



IMS newsletter

Summer 2001

Methods for Web enabling IMS

Featuring IMS Connect, MQ Series, and DB2 stored procedures

by *Randall J. Mowen, President and CEO of Surefire Solutions Inc.*

I would guess that any IBM shop running the IMS product has considered or already taken on the challenge of Web enabling some or all of their IMS transactions. The demand for access to this system from the more open Internet Protocol has created a whole new set of challenges for IMS system programmers, coders, DBAs, and network administrators. The IMS system is still the workhorse for many of the shops that I work with because its scalability, reliability, and performance capabilities are second to none, and we now have the tools to Web enable this system with very little effort. The tools and methods for Web enabling IMS will depend on your application and data access needs of the user community. This article will identify three different ways that you can access IMS data or transactions, discuss the pros and cons of each method, and give an overview of how the IMS Connect solution (formerly known as IMS TCP/IP OTMA Connection (ITOC) prior to IMS Version 7) can be implemented successfully. The overview is intended to walk you through the steps and give you an idea of what it takes to implement IMS Connect at your shop. IBM's redbooks, technical notes, installation guides, and tech support were instrumental in giving my team and I the knowledge and confidence to take on this project. I highly recommend that you take a look at them for specific technical details.

Some of you might be asking why do we want to Web enable IMS in the first place? Some good examples of the

value of doing this include: creating customer self-service applications for an e-brokerage, enabling online order entry to expand horizons, offering views of inventory and supplies on hand to suppliers in order to reduce carrying costs, or offering online permit and license renewals. The list of good reasons to Web enable IMS can go on and on. The

e-brokerage example is a neat one because the ability to Web enable IMS was fundamental in the creation of online brokerage services. The order entry and inventory visibility examples are also interesting because they are fundamental components to almost any business. The other reason that I have included these

examples is because they are real world success stories that I have seen implemented with IMS Connect and MQ Series.

It is a good thing that IBM offers different connectivity tools to access IMS transactions and data because there are certainly many different types of access and processing needs. For example: MQ Series fundamentally supports batch-oriented transactions better than the IMS Connect method. You can get either method to work and I have seen both done, but the IMS Connect method reinvented the wheel in the process. The opposite is also true; from a performance, overhead, and administrative perspective IMS Connect fundamentally supports online transactions better than MQ Series. These statements may spark a debate, and I encourage that because truly the best method is the one your team can implement successfully. That being said, let's take a look at an example of IMS Connect in practice.

The Bekins Company has been an early adopter of Web technologies and started Web enabling legacy systems in late 1999. The initial application was a Web-based, self-service shipment tracking application utilizing DB2, DB2 Connect, Java servlets, WebSphere, and JSPs to present real time tracking information. This application was a huge success, saving the company millions of dollars and generating new business. Riding on the wave of success with DB2 and DB2 Connect, the project team tackled IMS. IMS immediately presented some hurdles. It wasn't 24/7, it



Inside this Issue:

Interview with Tom Rosamilia	3
IMS e-business	4
WebSphere Studio Asset Analyzer	6
IBM Global Services	8
IBM Tools	9
IMS User Technology	10
Upcoming Events	12
IMS Redbooks	13
IMS Education	14
Web Sites	15
Editorial	16

wasn't a relational database, and there was no direct TCP/IP connectivity. We did have MQ Series messaging capabilities and some experience writing DB2 stored procedures to access IMS data.

The next logical component in the architecture was to add IMS Connect. This was the method that I felt would be easiest to implement when we needed to access online transactions. The installation of IMS Connect is very straightforward and entails following the step-by-step instructions included with the software. When the installation is complete you will have three PDS data sets that support TCP-to-IMS connectivity, TCP/IP, user exits, and link-edits. You are basically setting IMS up to listen for and communicate with TCP/IP clients and to feed the OTMA requests from this API. Once IMS Connect is installed there are configuration settings to be set that will determine how IMS Connect runs (as a job or MVS started task), to set security in the MVS PPT tables to allow IMS Connect to run in supervisory state and key 7, and to configure communica-

needs to be mapped and formatted correctly. Give your team a week or two to get the test scenario up and running. A system programmer, COBOL programmer, and Java programmer working together should be able to get this done. You may also need the services of the application server administrator if you will be running your Java code on WebSphere or a similar application server.

Once we had IMS Connect installed and configured and the test application working, we moved on to the true task at hand, calling and executing one of Bekins' online transactions from a Java servlet running on WebSphere. Again, the framework and methods for connectivity, transaction processing, security, and error handling were already in place. What we needed to do was to create the Java code that would represent transaction input data, transaction output data, and connectivity data. The Enterprise Access Builder (EAB) allowed us to create Java beans that were both visual and non-visual. The visual beans were converted to JSPs and became the GUI for the end-user that allowed for data

entry and display. The non-visual beans work under the covers to format data, handle connectivity, and session-related information, and other functions of the application. The non-visual beans were created by reverse engineering the IMS transaction's COBOL code inside of Visual Age for Java. The

COBOL 01 I/O area (I/O PCB input/output area descriptor) is used to define the COBOL record type that represents the input and output. The input and output defines the data; now that those objects are defined you use the EAB's execute method to create the communication object. Do this with the createCommunication method of the IMSConnectionSpec object. Then connect this object to the IMS Connect component by invoking the objects connect method. Execute the request specified in the IMSInteractionSpec and that's it. Your application will probably need to be fleshed out from this with supporting HTML, JSPs, and servlets. We use WebSphere Studio to auto generate HTML and JSPs for us. When these pieces are in place you should have a working model of IMS Connect and the ability to invoke online IMS transactions from a Web browser. From here the possibilities are endless.

