* + ***[java.io](https://docs.oracle.com/javase/8/docs/api/java/io/compact1-package-summary.html" \t "classFrame)***

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Closeable**](https://docs.oracle.com/javase/8/docs/api/java/io/Closeable.html) | A Closeable is a source or destination of data that can be closed. |
| [**DataInput**](https://docs.oracle.com/javase/8/docs/api/java/io/DataInput.html) | The DataInput interface provides for reading bytes from a binary stream and reconstructing from them data in any of the Java primitive types. |
| [**DataOutput**](https://docs.oracle.com/javase/8/docs/api/java/io/DataOutput.html) | The DataOutput interface provides for converting data from any of the Java primitive types to a series of bytes and writing these bytes to a binary stream. |
| [**Externalizable**](https://docs.oracle.com/javase/8/docs/api/java/io/Externalizable.html) | Only the identity of the class of an Externalizable instance is written in the serialization stream and it is the responsibility of the class to save and restore the contents of its instances. |
| [**FileFilter**](https://docs.oracle.com/javase/8/docs/api/java/io/FileFilter.html) | A filter for abstract pathnames. |
| [**FilenameFilter**](https://docs.oracle.com/javase/8/docs/api/java/io/FilenameFilter.html) | Instances of classes that implement this interface are used to filter filenames. |
| [**Flushable**](https://docs.oracle.com/javase/8/docs/api/java/io/Flushable.html) | A Flushable is a destination of data that can be flushed. |
| [**ObjectInput**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectInput.html) | ObjectInput extends the DataInput interface to include the reading of objects. |
| [**ObjectInputValidation**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectInputValidation.html) | Callback interface to allow validation of objects within a graph. |
| [**ObjectOutput**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectOutput.html) | ObjectOutput extends the DataOutput interface to include writing of objects. |
| [**ObjectStreamConstants**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectStreamConstants.html) | Constants written into the Object Serialization Stream. |
| [**Serializable**](https://docs.oracle.com/javase/8/docs/api/java/io/Serializable.html) | Serializability of a class is enabled by the class implementing the java.io.Serializable interface. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**BufferedInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/BufferedInputStream.html) | A BufferedInputStream adds functionality to another input stream-namely, the ability to buffer the input and to support the mark and reset methods. |
| [**BufferedOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/BufferedOutputStream.html) | The class implements a buffered output stream. |
| [**BufferedReader**](https://docs.oracle.com/javase/8/docs/api/java/io/BufferedReader.html) | Reads text from a character-input stream, buffering characters so as to provide for the efficient reading of characters, arrays, and lines. |
| [**BufferedWriter**](https://docs.oracle.com/javase/8/docs/api/java/io/BufferedWriter.html) | Writes text to a character-output stream, buffering characters so as to provide for the efficient writing of single characters, arrays, and strings. |
| [**ByteArrayInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/ByteArrayInputStream.html) | A ByteArrayInputStream contains an internal buffer that contains bytes that may be read from the stream. |
| [**ByteArrayOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/ByteArrayOutputStream.html) | This class implements an output stream in which the data is written into a byte array. |
| [**CharArrayReader**](https://docs.oracle.com/javase/8/docs/api/java/io/CharArrayReader.html) | This class implements a character buffer that can be used as a character-input stream. |
| [**CharArrayWriter**](https://docs.oracle.com/javase/8/docs/api/java/io/CharArrayWriter.html) | This class implements a character buffer that can be used as an Writer. |
| [**Console**](https://docs.oracle.com/javase/8/docs/api/java/io/Console.html) | Methods to access the character-based console device, if any, associated with the current Java virtual machine. |
| [**DataInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/DataInputStream.html) | A data input stream lets an application read primitive Java data types from an underlying input stream in a machine-independent way. |
| [**DataOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/DataOutputStream.html) | A data output stream lets an application write primitive Java data types to an output stream in a portable way. |
| [**File**](https://docs.oracle.com/javase/8/docs/api/java/io/File.html) | An abstract representation of file and directory pathnames. |
| [**FileDescriptor**](https://docs.oracle.com/javase/8/docs/api/java/io/FileDescriptor.html) | Instances of the file descriptor class serve as an opaque handle to the underlying machine-specific structure representing an open file, an open socket, or another source or sink of bytes. |
| [**FileInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/FileInputStream.html) | A FileInputStream obtains input bytes from a file in a file system. |
| [**FileOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/FileOutputStream.html) | A file output stream is an output stream for writing data to a File or to a FileDescriptor. |
| [**FilePermission**](https://docs.oracle.com/javase/8/docs/api/java/io/FilePermission.html) | This class represents access to a file or directory. |
| [**FileReader**](https://docs.oracle.com/javase/8/docs/api/java/io/FileReader.html) | Convenience class for reading character files. |
| [**FileWriter**](https://docs.oracle.com/javase/8/docs/api/java/io/FileWriter.html) | Convenience class for writing character files. |
| [**FilterInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/FilterInputStream.html) | A FilterInputStream contains some other input stream, which it uses as its basic source of data, possibly transforming the data along the way or providing additional functionality. |
| [**FilterOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/FilterOutputStream.html) | This class is the superclass of all classes that filter output streams. |
| [**FilterReader**](https://docs.oracle.com/javase/8/docs/api/java/io/FilterReader.html) | Abstract class for reading filtered character streams. |
| [**FilterWriter**](https://docs.oracle.com/javase/8/docs/api/java/io/FilterWriter.html) | Abstract class for writing filtered character streams. |
| [**InputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/InputStream.html) | This abstract class is the superclass of all classes representing an input stream of bytes. |
| [**InputStreamReader**](https://docs.oracle.com/javase/8/docs/api/java/io/InputStreamReader.html) | An InputStreamReader is a bridge from byte streams to character streams: It reads bytes and decodes them into characters using a specified [**charset**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/Charset.html). |
| [**LineNumberInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/LineNumberInputStream.html) | Deprecated  *This class incorrectly assumes that bytes adequately represent characters.* |
| [**LineNumberReader**](https://docs.oracle.com/javase/8/docs/api/java/io/LineNumberReader.html) | A buffered character-input stream that keeps track of line numbers. |
| [**ObjectInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectInputStream.html) | An ObjectInputStream deserializes primitive data and objects previously written using an ObjectOutputStream. |
| [**ObjectInputStream.GetField**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectInputStream.GetField.html) | Provide access to the persistent fields read from the input stream. |
| [**ObjectOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectOutputStream.html) | An ObjectOutputStream writes primitive data types and graphs of Java objects to an OutputStream. |
| [**ObjectOutputStream.PutField**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectOutputStream.PutField.html) | Provide programmatic access to the persistent fields to be written to ObjectOutput. |
| [**ObjectStreamClass**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectStreamClass.html) | Serialization's descriptor for classes. |
| [**ObjectStreamField**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectStreamField.html) | A description of a Serializable field from a Serializable class. |
| [**OutputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/OutputStream.html) | This abstract class is the superclass of all classes representing an output stream of bytes. |
| [**OutputStreamWriter**](https://docs.oracle.com/javase/8/docs/api/java/io/OutputStreamWriter.html) | An OutputStreamWriter is a bridge from character streams to byte streams: Characters written to it are encoded into bytes using a specified [**charset**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/Charset.html). |
| [**PipedInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/PipedInputStream.html) | A piped input stream should be connected to a piped output stream; the piped input stream then provides whatever data bytes are written to the piped output stream. |
| [**PipedOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/PipedOutputStream.html) | A piped output stream can be connected to a piped input stream to create a communications pipe. |
| [**PipedReader**](https://docs.oracle.com/javase/8/docs/api/java/io/PipedReader.html) | Piped character-input streams. |
| [**PipedWriter**](https://docs.oracle.com/javase/8/docs/api/java/io/PipedWriter.html) | Piped character-output streams. |
| [**PrintStream**](https://docs.oracle.com/javase/8/docs/api/java/io/PrintStream.html) | A PrintStream adds functionality to another output stream, namely the ability to print representations of various data values conveniently. |
| [**PrintWriter**](https://docs.oracle.com/javase/8/docs/api/java/io/PrintWriter.html) | Prints formatted representations of objects to a text-output stream. |
| [**PushbackInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/PushbackInputStream.html) | A PushbackInputStream adds functionality to another input stream, namely the ability to "push back" or "unread" one byte. |
| [**PushbackReader**](https://docs.oracle.com/javase/8/docs/api/java/io/PushbackReader.html) | A character-stream reader that allows characters to be pushed back into the stream. |
| [**RandomAccessFile**](https://docs.oracle.com/javase/8/docs/api/java/io/RandomAccessFile.html) | Instances of this class support both reading and writing to a random access file. |
| [**Reader**](https://docs.oracle.com/javase/8/docs/api/java/io/Reader.html) | Abstract class for reading character streams. |
| [**SequenceInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/SequenceInputStream.html) | A SequenceInputStream represents the logical concatenation of other input streams. |
| [**SerializablePermission**](https://docs.oracle.com/javase/8/docs/api/java/io/SerializablePermission.html) | This class is for Serializable permissions. |
| [**StreamTokenizer**](https://docs.oracle.com/javase/8/docs/api/java/io/StreamTokenizer.html) | The StreamTokenizer class takes an input stream and parses it into "tokens", allowing the tokens to be read one at a time. |
| [**StringBufferInputStream**](https://docs.oracle.com/javase/8/docs/api/java/io/StringBufferInputStream.html) | Deprecated  *This class does not properly convert characters into bytes.* |
| [**StringReader**](https://docs.oracle.com/javase/8/docs/api/java/io/StringReader.html) | A character stream whose source is a string. |
| [**StringWriter**](https://docs.oracle.com/javase/8/docs/api/java/io/StringWriter.html) | A character stream that collects its output in a string buffer, which can then be used to construct a string. |
| [**Writer**](https://docs.oracle.com/javase/8/docs/api/java/io/Writer.html) | Abstract class for writing to character streams. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**CharConversionException**](https://docs.oracle.com/javase/8/docs/api/java/io/CharConversionException.html) | Base class for character conversion exceptions. |
| [**EOFException**](https://docs.oracle.com/javase/8/docs/api/java/io/EOFException.html) | Signals that an end of file or end of stream has been reached unexpectedly during input. |
| [**FileNotFoundException**](https://docs.oracle.com/javase/8/docs/api/java/io/FileNotFoundException.html) | Signals that an attempt to open the file denoted by a specified pathname has failed. |
| [**InterruptedIOException**](https://docs.oracle.com/javase/8/docs/api/java/io/InterruptedIOException.html) | Signals that an I/O operation has been interrupted. |
| [**InvalidClassException**](https://docs.oracle.com/javase/8/docs/api/java/io/InvalidClassException.html) | Thrown when the Serialization runtime detects one of the following problems with a Class. |
| [**InvalidObjectException**](https://docs.oracle.com/javase/8/docs/api/java/io/InvalidObjectException.html) | Indicates that one or more deserialized objects failed validation tests. |
| [**IOException**](https://docs.oracle.com/javase/8/docs/api/java/io/IOException.html) | Signals that an I/O exception of some sort has occurred. |
| [**NotActiveException**](https://docs.oracle.com/javase/8/docs/api/java/io/NotActiveException.html) | Thrown when serialization or deserialization is not active. |
| [**NotSerializableException**](https://docs.oracle.com/javase/8/docs/api/java/io/NotSerializableException.html) | Thrown when an instance is required to have a Serializable interface. |
| [**ObjectStreamException**](https://docs.oracle.com/javase/8/docs/api/java/io/ObjectStreamException.html) | Superclass of all exceptions specific to Object Stream classes. |
| [**OptionalDataException**](https://docs.oracle.com/javase/8/docs/api/java/io/OptionalDataException.html) | Exception indicating the failure of an object read operation due to unread primitive data, or the end of data belonging to a serialized object in the stream. |
| [**StreamCorruptedException**](https://docs.oracle.com/javase/8/docs/api/java/io/StreamCorruptedException.html) | Thrown when control information that was read from an object stream violates internal consistency checks. |
| [**SyncFailedException**](https://docs.oracle.com/javase/8/docs/api/java/io/SyncFailedException.html) | Signals that a sync operation has failed. |
| [**UncheckedIOException**](https://docs.oracle.com/javase/8/docs/api/java/io/UncheckedIOException.html) | Wraps an [**IOException**](https://docs.oracle.com/javase/8/docs/api/java/io/IOException.html) with an unchecked exception. |
| [**UnsupportedEncodingException**](https://docs.oracle.com/javase/8/docs/api/java/io/UnsupportedEncodingException.html) | The Character Encoding is not supported. |
| [**UTFDataFormatException**](https://docs.oracle.com/javase/8/docs/api/java/io/UTFDataFormatException.html) | Signals that a malformed string in [**modified UTF-8**](https://docs.oracle.com/javase/8/docs/api/java/io/DataInput.html#modified-utf-8) format has been read in a data input stream or by any class that implements the data input interface. |
| [**WriteAbortedException**](https://docs.oracle.com/javase/8/docs/api/java/io/WriteAbortedException.html) | Signals that one of the ObjectStreamExceptions was thrown during a write operation. |

