

Sun Java™ System Application Server Enterprise Edition Release Notes for Microsoft Windows

Version 8 2005Q1

Part Number 819-1576-10

The Sun Java™ System Application Server Enterprise Edition 8 2005Q1 product greatly simplifies the task of creating and administering web services applications. It provides superior performance, clustering, and high availability features for scalable services that continue to operate despite software and hardware faults. The Application Server provides a development path for web services that simplifies the development process while providing uniquely flexible growth opportunities.

These release notes contain important information available at the time of the Sun Java System Application Server 8 2005Q1 product release for Windows. Component requirements, platform summary, known problems, and other late-breaking issues are addressed here. Read this document before you begin using the Application Server product.

The most up-to-date version of these release notes can be found at the Sun Java System documentation web site: http://docs.sun.com/app/docs/coll/ApplicationServer8_pe_04q4. Check the web site prior to installing and setting up your software and then periodically thereafter to view the most up-to-date release notes and product documentation.

This document contains the following sections:

- [Release Notes Revision History](#)
- [About Application Server 8 2005Q1](#)
- [Bugs Fixed in This Release](#)
- [Known Issues and Limitations](#)
- [Redistributable Files](#)
- [How to Report Problems and Provide Feedback](#)
- [Additional Sun Resources](#)

Third-party URLs are referenced in this document and provide additional, related information.

NOTE Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Release Notes Revision History

This section lists the changes that have been made in these release notes after the initial release of the Application Server 2005Q1 component.

Revision Date	Description
February, 2005	Initial release of Sun Java™ System Application Server 8 2005Q1 Release Notes for Microsoft Windows.
July, 2005	Release of RR version of Sun Java™ System Application Server 8 2005Q1 Release Notes for Microsoft Windows.

About Application Server 8 2005Q1

The Sun Java System Application Server Enterprise Edition 8 is a J2EE 1.4 platform-compatible server for the development and deployment of J2EE applications and Java technology-based web services in large-scale production environments.

This section includes:

- [What's New in Application Server 8 2005Q1](#)
- [Hardware and Software Requirements](#)
- [Standalone Version](#)
- [Related Documentation](#)

What's New in Application Server 8 2005Q1

The Sun Java System Application Server Enterprise Edition 8 2005Q1 implements many new and enhanced features, described in the following sections:

- [Enhancements in This Release](#)
- [J2EE Support](#)
- [High Performance](#)
- [Scalability](#)
- [High Availability](#)
- [JavaServer Faces 1.1 Support](#)

Enhancements in This Release

The Application Server Enterprise Edition 8 includes the following enhancements:

- **Improved Administration** – The Application Server supports the remote secure management of complex multi-machine enterprise deployments using either a browser based console or a scriptable command line interface. It also provides a rich JMX based API allowing remote, secure, programatic access to administrative and monitoring functions.
- **Message Broker** – The Application Server is bundled with an integrated enterprise class message broker that features providing highly available, reliable, high performance, and scalable messaging.
- **Expanded Platform Support** – Additional operating systems, databases, locales, and hardware are supported.
- **Sun Java Enterprise System** – As a key component of the Sun Java Enterprise System, the Application Server is tightly integrated with portal and network identity services.
- **Migration and Upgrade Tools** – These tools enable you to verify J2EE applications for standards conformance and portability, help with migrations from other J2EE Application Servers (JBoss, WebLogic, WebSphere), and aid in upgrading from previous versions of Sun ONE Application Server/ iPlanet Application Server.
- **Java 2 Standard Edition 5.0 Support** – The Application Server supports the Java 2 Standard Edition 5.0, which includes enhanced management and monitoring features and many performance and scalability improvements.
- **JDBC Drivers** – The Application Server is bundled with Sun JDBC drivers.