Authors note: I would like to personally thank Randy Valentino (C.T.O.), Bill Burns (System Programmer), Roger Guran and Ron Mansfield (IMS DBAs), Joe Bass (Sr. application programmer), and Scott Marema (Lead COBOL programmer) for all the help, support, time, and effort they put in at Bekins to successfully implement IMS Connect. I present this case study on their behalf.



RealWare Awards
Best E-Business Application: B2B
Bekins, with WebSphere, VisualAge, DB2 and IMS for
OS/390, and DB2 UDB for Windows NT
<http://www.realwareawards.com/2001/01/winrelfinal.pdf>

tion and connectivity settings. This is done by specifying the environment for IMS Connect as a member in the PROCLIB data set. Once all the components are installed and configured you can install a simple Java test program. The test application is designed to test throughput and connectivity to verify that IMS Connect is in fact configured correctly. With some modifications the Java test can also test security and processing flows. The GUI is very user friendly and displays both input and output variables on the same screen; and because IBM delivers the GUI with the product, the tech support people can use it to help you configure and debug IMS Connect correctly.

You will still have a ways to go even after IMS Connect is installed and configured correctly, but installing, configuring, and testing the sample code should give each of your technical team members a chance to get familiar with the components and understand the methods that will be used. The framework will never change so there will be the opportunity to reuse this code, which makes setting up the test case ever more worthwhile. It may be a little painful getting the test application to run; the environment has to be configured correctly, security and authorities for certain members need to be set correctly, the Java code needs to be configured to communicate with IMS Connect and OTMA correctly, and the input and output sent to the transaction

Introducing Tom Rosamilia...

Tom Rosamilia is the new Vice President of Worldwide Data Management Development and General Manager of the Silicon Valley Laboratory replacing Charles Lickel. We talked to Tom regarding his new position and vision for Data Management and specifically the IMS™ product.

Can you tell us something about your background?

I've worked for IBM® for 18 years, with 17 of them on OS/390®, MVS™, and z/OS™. Most recently I was Vice President of S/390® Software Development. I owned OS/390, VM, VSE, and Linux/390. So my background has been entirely with S/390 customers and the IMS customer set, and I know the demands they place on our systems and the way they rely on them.

My years with OS/390 taught me that the S/390 platform is one that can deliver things no other platform can in terms of reliability, availability, and scalability, which makes it ideal for IMS. To me, the strength of S/390 comes from the combination of the products that go into the mix, with OS/390 fitting hand and glove with transaction and database management software like IMS.

I can't tell you how many large IMS customers I called on when I headed S/390 who always wanted to make sure that we were giving the right care and feeding to IMS because of the absolute reliance they have on it. And the message hasn't changed since I took this job. Recently I called on a large customer in the Midwest who said, "You must understand that IMS is my business. If IMS and OS/390 are not available, my business is not working. We are down, we are out; we cannot do anything when those systems are down."

Those are the stakes we play by, whether it's a large bank in Japan or a retailer in the U.S.; because those stakes are so high we have a special responsibility to our customers to ensure that no matter what changes and enhancements we make to IMS, we must continue to provide that rock-solid reliability and performance they depend on.

Can you give us your perspective on IMS Version 7?

One aspect of IMS Version 7 I'm excited about is our progress in quality. Our early customer feedback and our internal testing both show that IMS Version 7 is the highest-quality release that's ever come out of this lab. As a result, when customers ask about migrating to IMS Version 7, we're telling them to go with confidence.

Another key IMS Version 7 function is High-Availability Large Database (HALDB), which is really at the core of our availability story. I've already met with several customers who are moving to HALDB, both for availability reasons and because the size of their database is growing exponentially.

And another great feature of IMS Version 7 is Online Recovery Service, which enables use of online commands to recover multiple database data sets to any point in time in a single pass of the log.



Another new capability is rapid network reconnect, which lets people quickly establish reconnections because, as I said, most of these customers greatly depend on the availability of the system; they're all 24x7, and they all need this thing to be available all the time. So anything we can do to increase that availability is certainly in line with their demands and their expectations.

What do you see for the future of IMS?

There are lots of things we're doing and lots of things we're planning for IMS, and our product development team is really humming right now. It's exciting to me that the team has been able not only to continue delivering on its core strengths, but also extend its reach and range with some advanced concepts in recent IMS versions.

We are working towards a goal in a future release to deliver online reorganization, which has been a very high requirement of the IMS customer set. We recognize it, we accept it, and we're going to deliver it in a future release of IMS. And I think people will be very happy to hear that.

Some of the advanced things we're enhancing and adding to IMS are IMS Connect, where we've added substantial investment, and Common Access Model (CAM), the access model that will enable us to deliver XML support. So when you look at "classic" IMS and see the new things we're adding to it, I think you really get the best of both worlds: The traditional strengths and reliability of IMS, plus an increase in its reach and range through Web enabling your transactions and access to new forms of data.

We're also continuing to invest in the IMS tools business. We'll continue to deliver tools that have all kinds of functions that complement the suite of capabilities within IMS. The tools business has been a real opportunity for us to help customers lower the total cost of ownership as we go forward.

So I feel the IMS story is a very healthy one in terms of supporting customers and their growth. And one that will continue to unfold, as we respond to their needs in the future.

Tom Rosamilia
Vice President, World Wide Data Management Development
General Manager, Silicon Valley Lab

Introducing Local Option

With the general availability of VisualAge® for Java™ Version 3.5.3 in April, 2001 and a corresponding update to IMS Connect 1.1, APAR PQ45057, IBM introduced Local Option, a non-TCP/IP communication path between IMS Connector for Java and IMS Connect. Local Option, as its name implies, can be used when both the application or servlet that is running IMS Connector for Java and IMS Connect reside in the same OS/390 image as shown in Figure 1.