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| **Error Summary** | |
| **Error** | **Description** |
| [**IOError**](https://docs.oracle.com/javase/8/docs/api/java/io/IOError.html) | Thrown when a serious I/O error has occurred. |

* + [***java.lang***](https://docs.oracle.com/javase/8/docs/api/java/lang/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Appendable**](https://docs.oracle.com/javase/8/docs/api/java/lang/Appendable.html) | An object to which char sequences and values can be appended. |
| [**AutoCloseable**](https://docs.oracle.com/javase/8/docs/api/java/lang/AutoCloseable.html) | An object that may hold resources (such as file or socket handles) until it is closed. |
| [**CharSequence**](https://docs.oracle.com/javase/8/docs/api/java/lang/CharSequence.html) | A CharSequence is a readable sequence of char values. |
| [**Cloneable**](https://docs.oracle.com/javase/8/docs/api/java/lang/Cloneable.html) | A class implements the Cloneable interface to indicate to the [**Object.clone()**](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html#clone--) method that it is legal for that method to make a field-for-field copy of instances of that class. |
| [**Comparable**](https://docs.oracle.com/javase/8/docs/api/java/lang/Comparable.html)<T> | This interface imposes a total ordering on the objects of each class that implements it. |
| [**Iterable**](https://docs.oracle.com/javase/8/docs/api/java/lang/Iterable.html)<T> | Implementing this interface allows an object to be the target of the "for-each loop" statement. |
| [**Readable**](https://docs.oracle.com/javase/8/docs/api/java/lang/Readable.html) | A Readable is a source of characters. |
| [**Runnable**](https://docs.oracle.com/javase/8/docs/api/java/lang/Runnable.html) | The Runnable interface should be implemented by any class whose instances are intended to be executed by a thread. |
| [**Thread.UncaughtExceptionHandler**](https://docs.oracle.com/javase/8/docs/api/java/lang/Thread.UncaughtExceptionHandler.html) | Interface for handlers invoked when a Thread abruptly terminates due to an uncaught exception. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**Boolean**](https://docs.oracle.com/javase/8/docs/api/java/lang/Boolean.html) | The Boolean class wraps a value of the primitive type boolean in an object. |
| [**Byte**](https://docs.oracle.com/javase/8/docs/api/java/lang/Byte.html) | The Byte class wraps a value of primitive type byte in an object. |
| [**Character**](https://docs.oracle.com/javase/8/docs/api/java/lang/Character.html) | The Character class wraps a value of the primitive type char in an object. |
| [**Character.Subset**](https://docs.oracle.com/javase/8/docs/api/java/lang/Character.Subset.html) | Instances of this class represent particular subsets of the Unicode character set. |
| [**Character.UnicodeBlock**](https://docs.oracle.com/javase/8/docs/api/java/lang/Character.UnicodeBlock.html) | A family of character subsets representing the character blocks in the Unicode specification. |
| [**Class**](https://docs.oracle.com/javase/8/docs/api/java/lang/Class.html)<T> | Instances of the class Class represent classes and interfaces in a running Java application. |
| [**ClassLoader**](https://docs.oracle.com/javase/8/docs/api/java/lang/ClassLoader.html) | A class loader is an object that is responsible for loading classes. |
| [**ClassValue**](https://docs.oracle.com/javase/8/docs/api/java/lang/ClassValue.html)<T> | Lazily associate a computed value with (potentially) every type. |
| [**Compiler**](https://docs.oracle.com/javase/8/docs/api/java/lang/Compiler.html) | The Compiler class is provided to support Java-to-native-code compilers and related services. |
| [**Double**](https://docs.oracle.com/javase/8/docs/api/java/lang/Double.html) | The Double class wraps a value of the primitive type double in an object. |
| [**Enum**](https://docs.oracle.com/javase/8/docs/api/java/lang/Enum.html)<E extends [**Enum**](https://docs.oracle.com/javase/8/docs/api/java/lang/Enum.html)<E>> | This is the common base class of all Java language enumeration types. |
| [**Float**](https://docs.oracle.com/javase/8/docs/api/java/lang/Float.html) | The Float class wraps a value of primitive type float in an object. |
| [**InheritableThreadLocal**](https://docs.oracle.com/javase/8/docs/api/java/lang/InheritableThreadLocal.html)<T> | This class extends ThreadLocal to provide inheritance of values from parent thread to child thread: when a child thread is created, the child receives initial values for all inheritable thread-local variables for which the parent has values. |
| [**Integer**](https://docs.oracle.com/javase/8/docs/api/java/lang/Integer.html) | The Integer class wraps a value of the primitive type int in an object. |
| [**Long**](https://docs.oracle.com/javase/8/docs/api/java/lang/Long.html) | The Long class wraps a value of the primitive type long in an object. |
| [**Math**](https://docs.oracle.com/javase/8/docs/api/java/lang/Math.html) | The class Math contains methods for performing basic numeric operations such as the elementary exponential, logarithm, square root, and trigonometric functions. |
| [**Number**](https://docs.oracle.com/javase/8/docs/api/java/lang/Number.html) | The abstract class Number is the superclass of platform classes representing numeric values that are convertible to the primitive types byte, double, float, int, long, and short. |
| [**Object**](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html) | Class Object is the root of the class hierarchy. |
| [**Package**](https://docs.oracle.com/javase/8/docs/api/java/lang/Package.html) | Package objects contain version information about the implementation and specification of a Java package. |
| [**Process**](https://docs.oracle.com/javase/8/docs/api/java/lang/Process.html) | The [**ProcessBuilder.start()**](https://docs.oracle.com/javase/8/docs/api/java/lang/ProcessBuilder.html#start--) and [**Runtime.exec**](https://docs.oracle.com/javase/8/docs/api/java/lang/Runtime.html#exec-java.lang.String:A-java.lang.String:A-java.io.File-) methods create a native process and return an instance of a subclass of Process that can be used to control the process and obtain information about it. |
| [**ProcessBuilder**](https://docs.oracle.com/javase/8/docs/api/java/lang/ProcessBuilder.html) | This class is used to create operating system processes. |
| [**ProcessBuilder.Redirect**](https://docs.oracle.com/javase/8/docs/api/java/lang/ProcessBuilder.Redirect.html) | Represents a source of subprocess input or a destination of subprocess output. |
| [**Runtime**](https://docs.oracle.com/javase/8/docs/api/java/lang/Runtime.html) | Every Java application has a single instance of class Runtime that allows the application to interface with the environment in which the application is running. |
| [**RuntimePermission**](https://docs.oracle.com/javase/8/docs/api/java/lang/RuntimePermission.html) | This class is for runtime permissions. |
| [**SecurityManager**](https://docs.oracle.com/javase/8/docs/api/java/lang/SecurityManager.html) | The security manager is a class that allows applications to implement a security policy. |
| [**Short**](https://docs.oracle.com/javase/8/docs/api/java/lang/Short.html) | The Short class wraps a value of primitive type short in an object. |
| [**StackTraceElement**](https://docs.oracle.com/javase/8/docs/api/java/lang/StackTraceElement.html) | An element in a stack trace, as returned by [**Throwable.getStackTrace()**](https://docs.oracle.com/javase/8/docs/api/java/lang/Throwable.html#getStackTrace--). |
| [**StrictMath**](https://docs.oracle.com/javase/8/docs/api/java/lang/StrictMath.html) | The class StrictMath contains methods for performing basic numeric operations such as the elementary exponential, logarithm, square root, and trigonometric functions. |
| [**String**](https://docs.oracle.com/javase/8/docs/api/java/lang/String.html) | The String class represents character strings. |
| [**StringBuffer**](https://docs.oracle.com/javase/8/docs/api/java/lang/StringBuffer.html) | A thread-safe, mutable sequence of characters. |
