IBM VisualAge for Java for OS/2 and for Windows, Version 1.0

Overview

VisualAge® for Java™ for OS/2® and for Windows®, Version 1 is a powerful rapid application development tool for building Java-compatible applications, applets, and JavaBean components using IBM’s award-winning VisualAge Construction from Parts.

With the VisualAge for Java programming environment, you can build 100% Pure Java applications, applets, and JavaBean components that run on any Java-compatible Virtual Machine Java Development Kit (JDK 1.1) or inside any JDK 1.1-enabled browser. This is true rapid application development. With VisualAge for Java you can add a class, add or change a method, and then incrementally compile without the need to exit the testing phase of development.

VisualAge for Java comes in two packages: the Professional product, which includes VisualAge’s Visual Composition Editor and single-user version control, and the Enterprise product, which adds the productive Enterprise Access Builders for building JDBC interfaces to enterprise data managed by database servers such as IBM’s DB2®, for building CICS® Java ECI interfaces to enterprise transactions managed by the CICS Transaction Server for OS/390®, or for building RMI or C++ interfaces that connect to C++ and Java applications running on a server — an ideal solution for enterprises to extend their reach out to the Web, or conversely for enterprising small businesses to connect to a customer, supplier, or business partner. Also planned for the Enterprise product is a fully integrated, repository-based team environment that allows management of the development process on Java projects with complete source and version control. This will be shipped automatically to all registered customers later this year when it becomes available.

Both products include code for developing on OS/2, Windows 95, or Windows NT™.

Intended Customers

Application development programmers who want to extend existing applications out to the Internet or intranet using 100% Pure Java applications, applets, and JavaBeans, or conversely, who want to develop new applications that connect to the enterprise.

Key Prerequisites

Each VisualAge for Java product comes with two CD-ROMs — one for OS/2 Warp Version 4 and one for the Windows 95 or Windows NT Version 4.0 environments. Code developed using any of these environments can be deployed across any Java 1.1-enabled platform.

Planned Availability Dates

July 25, 1997
• VisualAge for Java Professional for OS/2 and for Windows, Version 1.0

August 8, 1997
• VisualAge for Java Enterprise for OS/2 and for Windows, Version 1.0

At a Glance

The VisualAge family now includes VisualAge for Java to extend cross-platform, object-oriented application development to the Java language for extending current information technology assets to the Web. Key features are:

• Powerful, robust visual programming
• Superior client connectivity to enterprise data, transaction, and C++ and Java servers
• Scalable Web applications
• Incremental rapid Java application development
• Project-based team environment (future refresh)
• Support for JDK 1.1 and JavaBeans
• SmartGuide productivity aids
• Advanced local debug
• Ability to explore and analyze code quickly within the development environment
• Creates 100% Pure Java applications, applets, and JavaBeans

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Description

IBM’s VisualAge for Java Professional and Enterprise products assist programmers with:

An Advanced Integrated Development Environment

Rather than coding an application’s user interface, programmers can use the Visual Composition Editor to assemble Java applets, Java applications, and JavaBeans from preselected parts. They can drag Java Abstract Windowing Toolkit (AWT), JavaBeans, or any other JavaBeans that they have added to the palette and visually drop them on to the canvas to generate user interface Java code. VisualAge for Java supports the JavaBean component model, allowing existing Java applets, applications, and JavaBeans to be imported and provides a fast and easy way of exploiting the increasing number of components that are available from third-party vendors. For example, using the VisualAge for Java Enterprise product, you can import the Java class libraries provided by the IBM Connectors for MQSeries™ Client for Java or Java client support for IMS™ Connectors and use them with new client applications.

VisualAge for Java supports the development of 100% Pure Java applets, applications, or JavaBeans, which can be deployed to any JDK 1.1-enabled platform. For example, a Java applet can be deployed to the OS/390 or OS/400® platform using the JDK 1.1 implementation for that platform. Because Java is CORBA Version 2.0-compliant, a Java object can also be invoked by an application running under the Component Broker Series management and use the services of the Component Broker Series.

Next, during the debug or test phase of developing a program, programmers often want to add a class or method or change a method. VisualAge for Java allows you to modify your code while debugging. The modified code is then compiled and inserted into the program without the need to exit the debugger and perform a complete compile. This incremental application development environment allows you to focus on the program logic without waiting for a compile, making the VisualAge for Java development environment task-oriented, not tool-centric.

Collection Library

Included with the product is the Generic Collection Library for Java (JGL) from ObjectSpace. JGL contains 11 optimized data structures including sequential containers, sets, maps, and queues, and has been designed with the JDK in mind. JGL maps extend java.util.Dictionary and JGL methods follow the JDK conventions, JGL contains over 70 reusable algorithms such as sorting, union, and intersection.

Source and Version Control

VisualAge for Java features a repository-based development environment with source and version control that allows you to keep track of all source code changes made over time. The VisualAge for Java source code repository is automatically updated each time a change is made to the source code. A history of all changes made to the Java application or applet are kept within the repository, enabling you to back out any or all source code changes.

The VisualAge for Java Enterprise product includes the following additional features:

Connecting the Enterprise to the Web

The Enterprise Access Builders within the VisualAge for Java Enterprise product generate components that establish fast connections between the Java client and CICS Transaction Servers for OS/390, application servers, and data servers. Using the Visual Composition Editor, the programmer connects the user interface parts, the business logic parts, and the middleware components generated by the Enterprise Access Builders or they can exploit the increasing number of JavaBean components becoming available from third-party vendors.