If the host name is of the form LOCALHOST:ims_connect_name, Local Option will be used for all communications between IMS Connector for Java and the specified IMS Connect instance. If the host name is anything other than the first ten characters of LOCALHOST:, IMS Connector for Java opens a TCP/IP connection to that host name. If the host name property is made externally available during application development, the host name can be specified at run time and therefore changed dynamically between Local Option and TCP/IP as the need arises.

In IMS Connector for Java, the architectural approach that IBM used to implement Local Option was to wrap existing TCP/IP-specific code in conditional blocks and to add separate blocks for Local Option-specific code represented by the Local Adapter block in Figure 2. The Local Adapter invokes JNI (Java Native Interface) calls, which transfer control from the Java code to native C code, which in turn make calls to native assembler code routines. Both the C code and the assembler routines are packaged in libimsconn.so, which is an OS/390 UNIX System Services shared library that is shipped with IMS Connector for Java. The assembler routines execute in the same address space where the Java Virtual Machine (JVM) that runs IMS Connector for Java is running. These assembler routines execute the

OS/390 program calls to communicate with IMS Connect, which is running in its own address space.

Local Option in IMS Connect has been implemented by adding a Local Option driver and PC request handler routines, one for each type of request. Local Option is defined to IMS Connect as a “port.” The structure of the LOCAL “port” is very similar to the structure of a TCP/IP port, except that this special port is handled by the Local Option driver rather than by the TCP/IP driver.

If a LOCAL port has been defined in the IMS Connect configuration member, this LOCAL “port” is activated automatically during IMS Connect initialization. Also during IMS Connect initialization, the Local Option driver is initialized and registered with OS/390. After IMS Connect initialization has completed successfully, IMS Connect is ready to accept Local Option connections.

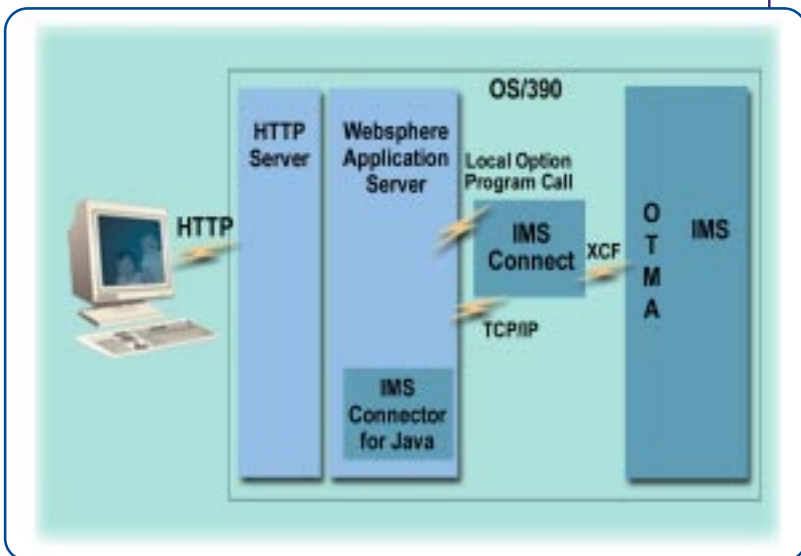


Figure 1

Local Option was added at the request of customers who were seeking to avoid using TCP/IP between WebSphere® and IMS Connect. In IT environments that require all TCP/IP communications to pass through a firewall, customers can eliminate an unnecessary pass through the firewall by not using TCP/IP for communications between WebSphere and IMS Connect. By eliminating this extra path length for each message, users can increase their system throughput.

Functional Overview

A simple approach was taken for implementing Local Option in order to make it as easy as possible to retrofit existing customer-written IMS Connector for Java applications. Any newly written or existing IMS Connector for Java application can be adapted for use with Local Option by simply changing the host name parameter that the application uses.

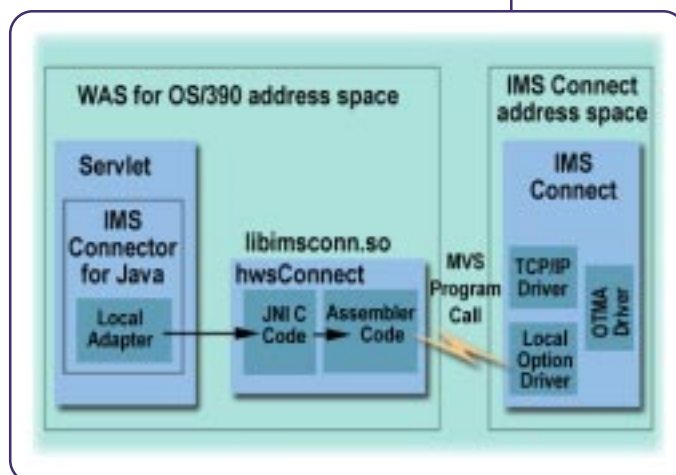


Figure 2

Setup

The first task in the setup of Local Option involves ensuring that the proper levels of IMS Connect and IMS Connector for Java are installed and configured correctly.

The minimum software requirements for using Local Option are:

- IMS Version 7
- IMS Connect Version 1.1 with APAR PQ45057 (Local Option)
- OS/390 Version 2, Release 6 or higher including WebSphere and WebSphere APAR PQ25544 (for connection pooling)
- VisualAge for Java Enterprise Edition for OS/390 Version 3.5.3 with IMS Connector for Java 3.5.3.1 update from the VisualAge for Java Developers Domain (VADD)
- IBM's JDK for OS/390 Version 1.2.2

IBM strongly encourages you to ensure that all of this software is at the current service level.