| [**StringBuilder**](https://docs.oracle.com/javase/8/docs/api/java/lang/StringBuilder.html) | A mutable sequence of characters. |
| [**System**](https://docs.oracle.com/javase/8/docs/api/java/lang/System.html) | The System class contains several useful class fields and methods. |
| [**Thread**](https://docs.oracle.com/javase/8/docs/api/java/lang/Thread.html) | A *thread* is a thread of execution in a program. |
| [**ThreadGroup**](https://docs.oracle.com/javase/8/docs/api/java/lang/ThreadGroup.html) | A thread group represents a set of threads. |
| [**ThreadLocal**](https://docs.oracle.com/javase/8/docs/api/java/lang/ThreadLocal.html)<T> | This class provides thread-local variables. |
| [**Throwable**](https://docs.oracle.com/javase/8/docs/api/java/lang/Throwable.html) | The Throwable class is the superclass of all errors and exceptions in the Java language. |
| [**Void**](https://docs.oracle.com/javase/8/docs/api/java/lang/Void.html) | The Void class is an uninstantiable placeholder class to hold a reference to the Class object representing the Java keyword void. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**Character.UnicodeScript**](https://docs.oracle.com/javase/8/docs/api/java/lang/Character.UnicodeScript.html) | A family of character subsets representing the character scripts defined in the [***Unicode Standard Annex #24: Script Names***](http://www.unicode.org/reports/tr24/). |
| [**ProcessBuilder.Redirect.Type**](https://docs.oracle.com/javase/8/docs/api/java/lang/ProcessBuilder.Redirect.Type.html) | The type of a [**ProcessBuilder.Redirect**](https://docs.oracle.com/javase/8/docs/api/java/lang/ProcessBuilder.Redirect.html). |
| [**Thread.State**](https://docs.oracle.com/javase/8/docs/api/java/lang/Thread.State.html) | A thread state. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**ArithmeticException**](https://docs.oracle.com/javase/8/docs/api/java/lang/ArithmeticException.html) | Thrown when an exceptional arithmetic condition has occurred. |
| [**ArrayIndexOutOfBoundsException**](https://docs.oracle.com/javase/8/docs/api/java/lang/ArrayIndexOutOfBoundsException.html) | Thrown to indicate that an array has been accessed with an illegal index. |
| [**ArrayStoreException**](https://docs.oracle.com/javase/8/docs/api/java/lang/ArrayStoreException.html) | Thrown to indicate that an attempt has been made to store the wrong type of object into an array of objects. |
| [**ClassCastException**](https://docs.oracle.com/javase/8/docs/api/java/lang/ClassCastException.html) | Thrown to indicate that the code has attempted to cast an object to a subclass of which it is not an instance. |
| [**ClassNotFoundException**](https://docs.oracle.com/javase/8/docs/api/java/lang/ClassNotFoundException.html) | Thrown when an application tries to load in a class through its string name using: The forNamemethod in class Class. |
| [**CloneNotSupportedException**](https://docs.oracle.com/javase/8/docs/api/java/lang/CloneNotSupportedException.html) | Thrown to indicate that the clone method in class Object has been called to clone an object, but that the object's class does not implement the Cloneable interface. |
| [**EnumConstantNotPresentException**](https://docs.oracle.com/javase/8/docs/api/java/lang/EnumConstantNotPresentException.html) | Thrown when an application tries to access an enum constant by name and the enum type contains no constant with the specified name. |
| [**Exception**](https://docs.oracle.com/javase/8/docs/api/java/lang/Exception.html) | The class Exception and its subclasses are a form of Throwable that indicates conditions that a reasonable application might want to catch. |
| [**IllegalAccessException**](https://docs.oracle.com/javase/8/docs/api/java/lang/IllegalAccessException.html) | An IllegalAccessException is thrown when an application tries to reflectively create an instance (other than an array), set or get a field, or invoke a method, but the currently executing method does not have access to the definition of the specified class, field, method or constructor. |
| [**IllegalArgumentException**](https://docs.oracle.com/javase/8/docs/api/java/lang/IllegalArgumentException.html) | Thrown to indicate that a method has been passed an illegal or inappropriate argument. |
| [**IllegalMonitorStateException**](https://docs.oracle.com/javase/8/docs/api/java/lang/IllegalMonitorStateException.html) | Thrown to indicate that a thread has attempted to wait on an object's monitor or to notify other threads waiting on an object's monitor without owning the specified monitor. |
| [**IllegalStateException**](https://docs.oracle.com/javase/8/docs/api/java/lang/IllegalStateException.html) | Signals that a method has been invoked at an illegal or inappropriate time. |
| [**IllegalThreadStateException**](https://docs.oracle.com/javase/8/docs/api/java/lang/IllegalThreadStateException.html) | Thrown to indicate that a thread is not in an appropriate state for the requested operation. |
| [**IndexOutOfBoundsException**](https://docs.oracle.com/javase/8/docs/api/java/lang/IndexOutOfBoundsException.html) | Thrown to indicate that an index of some sort (such as to an array, to a string, or to a vector) is out of range. |
| [**InstantiationException**](https://docs.oracle.com/javase/8/docs/api/java/lang/InstantiationException.html) | Thrown when an application tries to create an instance of a class using the newInstance method in class Class, but the specified class object cannot be instantiated. |
| [**InterruptedException**](https://docs.oracle.com/javase/8/docs/api/java/lang/InterruptedException.html) | Thrown when a thread is waiting, sleeping, or otherwise occupied, and the thread is interrupted, either before or during the activity. |
| [**NegativeArraySizeException**](https://docs.oracle.com/javase/8/docs/api/java/lang/NegativeArraySizeException.html) | Thrown if an application tries to create an array with negative size. |
| [**NoSuchFieldException**](https://docs.oracle.com/javase/8/docs/api/java/lang/NoSuchFieldException.html) | Signals that the class doesn't have a field of a specified name. |
| [**NoSuchMethodException**](https://docs.oracle.com/javase/8/docs/api/java/lang/NoSuchMethodException.html) | Thrown when a particular method cannot be found. |
| [**NullPointerException**](https://docs.oracle.com/javase/8/docs/api/java/lang/NullPointerException.html) | Thrown when an application attempts to use null in a case where an object is required. |
| [**NumberFormatException**](https://docs.oracle.com/javase/8/docs/api/java/lang/NumberFormatException.html) | Thrown to indicate that the application has attempted to convert a string to one of the numeric types, but that the string does not have the appropriate format. |
| [**ReflectiveOperationException**](https://docs.oracle.com/javase/8/docs/api/java/lang/ReflectiveOperationException.html) | Common superclass of exceptions thrown by reflective operations in core reflection. |
| [**RuntimeException**](https://docs.oracle.com/javase/8/docs/api/java/lang/RuntimeException.html) | RuntimeException is the superclass of those exceptions that can be thrown during the normal operation of the Java Virtual Machine. |
| [**SecurityException**](https://docs.oracle.com/javase/8/docs/api/java/lang/SecurityException.html) | Thrown by the security manager to indicate a security violation. |
| [**StringIndexOutOfBoundsException**](https://docs.oracle.com/javase/8/docs/api/java/lang/StringIndexOutOfBoundsException.html) | Thrown by String methods to indicate that an index is either negative or greater than the size of the string. |
| [**TypeNotPresentException**](https://docs.oracle.com/javase/8/docs/api/java/lang/TypeNotPresentException.html) | Thrown when an application tries to access a type using a string representing the type's name, but no definition for the type with the specified name can be found. |
| [**UnsupportedOperationException**](https://docs.oracle.com/javase/8/docs/api/java/lang/UnsupportedOperationException.html) | Thrown to indicate that the requested operation is not supported. |