Because a “thin” Java client does not contain the software that enables it to communicate with server data, transactions, or applications, all communications and support code must be downloaded from the server when the client program is invoked. So, to ease the tasks associated with developing these client programs, VisualAge for Java generates Enterprise Access JavaBean components that easily extend the reach of existing server applications using the following connectivity options:

- Java applications via Remote Method Invocation (RMI)
- C++ applications via Native Method Call (J2C++ & RMI)
- Relational database server applications via the Java Database Connectivity API (JDBC)
- COBOL CICS/ESA® transactions via the Java External Call Interface API (JECl)

Once generated, these Enterprise Access JavaBeans can be connected in the Visual Composition Editor with user interface parts and business logic parts to generate the code that is used at run time. The code is downloaded to the Web client using the Java features and functions of that client.

Consider the following two examples.

Example 1: Using the Enterprise Access Builder for CICS to build a JECI JavaBean to connect to a CICS Transaction Server for OS/390

1. Download the COBOL application source file containing the COBOL structure definition of the CICS communications area to a directory on the machine running VisualAge for Java.
2. Start the Enterprise Access Builder for CICS SmartGuide from the integrated development environment.
3. Complete the fields by entering the location of the previously downloaded COBOL source file along with the COBOL structure name for the CICS Transaction Server for OS/390 communications area and the identifier for the program that will be invoked.
4. The newly generated JavaBeans are immediately available for use in the Visual Composition Editor.

Example 2: Using the Enterprise Access Builder for Data to build a JDBC JavaBean

1. Start the Enterprise Access Builder for Data from the integrated development environment.
2. Complete the fields in the SmartGuide by selecting the data source and table/column properties that a Java interface requires.
3. Visually modify any of the column properties or attributes.
4. Generate the data access JavaBeans.
5. The newly generated data access JavaBeans are immediately available for use inside or outside of the Visual Composition Editor.

Thus, you can extend existing business applications running on Windows 95, Windows NT, OS/2, AIX®, OS/400, and OS/390 to the Web rather than rewriting an application from scratch.

**Building Scalable Java Applications**

VisualAge for Java Enterprise enables enterprises to build more scalable client/server applications in Java. The components generated by the Enterprise Access Builders allow servers to connect to a “thin” Java client using faster middleware than the current HTTP solutions on the market. The programmer selects the middleware that runs between the client and the server, and VisualAge for Java generates the code. This enables data and transaction flow rates that cannot be matched by CGI scripts and single HTTP servers.

**Managing Team-based Java Projects**

VisualAge for Java Enterprise supports the ENVY team environment with the refresh that will be sent automatically to all registered customers later this year. The benefits of this environment are twofold: first, it allows developers to work on a project at any one given time while reducing the number of source code collisions that arise when two developers are working on the same source code. Second, it allows you to rebuild to any current or previous level of code, which assists in the maintenance of applications, especially when custom application work has been performed to meet customer requirements. As Java development projects grow, VisualAge for Java Enterprise assists in project management by keeping both the client and the server portions synchronized.

**Java Run Times**

The JDKs delivered on each of the following IBM platforms include the standard components of the Sun JDK to allow applets and applications to run on that platform.

**Java for OS/390**

Java for OS/390 will be available October 1997. Between now and December 1997, IBM will make class library support available that will allow OS/390 applications to access relational data, invoke IMS and CICS transactions, and access record-oriented data via the transaction subsystems. In addition, support will be included for the invocation of the premier messaging system, MQSeries.

Java for OS/390 is currently in Beta test at the JDK 1.0.2 level. Additional information about the test, including how to become a participant, can be found at URL:


The level of JDK will change to JDK 1.1 this summer. Participants in the current test will automatically have access to the new level.

**Java for AS/400®**

Java for AS/400 will be available in the future. A Technology Preview of Java for AS/400 is available today. This preview is a port of Sun’s JDK 1.0.2. The JDK 1.0.2 runs on top of OS/400 and is not integrated into the operating system. The native Java for AS/400 will be integrated into OS/400 in the future at the JDK 1.1 level.

In the fourth quarter 1997, a Beta program will be announced for the native Java for AS/400 product. We will also make an AS/400 toolbox available at this time and it will include class library support providing access to DB2 for OS/400.

Additional details will be announced in the future on Java for AS/400 on the AS/400 home page at URL:

http://www.as400.ibm.com/topthis/ot/home.htm

**Java for OS/2**

Java for OS/2, the first Java Virtual Machine to be included in an operating system, was first made available in OS/2 Warp Version 4 shipped in September 1996. JDK 1.0.2 for OS/2 was delivered in February 1997 and supports OS/2 Warp Version 3, OS/2 Warp Connect, OS/2 Warp Version 4, and OS/2 Warp Server, including the SMP feature. The most recent level of Java for OS/2 (JDK 1.1.1) is currently in Beta test and will be made generally available in the third quarter 1997.

**Java for AIX**

IBM’s AIX implementation for JDK 1.1.1 is updated on the AIX 4.2 Bonus Pack provided optionally with AIX 4.2 at no additional charge.

Java for AIX Version 1.0 supports the AIX Just In Time (JIT) compiler. Java for AIX Version 1.1.1 does not currently include the AIX Just In Time (JIT) compiler. IBM intends to provide an updated JIT in a future release of AIX.

**Year 2000**

This product is year 2000 ready. When used in accordance with its associated documentation, it is capable of correctly processing, providing, and receiving date data within and between the twentieth and twenty-first centuries, provided all other products (for example, software, hardware, and firmware) used with the product properly exchange date data with it.

**Statement of General Direction**

It is IBM’s intention to make this application development environment available on AIX and other non-IBM UNIX® platforms.

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