## Models

State-of-the-art Java Reliable, scalable Java environment for business-critical, server-based applications

## Features

- State-of-the-art Java programming language and execution environment for Himalaya servers
- Support for a broad range of development tools
- Replacement of CGI scripts for Web servers
- Compaq NonStop Himalaya range of servers
- Multiple execution options
- JavaSoft compliant
- New features
- Related products

## Introduction

**Java technology** from Sun Microsystems has become exceptionally popular in the computer industry. A simple, object-oriented programming language with syntax similar to C++, Java is robust and safe, while being relatively easy to use.
Java has achieved its popularity by helping to transform the Worldwide Web from a static collection of text and images into "active" content. Small Java programs called applets execute within a Web browser to allow the development of interactive and animated Web pages.

In the past, Java has been used primarily for Internet and intranet client-side applications. However, the language is now moving beyond the desktop, to deliver Java benefits to traditional server-based applications, such as online transaction processing (OLTP), business intelligence, messaging, and Web servers. The small server-based Java programs that extend server functionality, called servlets, are becoming increasingly valuable.

Compaq NonStop Server for Java software provides an enterprise-class software environment that allows you to run standard Java applications on Compaq NonStop Himalaya servers. Together with iTP Secure WebServer, Compaq NonStop Server for Java software takes full advantage of Java servlets to replace the execution of Common Gateway Interface (CGI) scripts in a scalable, reliable environment.

Compaq NonStop Server for Java software lets you develop applications with tools from a wide variety of platforms—including those from the commodity-priced, graphically-oriented Microsoft Windows NT Server environment. In addition, the Just-in-Time compiler is included with the software to enhance the overall performance of your server-side Java applications.

### State-of-the-art Java programming language and execution environment for Himalaya servers

Compaq NonStop Server for Java software enables you to use the state-of-the-art Java programming language and execution environment on the Compaq NonStop Himalaya range of servers. The Java computing client/server model and the computer industry's movement toward "thin" clients accessed by "fat" servers place a premium on servers that are reliable, scalable, and powerful. The Compaq NonStop Himalaya server strengths in expandability, resilience, and performance are ideal for capitalizing on this thin client/fat server model.
Today, numerous Java-based, server-side products are beginning to emerge. For example, the BEA WebLogic Java application server enables assembly, deployment and management of distributed Java applications. Marimba's Castanet is a Java application that provides a publish-subscribe system based on "push" technology, and the San Francisco shareable framework is an application framework from IBM that is written in the Java language. Compaq NonStop Server for Java software is designed to allow off-the-shelf server-side Java applications that conform to the 100% Pure Java specification to run on the Himalaya platform.
There are several reasons for the growing popularity of the Java language. The Java Language:

- Is a single language for clients and servers.
- Has the ability to upload code.
- Has outstanding portability.
- Has application partitioning.

### A single language for clients and servers

Software developers are recognizing the benefits of having a single programming language, development environment, and set of application program interfaces (APIs) across both client and server parts of the solution. Java achieves this objective.

### Ability to upload code

Java is designed to work in a networked, distributed object computing environment. Java servlets and applets can be sent across the network from a client to a server or from one server to another as needed for efficient execution. Because security can be a concern, the Java interpreter has built-in security mechanisms to ensure that Java code cannot be used to accidentally or intentionally damage other software on the network.

### Outstanding portability

Java is a platform-neutral language that is highly portable. To achieve this, the Java compiler generates bytecodes in a format, that is designed to run efficiently on multiple hardware and software platforms.

Java applications will run on any platform that has a Java Virtual Machine (JVM) implementation, so you can move your Java applications from one platform to another as required. This capability appeals especially to:

- Independent software vendors (ISVs) that want to offer their solutions on a variety of platforms.
- Large corporate customers that develop custom applications and deploy them on various hardware and operating system platforms.

### Application partitioning

Dynamic application partitioning makes it possible for you to respond to changes in the environment that have occurred since an application was developed, by moving the locations of distributed objects on the network. These environmental changes could include the following:

- The addition or removal of systems from the network
- Increases or decreases in the power, size, and capacity of the systems on the network
- Increases in network bandwidth

With Java, objects might migrate from client to server, then back to the client again, over an application's lifetime. Only a distributed object language such as Java provides this flexibility.

### Support for a broad range of development tools

Applications designed to run in the Compaq NonStop Server for Java environment can be built using many popular Java development tools. For example, you can take advantage of the wide selection of low-cost graphical tools available on Windows NT Server. Compaq NonStop Server for Java can be developed using JBuilder from Inprise (formerly Borland), Symantec's Visual Café, and many other Java software development tools.

Once you have created an application, the code can be transferred to a Himalaya server that is running Compaq NonStop Server for Java. The software also includes a leading compiler—Just-in-Time—to enhance the performance of your Java server-side applications.

### Replacement of CGI scripts for Web servers

Using Compaq NonStop Server for Java with iTP Secure WebServer software, you can improve the performance and reliability of your Web-based applications. The iTP Secure WebServer software has been optimized to deploy critical business applications such as cash management, bill payment, and stock exchange information in an Internet or corporate intranet environment. By creating Java servlets to execute under iTP Secure WebServer, you can significantly enhance the efficiency of your Web pages, while benefiting from the fundamental advantages of Java technology and the Himalaya platform.

