Serving Java Docs

❑ The challenge

- ♦ The Sun Java Site
- ♦ Viewing from your Corporate LAN
- ♦ Viewing from Individual User's Workstations
- ♦ Viewing from a z/OS Server - General set up
- ♦ Viewing from a z/OS Server - in EBCDIC
- ♦ Viewing from a z/OS Server - in ASCII / UTF-8

The Challenge

❒ **A colleague of mine, John King, has a Java course that I am learning to teach**

❒ **One of the exercises is to "use your browser to view the file named index.html that can be found in the docs subdirectory of Java2: \xxxx\docs\index.html"**

- ♦ **This file is supplied to each student for their own workstation or on the corporate LAN accessible to all users, as part of the course set up**

❒ **Now John approaches Java, and related technologies, from the generic, open, wide-ranging approach that is in vogue today (and this is almost certainly the right approach in today's market)**

- ♦ **But my predilection is to relate all new technologies to the mainframe - in particular to z/OS**

❒ **So I began exploring alternatives, and the exploration led me down paths that let me apply my skills in z/OS, hosting web pages on z/OS, z/OS UNIX, and related techniques**

- ♦ **With some help from the knowledgeable people on the MVS-OE listserv**

❒ **This short paper summarizes the conclusions of my explorations and how I got there**

The Challenge Re-stated

- ❐ **Clearly, the original exercise was to view a file (local or LAN-based) using the workstation browser**

  - ♦ **My re-statement of this started out to view the files from a z/OS server**

    - ✗ **And then expanded to examine the alternatives where the java doc files might be viewed from, how to set up each alternative, and what were the tradefoffs among the various choices**

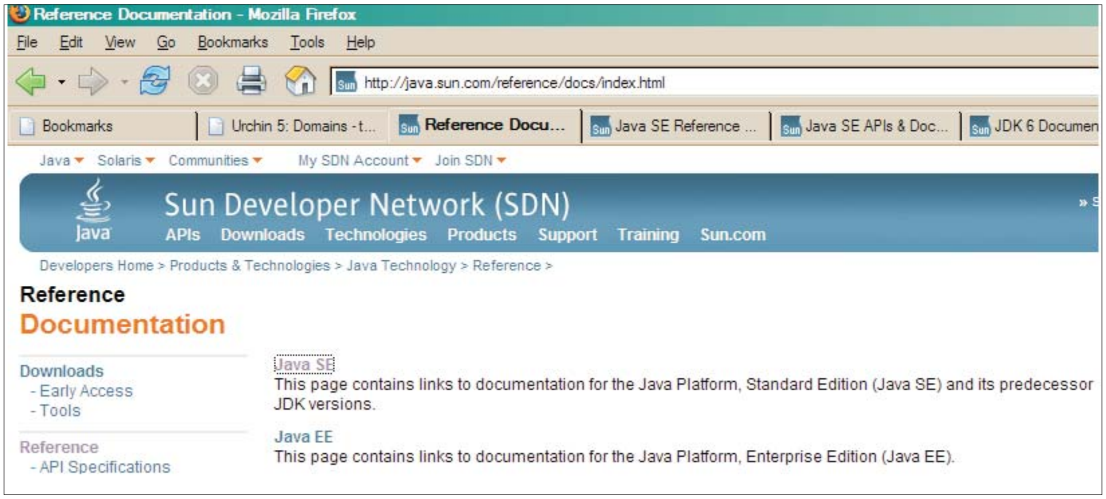
- ❐ **My list of locations to view the java documentation ended up as:**

  - ➤ The Sun Java site itself
  - ➤ Your corporate LAN
  - ➤ Your own workstation
  - ➤ z/OS server, stored in EBCDIC
  - ➤ z/OS server, stored in ASCII

  - ♦ **The following pages discuss each option, what it takes to set it up, and the pros and cons of using that location**

Referencing The Sun Java Site

❐ This web location: http://java.sun.com/reference/docs provides links for viewing or downloading the documentation for various releases of Java products (this has recently been reorganized):