Setting up IMS Connect

The setup of IMS Connect for Local Option consists of four steps:

1. Apply Local Option enabling APAR PQ45057 to IMS Connect Version 1.1.
2. Add a "LOCAL" port to the TCP/IP statement in the IMS Connect configuration member. Add "LOCAL" as one of the "port numbers" that is specified in the PORT parameter.
3. Ensure that IMS Connect is set to "NOSWAP" in the MVS PPT. This is a new IMS Connect requirement, specifically for Local Option.
4. Add "HWS.ims_connect_name" as the SAF facility class name.

After setup has been completed successfully, start IMS Connect in the normal manner. See the IMS Connect Guide and Reference and the documentation for APAR PQ45057 for more information on setting up and running Local Option in IMS Connect.

Setting up IMS Connector for Java

If you already have your IMS Connector for Java servlets or applications up and running in an OS/390 environment using TCP/IP connections, setting up Local Option should be easy. You only need to install the libimsconn.so (the Local Option shared library) that comes with the IMS Connector for Java 3.5.3.1 update from the VisualAge for Java Developers Domain. If you plan to run servlets in WebSphere using Local Option, you might need to set libimsconn.so to be program controlled.

For more information on setting up and running IMS Connector for Java servlets and applications for a Local Option environment, see the appropriate IMS Connector sections in

the VisualAge for Java Online Help. You can find the most up-to-date information for IMS Connector for Java on the IMS Connector for Java Web site. Start at www.ibm.com/ims and follow the link in the Products pulldown list to Connector for Java.

Hints and Tips

This section contains some suggestions that you might find useful when setting up IMS Connect and IMS Connector for Java to use Local Option.

IMS Connect

Assuming that you are already running IMS Connect with TCP/IP connections, setting up IMS Connect for Local Option should be very simple and straightforward. After installing the Local Option APAR (PQ45057) and any applicable service, add a LOCAL port to the TCP/IP statement in the IMS Connect configuration member (for example, PORTID=(9999,LOCAL)). If you are setting up IMS Connect for the first time, add a local port as described above to your IMS Connect configuration member.

IMS Connector for Java

- Ensure that you have the correct permissions set on the libimsconn.so library.
- Set libimsconn.so to be program controlled. Use the correct transfer type (binary or ASCII) when transferring files from the workstation to OS/390. Ensure that WebSphere Application Server is at the latest service level.
- In specifying the host name for a Local Option connection, be aware that LOCALHOST is case insensitive, but the `ims_connect_name` following the colon is case sensitive.

It should be noted that, in some WebSphere deployment situations, you need to transfer ASCII files using BINARY mode, and in other cases, you must transfer ASCII files in TEXT mode. The mode that you use is dependent on the type of servlet being deployed. See the OS/390 operating system information on the IMS Connector for Java Web site and the WebSphere Application Server documentation for additional information.

Latest Developments

As of the writing of this article, VisualAge for Java 4.0 is expected to ship in mid-July, 2001. IMS Connector for Java 4.0 is a maintenance rollup. The IMS Connector for Java 3.5.3.1 update from the VisualAge for Java Developers Domain (VADD) has been merged into the base code.

Kevin Flanigan
IMS Developer



IBM WebSphere Studio Asset Analyzer

Recently, IBM announced a new product named IBM WebSphere Studio Asset Analyzer for z/OS (WSAA). It became generally available on June 1, 2001. WSAA helps application programmers organize, understand, and maintain existing z/OS applications.

This article briefly describes the components of WSAA and how it can assist you with changing IMS applications and providing Web connectivity to IMS applications.

Overview of components

The product consists of six components:

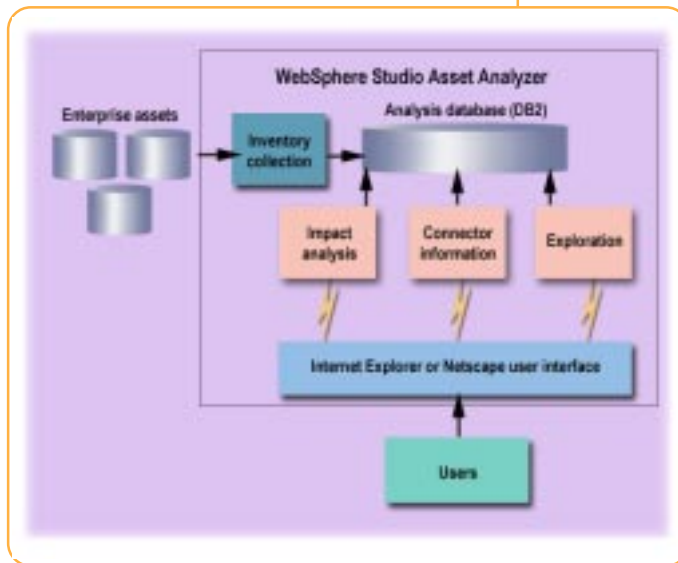
- **Inventory collection:** This component inspects various z/OS application artifacts to determine basic information about each, such as the programming language. This component then performs a more in-depth analysis to determine the relationships between application artifacts.
- **Inventory and analysis database:** WSAA uses a DB2 database as the repository for meta-information about the application artifacts that are recorded in the inventory collection component.
- **Exploration:** After completing or partially completing an inventory, you can view it by using this component. The inventory consists of a number of different entities, which are described in the "Inventory Collection" section later in this article.
- **Impact analysis:** With the inventory complete (or as complete as possible), you can get answers to your impact analysis questions. What parts within an application and outside an application need to be considered when a data element is modified? What happens when a CALL signature is modified? What is affected when a specified block of code is changed? What PSBs might be affected? This component helps you find answers to these important questions.
- **Build connectors:** Typically, n-tier applications, in which one tier exists on the z/OS platform, need a bridge, or connector, between tiers. Discovering the information set

necessary for other tools, such as the Enterprise Access Builder (EAB) of VisualAge for Java, to build these connectors can be very difficult and time consuming. The Connector Builder Assistant (CBA) component of WSAA helps you find and assemble the information that is required to build connectors into IMS transactions.