- **Web Services Security** – These container message security mechanisms implement message-level authentication (for example, XML digital signature and encryption) of SOAP web services invocations using the X509 and username/password profiles of the OASIS WS-Security standard.
- **WS-I Basic Profile 1.1** – As mandated by the J2EE 1.4 specification, this release implements Web Services Interoperability (WS-I) Basic Profile 1.1 to enable interoperability for web services applications.
- **Backend Connectivity with iWay Adapters** – Sun Microsystems now resells and supports twenty-two iWay adapters to key backend systems (SAP, Siebel, Oracle, CICS, and IBM MQ Series) to help you leverage existing IT applications from within the Application Server environment. These adapters support the J2EE Connector Architecture 1.5 specification and Web services (SOAP) standards, and include developer tools to reduce time to connect to backend applications.
- **Latest HADB Management System** – The UNIX® platforms contain the new high availability database (HADB) management system (HADB version 4.4). This eliminates the dependency on SSH/RSH, but requires that the network be configured for UDP multicast. See the *Sun Java System Application Server Enterprise Edition 8 Installation Guide* for the details on HADB requirements and limitations.

J2EE Support

The Sun Java System Application Server 8 2005Q1 supports the J2EE 1.4 platform. The following table describes the enhanced APIs available on the J2EE 1.4 platform.

Table 1 Major API changes on the J2EE 1.4 Platform

API	Description
Components	
Application and Application Client	Implementation of standard deployment descriptors by means of XML schemas
Enterprise JavaBeans (EJB) 2.1	Timer service and EJB Web-service endpoint
Java Servlet 2.4	Web-service endpoint filter
JavaServer Pages (JSP) 2.0 architecture	Expression language and tag library
J2EE Connector Architecture 1.5	Inbound resource adaptor and Java Message Service (JMS) pluggability
Web Services	
Java Web Services Developer Pack 1.5	Integrated toolkit for building, testing and deploying XML applications, Web services, and Web applications
Java API for XML-based Remote Procedure Calls (JAX-RPC) 1.1	Mapping for WSDL and Java technology and support for development of Web-service clients and endpoints
WS-I Basic Profile 1.0	The enabling element for interoperability using WSDL and SOAP

Table 1 Major API changes on the J2EE 1.4 Platform (*Continued*)

API	Description
SOAP with attachment API for Java (SAAJ) 1.2	An API for SOAP-based messaging; fosters the creation of SOAP messages with attachments
Java APIs for XML Registries (JAXR) 1.0	A uniform and standard API for accessing XML registries, such as those for Universal Description Discovery and Integration (UDDI and ebXML)
Other	
J2EE Deployment 1.1	Standard APIs that enable deployments of J2EE components and applications
J2EE Management 1.0	Definitions for the information model for managing the J2EE platform
Java Management Extensions (JMX) 1.2	Standard management API
Java Authorization Contract for Containers (JACC) 1.0	Definitions of security contracts between a J2EE Application Server and the authorization policy provider
Java API for XML Processing (JAXP) 1.2	An API with which applications can parse and transform XML documents; also adds support for processing of XML schemas
JMS 1.1	A messaging standard that enables J2EE application components to create, send, receive, and read messages; also adds support for uniform APIs for queues and topics
JavaMail 1.3	A set of abstract classes that model a mail system; also includes minor updates to the APIs

High Performance

The Application Server includes a high performance EJB container, Web container and services, and supports concurrent message delivery with the Sun Java System Message Queue software.

Scalability

The Application Server supports horizontal scalability through clustering of server instances and request load balancing. It also achieves class leading vertical scalability supporting large multi-processor machines. The integrated message broker can be clustered for better scalability and availability. Client access from HTTP clients, RMI/IIOP based Rich Client Applications, Web Services Clients, and JRM Clients can be load balanced to Application Server clusters.

High Availability

The Application Server includes load balancing for HTTP, IIOP, and JMS clients; HTTP session failover support; EJB clustering and failover support; highly available EJB timers; distributed transaction recovery; support for rolling application upgrades; and a high availability database for storing the transient state of J2EE applications.

Availability allows for failover protection of Application Server instances in a cluster. If one Application Server instance goes down, another Application Server instance takes over the sessions that were assigned to the unavailable server. Session information is stored in the HADB. HADB supports the persistence of HTTP sessions, Stateful Session Beans, and Single Sign On credentials.

JavaServer Faces 1.1 Support

The Sun Java System Application Server Enterprise Edition 8 supports JavaServer Faces 1.1 technology. The JavaServer Faces technology consists of a set of server-side APIs that represent user-interface components that manage their state, event, handling, and input validation. The APIs also define page navigation and support internationalization and accessibility. You can add custom UI components with a JSP custom tag library.

While developing with JavaServer Faces technology, each member of a development team can focus on a single piece of the process. A simple programming model then links the pieces, resulting in a much more efficient and simpler development cycle.