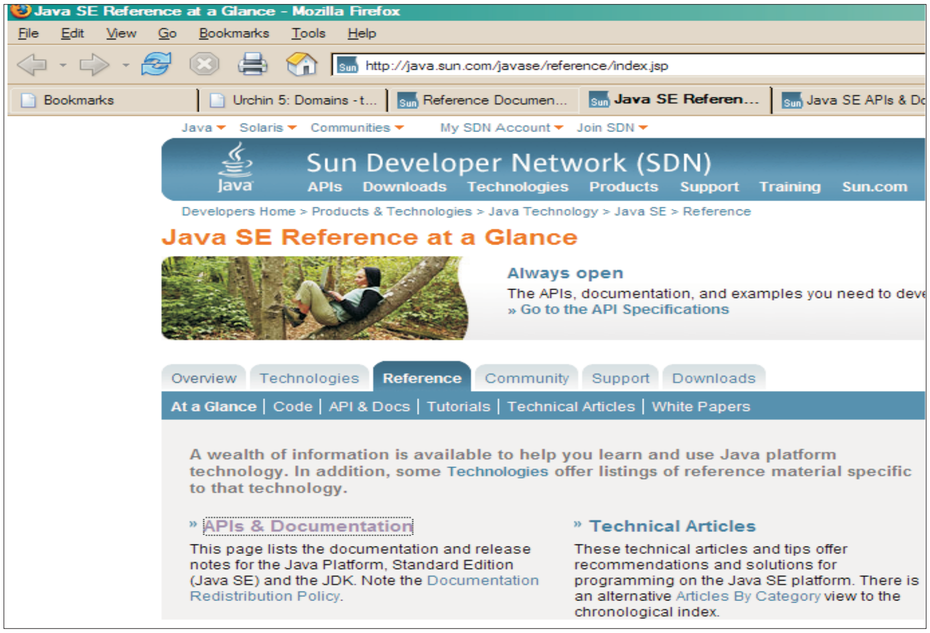

Reference Documentation - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://java.sun.com/reference/docs/index.html
Bookmarks
Urchin 5: Domains - t...
Reference Docu...
Java SE Reference ...
Java SE APIs & Doc...
JDK 6 Documen
Java Solaris Communities My SDN Account Join SDN
Java
Sun Developer Network (SDN)
APIs Downloads Technologies Products Support Training Sun.com
Developers Home > Products & Technologies > Java Technology > Reference >
Downloads
- Early Access
- Tools
Reference
- API Specifications

Reference
Documentation

Java SE
This page contains links to documentation for the Java Platform, Standard Edition (Java SE) and its predecessor JDK versions.

Java EE
This page contains links to documentation for the Java Platform, Enterprise Edition (Java EE).

♦ For our examples, we work with Java SE version 6, so first select the top choice, which gets you to:


Java SE Reference at a Glance - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://java.sun.com/javase/reference/index.jsp
Bookmarks
Urchin 5: Domains - t...
Reference Documen...
Java SE Referen...
Java SE APIs & Dc
Java Solaris Communities My SDN Account Join SDN
Java
Sun Developer Network (SDN)
APIs Downloads Technologies Products Support Training Sun.com
Developers Home > Products & Technologies > Java Technology > Java SE > Reference
Overview Technologies Reference Community Support Downloads
At a Glance | Code | API & Docs | Tutorials | Technical Articles | White Papers

Java SE Reference at a Glance

Always open
The APIs, documentation, and examples you need to deve
» Go to the API Specifications

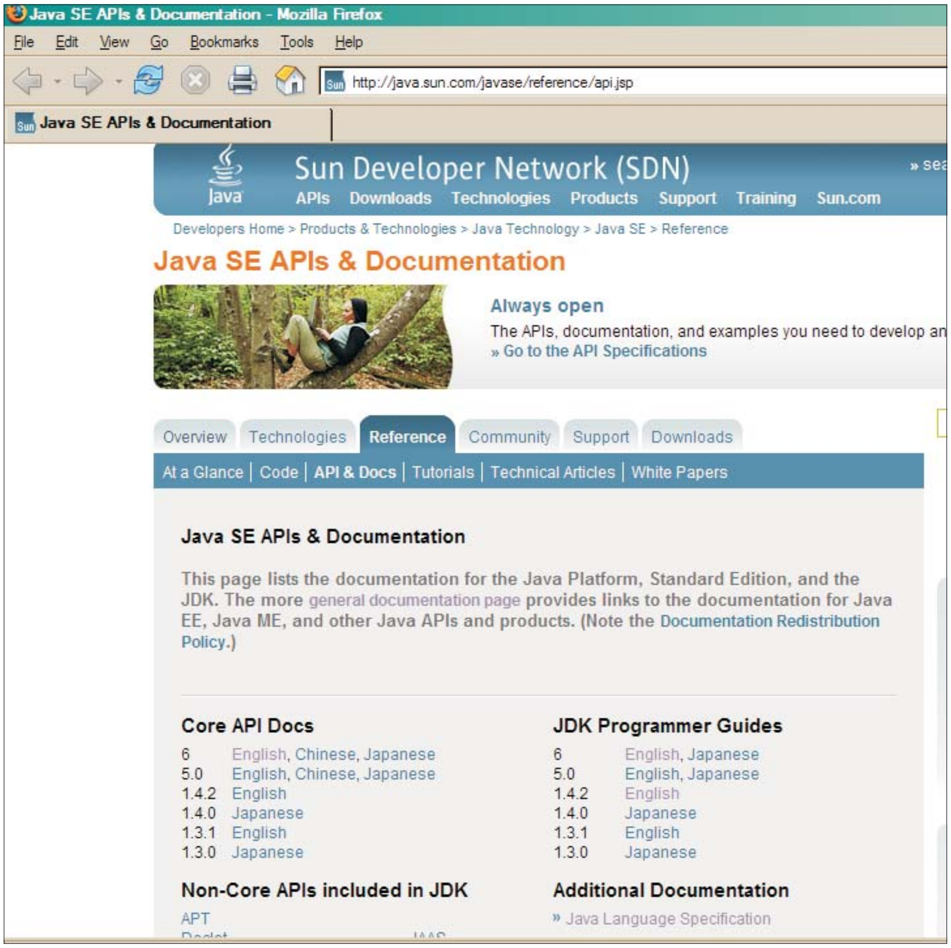
A wealth of information is available to help you learn and use Java platform technology. In addition, some Technologies offer listings of reference material specific to that technology.