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| **Error Summary** | |
| **Error** | **Description** |
| [**AbstractMethodError**](https://docs.oracle.com/javase/8/docs/api/java/lang/AbstractMethodError.html) | Thrown when an application tries to call an abstract method. |
| [**AssertionError**](https://docs.oracle.com/javase/8/docs/api/java/lang/AssertionError.html) | Thrown to indicate that an assertion has failed. |
| [**BootstrapMethodError**](https://docs.oracle.com/javase/8/docs/api/java/lang/BootstrapMethodError.html) | Thrown to indicate that an invokedynamic instruction has failed to find its bootstrap method, or the bootstrap method has failed to provide a [**call site**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/CallSite.html) with a [**target**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/CallSite.html#getTarget--) of the correct [**method type**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/MethodHandle.html#type). |
| [**ClassCircularityError**](https://docs.oracle.com/javase/8/docs/api/java/lang/ClassCircularityError.html) | Thrown when the Java Virtual Machine detects a circularity in the superclass hierarchy of a class being loaded. |
| [**ClassFormatError**](https://docs.oracle.com/javase/8/docs/api/java/lang/ClassFormatError.html) | Thrown when the Java Virtual Machine attempts to read a class file and determines that the file is malformed or otherwise cannot be interpreted as a class file. |
| [**Error**](https://docs.oracle.com/javase/8/docs/api/java/lang/Error.html) | An Error is a subclass of Throwable that indicates serious problems that a reasonable application should not try to catch. |
| [**ExceptionInInitializerError**](https://docs.oracle.com/javase/8/docs/api/java/lang/ExceptionInInitializerError.html) | Signals that an unexpected exception has occurred in a static initializer. |
| [**IllegalAccessError**](https://docs.oracle.com/javase/8/docs/api/java/lang/IllegalAccessError.html) | Thrown if an application attempts to access or modify a field, or to call a method that it does not have access to. |
| [**IncompatibleClassChangeError**](https://docs.oracle.com/javase/8/docs/api/java/lang/IncompatibleClassChangeError.html) | Thrown when an incompatible class change has occurred to some class definition. |
| [**InstantiationError**](https://docs.oracle.com/javase/8/docs/api/java/lang/InstantiationError.html) | Thrown when an application tries to use the Java new construct to instantiate an abstract class or an interface. |
| [**InternalError**](https://docs.oracle.com/javase/8/docs/api/java/lang/InternalError.html) | Thrown to indicate some unexpected internal error has occurred in the Java Virtual Machine. |
| [**LinkageError**](https://docs.oracle.com/javase/8/docs/api/java/lang/LinkageError.html) | Subclasses of LinkageError indicate that a class has some dependency on another class; however, the latter class has incompatibly changed after the compilation of the former class. |
| [**NoClassDefFoundError**](https://docs.oracle.com/javase/8/docs/api/java/lang/NoClassDefFoundError.html) | Thrown if the Java Virtual Machine or a ClassLoader instance tries to load in the definition of a class (as part of a normal method call or as part of creating a new instance using the new expression) and no definition of the class could be found. |
| [**NoSuchFieldError**](https://docs.oracle.com/javase/8/docs/api/java/lang/NoSuchFieldError.html) | Thrown if an application tries to access or modify a specified field of an object, and that object no longer has that field. |
| [**NoSuchMethodError**](https://docs.oracle.com/javase/8/docs/api/java/lang/NoSuchMethodError.html) | Thrown if an application tries to call a specified method of a class (either static or instance), and that class no longer has a definition of that method. |
| [**OutOfMemoryError**](https://docs.oracle.com/javase/8/docs/api/java/lang/OutOfMemoryError.html) | Thrown when the Java Virtual Machine cannot allocate an object because it is out of memory, and no more memory could be made available by the garbage collector. |
| [**StackOverflowError**](https://docs.oracle.com/javase/8/docs/api/java/lang/StackOverflowError.html) | Thrown when a stack overflow occurs because an application recurses too deeply. |
| [**ThreadDeath**](https://docs.oracle.com/javase/8/docs/api/java/lang/ThreadDeath.html) | An instance of ThreadDeath is thrown in the victim thread when the (deprecated) [**Thread.stop()**](https://docs.oracle.com/javase/8/docs/api/java/lang/Thread.html#stop--)method is invoked. |
| [**UnknownError**](https://docs.oracle.com/javase/8/docs/api/java/lang/UnknownError.html) | Thrown when an unknown but serious exception has occurred in the Java Virtual Machine. |
| [**UnsatisfiedLinkError**](https://docs.oracle.com/javase/8/docs/api/java/lang/UnsatisfiedLinkError.html) | Thrown if the Java Virtual Machine cannot find an appropriate native-language definition of a method declared native. |
| [**UnsupportedClassVersionError**](https://docs.oracle.com/javase/8/docs/api/java/lang/UnsupportedClassVersionError.html) | Thrown when the Java Virtual Machine attempts to read a class file and determines that the major and minor version numbers in the file are not supported. |
| [**VerifyError**](https://docs.oracle.com/javase/8/docs/api/java/lang/VerifyError.html) | Thrown when the "verifier" detects that a class file, though well formed, contains some sort of internal inconsistency or security problem. |
| [**VirtualMachineError**](https://docs.oracle.com/javase/8/docs/api/java/lang/VirtualMachineError.html) | Thrown to indicate that the Java Virtual Machine is broken or has run out of resources necessary for it to continue operating. |

