



# IBM Spatial and Optimization Solutions for Multiplatforms V3 Now in Single Suite of Products

## Overview

Spatial Information products and Optimization products are now merged into a single suite of products. This suite will include the following family of products:

- IBM Spatial Information Management Toolkits for Multiplatforms Version 3 (Spatial Information Management Toolkits V3)
- IBM Optimization Solutions and Library for Multiplatforms Version 3 (Optimization Solutions V3)

These family of products will:

- Deliver IBM business intelligence solutions that combine world-class mathematical programming products with leading-edge spatial management and analysis products
- Make it easy for decision makers to find, analyze, and visually display optimal solutions to business problems involving spatial or geographic data

The Spatial Information Management Toolkits V3 products will be built on the IBM Geographical Facilities Information Systems (GFIS) V2 products and will continue to provide enhanced capabilities for geographic and facilities management and mapping.

The Optimization Solutions V3 Products will be upwardly compatible from the V2 products, and will continue to support linear, quadratic, Mixed Integer Programming (MIP), and Stochastic programming.

To find out more about IBM Spatial and Optimization Solutions Products, visit our web site at:

<http://www6.software.ibm.com/sos>

## Key Prerequisites

The Spatial and Optimization Solutions Products will run in the following environments:

- For Optimization Products:
  - Windows 9X, Windows NT™ 4.0, and Windows™ 2000
  - Intel® Linux
  - RS/6000® with AIX® 4.3
  - HP 9000/700 Series machined with HP-UX 10.0
  - Sun with Solaris 2.5
  - Silicon Graphics with IRIX 6.5
  - AS/400® with OS/400® 4.4 or later with option 33
- For Spatial Products:
  - Windows 9X, Windows NT 4.0, and Windows 2000
  - RS/6000 with AIX 4.3

## Planned Availability Dates

- January 26, 2001 — Optimization Solution Products
- March 30, 2001 — Spatial Information Management Toolkits

## At a Glance

IBM's Spatial and Optimization Solutions Products apply sophisticated mathematical optimization and spatial analysis techniques to help you manage critical business information. As a result, you will be in a better position to:

- Minimize costs
- Maximize profits
- Allocate resources
- Schedule capacity

To find out more about IBM Spatial and Optimization Solutions Products, visit our Web site at:

<http://www6.software.ibm.com/sos>

### For ordering, contact:

Your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at

**800-IBM-CALL**

Reference: YE001

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## Description

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This suite of Spatial and Optimization products provides IBM with the unique opportunity to deliver business intelligence solutions that will:

- Combine world-class mathematical programming products (Optimization Solutions) with leading-edge spatial management and analysis products (Spatial Information Management Toolkits)
- Make it easy for decision makers to find, analyze, and visually display optimal solutions to business problems involving spatial or geographic data

### IBM Spatial Information Management Toolkits for Multiplatforms Version 3

The Spatial Information Management Toolkit products build on the current GFIS family of products. It provides middle-ware applications, components, and application development tools for spatial information management. These applications, components, and tools will evolve from the current set of Geographical Information Systems (GIS) applications into a coherent family of Spatial Information Management applications that are tightly integrated into e-business frameworks. Spatial Information Management Toolkit will facilitate the evolution from current GIS functionality into Business Intelligence (BI) and will fully support Web access for spatial query and display. It will leverage the current GFIS customer base, the DB2® Spatial Extender (DB2SE), and current e-business trends towards DB2, intranet and Internet application and data servers, and heterogeneous access device support (Browsers, Net Appliances, Palm Sets, GPS, and so on). The main components of the Spatial Information Management Toolkit offering includes:

- IBM Spatial Information Management Library for Multiplatforms — provides a robust set of spatial analysis and manipulation functions through a C/C++ API. The Spatial Library includes connectivity to the Spatial Data Manager, the ability to import Shape, DXF, and IFF files into the library workspace, and a Sample/IVP program.
- IBM Spatial Information Management Library Extension for Multiplatforms — allow delivery of additional function, for example, Digitizer/GPS support in the first release.
- Spatial Toolkits — a family of value-added spatial applications, ready to use upon download/install from the Web, and extendable or modifiable with various programming languages/environments. The Spatial Toolkit for Smalltalk will be available at general availability of Version 3. This Toolkit is based on the current GeoInterface product, with improved usability in the GUI. Each Toolkit will be provided in two separate packages:
  - IBM Spatial Information Management Execution Environment for Multiplatforms, which will be usable for generic mapping applications immediately upon installation. The Execution Environment will include the common Spatial Library to enable generic application support upon installation.
  - Spatial Toolkit for Smalltalk Execution Environment will contain a GUI based upon the current GeoInterface “Advanced Sample Application” with significant usability enhancements. This new GUI will support creation and editing of maps, as well as dynamic creation, modification, editing of facilities defined in the user’s current schema. Highlights

of these enhancements include: 1. Restructured to be immediately useful upon installation. 2. Augmented with a “Add NEW” map capability which includes default layers and help to define new layers and facilities dynamically.