» APIs & Documentation
This page lists the documentation and release notes for the Java Platform, Standard Edition (Java SE) and the JDK. Note the Documentation Redistribution Policy.

» Technical Articles
These technical articles and tips offer recommendations and solutions for programming on the Java SE platform. There is an alternative Articles By Category view to the chronological index.

Referencing The Sun Java Site, 2

❒ **Now, select the link to "APIs & Documentation" which leads to:**


Java SE APIs & Documentation - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://java.sun.com/javase/reference/api.jsp
Java SE APIs & Documentation
Java
Sun Developer Network (SDN)
APIs Downloads Technologies Products Support Training Sun.com
» sea
Developers Home > Products & Technologies > Java Technology > Java SE > Reference
Overview Technologies Reference Community Support Downloads
At a Glance | Code | API & Docs | Tutorials | Technical Articles | White Papers

Java SE APIs & Documentation

Always open

The APIs, documentation, and examples you need to develop an

» Go to the API Specifications

Java SE APIs & Documentation

This page lists the documentation for the Java Platform, Standard Edition, and the JDK. The more general documentation page provides links to the documentation for Java EE, Java ME, and other Java APIs and products. (Note the Documentation Redistribution Policy.)

Core API Docs

6	English, Chinese, Japanese
5.0	English, Chinese, Japanese
1.4.2	English
1.4.0	Japanese
1.3.1	English
1.3.0	Japanese

JDK Programmer Guides

6	English, Japanese
5.0	English, Japanese
1.4.2	English
1.4.0	Japanese
1.3.1	English
1.3.0	Japanese

Non-Core APIs included in JDK

APT

Additional Documentation

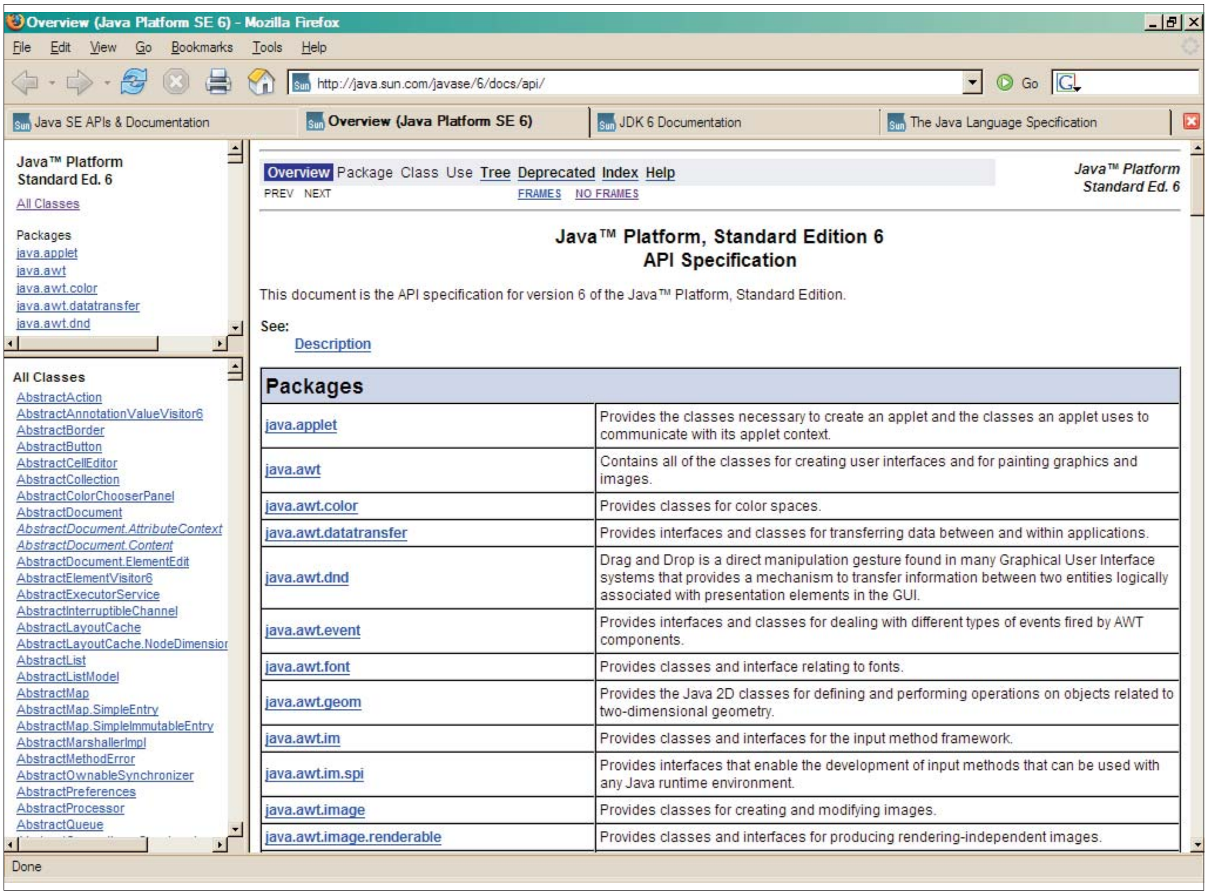
» Java Language Specification

❒ **There are actually three links here that are of interest:**

- ♦ **Core API Docs, for the release and language you want**
- ♦ **JDK Programmer Guides, for the release and language you want**
- ♦ **Additional Documentation - the Java Language Specification**