### Compaq NonStop Himalaya range of servers

The Compaq NonStop Himalaya range of servers combines a unique parallel processing architecture with RISC technology to deliver outstanding price/performance and reliability in open computing environments.

The loosely coupled architecture of Compaq NonStop Himalaya servers consists of multiple processors, buses, and other components. This architecture prevents all single and most multiple hardware and software failures from disrupting an application or affecting data integrity. As a result, Compaq NonStop Himalaya servers provide an unmatched platform for critical business applications.

### Multiple execution options

There are numerous ways to use Compaq NonStop Server for Java software:

- Standalone solution: You can run the JVM as a single executable program that performs the standard functions of class loading, linking, verification, and execution of Java-based programs.
- Web-based applications: The software's ability to extend server-side Java applications into the Web environment is a significant benefit. Java servlets provide an effective alternative to C code and the Pathway CGI interface currently employed by iTP Secure WebServer users. The servlets are managed as Pathway CGI servers, inheriting the fault tolerance, scalability, and manageability of these servers.
- Invocation from native code: The Java Native Interface allows native Compaq NonStop Himalaya system software programs written in languages such as C or C++ to invoke Java methods.
- Remote Method Invocation (RMI): RMI enables programmers to create distributed Java to Java applications, in which the methods of remote Java objects can be invoked from other JVMs on the same or different hosts. Compaq NonStop Server for Java supports both RMI clients and RMI servers.

---

### JavaSoft compliant

Compaq NonStop Server for Java software is a compliant and branded version of the Java Development Kit (JDK) Release 1.1. It includes the following functionality:

- JVM
- All core Java APIs
- Standard JDK,Version 1.1 tools
- JavaBeans Development Kit (BDK), included with JDK 1.1

Major features in JDK 1.1 supported by Compaq NonStop Server for Java include the following:

- Internationalization
- Security and digital signatures
- JavaBeans
- JAR files
- RMI
- Object serialization
- Reflection
- Java Database Connectivity (JDBC)
- Inner classes
- Java Native Interface

---

### New features

Compaq NonStop Server for Java Version 1.5 provides the following three major features:

- JDBC long name support
- Java to Pathway support
- Transaction support

These features provide support for Java applications being migrated to Compaq NonStop Server for Java or accessing data on Compaq NonStop systems. Long name support in JDBC allows JDBC applications to be copied to Compaq NonStop Server for Java using existing table, catalog, and index names. These names can be mapped to Compaq NonStop Kernel names unchanged, allowing your JDBC code to remain portable while accessing Compaq NonStop Kernel files.

Java to Pathway support features provide access to Pathway applications from Compaq NonStop Server for Java. Programmers can generate Java classes from a Data Definition Language (DDL) dictionary to send requests to and receive replies from Pathway servers, without any modification to the legacy servers. Java to Pathway support features can also be used to convert a Pathway requester written in C, C++, or COBOL to Java.

Compaq NonStop Server for Java software lets you work with transactions in three ways. First, you can let the original Compaq NonStop SQL driver define transactions for you. Also, you can use the Compaq NonStop Server for Java transaction package with the transaction-aware Compaq NonStop SQL driver to define transactions across transaction services, such as transactions that include both JDBC and Java to Pathway calls. Finally, you can use the Compaq NonStop Server for Java transaction package alone to define transactions when accessing a Pathway server.

Compaq NonStop Server for Java software has the following added capabilities, which do not affect any of the standard Java APIs:

- Access to Compaq NonStop SQL relational database management software through the standard JDBC API
- Extensions to iTP Secure WebServer software for invoking Java servlets
- Just-in-Time compiler to enhance application performance

---

### Related products

In addition to Compaq NonStop Server for Java, the following related products are also available for Compaq NonStop Himalaya servers:

- Compaq NonStop JORB/MP—a CORBA 2.0–compliant-Java Object Request Broker, which enables Java objects to inherit all of the Compaq NonStop Himalaya server's fundamental capabilities of scalability, reliability, and performance
- Compaq NonStop JTS/OTS—a highly scalable and reliable implementation of the Sun Java Transaction Service (JTS) and OMG Object Transaction Service (OTS) specifications, supporting full heterogeneous transactions

## Ordering Information

| Product ID | Description |
|---|---|
| SJ96V1, Update 2 | Compaq NonStop Server for Java software |

### Manuals

The following manual in HTML is available for Compaq NonStop Server for Java software: Compaq NonStop Server for Java Programmer's Guide (part number 141431). This manual includes information about installation, configuration, and performance of Compaq NonStop Server for Java. In addition, it tells how to access Compaq NonStop SQL through Java. The following JDK documentation in HTML format is included on the Compaq NonStop Server for Java product disk:Getting Started

- JDK Tool Documentation
- Java Platform Core API
- JDK 1.1.2 Complete Class List

## Specifications

| | | |
|---|---|---|
| System Requirements | Hardware | Compaq NonStop Himalaya servers: K10000, K200, K2000, K20000, S7000, S70000 |
| | Software | Compaq NonStop Kernel operating system, Release D42/G02 or later |
| | | Compaq NonStop Kernel Open Systems Services (OSS) |
| | | Compaq NonStop Transaction Services/MP (required for servlets) |
| | | Compaq NonStop Transaction Manager/MP (required for Compaq NonStop SQL access) |