- **Web browser interface:** Almost all of the capabilities of WebSphere Studio Asset Analyzer are available through a Web-browser interface. Using the IBM HTTP Server on z/OS with Net.Data® for DB2, this interface provides the window into WebSphere Studio Asset Analyzer's capabilities.

Inventory Collection

WSAA collects information about a specific set of z/OS application artifacts. By understanding the types of artifacts in the inventory, you can better understand the product's impact analysis capabilities.



During inventory collection, various libraries of source code and other application-related information are identified to WSAA. Specifically, the information is collected from the following z/OS artifacts:

- COBOL source code
- High-Level Assembler source code
- PL/I source code
- JCL and Proc source code
- IMS artifacts, such as the IMS dynamic allocation data set, the IMS Recon data sets, IMS transactions, and IMS control blocks that are held in DBDLIB, PSBLIB, and ACBLIB
- CICS CSD, which defines the CICS transactions
- CICS startup JCL

The metadata that describes these application artifacts is placed in a DB2 database. WSAA performs periodic consistency and completeness checks and informs the user about any anomalies that are detected.

To collect information about the IMS control blocks, WSAA uses IMS Library Management Utilities V1 (5655-E04), or later. Specifically, WSAA uses the program FABNRVRS from LMU to reverse-engineer the binary control blocks; therefore you must have this product installed in order to scan the control blocks.

One distinguishing feature of WSAA is that it aggregates source code rather than taking apart load modules to relate source program artifacts. The product looks for source files that are related to one another through control flow (for example, CALL and RETURN) statements. WSAA begins

this aggregation by using, as starting points, the names in an application that are defined by the PGM= statement in JCL or the executable resource in an IMS transaction or CICS transaction.

Some of the user components that WSAA recognizes are listed below. A complete component list, with detailed descriptions, is in the product's online documentation.

- **Analysis concatenation set:** An ordered list of libraries to be searched to resolve references to included source (for example, JCL PROCs, assembler macros, PL/I macros, or COBOL copybooks). When WSAA scans source code and encounters a COPY statement that embeds additional source statements, it uses this component's information to find the additional source code. This component performs the same process that the compilers use to resolve COPY statements.
- **Application:** A logical grouping of components that are identified by the users of the product.
- **Data set:** The cataloged name that is associated with a DD statement that is found in JCL.
- **Data store:** When related to a source program, the symbolic name that refers to a file, like a FILE declaration within PL/I. When related to IMS, the term data store refers to a segment name.
- **DD name:** A reference to the DD statements that are found in JCL.
- **I/O record:** The set of data declarations that are used within an input or output statement.
- **Program:** A source member that can be compiled.
- **Run unit:** The starting point for source aggregation. A run unit represents a component that is executable, such as an IMS transaction.
- **Project:** A user-defined, logical grouping of components that is created when an impact analysis or connector builder assistant activity is performed within the product.

Impact Analysis

Impact analysis is the automated identification of application components that may require modification given a proposed change to the code. Within the product, three starting points for impact analysis are provided:

- The declaration of a data element that will be changed
- The signature of an entry point that will be changed
- A change within a range of source statements

These starting points are the "seeds" for impact analysis. After a seed has been identified, the impact analysis algorithms execute starting from the seed component. The relationships from the seed component to other components logically expand outwards toward the boundaries of a program. After all intra-program relationships have been identified, the algorithms trace relationships between programs through control transfers and file operations. This

inter-program tracing leads to more components that are of interest. The intra-program and inter-program tracing continues until all impacted components have been identified.

Analyzing the relationships between the seed components and the other components of interest results in a collection of impacted components. The information about these impacted components is stored in a collection, within the database, known as a project.

To complete the list of impacts, the product includes all PDS members that contain an impacted component, the IMS segments that contain an impacted data element, and the impacted regions. The impact analysis engine can cross a logical application boundary and find impacts that are outside the specific application that you are working on. The preceding example is contrived and trivial, but the discovery of impacts that may not be obvious offers significant value to the users of this product. Impact analysis provides a bill-of-materials list of application artifacts that require investigation for a proposed change.

Connector Builder Assistant

Connectors provide the conduits through which data moves between a Web interface and business logic within an IMS transaction. To build connectors, a few pieces of information about the data is needed: where the data is in the application, and how that data is used (as input, output, or both). One of the difficult tasks in the creation of a connector is discovering this information for a transaction from the large number of source files and copy files that are held in the enterprise. WSAA assists in gathering the information and places it into a PDS member that can subsequently be used by connector-building tools, such as VisualAge for Java Enterprise Access Builder.

Summary

WSAA's impact analysis capabilities are directly related to the information in the inventory and analysis database. Taking a complete inventory of your application assets is key to the success of impact analysis. After taking the complete inventory, you can navigate through the application assets and browse source files from the Web-browser interface. You not only get an overview of your application assets, but you can also drill down to lower and lower levels of detail as needed to evaluate or implement a proposed change. WSAA can help you build connectors into IMS transactions through the discovery process of searching through application source code.

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*Laurence England
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IMS Services From IGS Integrated Technology Services

The IMS National Practice team within IGS Integrated Technology Services (ITS) continues to offer you billable services from IMS specialists, each of whom brings over 21 years of hands-on experience as customers and IBM employees to assist you with your IMS support. Our skills include IMS and IMS-related product planning, installation, implementation, enablement of new features and functions, and performance and tuning. In addition, you can arrange for these specialists to fill temporary openings on your IMS staff. Services are customized to meet your needs and can be general in nature or tailored to a specific project or set of activities.