Referencing The Sun Java Site, 3

❒ **The "Core APIs Docs" link gets you to the HTML form of the specifications for all the classes, packages, and so on:**



Overview (Java Platform SE 6) - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://java.sun.com/javase/6/docs/api/
Go
Java SE APIs & Documentation
Overview (Java Platform SE 6)
JDK 6 Documentation
The Java Language Specification
Done

Java™ Platform
Standard Ed. 6

All Classes

Packages
java.applet
java.awt
java.awt.color
java.awt.datatransfer
java.awt.dnd

All Classes
AbstractAction
AbstractAnnotationValueVisitor6
AbstractBorder
AbstractButton
AbstractCellEditor
AbstractCollection
AbstractColorChooserPanel
AbstractDocument
AbstractDocument.AttributeContext
AbstractDocument.Content
AbstractDocument.ElementEdit
AbstractElementVisitor6
AbstractExecutorService
AbstractInterruptibleChannel
AbstractLayoutCache
AbstractLayoutCache.NodeDimensior
AbstractList
AbstractListModel
AbstractMap
AbstractMap.SimpleEntry
AbstractMap.SimpleImmutableEntry
AbstractMarshallerImpl
AbstractMethodError
AbstractOwnableSynchronizer
AbstractPreferences
AbstractProcessor
AbstractQueue

Overview Package Class Use Tree Deprecated Index Help
PREV NEXT FRAMES NO FRAMES

Java™ Platform
Standard Ed. 6

Java™ Platform, Standard Edition 6
API Specification

This document is the API specification for version 6 of the Java™ Platform, Standard Edition.