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| **Annotation Types Summary** | |
| **Annotation Type** | **Description** |
| [**Deprecated**](https://docs.oracle.com/javase/8/docs/api/java/lang/Deprecated.html) | A program element annotated @Deprecated is one that programmers are discouraged from using, typically because it is dangerous, or because a better alternative exists. |
| [**FunctionalInterface**](https://docs.oracle.com/javase/8/docs/api/java/lang/FunctionalInterface.html) | An informative annotation type used to indicate that an interface type declaration is intended to be a*functional interface* as defined by the Java Language Specification. |
| [**Override**](https://docs.oracle.com/javase/8/docs/api/java/lang/Override.html) | Indicates that a method declaration is intended to override a method declaration in a supertype. |
| [**SafeVarargs**](https://docs.oracle.com/javase/8/docs/api/java/lang/SafeVarargs.html) | A programmer assertion that the body of the annotated method or constructor does not perform potentially unsafe operations on its varargs parameter. |
| [**SuppressWarnings**](https://docs.oracle.com/javase/8/docs/api/java/lang/SuppressWarnings.html) | Indicates that the named compiler warnings should be suppressed in the annotated element (and in all program elements contained in the annotated element). |

* + [***java.lang.annotation***](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Annotation**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/Annotation.html) | The common interface extended by all annotation types. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**ElementType**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/ElementType.html) | The constants of this enumerated type provide a simple classification of the syntactic locations where annotations may appear in a Java program. |
| [**RetentionPolicy**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/RetentionPolicy.html) | Annotation retention policy. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**AnnotationTypeMismatchException**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/AnnotationTypeMismatchException.html) | Thrown to indicate that a program has attempted to access an element of an annotation whose type has changed after the annotation was compiled (or serialized). |
| [**IncompleteAnnotationException**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/IncompleteAnnotationException.html) | Thrown to indicate that a program has attempted to access an element of an annotation type that was added to the annotation type definition after the annotation was compiled (or serialized). |

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| **Error Summary** | |
| **Error** | **Description** |
| [**AnnotationFormatError**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/AnnotationFormatError.html) | Thrown when the annotation parser attempts to read an annotation from a class file and determines that the annotation is malformed. |