Installation, Migration, and Maintenance Services

Our version-to-version migration services continue to be in demand as the September 30, 2001 end-of-service date for IMS V5 draws closer. These services include installation of either IMS V6 or IMS V7, optionally combined with installation or upgrade of your IMS Tools, and migration into your specified IMS systems. We also offer maintenance upgrade services to bring an existing IMS system up to a current service level or to bring multiple IMS systems with dissimilar service levels all to the same service level. Both maintenance and version-to-version services can be tailored to provide you with the exact combination of planning, installation, migration, and hands-on training of your staff that you need to meet your business requirements. Flexible scheduling can provide one contiguous project or multiple project phases to allow for staged migration into several IMS environments.

New Feature and Function Services

Services to assess, plan, and enable IMS features or functions that are new to your environment are also available. Recent services that we have provided include assisting with a Parallel Sysplex® data sharing assessment and planning project for a large customer to analyze the existing IMS systems and provide recommendations to position for IMS data sharing. Services to assist in planning for IMS High Availability Large Databases (HALDBs) are also in progress. New feature and function services are customized to your IMS environment and can be provided for a wide variety of capabilities.

Performance and Tuning Services

Performance and tuning services can be contracted to address a performance problem, or to simply review your IMS systems with an eye towards overall performance improvements. In either case, we will analyze your IMS system and make recommendations to resolve your problem, improve the overall performance of your IMS environment, or both. Performance and tuning services can be customized to include whatever combination of IMS online (IMS DB/DC and DBCTL systems), BMP, and batch jobs (including IMS Tools) that you choose to address.

More Services

Disaster Recovery Services - These services offer a flexible combination of assistance in developing a comprehensive IMS disaster recovery strategy, reviewing existing plans, providing recommendations for enhancements, and assisting with a disaster recovery test.

Extended Availability Services - Reviews and recommends performance and procedural enhancements to increase your hours of continuous availability.

IMS Tools Assessment & Conversion Services - These services assist in evaluating IMS Tool products; optionally includes conversion and migration to new products.



IMS Staff Coverage Services - These services provide experienced IMS personnel to help accomplish special projects, provide day-to-day coverage, or perhaps catch up on a backlog of varied tasks.

For information on these or other IMS National Practice services, contact Winston Tobias at (216) 664-7271 or e-mail an information request to wtobias@us.ibm.com

*Barbara Frost
IMS and IMS Tools Specialist, IBM Global Services*

What's New in IMS Tools?

In March, 2001, IBM rolled out more news on IMS Tools: updates and enhancements to the IMS Database Control Suite, IMS Image Copy Extensions, IMS Online Recovery Service, and IMS High Performance Pointer Checker.

IBM IMS Database Control Suite for z/OS

IMS Database Control Suite, Version 2.1 (program number 5655-F76) is a day-to-day IMS database environment management tool for Database Administrators, System Programmers, and Application Support Specialists. This tool enables these users to collect and build the data that is required to generate JCL for managing database backups, recoveries, and reorganizations by using standard IMS utilities and IBM High Performance IMS tools products.

IMS Database Control Suite, Version 2.1 has simplified the user interface by reducing and consolidating the number of data sets, ISPF panels, and process steps. The product has support for the IMS Base Utilities and IBM High Performance Tools. IMS Database Control Suite supports database backup, recovery, reorganization, and monitoring for IMS Full Function (including indexes), IMS Fast Path, and IMS Version 7 High Availability Database (HALDB) databases.

IMS Database Control Suite, Version 2.1 has consolidated the product data sets to improve the installation, storage utilization, and management of resources. The consolidated product panels and additional automatic accumulation of data to improve and simplify operations. This will also accommodate site-specific JCL standards and naming conventions.

IBM IMS Image Copy Extensions for OS/390

IMS Image Copy Extensions (program number 5655-E10) obtains an image copy of the database and recovers a database data set. The tool also includes a space-saving compression feature. New enhancements include a dynamic allocation capability and a complete, one-step database HASH-Check function.

IBM IMS Online Recovery Service for z/OS

In a single pass of input data, IMS Online Recovery Service for z/OS (program number 5655-E50) manages the accumulation and merging of recovery-related database data for the recovery of one or more IMS Full-Function databases or IMS Fast Path areas. Data sets are processed in parallel, while multiple database data sets are updated simultaneously. A timestamp recovery function provides recovery to any prior point in time.

IBM IMS High Performance Pointer Checker for OS/390

Used regularly, the IMS High-Performance Pointer Checker for OS/390 (program number 5655-E09) helps ensure that your database pointers are error-free and alerts you when a database reorganization is needed. This tool also assists in the analysis of a corrupted database, reducing diagnostic and repair time.

As we have said in the past, watch this space for several new tools that are to be announced soon. Full information will be available at the IMS Technical Conference in October, 2001, in Miami, Florida. Stop by and visit with us in the IBM Expo.

Elmer Rohde
IMS Tools Marketing Consultant



The IMS Web Site: Redesigned for You

You're in for some pleasant surprises when you visit the redesigned IMS Web site: www.ibm.com/ims

Featured Customer

One surprise is that you and your company can be highlighted as the Featured Customer at the Web site, if your company wants to publish its IMS success story. Currently, the featured customer is Svenska Handelsbanken. The featured story is "Handelsbanken Uses WAP with IMS for Internet Banking." And the featured author is Sten Rohlin, IMS System Programmer, Handelsbanken.