- IBM Spatial Information Management Application Toolkits for Multiplatforms, which will provide tools, parts, and/or class libraries required for application customization of the Execution Environment to satisfy given customer requirements. The use of the Application Environment will require prior installation of the Execution Environment for customization.
  - The Spatial Toolkit for the Smalltalk Application Environment provides a library of Smalltalk classes and other components that can be used to build customized applications.
- IBM Spatial Information Data Manager for Multiplatforms — builds upon the functionality of geoManager®.
  - The Spatial Toolkit Data Manager is enhanced to include storage and retrieval of spatial information using defined DB2 Spatial Extender data types when DB2 and the Spatial Extender are installed.
  - The Data Manager administrator dialogs are now provided in Java™.

### IBM Optimization Solutions and Library for Multiplatforms Version 3

The IBM Optimization Solutions and Library (Optimization Solutions) family of products supplies powerful and easy-to-use tools for solving mathematical programming problems. The Optimization Solutions products are the successor products to the IBM Optimization Subroutine Library (OSL) and the Optimizations Solutions Version 2 product family. As before, the emphasis is on solving optimization problems such as minimizing costs, maximizing profits, allocating resources, and scheduling projects subject to time and financial constraints.

The capabilities of the IBM Solutions and Library are applicable in many fields, including:

- Transportation — crew scheduling, vehicle routing, management
- Petrochemical — raw material acquisition, refinery operation, product blending, distribution
- Manufacturing — production scheduling, material utilization
- Military applications — logistics, personnel assignment, contractor selection
- Financial — portfolio selection, asset/liability management, foreign exchange hedging

IBM Optimization Solutions and Library for Multiplatforms Version 3 includes the following new functions:

- A new programming interface, based on ANSI standard C, which enables:
  - New memory management techniques which result in superior control over the environment
  - Improved performance
- S/390® (MVS™, VM, and UNIX® Services) support
- SMP support for interior point Linear Programming
- Support for the AS/400 with OS/400 4.4 or later with option 33

The main components of the Optimization Solutions offerings include:

- The Optimization Library and Extensions, which provide callable library functions for inclusion in C/C++ applications:
  - Optimization Library — brings to Operations Research/Management Sciences (OR/MS) professionals the opportunity to harness the tremendous power of IBM solver technology in their own developed applications. The development philosophy for the library is to provide a powerful set of building blocks and the freedom for professionals to assemble them in many ways to solve different kinds of optimization problems.
  - Stochastic Extensions — supplies the following:
    - All of the callable modules already available with the Stochastic Solutions solver products
    - An additional 11 user-callable functions which greatly enhance the ability to manipulate stochastic models and the scenarios contained therein
    - A flexible nested decomposition capability that greatly improves performance on models with large subproblems
    - Support for quadratic variables in the objective function
  - Parallel Extensions — permits parallel execution of certain functions within the OSL Optimization Library. Specifically, the Integer Programming function, Linear Programming Decomposition function, and the Nested Benders Stochastic programming function may all be run in parallel, in a distributed (loosely networked) environment.
- The Optimization Solutions, which are standalone command line solvers that read an optional control file, or optional parameters entered on the command line, read the model from an industry standard MPS format file, and print out the solution:
  - Linear Programming (LP) Solutions — includes primal and dual versions of the justly famous simplex method developed by George Dantzig of Stanford University. In these variants, the work is not divided into two phases. A composite objective function is used throughout so that variables are simultaneously moved toward an optimum as feasibility is approached. The LP solvers have a special strategy for circumventing degeneracies and they permit adjusting the pricing strategy to enhance performance.
  - Mixed Integer Programming (MIP) Solutions — contains a branch and bound solver that can handle either a linear or quadratic objective function. The simplex solver (primal or dual, selectable) is used on LP relaxations, and of course, the QP solver is used on QP subproblems. New in this version is the option to select depth first, breadth first, or a proprietary search strategy.
  - Quadratic Programming (QP) Solutions — uses a fast, robust, two-stage algorithm to minimize a quadratic objective function with a positive semidefinite quadratic coefficient matrix subject to linear constraints. Since the optimum may occur in the interior of the feasible region, the simplex method alone cannot be used to solve QP problems. The first subalgorithm solves an approximating LP problem and a related, very simple QP problem at each iteration. When successive approximations

are close enough together, the second subalgorithm is used. This extension of simplex method permits a quadratic objective function and converges very rapidly when given a good starting value.

- Stochastic Programming Solutions — supplies powerful and easy-to-use tools for solving stochastic programming problems. For example, problems of:
  - Minimizing expected cost
  - Maximizing expected profits
  - Optimizing risk and reward
  - Allocating resources
  - Scheduling projects subject to time and financial constraints

### ***Year 2000***

These products do not have date dependencies and are, therefore, Year 2000 ready.

### ***Euro Currency***

These programs are not impacted by euro currency.