Hardware and Software Requirements

This section lists the requirements that must be met before installing the Sun Java System Application Server Enterprise Edition 8 product.

- [Platform Requirements](#)
- [JDBC Drivers and Databases](#)
- [Configuring Oracle](#)
- [Configuring PointBase](#)
- [Web Servers](#)
- [Browsers](#)
- [High Availability Requirements and Limitations](#)
- [Other Requirements](#)

Platform Requirements

The following table lists the operating systems that are supported for Sun Java System Application Server Enterprise Edition 8 2005Q1 product. Additionally, the minimum and recommended memory requirements are identified for installing and running the Application Server

Table 2 Sun Java System Application Server 8 2005Q1 Platform Requirements

Operating System	Minimum Memory	Recommended Memory	Minimum Disk Space	Recommended Disk Space	JVM
Microsoft Windows 2000 Advanced Server Service Pack 4+	512 Mbytes	1 Gbytes	250 Mbytes free	500 Mbytes free	JDK 1.5

To check your operating system version, use the `ver` command. To check the disk space use the `mem` command.

JDBC Drivers and Databases

The Sun Java System Application Server is designed to support connectivity to any DBMS with a corresponding JDBC driver. For a list of components that Sun has tested and found to be acceptable for constructing J2EE compatible database configurations, please refer to the following table:

Table 3 J2EE Compatible JDBC Drivers

JDBC Vendor	JDBC Driver Type	Supported Database Server
i-net Software	Type 4	Oracle (R) 8.1.7, 9i, 9.2.0.3
i-net Software	Type 2	Oracle (R) 9i,
i-net Software	Type 4	Sybase ASE 12.5.2
i-net Software	Type 4	MS SQL Server 2000 4.0 Service Pack 1
IBM	Type 2	IBM DB2 8.1 Service Pack 3+
PointBase	Type 4	PointBase Network Server 4.8

For more information about i-net Software, see:

<http://www.inetsoftware.de/>

The following table identifies additional supported JDBC drivers; however these drivers are not J2EE compatible.

Table 4 JDBC Drivers not J2EE compatible

JDBC Vendor	JDBC Driver Type	Supported Database Server
Oracle	Type 4	Oracle (R) 9.2.0.3, 10G
Sybase	jConnector	Sybase ASE 12.5.1

Additional drivers have been tested to meet the JDBC requirements of the J2EE 1.4 platform with the JDBC Driver Certification Program. These drivers can be used for JDBC connectivity with the Sun Java System Application Server. While Sun offers no product support for these drivers, we support the use of these drivers with the Sun Java Enterprise System Application Server.

Configuring Oracle

Oracle JDBC drivers must be configured properly to be compliant with J2EE 1.4. Use the following configuration for Type 2 and Type 4 drivers:

1. Use the JDBC driver from 9.2.0.3 or later.
2. The Oracle database needs to have `compatible=9.0.0.0.0` or higher in its parameter (`init.ora`) file.
3. Use the `ojdbc14.jar` file.
4. Configure the Application Server to define the following JVM property:

```
-Doracle.jdbc.J2EE13Compliant=true
```

In addition, for Type-2 drivers, both the `ORACLE_HOME` and `PATH` variables (which must include `$ORACLE_HOME/lib`) need to be defined in the environment in which the Application Server is started. For example, add them to the `asenv.conf` file and ensure they are exported.

Configuring PointBase

Many sample applications use the PointBase database server included with the Application Server. When using Application Server Enterprise Edition, you must configure the PointBase database server before using it. Before using PointBase with the Application Server, however, note the supported configuration combination.

Table 5 Supported J2SE/PointBase Combinations

Application Server	PointBase
Supported	
J2SE 1.4	J2SE 1.4
J2SE 5.0	J2SE 1.4
Unsupported	
J2SE 5.0	J2SE 5.0

There are two ways to configure PointBase:

- Set the `JAVA_HOME` environment variable to the location of the J2SE. The PointBase implementation bundled with Application Server 8 is only supported with J2SE 1.4.2.
- Edit the Application Server's PointBase configuration file.

To use the first method:

1. Make sure you have the J2SE installed that you want to use.

Download J2SE 1.4.2 if you do not already have it.