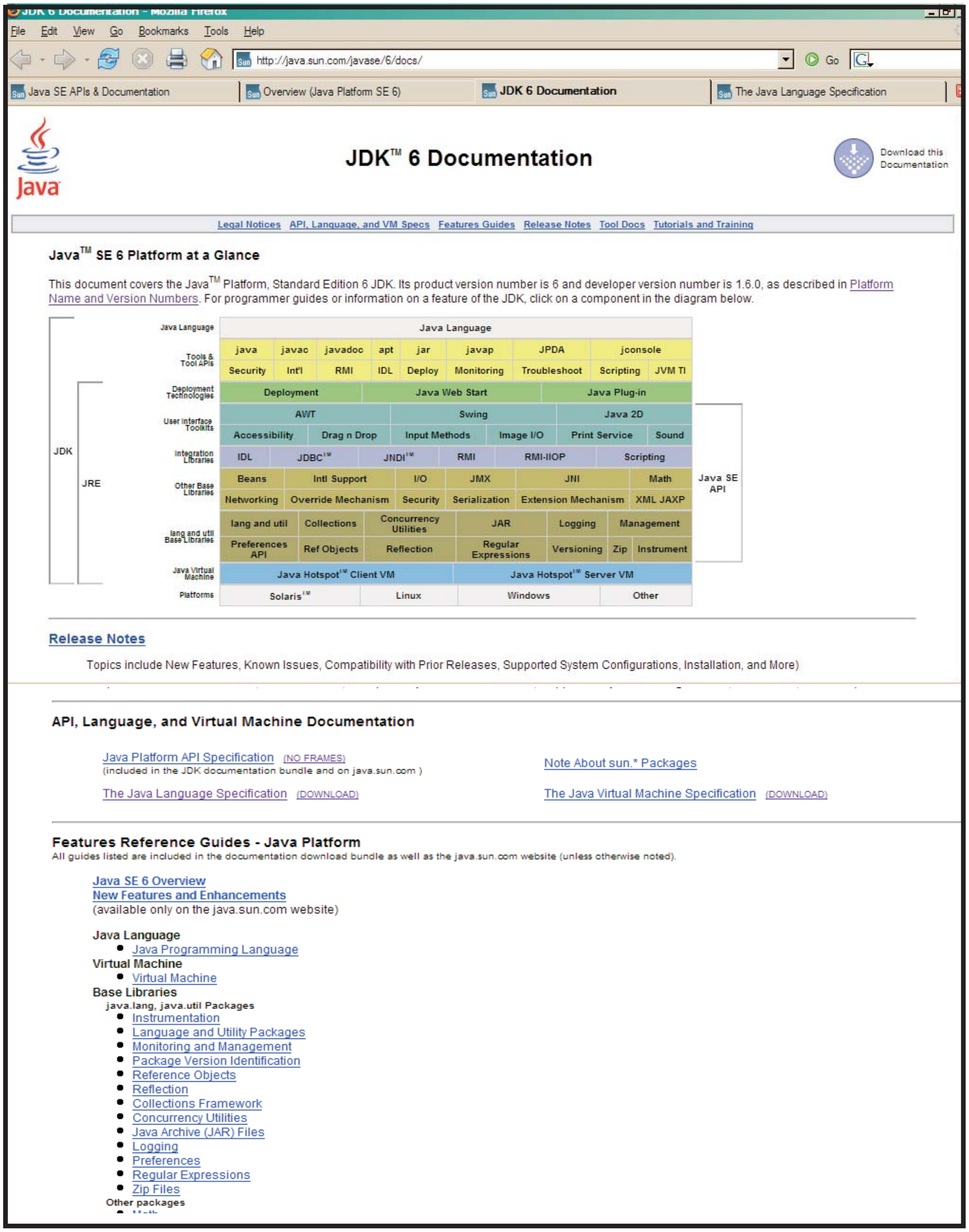
See:
Description

Packages	
java.applet	Provides the classes necessary to create an applet and the classes an applet uses to communicate with its applet context.
java.awt	Contains all of the classes for creating user interfaces and for painting graphics and images.
java.awt.color	Provides classes for color spaces.
java.awt.datatransfer	Provides interfaces and classes for transferring data between and within applications.
java.awt.dnd	Drag and Drop is a direct manipulation gesture found in many Graphical User Interface systems that provides a mechanism to transfer information between two entities logically associated with presentation elements in the GUI.
java.awt.event	Provides interfaces and classes for dealing with different types of events fired by AWT components.
java.awt.font	Provides classes and interface relating to fonts.
java.awt.geom	Provides the Java 2D classes for defining and performing operations on objects related to two-dimensional geometry.
java.awt.im	Provides classes and interfaces for the input method framework.
java.awt.im.spi	Provides interfaces that enable the development of input methods that can be used with any Java runtime environment.
java.awt.image	Provides classes for creating and modifying images.
java.awt.image.renderable	Provides classes and interfaces for producing rendering-independent images.

- ♦ **This is a good place to bookmark**

Referencing The Sun Java Site, 4

❒ **The JDK Programmer Guides, for version 6 anyway, gets you here:**



JDK 6 Documentation - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://java.sun.com/javase/6/docs/
Go
Java SE APIs & Documentation
Overview (Java Platform SE 6)
JDK 6 Documentation
The Java Language Specification
Java
Download this Documentation

JDK™ 6 Documentation

Legal Notices API, Language, and VM Specs Features Guides Release Notes Tool Docs Tutorials and Training

Java™ SE 6 Platform at a Glance

This document covers the Java™ Platform, Standard Edition 6 JDK. Its product version number is 6 and developer version number is 1.6.0, as described in Platform Name and Version Numbers. For programmer guides or information on a feature of the JDK, click on a component in the diagram below.

JDK
JRE
Java SE API

Java Language: Java Language

Tools & Tool APIs: java, javac, javadoc, apt, jar, javap, JPDA, jconsole; Security, Int'l, RMI, IDL, Deploy, Monitoring, Troubleshoot, Scripting, JVM TI

Deployment Technologies: Deployment, Java Web Start, Java Plug-in

User Interface Toolkits: AWT, Swing, Java 2D; Accessibility, Drag n Drop, Input Methods, Image I/O, Print Service, Sound

Integration Libraries: IDL, JDBC™, JNDI™, RMI, RMI-IIOP, Scripting

Other Base Libraries: Beans, Intl Support, I/O, JMX, JNI, Math; Networking, Override Mechanism, Security, Serialization, Extension Mechanism, XML JAXP

lang and util Base Libraries: lang and util, Collections, Concurrency Utilities, JAR, Logging, Management; Preferences API, Ref Objects, Reflection, Regular Expressions, Versioning, Zip, Instrument

Java Virtual Machine: Java Hotspot™ Client VM, Java Hotspot™ Server VM

Platforms: Solaris™, Linux, Windows, Other

Release Notes

Topics include New Features, Known Issues, Compatibility with Prior Releases, Supported System Configurations, Installation, and More)

API, Language, and Virtual Machine Documentation

Java Platform API Specification (NO FRAMES)
(included in the JDK documentation bundle and on java.sun.com)

The Java Language Specification (DOWNLOAD)

Note About sun.* Packages

The Java Virtual Machine Specification (DOWNLOAD)

Features Reference Guides - Java Platform

All guides listed are included in the documentation download bundle as well as the java.sun.com website (unless otherwise noted).

Java SE 6 Overview
New Features and Enhancements
(available only on the java.sun.com website)

Java Language
- Java Programming Language

Virtual Machine
- Virtual Machine

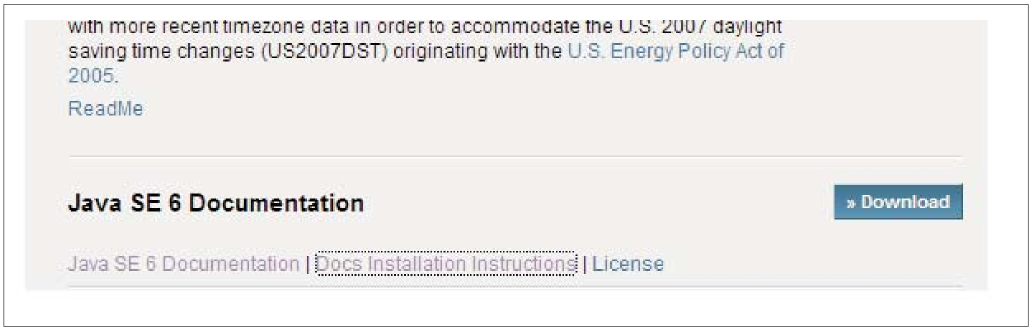
Base Libraries
java.lang, java.util Packages
- Instrumentation
- Language and Utility Packages
- Monitoring and Management
- Package Version Identification
- Reference Objects
- Reflection
- Collections Framework
- Concurrency Utilities
- Java Archive (JAR) Files
- Logging
- Preferences
- Regular Expressions
- Zip Files

Other packages

- **We've shown two scrolls worth of this page here**

Referencing The Sun Java Site, 5

❒ **Notice the icon in the upper right corner that says "Download this documentation"; if you follow this, and scroll down, you'll see:**



with more recent timezone data in order to accommodate the U.S. 2007 daylight saving time changes (US2007DST) originating with the U.S. Energy Policy Act of 2005.