From the Featured Customer icon, one more click takes you to the IMS success stories of many more companies, worldwide:

- Bekins
- Cedborsa SpA (SIA)
- Generali
- Merita Bank
- PMU
- SIS West / Swest
- The Sanlam Group
- Victoria Insurance

If your company wants to report its IMS success story, contact imsmt@us.ibm.com

ShopIBM for IMS Version 7

Another surprise is the ease with which you can now shop IBM for IMS Version 7. From ShopIBM, in four clicks, you can:

1. add IMS Version 7 to your shopping cart,
2. check out,
3. provide shipping information, and
4. complete your shopping by conferring with an IBM representative about the price and the options for payment and shipping.

While you shop for IMS Version 7, assistance is only one click away. You can ask an IBM representative to call you. You can chat online with an IBM representative.

Information about IMS Version 7

Not as surprising is the wealth of information about IMS Version 7 that is available to you at the redesigned Web site.



At the top of the IMS home page are IMS highlights, the qualities that you associate with IMS:

- Excellent performance
- Lower computing cost
- System management
- Continuous availability

You can click these qualities for information.

From the Products drop-down list on the home page, you can select Version 7 for information about the current version of IMS. Then, from the IMS Version 7 page, you can select from the Information drop-down list more information about Version 7, including a fact sheet, the *Release Planning Guide*, and numerous presentations on subjects such as IMS Version 7 enhancements and IMS Version 7 migration tips. And from the same IMS Version 7 page, you can select from the Products/Tools drop-down list information about IMS-related products, including IBM IMS Connect and IBM IMS Online Recovery Service.

At the home page, you can select even more information from the Info & Services drop-down list. Included here online are the ever-popular IMS-related Redbooks™, including recent titles such as IMS Version 7 Release Guide and IMS Version 7 and Java Application Programming.

Recent News

Recent News at the home page currently provides you with the news that the refreshed IMS Version 7 library is available online and that the IMS Technical Conference is scheduled for Miami Beach in October. To receive news about IMS, you can request that it be sent to your e-mail address. Contact the IMS webmaster, tommyp@us.ibm.com



Support for IMS—and Your Work

And are you surprised to learn that support for IMS is available through the Web site? From the IMS home page, you can click Support to find answers to frequently asked questions (FAQs) about IMS and hints and tips (HATs) for using IMS. Currently, almost 100 FAQs and more than 1000 HATs, all searchable, are available to you to answer your questions and support your work with IMS.

Future Plans for the IMS Web Site

Don't be surprised in the near future when you are able to enter your IBM customer account number at the Web site and then view online and print the two licensed books in the IMS library: *Diagnosis Guide and Reference* and *Failure Analysis Structure Tables (FAST) for Dump Analysis*.

We hope that you are as pleased about our redesigned Web site as we are here in IMS! We want to hear what you think about the new enhancements. You can contact us at imspubs@us.ibm.com.

Stacy Newman
 IBM Visual Designer
 Creative Director, IMS Newsletter

IMS Technical Conference

**Fontainebleau Hilton Resort
Miami Beach, Florida
October 22 - 25, 2001**

The 2001 IMS Technical Conference arrives with perfect timing! As the economy shifts and resettles, what a perfect opportunity to move forward and learn the skills that will help you prevail in the new millennium. If you are planning to integrate existing applications into your e-business environment or use the latest IMS Web enabling technology for application development, then the IMS Technical Conference is the place for you.

New this year is an IMS Connectivity Workshop. Join our IBM experts for a high-octane 2½- hour session that provides you with hands-on experience and a chance to get a real feel for IMS Connect and VisualAge for Java. Get the inside track on performance and capabilities by creating a Java program on a Windows NT® workstation, using the IMS Connector for Java and then testing the connectivity through IMS Connect.

At this year's conference, you can count on more technical details with many new sessions on key IMS topics. Select from over 85 elective sessions that cover basic to advanced topics, and get the information on your most pressing IMS concerns and issues. Get the scoop on how to keep your database environment operating at peak performance, improve systems availability and network connections, and improve systems management in diagnostics and error handling. If you are an application programmer, learn how you can rapidly develop Java applications that run your transactions and how IMS simplifies access to new and existing applications and data.

Hear from IBM executives, Tom Rosamilia (Vice President, World Wide Data Management Development) and Bob Gilliam (IMS Product Family Manager), at the keynote opening session. Together, these two presenters will tackle the riveting topic of the technical advancements and solutions that IMS provides for Information Integration with new technologies.



Do more than explore at the Product EXPO! See demonstrations of the latest IMS technologies and solutions. Use this opportunity to talk with key exhibitors about offerings that add value to and complement your current IMS environments. Speak directly to individual exhibitors to address your specific issues, challenges, and concerns.

Sure, there's work to do at the conference, but Miami Beach is second to none for sun, fun, shopping, food, and spectacular entertainment. First, there's the famous Fontainebleau Hotel, a world in itself. There's Fort Lauderdale, palm trees, beautiful seas, art deco neighborhoods, the Miami Metro Zoo, shopping galore, and, you can take a whirlwind trip through the Everglades. If you can swing it, bring the entire family. Florida is unforgettable!

Your registration fee of \$1,695 is already paid if you have an US IBM Education Card.

For more details and to enroll, visit the conference Web site at: ibm.com/training/conf/us/ims

*Amiet Goldman
Senior Direct Marketing Strategist*

The Latest IMS Redbooks

The two most recent IMS Redbooks detail some of the new features available in IMS Version 7.

IMS Version 7 and Java Application Programming (SG24-6123) provides details and examples of using the Java programming interface to increase programmer productivity. It allows a company to exploit its Java programming expertise to enhance its more traditional IMS applications. This allows the business logic being developed in Web-based solutions to be reused in the IMS transaction environment thus reducing redundancy and maintenance, while providing greater business exploitation of the IMS data.