### ***Trademarks***

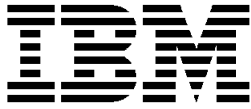
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# IBM US Announcement Supplemental Information

November 7, 2000

## Offering Information

Product information will be available on day of announcement through Offering Information (OITool) at:

<http://www.ibm.com/wwoi>

## Publications

No publications are shipped with this program. All documentation is downloadable from the Web. For more information, refer to the Web at:

<http://www6.software.ibm.com/sos>

## Technical Information

### Specified Operating Environment

**Hardware Requirements:** None

### Software Requirements

The Spatial and Optimization Solutions Products will run in the following environments:

- For Optimization Products:
  - Windows 9X, Windows NT™ 4.0, and Windows™ 2000
  - Intel® LINUX®
  - RS/6000® with AIX® 4.3
  - HP 9000/700 Series machined with HP-UX 10.0
  - Sun with Sun Solaris 2.5
  - Silicon Graphics with IRIX 6.5
  - AS/400® with OS/400® 4.4 or later with option 33
- For Spatial Products:
  - Windows 9X, Windows NT 4.0, and Windows 2000
  - RS/6000 with AIX 4.3

### Planning Information

**Packaging:** Media Pack only. The separate documentation package includes the following:

- Key to unlock code

### Security, Auditability, and Control

IBM spatial and Optimization Solutions Products uses the security and auditability features of the host hardware or software.

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

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## Ordering Information

The IBM Spatial and Optimizations Solutions Products have a one charge unit — Users via Passport Advantage

**Upgrade Protection (Entitled Customers):** Customers who have previously acquired Software Advantage Upgrade Protection, and have not migrated to the Passport Advantage Offering as shown in the table below, will receive automatically their entitlement to the new Media Pack shortly after general availability.

### Software Advantage Upgrade Protection Entitlement

Program Name/ Description	Current Part Number	New Program Media Pack Part Number
Software Advantage Upgrade Entitlement geoInterface™ User Edition	83H2794	D57ZGML

**Withdrawal of Previous Passport Advantage Part Numbers:** The following Passport Advantage part numbers are being replaced or obsoleted by this announcement. The effective withdrawal date is April 6, 2001.

Orders for these part numbers will not be accepted after the stated effective date of withdrawal, nor will normal marketing activities or educational support be available unless previous agreement exists between the customer and IBM.

Program Name	Part Number
GEO INTERFACE ENTRY ED	D57ZGML

## Terms and Conditions

**Licensing:** IBM International Program License Agreement. Proofs of Entitlement are required for all authorized use.

**Limited Warranty Applies:** Yes

**Program Services:** Available until April 30, 2003

*This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: <http://www.ibm.com>.*

**Copy and Use on Home/Portable Computer:** Yes

**Volume Orders (IVO):** No

**Passport Advantage Applies:** Yes

**Passport Advantage Subscription Applies:** Yes

**Upgrades:** Customers can acquire upgrades up to the currently authorized level of use of the qualifying programs.

**Support Line:** No

**AIX/UNIX® Upgrade Protection Applies:** No

**Entitled Upgrade for Current AIX/UNIX Upgrade Protection Licensees:** No

**AS/400 Software Subscription Applies:** No

**Variable Charges Apply:** Yes

**Educational Allowance Available:** Not applicable

designated machine on which the program is licensed for use. If the program is designated to a processor in a group for which no charge is listed above, the charge of the next higher group listed applies. For movement to a machine in a higher group, an upgrade charge equal to the difference in the then current charges between the two groups will apply. For movement to a machine in a lower group, there will be no adjustment or refund of charges paid.

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You can also contact your local IBM Business Partner or IBM representative. To identify them, call 800-IBM-4YOU.

**Note:** Shipments will begin after the planned availability date.

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### Year 2000 Readiness Disclosure

Statements made in this announcement regarding Year 2000 are "Year 2000 Readiness Disclosures" under the Year 2000 Information and Readiness Disclosure Act of 1998, a U.S. statute enacted on October 19, 1998.

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## Prices

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Program Name	Part Number	Charge
IBM Spatial Information Management Library for Multiplatforms	D57NRML	\$ 999
IBM Spatial Information Management Library Extensions for Multiplatforms	D57VRML	299
IBM Spatial Information Management Execution Environment for Multiplatforms	D57JPML	1,299
IBM Spatial Information Management Application Toolkit for Multiplatforms	D57GJML	3,000
IBM Spatial Information Data Manager for Multiplatforms	D57TLML	3,000
IBM Linear Programming Solutions	D565LML	3,000
IBM Mixed Integer Programming Solutions	D566QML	3,000
IBM Optimization Library	D567RML	9,000
IBM Parallel Extensions	D56I4ML	4,000
IBM Quadratic Programming Solutions	D57ZHML	3,000
IBM Stochastic Solutions	D567UML	3,000
IBM Stochastic Extensions	D564AML	12,000

### Upgrades

Contact your sales channel for Support Line pricing information.

**Variable Charges:** The applicable processor based one-time charge will be based on the group of the