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| **Annotation Types Summary** | |
| **Annotation Type** | **Description** |
| [**Documented**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/Documented.html) | Indicates that annotations with a type are to be documented by javadoc and similar tools by default. |
| [**Inherited**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/Inherited.html) | Indicates that an annotation type is automatically inherited. |
| [**Native**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/Native.html) | Indicates that a field defining a constant value may be referenced from native code. |
| [**Repeatable**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/Repeatable.html) | The annotation type java.lang.annotation.Repeatable is used to indicate that the annotation type whose declaration it (meta-)annotates is *repeatable*. |
| [**Retention**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/Retention.html) | Indicates how long annotations with the annotated type are to be retained. |
| [**Target**](https://docs.oracle.com/javase/8/docs/api/java/lang/annotation/Target.html) | Indicates the contexts in which an annotation type is applicable. |

* + [***java.lang.invoke***](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**MethodHandleInfo**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/MethodHandleInfo.html) | A symbolic reference obtained by cracking a direct method handle into its consitutent symbolic parts. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**CallSite**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/CallSite.html) | A CallSite is a holder for a variable [**MethodHandle**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/MethodHandle.html), which is called its target. |
| [**ConstantCallSite**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/ConstantCallSite.html) | A ConstantCallSite is a [**CallSite**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/CallSite.html) whose target is permanent, and can never be changed. |
| [**LambdaMetafactory**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/LambdaMetafactory.html) | Methods to facilitate the creation of simple "function objects" that implement one or more interfaces by delegation to a provided [**MethodHandle**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/MethodHandle.html), possibly after type adaptation and partial evaluation of arguments. |
| [**MethodHandle**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/MethodHandle.html) | A method handle is a typed, directly executable reference to an underlying method, constructor, field, or similar low-level operation, with optional transformations of arguments or return values. |
| [**MethodHandleProxies**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/MethodHandleProxies.html) | This class consists exclusively of static methods that help adapt method handles to other JVM types, such as interfaces. |
| [**MethodHandles**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/MethodHandles.html) | This class consists exclusively of static methods that operate on or return method handles. |
| [**MethodHandles.Lookup**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/MethodHandles.Lookup.html) | A *lookup object* is a factory for creating method handles, when the creation requires access checking. |
| [**MethodType**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/MethodType.html) | A method type represents the arguments and return type accepted and returned by a method handle, or the arguments and return type passed and expected by a method handle caller. |
| [**MutableCallSite**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/MutableCallSite.html) | A MutableCallSite is a [**CallSite**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/CallSite.html) whose target variable behaves like an ordinary field. |
| [**SerializedLambda**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/SerializedLambda.html) | Serialized form of a lambda expression. |
| [**SwitchPoint**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/SwitchPoint.html) | A SwitchPoint is an object which can publish state transitions to other threads. |
| [**VolatileCallSite**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/VolatileCallSite.html) | A VolatileCallSite is a [**CallSite**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/CallSite.html) whose target acts like a volatile variable. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**LambdaConversionException**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/LambdaConversionException.html) | LambdaConversionException |
| [**WrongMethodTypeException**](https://docs.oracle.com/javase/8/docs/api/java/lang/invoke/WrongMethodTypeException.html) | Thrown to indicate that code has attempted to call a method handle via the wrong method type. |

* + [***java.lang.ref***](https://docs.oracle.com/javase/8/docs/api/java/lang/ref/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**PhantomReference**](https://docs.oracle.com/javase/8/docs/api/java/lang/ref/PhantomReference.html)<T> | Phantom reference objects, which are enqueued after the collector determines that their referents may otherwise be reclaimed. |
| [**Reference**](https://docs.oracle.com/javase/8/docs/api/java/lang/ref/Reference.html)<T> | Abstract base class for reference objects. |
| [**ReferenceQueue**](https://docs.oracle.com/javase/8/docs/api/java/lang/ref/ReferenceQueue.html)<T> | Reference queues, to which registered reference objects are appended by the garbage collector after the appropriate reachability changes are detected. |
| [**SoftReference**](https://docs.oracle.com/javase/8/docs/api/java/lang/ref/SoftReference.html)<T> | Soft reference objects, which are cleared at the discretion of the garbage collector in response to memory demand. |
| [**WeakReference**](https://docs.oracle.com/javase/8/docs/api/java/lang/ref/WeakReference.html)<T> | Weak reference objects, which do not prevent their referents from being made finalizable, finalized, and then reclaimed. |

* + [***java.lang.reflect***](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**AnnotatedArrayType**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/AnnotatedArrayType.html) | AnnotatedArrayType represents the potentially annotated use of an array type, whose component type may itself represent the annotated use of a type. |
| [**AnnotatedElement**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/AnnotatedElement.html) | Represents an annotated element of the program currently running in this VM. |
| [**AnnotatedParameterizedType**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/AnnotatedParameterizedType.html) | AnnotatedParameterizedType represents the potentially annotated use of a parameterized type, whose type arguments may themselves represent annotated uses of types. |
| [**AnnotatedType**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/AnnotatedType.html) | AnnotatedType represents the potentially annotated use of a type in the program currently running in this VM. |
| [**AnnotatedTypeVariable**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/AnnotatedTypeVariable.html) | AnnotatedTypeVariable represents the potentially annotated use of a type variable, whose declaration may have bounds which themselves represent annotated uses of types. |
| [**AnnotatedWildcardType**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/AnnotatedWildcardType.html) | AnnotatedWildcardType represents the potentially annotated use of a wildcard type argument, whose upper or lower bounds may themselves represent annotated uses of types. |
| [**GenericArrayType**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/GenericArrayType.html) | GenericArrayType represents an array type whose component type is either a parameterized type or a type variable. |
| [**GenericDeclaration**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/GenericDeclaration.html) | A common interface for all entities that declare type variables. |
| [**InvocationHandler**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/InvocationHandler.html) | InvocationHandler is the interface implemented by the *invocation handler* of a proxy instance. |
| [**Member**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Member.html) | Member is an interface that reflects identifying information about a single member (a field or a method) or a constructor. |
| [**ParameterizedType**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/ParameterizedType.html) | ParameterizedType represents a parameterized type such as Collection<String>. |
| [**Type**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Type.html) | Type is the common superinterface for all types in the Java programming language. |
| [**TypeVariable**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/TypeVariable.html)<D extends [**GenericDeclaration**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/GenericDeclaration.html)> | TypeVariable is the common superinterface for type variables of kinds. |
| [**WildcardType**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/WildcardType.html) | WildcardType represents a wildcard type expression, such as ?, ? extends Number, or ? super Integer. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AccessibleObject**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/AccessibleObject.html) | The AccessibleObject class is the base class for Field, Method and Constructor objects. |
| [**Array**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Array.html) | The Array class provides static methods to dynamically create and access Java arrays. |
| [**Constructor**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Constructor.html)<T> | Constructor provides information about, and access to, a single constructor for a class. |
| [**Executable**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Executable.html) | A shared superclass for the common functionality of [**Method**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Method.html) and [**Constructor**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Constructor.html). |
| [**Field**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Field.html) | A Field provides information about, and dynamic access to, a single field of a class or an interface. |
| [**Method**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Method.html) | A Method provides information about, and access to, a single method on a class or interface. |
| [**Modifier**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Modifier.html) | The Modifier class provides static methods and constants to decode class and member access modifiers. |
| [**Parameter**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Parameter.html) | Information about method parameters. |
| [**Proxy**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Proxy.html) | Proxy provides static methods for creating dynamic proxy classes and instances, and it is also the superclass of all dynamic proxy classes created by those methods. |
| [**ReflectPermission**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/ReflectPermission.html) | The Permission class for reflective operations. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**InvocationTargetException**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/InvocationTargetException.html) | InvocationTargetException is a checked exception that wraps an exception thrown by an invoked method or constructor. |
| [**MalformedParameterizedTypeException**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/MalformedParameterizedTypeException.html) | Thrown when a semantically malformed parameterized type is encountered by a reflective method that needs to instantiate it. |
| [**MalformedParametersException**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/MalformedParametersException.html) | Thrown when [**the java.lang.reflect package**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Executable.html#getParameters--) attempts to read method parameters from a class file and determines that one or more parameters are malformed. |
| [**UndeclaredThrowableException**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/UndeclaredThrowableException.html) | Thrown by a method invocation on a proxy instance if its invocation handler's [**invoke**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/InvocationHandler.html#invoke-java.lang.Object-java.lang.reflect.Method-java.lang.Object:A-) method throws a checked exception (a Throwable that is not assignable to RuntimeException orError) that is not assignable to any of the exception types declared in the throws clause of the method that was invoked on the proxy instance and dispatched to the invocation handler. |