Cross-Platform DB2 Stored Procedures: Building and Debugging (SG24-5485) documents the use of DB2 stored procedures to update IMS data from DB2 or Web based applications. This book is obviously written for the DB2 audience but it contains an excellent chapter on creating applications to use the IMS ODBA interface in a DB2 stored procedure.

The most recent Redbooks include the following titles:

Title	Order Number	Publication Date
IMS Version 7 Release Guide	SG24-5753	September 2000
IMS Version 7 High Availability Large Database Guide	SG24-5751	September 2000
IMS Version 7 and Java Application Programming	SG24-6123	February 2001
A DBA's View of IMS Online Recovery Service	SG24-6112	March 2001
IMS Primer	SG24-5352	January 2000
IMS V6 Security Guide	SG24-5363	July 1999
e-Business Enablement Cookbook for OS/390 Volume II: Infrastructure for Java- based Solutions	SG24-5981	December 2000
Cross-Platform DB2 Stored Procedures: Building and Debugging	SG24-5485-01	May 2001
Using VTAM® Generic Resources with IMS	SG24-5487	November 1999

For more information on IBM Redbooks, joining a Redbook residency project, or to download any Redbook, visit the IBM Redbooks Web site at: www.redbooks.ibm.com

Rick Long
IMS Development



The Latest in IMS Education

Are you responsible for IMS connectivity solutions?

Then consider enrolling in the IMS Connectivity and Web Enablement Workshop (CM651). In this three-day offering, you'll learn how to install and implement IMS communications in a variety of environments. This workshop focuses on the various TCP/IP techniques that you can use to access the IMS system. You will explore the details of the IMS Connect architecture, including configuration, security, usability, and application design. The class will include hands-on workshops for IMS Connect, VisualAge for Java, WebSphere Application Server, and IMS Connector for Java. If you are involved in enabling an IMS transaction for the Web, find out what your best options are for your specific environment by participating in the course activities. The course also addresses the Parallel Sysplex environment and the issue of securing transactions on the Web. IMS system programming personnel who are responsible for designing and implementing IMS communications will find this workshop to be extremely valuable.



Are you interested in using Stored Procedures with IMS?

You can access IMS through a stored procedure in an e-business environment. Find out how through the two-day course, DB2 Stored Procedures Programming Workshop (CF710). Learn how to recognize when an IBM DB2 stored procedure is the correct solution for an application, how to use the Stored Procedure Builder, how to call a stored procedure, how to create a stored procedure by using Structured Query Language (SQL) statements, and how to troubleshoot a stored procedure. This course is also available as a six-hour e-learning offering, DB2 Stored Procedures Programming (CD-ROM) (CT71C.)

For the most up-to-date information and additional details, check our IMS curriculum spotlight in the US at <http://www.ibm.com/services/learning/spotlight/ims>

Amiet Goldman
Senior Direct Marketing Strategist

Are you moving to IMS Version 7?

Then you won't want to miss the three-day offering, IMS V7 Product Enhancements (CM701). Learn the new facilities and functions that are delivered in IMS Version 7. Lectures cover the significant enhancements and their value to IMS installations. Instructors will explain considerations for installing IMS Version 7 and migrating to it from previous releases. Experienced IMS system programmers, IMS DB and TM systems administrators, IMS application designers, and IMS operations people who are responsible for planning, installing, or implementing IMS Version 7 will find this offering to be invaluable.



HOT Web Sites

IMS

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

IBM Database Tools for OS/390 and z/OS

<http://www.ibm.com/software/data/db2imstools>

S/390 Application Development Solution (ADS)

<http://www.s390.ibm.com/ads>

IBM Enterprise Storage Server™ (Shark ESS)

<http://www.storage.ibm.com/hardsoft/products/ess/ess.htm>

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

<http://www.ibm.com/support/techdocs>

Enterprise Connection Teleconference Series

<http://www.s390.ibm.com/events>

Customer Success Stories

<http://www.s390.ibm.com/customer/>

SHARE Proceedings

<http://www.share.org>

VisualAge for Java

<http://www.ibm.com/software/ad/vajava/>

WebSphere Application Server

<http://www.ibm.com/software/webservers/appserv/>

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<http://www.ibm.com/services/learning/spotlight/mqseries/dl.html>

IBM Redbooks

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

IBM Technical Conferences

<http://www.ibm.com/training/conf>

<http://www.ibm.com/training/conf/us>

<http://www.ibm.com/training/conf/us/ims>

Real Ware Awards

<http://www.realwareawards.com/2001/01/winrelfinal.pdf>

Adobe® (Acrobat Reader)

<http://www.adobe.com>

Special Note:

The IMS newsletter staff would like to wish our Executive Editor, Sherry Gordon, success in her new position in IBM.

We thank her for her dedication and hard work on the IMS newsletter since January 2000.

We would like to extend a warm welcome to our new Managing Editor, Eric Radzinski.

I Know She and He are in Here Somewhere

In the Spring 2001 issue, we asked you to find the picture of my daughter, and we rewarded you with an IBM IMS Pin for your collar. We received an overwhelming number of correct entries. Now you have the opportunity to put an IBM IMS Pin on your other collar if you can find both my daughter and my new baby son.

We want to hear from you.

We will send an IBM IMS pin to every person who can find both children correctly in this issue.

You can download a copy of the IMS newsletter in PDF format, or you can view the IMS newsletter on the IMS Web page at: www.ibm.com/software/data/ims/

If you would like to receive an IBM IMS pin, please e-mail your external postal address and picture locations within this issue of the IMS newsletter to: imsmtk@us.ibm.com

Or write to:
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While you're at it, tell us what you think of the IMS Newsletter!

Glenn N. Galler
Editor-in-Chief



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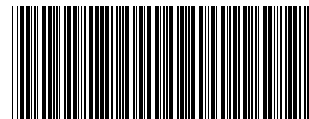
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