number, feature number 9001 for asset registration, and the GOLC monthly charge feature number from the table below. Also, specify the feature number for the desired distribution medium.

<table>
<thead>
<tr>
<th>GOLC Category</th>
<th>GOLC Feature Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>H30</td>
<td>0015</td>
</tr>
<tr>
<td>H50</td>
<td>0016</td>
</tr>
<tr>
<td>H70</td>
<td>0017</td>
</tr>
</tbody>
</table>

**zSeries Entry License Charge (zELC):** To order zELC software, specify the program number, feature number 9001 for asset registration, and the zELC monthly charge feature number from the table below. Also, specify the feature number for the desired distribution medium.

<table>
<thead>
<tr>
<th>zELC Feature Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A1 — 1 engine</td>
</tr>
<tr>
<td>0B1 — 1 engine</td>
</tr>
<tr>
<td>0C1 — 1 engine</td>
</tr>
<tr>
<td>001 — 1 engine</td>
</tr>
<tr>
<td>0A2 — 2 engines</td>
</tr>
<tr>
<td>002 — 2 engines</td>
</tr>
<tr>
<td>003 — 3 engines</td>
</tr>
<tr>
<td>004 — 4 engines</td>
</tr>
</tbody>
</table>

**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.

**Basic Machine-Readable Material**

<table>
<thead>
<tr>
<th>Environment</th>
<th>Feature Number</th>
<th>Distribution Medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS/390</td>
<td>5801</td>
<td>6250-bpi distribution tape</td>
</tr>
<tr>
<td>OS/390</td>
<td>5802</td>
<td>3480 cartridge uncompressed</td>
</tr>
</tbody>
</table>

**Unlicensed Documentation:** A memorandum and program directory are supplied automatically with the basic machine-readable material:

<table>
<thead>
<tr>
<th>Title</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA OS/390 V2R2 Licensed Program Specification</td>
<td>SC33-7037</td>
</tr>
<tr>
<td>SA OS/390 V2R2 Program Directory</td>
<td>GI10-9748</td>
</tr>
<tr>
<td>SA OS/390 V2R2 Memorandum to Licensees</td>
<td>GI10-9757</td>
</tr>
</tbody>
</table>

**Customization Options:** Select the appropriate feature numbers 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, specify feature number 3470 to ship media only. For future updates, specify feature number 3480 to ship media updates only. If, in the future, publication updates are required, order an MES to remove feature number 3480; then, the publications will ship with the next release of the program.
One copy of the following publications are supplied automatically with the basic machine-readable material on CD-ROM:

<table>
<thead>
<tr>
<th>Title</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA OS/390 V2R2 Customizing &amp; Programming</td>
<td>SC33-7035</td>
</tr>
<tr>
<td>SA OS/390 V2R2 Planning and Installation</td>
<td>SC33-7038</td>
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