2. Using the command appropriate for your operating system and shell, set the `JAVA_HOME` environment variable to the directory in which J2SE is installed; for example:

```
set JAVA_HOME=<JDK1.5_INSTALLDIR>
```

To use the second method, the procedure depends on the operating system.

Solaris and Linux

Edit the `install_dir/pointbase/tools/serveroption/pbenv.conf` configuration file, changing the line:

```
PB_JAVA=%%%PB_JAVA%%%
```

to

```
PB_JAVA=J2SE_location
```

where `J2SE_location` is the directory where the J2SE is installed. If you installed J2SE with Application Server, it is installed by default to `install_dir/jdk`. After making this change, you can start PointBase using the `startserver` script.

Windows

Edit the `install_dir\pointbase\tools\serveroption\pbenv.bat` configuration file, changing the line:

```
set PB_JAVA=%%%PB_JAVA%%%
```

to

```
set PB_JAVA=J2SE_location
```

where `J2SE_location` is the directory in which the J2SE is installed. If you installed J2SE with Application Server, it is installed by default to `install_dir\j2se1.4`. After making this change, you can start PointBase by running `startserver.bat`.

Web Servers

This section lists the web servers that are supported for the Sun Java System Application Server Enterprise Edition 8 2005Q1.

Table 6 Supported Web Servers

Web Server	Version	Operating System
Sun Java System Web Server	6.1 Service Pack 4	Windows 2000 Advanced Server
Apache Web Server	1.3, 2.0	
Microsoft IIS	5.0+	Windows 2000 Advanced Server Service Pack 4+

Browsers

This section lists the browsers that are supported with the Sun Java System Application Server Enterprise Edition 8 2005Q1.

Table 7 Browsers Supported

Browser	Version
Mozilla	1.4
Netscape Navigator	4.79, 6.2
Internet Explorer	5.5 Service Pack 2, 6.0

High Availability Requirements and Limitations

The following high availability requirements must be met before configuring the Sun Java System Application Server High Availability component:

- HADB requires 512 Mbytes minimum memory and 1 Gbytes recommended memory to work properly with the Application Server.
- HADB supports IPv4 only.
- The network must be configured for UDP multicast.
- The new HADB management system may show problems handling eight or more hosts.

Other Requirements

The following additional requirements should be met before installing the Sun Java System Application Server software.

- **Free space:** your temporary directory must have a minimum of 300 Mbytes free for Sun Java System Application Server installation, and 250 Mbytes of free space for the SDK installation.
- **Using the uninstall program:** If you need to remove the application server from your system, it is important to use the uninstall program that is included with the software. If you attempt to use another method, problems will arise when you try to reinstall the same version, or when you install a new version.
- **Free ports:** You must have seven unused ports available.
 - The installation program automatically detects ports in use and suggests currently unused ports for the default settings. By default, the initial default ports are 8080 (for admin instance) and 38080 (for AppServer1 instance) for the HTTP server, and 4850 for the Admin Server.
 - The installation program will detect used ports and assign two others for you: Sun Java™ System Message Queue (by default, 7679), and IIOP (by default, 3750 for IIOP and 3347 and 3360 for IIOP/SSL). If these default port numbers are in use, the installation program will assign a random port number from the dynamic port range (note that this may not be the next available port number).
- **Starting previously-installed servers:** Unless you are replacing the previously installed server, you should start it before you begin the Sun Java System Application Server 8 installation process. This allows the installation program to detect ports that are in use and avoid assigning them for other uses.
- **Shutting down firewall:** You must stop any firewall before installing the Sun Java System Application Server software, because some of this software disables all ports by default. The installation program must be able to accurately determine which ports are available.

For further compatibility information, see Upgrade and Migration Guide at:
<http://docs.sun.com/app/docs/doc/819-0222>

Standalone Version

The standalone version of Sun Java System Application Server Enterprise Edition 8 differs in several ways from the Java ES Enterprise Edition version; specifically:

- The 8 standalone product can be installed by any user, whereas Java ES can only be installed as root user.
- The HADB component is visible as a subcomponent in the standalone version, whereas in the Java ES installation it is a shared component.