ReadMe

Java SE 6 Documentation

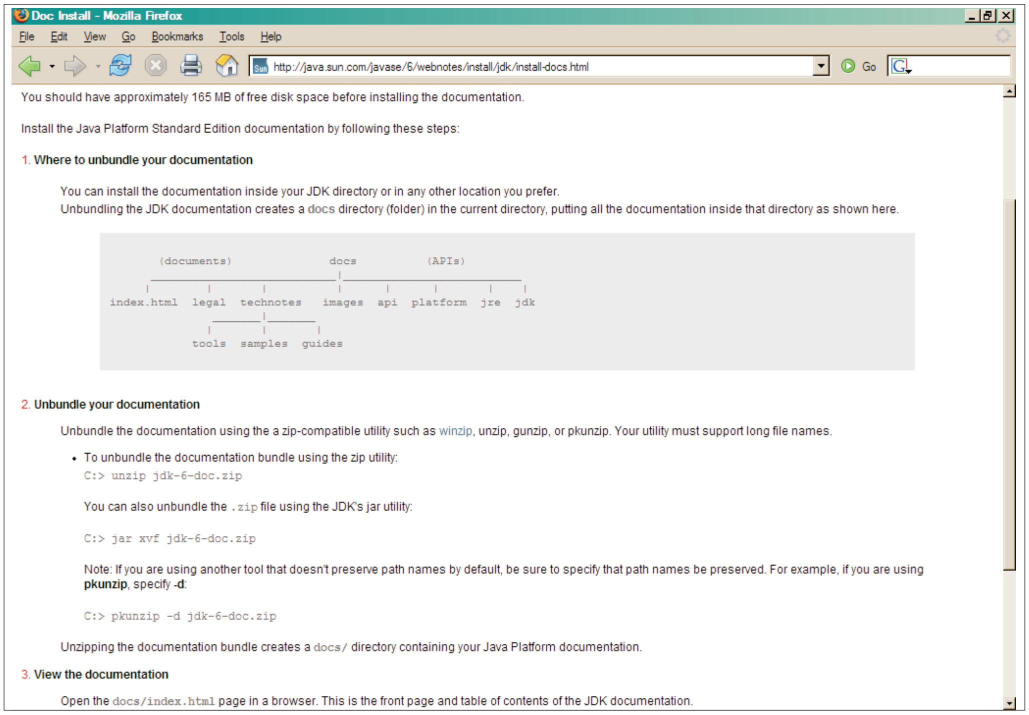
Java SE 6 Documentation | Docs Installation Instructions | License

❒ **The "Java SE Documentation" link takes you back to the page we show on the previous page**

- ♦ **We want the other option ...**

Referencing The Sun Java Site, 6

❒ **Here's the instructions on how to install the Java docs on your system (workstation or LAN, same difference):**


Doc Install - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://java.sun.com/javase/6/webnotes/install/jdk/install-docs.html
Go

You should have approximately 165 MB of free disk space before installing the documentation.

Install the Java Platform Standard Edition documentation by following these steps:

1. **Where to unbundle your documentation**

   You can install the documentation inside your JDK directory or in any other location you prefer.
   Unbundling the JDK documentation creates a docs directory (folder) in the current directory, putting all the documentation inside that directory as shown here.

   ```
           (documents)                docs          (APIs)
        __________________________|_________________________
        |         |       |           |       |       |       |    |
   index.html   legal   technotes    images   api   platform   jre  jdk
                 _______|_______
                 |       |       |
               tools   samples   guides
   ```

2. **Unbundle your documentation**

   Unbundle the documentation using the a zip-compatible utility such as winzip, unzip, gunzip, or pkunzip. Your utility must support long file names.

   - To unbundle the documentation bundle using the zip utility:

     ```
     C:> unzip jdk-6-doc.zip
     ```

     You can also unbundle the `.zip` file using the JDK's jar utility:

     ```
     C:> jar xvf jdk-6-doc.zip
     ```

     Note: If you are using another tool that doesn't preserve path names by default, be sure to specify that path names be preserved. For example, if you are using **pkunzip**, specify **-d**:

     ```
     C:> pkunzip -d jdk-6-doc.zip
     ```

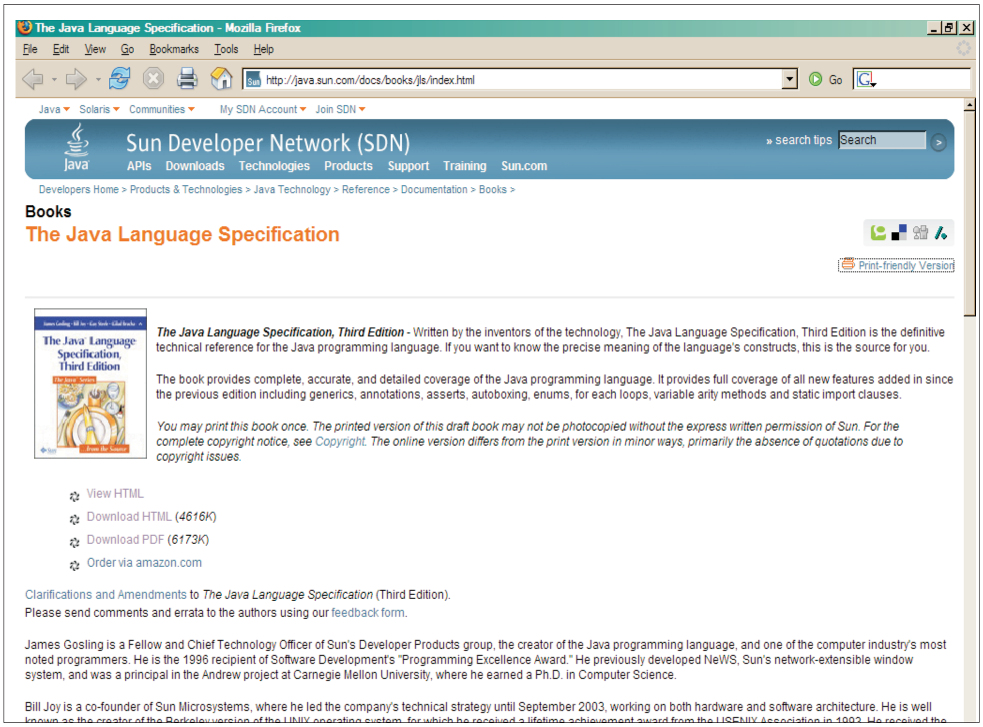
   Unzipping the documentation bundle creates a `docs/` directory containing your Java Platform documentation.

3. **View the documentation**

   Open the `docs/index.html` page in a browser. This is the front page and table of contents of the JDK documentation.

Referencing The Sun Java Site, 7

❒ The third choice from the list on page 5, "Additional Documentation - The Java Specification" brings you here:


The Java Language Specification - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://java.sun.com/docs/books/jls/index.html
Go
Java Solaris Communities My SDN Account Join SDN
Java
Sun Developer Network (SDN)
APIs Downloads Technologies Products Support Training Sun.com
» search tips
Search
Developers Home > Products & Technologies > Java Technology > Reference > Documentation > Books >
Print-friendly Version
The Java Language Specification, Third Edition

Books

The Java Language Specification

The Java Language Specification, Third Edition - Written by the inventors of the technology, The Java Language Specification, Third Edition is the definitive technical reference for the Java programming language. If you want to know the precise meaning of the language's constructs, this is the source for you.

The book provides complete, accurate, and detailed coverage of the Java programming language. It provides full coverage of all new features added in since the previous edition including generics, annotations, asserts, autoboxing, enums, for each loops, variable arity methods and static import clauses.

You may print this book once. The printed version of this draft book may not be photocopied without the express written permission of Sun. For the complete copyright notice, see Copyright. The online version differs from the print version in minor ways, primarily the absence of quotations due to copyright issues.

- View HTML
- Download HTML (*4616K*)
- Download PDF (*6173K*)
- Order via amazon.com

Clarifications and Amendments to *The Java Language Specification* (Third Edition).
Please send comments and errata to the authors using our feedback form.

James Gosling is a Fellow and Chief Technology Officer of Sun's Developer Products group, the creator of the Java programming language, and one of the computer industry's most noted programmers. He is the 1996 recipient of Software Development's "Programming Excellence Award." He previously developed NeWS, Sun's network-extensible window system, and was a principal in the Andrew project at Carnegie Mellon University, where he earned a Ph.D. in Computer Science.

Bill Joy is a co-founder of Sun Microsystems, where he led the company's technical strategy until September 2003, working on both hardware and software architecture. He is well known as the creator of the Berkeley version of the UNIX operating system, for which he received a lifetime achievement award from the USENIX Association in 1993. He received the

- ♦ So here you can view or download this document

Java Docs So Far

❐ So now you've seen how to get to the docs online, and you can link to Sun's site (bookmark your browser)

Pros

♦ Always most current version available

♦ Takes no disk space on local systems

Cons

♦ Not available if site is down or network has a problem

♦ Performance may be an issue

❐ Or, you can download the docs to your corporate LAN

Pros

♦ No reliance on external network, after set up

♦ Minimal disk space on local systems

Cons

♦ Not available to users if LAN problems

♦ May not always be most current version

Java Docs So Far, 2

❒ Or, you can view from your workstation - download to your machine instead of [in addition to?] the corporage LAN

Pros

- ♦ No reliance on network, after set up
- ♦ Best performance
- ♦ For laptops, docs go with you, available even when offline

Cons

- ♦ May not always be most current version
- ♦ Each user is using a chunk of disk space to hold the docs

Viewing from a z/OS Server - General set up

To set up serving Web pages for Java docs

- ♦ On your z/OS server, you need to set configuration parameters (in our case in /web/httpd1/httpd.conf) that will direct incoming browser requests to a particular directory; I added:

```
Pass  /Docs/java/*  /usr/lpp/internet/server_root/Admin/java_docs/*
```