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| **Error Summary** | |
| **Error** | **Description** |
| [**GenericSignatureFormatError**](https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/GenericSignatureFormatError.html) | Thrown when a syntactically malformed signature attribute is encountered by a reflective method that needs to interpret the generic signature information for a type, method or constructor. |

* + [***java.math***](https://docs.oracle.com/javase/8/docs/api/java/math/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**BigDecimal**](https://docs.oracle.com/javase/8/docs/api/java/math/BigDecimal.html) | Immutable, arbitrary-precision signed decimal numbers. |
| [**BigInteger**](https://docs.oracle.com/javase/8/docs/api/java/math/BigInteger.html) | Immutable arbitrary-precision integers. |
| [**MathContext**](https://docs.oracle.com/javase/8/docs/api/java/math/MathContext.html) | Immutable objects which encapsulate the context settings which describe certain rules for numerical operators, such as those implemented by the [**BigDecimal**](https://docs.oracle.com/javase/8/docs/api/java/math/BigDecimal.html) class. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**RoundingMode**](https://docs.oracle.com/javase/8/docs/api/java/math/RoundingMode.html) | Specifies a *rounding behavior* for numerical operations capable of discarding precision. |

* + [***java.net***](https://docs.oracle.com/javase/8/docs/api/java/net/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**ContentHandlerFactory**](https://docs.oracle.com/javase/8/docs/api/java/net/ContentHandlerFactory.html) | This interface defines a factory for content handlers. |
| [**CookiePolicy**](https://docs.oracle.com/javase/8/docs/api/java/net/CookiePolicy.html) | CookiePolicy implementations decide which cookies should be accepted and which should be rejected. |
| [**CookieStore**](https://docs.oracle.com/javase/8/docs/api/java/net/CookieStore.html) | A CookieStore object represents a storage for cookie. |
| [**DatagramSocketImplFactory**](https://docs.oracle.com/javase/8/docs/api/java/net/DatagramSocketImplFactory.html) | This interface defines a factory for datagram socket implementations. |
| [**FileNameMap**](https://docs.oracle.com/javase/8/docs/api/java/net/FileNameMap.html) | A simple interface which provides a mechanism to map between a file name and a MIME type string. |
| [**ProtocolFamily**](https://docs.oracle.com/javase/8/docs/api/java/net/ProtocolFamily.html) | Represents a family of communication protocols. |
| [**SocketImplFactory**](https://docs.oracle.com/javase/8/docs/api/java/net/SocketImplFactory.html) | This interface defines a factory for socket implementations. |
| [**SocketOption**](https://docs.oracle.com/javase/8/docs/api/java/net/SocketOption.html)<T> | A socket option associated with a socket. |
| [**SocketOptions**](https://docs.oracle.com/javase/8/docs/api/java/net/SocketOptions.html) | Interface of methods to get/set socket options. |
| [**URLStreamHandlerFactory**](https://docs.oracle.com/javase/8/docs/api/java/net/URLStreamHandlerFactory.html) | This interface defines a factory for URL stream protocol handlers. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**Authenticator**](https://docs.oracle.com/javase/8/docs/api/java/net/Authenticator.html) | The class Authenticator represents an object that knows how to obtain authentication for a network connection. |
| [**CacheRequest**](https://docs.oracle.com/javase/8/docs/api/java/net/CacheRequest.html) | Represents channels for storing resources in the ResponseCache. |
| [**CacheResponse**](https://docs.oracle.com/javase/8/docs/api/java/net/CacheResponse.html) | Represent channels for retrieving resources from the ResponseCache. |
| [**ContentHandler**](https://docs.oracle.com/javase/8/docs/api/java/net/ContentHandler.html) | The abstract class ContentHandler is the superclass of all classes that read an Object from aURLConnection. |
| [**CookieHandler**](https://docs.oracle.com/javase/8/docs/api/java/net/CookieHandler.html) | A CookieHandler object provides a callback mechanism to hook up a HTTP state management policy implementation into the HTTP protocol handler. |
| [**CookieManager**](https://docs.oracle.com/javase/8/docs/api/java/net/CookieManager.html) | CookieManager provides a concrete implementation of [**CookieHandler**](https://docs.oracle.com/javase/8/docs/api/java/net/CookieHandler.html), which separates the storage of cookies from the policy surrounding accepting and rejecting cookies. |
| [**DatagramPacket**](https://docs.oracle.com/javase/8/docs/api/java/net/DatagramPacket.html) | This class represents a datagram packet. |
| [**DatagramSocket**](https://docs.oracle.com/javase/8/docs/api/java/net/DatagramSocket.html) | This class represents a socket for sending and receiving datagram packets. |
| [**DatagramSocketImpl**](https://docs.oracle.com/javase/8/docs/api/java/net/DatagramSocketImpl.html) | Abstract datagram and multicast socket implementation base class. |
| [**HttpCookie**](https://docs.oracle.com/javase/8/docs/api/java/net/HttpCookie.html) | An HttpCookie object represents an HTTP cookie, which carries state information between server and user agent. |
| [**HttpURLConnection**](https://docs.oracle.com/javase/8/docs/api/java/net/HttpURLConnection.html) | A URLConnection with support for HTTP-specific features. |
| [**IDN**](https://docs.oracle.com/javase/8/docs/api/java/net/IDN.html) | Provides methods to convert internationalized domain names (IDNs) between a normal Unicode representation and an ASCII Compatible Encoding (ACE) representation. |
| [**Inet4Address**](https://docs.oracle.com/javase/8/docs/api/java/net/Inet4Address.html) | This class represents an Internet Protocol version 4 (IPv4) address. |
| [**Inet6Address**](https://docs.oracle.com/javase/8/docs/api/java/net/Inet6Address.html) | This class represents an Internet Protocol version 6 (IPv6) address. |
| [**InetAddress**](https://docs.oracle.com/javase/8/docs/api/java/net/InetAddress.html) | This class represents an Internet Protocol (IP) address. |
| [**InetSocketAddress**](https://docs.oracle.com/javase/8/docs/api/java/net/InetSocketAddress.html) | This class implements an IP Socket Address (IP address + port number) It can also be a pair (hostname + port number), in which case an attempt will be made to resolve the hostname. |
| [**InterfaceAddress**](https://docs.oracle.com/javase/8/docs/api/java/net/InterfaceAddress.html) | This class represents a Network Interface address. |
| [**JarURLConnection**](https://docs.oracle.com/javase/8/docs/api/java/net/JarURLConnection.html) | A URL Connection to a Java ARchive (JAR) file or an entry in a JAR file. |
| [**MulticastSocket**](https://docs.oracle.com/javase/8/docs/api/java/net/MulticastSocket.html) | The multicast datagram socket class is useful for sending and receiving IP multicast packets. |