- The standalone version installs all shared components required for the Application Server under one installation directory, whereas in JES these components are installed in different directories.
- Product files, domains, and configuration data for the Application Server are stored by default in a single directory with the standalone installer, whereas with Java ES they are stored in multiple directories.
- The standalone version allows installation on a system with an already existing Application Server installation of the same or different version without the need to uninstall the existing installation. This is achieved by maintaining unique installation directories across versions OR across instances of the same version.
- The standalone version supports “upgrade in place” of an existing Sun Java System Application Server Platform Edition 8.0 installation or a Sun Java System Application Server Platform Edition 8 installation to the Sun Java System Application Server Enterprise Edition 8.

Related Documentation

In addition to these release notes, the Application Server component includes an entire set of documentation that can be found at this location:

http://docs.sun.com/app/docs/coll/ApplicationServer8_pe_04q4

The following table summarizes the books included in the Application Server core application documentation set.

Table 8 Books in This Documentation Set

Book Title	Description
<i>Release Notes</i>	Late-breaking information about the software and the documentation. Includes a comprehensive, table-based summary of the supported hardware, operating system, JDK, and JDBC/RDBMS.
<i>Quick Start Guide</i>	How to get started with the Sun Java System Application Server product.
<i>Installation Guide</i>	Installing the Sun Java System Application Server software and its components.
<i>Deployment Planning Guide</i>	Evaluating your system needs and enterprise to ensure that you deploy Sun Java™ System Application Server in a manner that best suits your site. General issues and concerns that you must be aware of when deploying an application server are also discussed.
<i>Developer’s Guide</i>	Creating and implementing Java™ 2 Platform, Enterprise Edition (J2EE™ platform) applications intended to run on the Sun Java System Application Server that follow the open Java standards model for J2EE components and APIs. Includes general information about developer tools, security, assembly, deployment, debugging, and creating lifecycle modules.

Table 8 Books in This Documentation Set (*Continued*)

Book Title	Description
<i>J2EE 1.4 Tutorial</i>	Using J2EE 1.4 platform technologies and APIs to develop J2EE applications and deploying the applications on the Sun Java System Application Server.
<i>Administration Guide</i>	Configuring, managing, and deploying the Sun Java System Application Server subsystems and components from the Administration Console.
<i>High Availability Administration Guide</i>	Post-installation configuration and administration instructions for the high-availability database.
<i>Administration Reference</i>	Editing the Sun Java System Application Server configuration file, <code>domain.xml</code> .
<i>Upgrade and Migration Guide</i>	Migrating your applications to the new Sun Java System Application Server programming model, specifically from Application Server 6.x and 7. This guide also describes differences between adjacent product releases and configuration options that can result in incompatibility with the product specifications.
<i>Performance Tuning Guide</i>	Tuning the Sun Java System Application Server to improve performance.
<i>Troubleshooting Guide</i>	Solving Sun Java System Application Server problems.
<i>Error Message Reference</i>	Solving Sun Java System Application Server error messages.
<i>Reference Manual</i>	Utility commands available with the Sun Java System Application Server; written in manpage style. Includes the <code>asadmin</code> command line interface.

Bugs Fixed in This Release

None.

Known Issues and Limitations

This section describes the known issues and limitations of Application Server Enterprise Edition 8 2005Q1 for Windows. For a list of the known issues and limitations in the component, refer to the following Release Notes: <http://docs.sun.com/app/docs/doc/819-0214>.

This section describes known problems and associated workarounds for the Sun Java System Application Server Enterprise Edition 8 2005Q1 component. If a summary statement does not specify a particular platform, the problem applies to all platforms. This information is organized into the following sections:

- [Load Balancer](#)
- [Configuration](#)

Load Balancer

Entries to be made to the ASConfigurator.properties file before configuring Load Balancer in Configure Later mode (6228092)

The Load-Balancer Plug-in is configured to use ports 1111 and 1112 in the server used for AS_WSINSTANCENAME in the ASConfigurator.properties file. Following entries must be made into the ASConfigurator.properties file before configuring Load Balancer in Configure Later mode:

- AS_ADMIN=<AdminUserID>
- AS_ADMINPASSWD=<AdminUserPassword>
- AS_WSINSTALLDIR= [INSTALLDIR] \\WebServer
- AS_WSINSTANCEDIR= [INSTALLDIR] \\WebServer \\ [INSTANCENAME]
- AS_WSINSTANCENAME= [INSTANCENAME]

where, INSTANCENAME is the current Web server instance name

- AS_LB_PLUGIN_TYPE=Sun ONE Web Server

Workaround

None.