  - ✗ So requests for http://www.ourdomain.com/Docs/java will be directed to the named directory

- ♦ Create the directory named above

Viewing from a z/OS Server - in EBCDIC

❒ In every case, we start with the Sun site mentioned on page 4

To set up - approach 1

♦ Point your browser to the Sun site, and download to your workstation as described before

✗ After downloading, the zip file, extract the contents (which creates a whole hierarchy beginning with a 'docs' directory) to your workstation

✗ Upload these files one at a time, to the right directories
- or -

✗ If you have WebSphere Developer for zSeries (WD4z), establish a connection and a filter that has your target destination (the java_docs directory in our case)

✗ Select the 'docs' directory on the workstation, right click and select 'copy'; select the USS file node, right click and select 'paste'

✗ The result in either case is a hierarchy of files with EBCDIC names and EBCDIC content (or binary for gif files)

Viewing from a z/OS Server - in EBCDIC, 2

To set up - approach 1, continued

- ♦ In some cases, when uploading individual files, when rendered by a browser the results may not quite look like the original

  - ✗ The basic problem here is that the text files are originally UNIX text files, not Windows text files, so they do not use the same line end conventions

  - ✗ For small lines, this is not a problem, but for long lines it can be: the oedit command will not work because the lines are too long for the editor

  - ✗ We solved this problem by editing problem files on the wrokstation using the TextPad product (see TextPad.com), simply opening the file and doing a Save As ... type PC, then uploading the saved version

Pros

- ✗ Bragging rights

Cons

- ✗ Difficult to do

- ✗ Not easily maintained

Viewing from a z/OS Server - in EBCDIC, 3

❐ In every case, we start with the Sun site mentioned on page 4

To set up - approach 2

- ♦ Point your browser to the Sun site, click on the link to Download - this brings up a dialog regarding where to put the file

  - ✗ After downloading the zip file, upload it, as binary, into the z/OS directory you chose to hold the docs (/usr/lpp/internet/server_root/Admin/java_docs/* in our case)

  - ✗ Change to that directory as your current working directory and Issue a "jar" command to unzip the files:

```
jar -xf jdk-6-doc.zip
```

  - ✗ The result is a hierarchy of files with EBCDIC names and UTF-8 content (or binary for gif files)

Viewing from a z/OS Server - in EBCDIC, 4

❐ **In every case, we start with the Sun site mentioned on page 4**

To set up - approach 2, continued

✗ **Next, you need to create a shell script that will convert the text files to EBCDIC, call it, say, cnvt:**

```
iconv -f ISO8859-1 -t IBM-1047 $1 > $1.ebc
rm $1
mv $1.ebc $1
```

✗ **Put this script into some directory in your PATH, and run it against all files in the hierarchy except filenames that end in .gif:**

```
find . ! -name *.gif ! -type d -exec cnvt {}  \;
```

✗ **And now you are hosting the Java doc pages on your z/OS system, in EBCDCI**

Pros

✗ **Bragging rights**

Cons

✗ **Difficult to do**

✗ **Not easily maintained**

Viewing from a z/OS Server - in ASCII / UTF-8

❒ **As in every case, we start with the Sun site mentioned on page 4**

To set up

♦ **Point your browser to the Sun site, click on the link to Download - this brings up a dialog regarding where to put the file**

✗ **After downloading the zip file, upload it, as binary, into the directory you chose to hold the docs (/usr/lpp/internet/server_root/Admin/java_docs/* in our case)**

✗ **Change to that directory as your current working directory and Issue a "jar" command to unzip the files:**

```
jar -xf jdk-6-doc.zip
```

✗ **The result is a hierarchy of files with EBCDIC names and UTF-8 content (or binary for gif files)**

Viewing from a z/OS Server - in ASCII / UTF-8, 2

To set up, continued

- ♦ Now, a difficulty arises: since z/OS is now the server, you must realize that, by default, z/OS's HTTP server translates outbound files with .htm or .html suffixes from EBCDIC to ASCII - whether they need it or not(!)

  - ✗ But our Java docs are all already UTF-8 and need no translation - in fact, translation now will make them totally unreadable by any browser

- ♦ So, we have the following choices

  - ✗ Write a script to convert all text file contents to EBCDIC (which is what we just looked at)

  - ✗ Write a script or command to change file names so they end in '.ascii'; our approach was:

```
find . ! -name *.gif ! -type d -exec mv {} {}.ascii \;
```

- ♦ At this point, if someone points their browser at our site asking for page /Docs/java/index.html.ascii, they will see the first page of the Java docs just at it appears on the Sun site

  - ✗ But, links will fail because they don't have the '.ascii' suffix we now use for all non-.gif files!

- ♦ So the final part of the fix is a need to examine every .html file in the docs structure and convert links to ".html' to be links to ".html.ascii" - but it has do all this in UTF-8!

Viewing from a z/OS Server - in ASCII / UTF-8, 3

Pros

- ✗ Bragging rights

Cons

- ✗ Very difficult to do
- ✗ Not easily maintained

❒ From a practical standpoint, serving the Sun Java documentation pages from your z/OS system is not an optimal use of that system

- ♦ But here you have seen what it would take and, perhaps, gained some insights of working with z/OS and web pages