The Load-Balancer Plug-in is configured to use ports 1111 and 1112

The Load-Balancer Plug-in is configured by default to use ports 1111 and 1112 in the ASConfigurator.properties file.

Workaround

None.

Configuration

Initial configurator in Configure Later does not have GUI

The initial configurator used in Configure Later mode does not have a GUI support.

Workaround

You can manually update the `ASConfigurator.properties` and run `DASConfigurator.bat` and `LBConfigure.bat`

Impossible to enter AS master password and the `master pswd` is unknown to the user (6295958)

The configurator will take the admin password as the master password. The `AS_ADMINPASSWD` that is entered in `ASConfiguraor.properties` will be taken as the masterpassword also.

Workaround

None.

Redistributable Files

Sun Java System Application Server Enterprise Edition 8 does not contain any files that can be redistributed.

How to Report Problems and Provide Feedback

Use the following resources to handle problems you may encounter with the Application Server product:

- J2EE-INTEREST list: A mailing list for J2EE questions.
<http://archives.java.sun.com/archives/j2ee-interest.html>
- Bug database on Java Developer Connection: To view bugs or to submit a bug, use the Java Developer Connection Bug Parade.
<http://developer.java.sun.com/servlet/SessionServlet?url=/developer/bugParade/index.jshtml>
- Java Technology Forums: An interactive message board for sharing knowledge and questions about Java technologies and programming techniques. Use the J2EE SDK forum here for discussions related to the Sun Java System Application Server 8 Platform Edition product.
<http://forum.java.sun.com/>

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. Use the web-based form to provide feedback to Sun:

<http://www.sun.com/hwdocs/feedback>

Please provide the full document title and part number in the appropriate fields. The part number is a seven-digit or nine-digit number that can be found on the title page of the book or at the top of the document. For example, the part number of these Release Notes document is 819-1576-10.

Additional Sun Resources

Useful Sun Java System information can be found at the following locations:

- Application Server product information:

http://www.sun.com/software/products/appsrvr/home_appsrvr.html

- Sun Java developer resources:

<http://developer.java.sun.com/>

- Sun Java 2 Platform, Enterprise Edition (J2EE) site:

<http://java.sun.com/j2ee/>

- Application Server product documentation:

<http://docs.sun.com/db/prod/s1appsrvr#hic/>

- Sun Microsystems product documentation:

<http://docs.sun.com/>

Copyright © 2005 Sun Microsystems, Inc. All rights reserved.

Sun Microsystems, Inc. has intellectual property rights relating to technology embodied in the product that is described in this document. In particular, and without limitation, these intellectual property rights may include one or more of the U.S. patents listed at <http://www.sun.com/patents> and one or more additional patents or pending patent applications in the U.S. and in other countries.

SUN PROPRIETARY/CONFIDENTIAL.

U.S. Government Rights - Commercial software. Government users are subject to the Sun Microsystems, Inc. standard license agreement and applicable provisions of the FAR and its supplements.

Use is subject to license terms.

This distribution may include materials developed by third parties.

Portions may be derived from Berkeley BSD systems, licensed from U. of CA.

Sun, Sun Microsystems, the Sun logo, Java and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and other countries.

Copyright © 2005 Sun Microsystems, Inc. Tous droits réservés.

Sun Microsystems, Inc. détient les droits de propriété intellectuelle relatifs à la technologie incorporée dans le produit qui est décrit dans ce document. En particulier, et ce sans limitation, ces droits de propriété intellectuelle peuvent inclure un ou plus des brevets américains listés à l'adresse <http://www.sun.com/patents> et un ou les brevets supplémentaires ou les applications de brevet en attente aux États - Unis et dans les autres pays.

Propriété de SUN/CONFIDENTIEL.

L'utilisation est soumise aux termes du contrat de licence.

Cette distribution peut comprendre des composants développés par des tierces parties.

Des parties de ce produit pourront être dérivées des systèmes Berkeley BSD licenciés par l'Université de Californie.

Sun, Sun Microsystems, le logo Sun, Java et Solaris sont des marques de fabrique ou des marques déposées de Sun Microsystems, Inc. aux États-Unis et dans d'autres pays.

Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux États-Unis et dans d'autres pays.