| [**NetPermission**](https://docs.oracle.com/javase/8/docs/api/java/net/NetPermission.html) | This class is for various network permissions. |
| [**NetworkInterface**](https://docs.oracle.com/javase/8/docs/api/java/net/NetworkInterface.html) | This class represents a Network Interface made up of a name, and a list of IP addresses assigned to this interface. |
| [**PasswordAuthentication**](https://docs.oracle.com/javase/8/docs/api/java/net/PasswordAuthentication.html) | The class PasswordAuthentication is a data holder that is used by Authenticator. |
| [**Proxy**](https://docs.oracle.com/javase/8/docs/api/java/net/Proxy.html) | This class represents a proxy setting, typically a type (http, socks) and a socket address. |
| [**ProxySelector**](https://docs.oracle.com/javase/8/docs/api/java/net/ProxySelector.html) | Selects the proxy server to use, if any, when connecting to the network resource referenced by a URL. |
| [**ResponseCache**](https://docs.oracle.com/javase/8/docs/api/java/net/ResponseCache.html) | Represents implementations of URLConnection caches. |
| [**SecureCacheResponse**](https://docs.oracle.com/javase/8/docs/api/java/net/SecureCacheResponse.html) | Represents a cache response originally retrieved through secure means, such as TLS. |
| [**ServerSocket**](https://docs.oracle.com/javase/8/docs/api/java/net/ServerSocket.html) | This class implements server sockets. |
| [**Socket**](https://docs.oracle.com/javase/8/docs/api/java/net/Socket.html) | This class implements client sockets (also called just "sockets"). |
| [**SocketAddress**](https://docs.oracle.com/javase/8/docs/api/java/net/SocketAddress.html) | This class represents a Socket Address with no protocol attachment. |
| [**SocketImpl**](https://docs.oracle.com/javase/8/docs/api/java/net/SocketImpl.html) | The abstract class SocketImpl is a common superclass of all classes that actually implement sockets. |
| [**SocketPermission**](https://docs.oracle.com/javase/8/docs/api/java/net/SocketPermission.html) | This class represents access to a network via sockets. |
| [**StandardSocketOptions**](https://docs.oracle.com/javase/8/docs/api/java/net/StandardSocketOptions.html) | Defines the *standard* socket options. |
| [**URI**](https://docs.oracle.com/javase/8/docs/api/java/net/URI.html) | Represents a Uniform Resource Identifier (URI) reference. |
| [**URL**](https://docs.oracle.com/javase/8/docs/api/java/net/URL.html) | Class URL represents a Uniform Resource Locator, a pointer to a "resource" on the World Wide Web. |
| [**URLClassLoader**](https://docs.oracle.com/javase/8/docs/api/java/net/URLClassLoader.html) | This class loader is used to load classes and resources from a search path of URLs referring to both JAR files and directories. |
| [**URLConnection**](https://docs.oracle.com/javase/8/docs/api/java/net/URLConnection.html) | The abstract class URLConnection is the superclass of all classes that represent a communications link between the application and a URL. |
| [**URLDecoder**](https://docs.oracle.com/javase/8/docs/api/java/net/URLDecoder.html) | Utility class for HTML form decoding. |
| [**URLEncoder**](https://docs.oracle.com/javase/8/docs/api/java/net/URLEncoder.html) | Utility class for HTML form encoding. |
| [**URLPermission**](https://docs.oracle.com/javase/8/docs/api/java/net/URLPermission.html) | Represents permission to access a resource or set of resources defined by a given url, and for a given set of user-settable request methods and request headers. |
| [**URLStreamHandler**](https://docs.oracle.com/javase/8/docs/api/java/net/URLStreamHandler.html) | The abstract class URLStreamHandler is the common superclass for all stream protocol handlers. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**Authenticator.RequestorType**](https://docs.oracle.com/javase/8/docs/api/java/net/Authenticator.RequestorType.html) | The type of the entity requesting authentication. |
| [**Proxy.Type**](https://docs.oracle.com/javase/8/docs/api/java/net/Proxy.Type.html) | Represents the proxy type. |
| [**StandardProtocolFamily**](https://docs.oracle.com/javase/8/docs/api/java/net/StandardProtocolFamily.html) | Defines the standard families of communication protocols. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**BindException**](https://docs.oracle.com/javase/8/docs/api/java/net/BindException.html) | Signals that an error occurred while attempting to bind a socket to a local address and port. |
| [**ConnectException**](https://docs.oracle.com/javase/8/docs/api/java/net/ConnectException.html) | Signals that an error occurred while attempting to connect a socket to a remote address and port. |
| [**HttpRetryException**](https://docs.oracle.com/javase/8/docs/api/java/net/HttpRetryException.html) | Thrown to indicate that a HTTP request needs to be retried but cannot be retried automatically, due to streaming mode being enabled. |
| [**MalformedURLException**](https://docs.oracle.com/javase/8/docs/api/java/net/MalformedURLException.html) | Thrown to indicate that a malformed URL has occurred. |
| [**NoRouteToHostException**](https://docs.oracle.com/javase/8/docs/api/java/net/NoRouteToHostException.html) | Signals that an error occurred while attempting to connect a socket to a remote address and port. |
| [**PortUnreachableException**](https://docs.oracle.com/javase/8/docs/api/java/net/PortUnreachableException.html) | Signals that an ICMP Port Unreachable message has been received on a connected datagram. |
| [**ProtocolException**](https://docs.oracle.com/javase/8/docs/api/java/net/ProtocolException.html) | Thrown to indicate that there is an error in the underlying protocol, such as a TCP error. |
| [**SocketException**](https://docs.oracle.com/javase/8/docs/api/java/net/SocketException.html) | Thrown to indicate that there is an error creating or accessing a Socket. |
| [**SocketTimeoutException**](https://docs.oracle.com/javase/8/docs/api/java/net/SocketTimeoutException.html) | Signals that a timeout has occurred on a socket read or accept. |
| [**UnknownHostException**](https://docs.oracle.com/javase/8/docs/api/java/net/UnknownHostException.html) | Thrown to indicate that the IP address of a host could not be determined. |
| [**UnknownServiceException**](https://docs.oracle.com/javase/8/docs/api/java/net/UnknownServiceException.html) | Thrown to indicate that an unknown service exception has occurred. |
| [**URISyntaxException**](https://docs.oracle.com/javase/8/docs/api/java/net/URISyntaxException.html) | Checked exception thrown to indicate that a string could not be parsed as a URI reference. |

* + [***java.nio***](https://docs.oracle.com/javase/8/docs/api/java/nio/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**Buffer**](https://docs.oracle.com/javase/8/docs/api/java/nio/Buffer.html) | A container for data of a specific primitive type. |
| [**ByteBuffer**](https://docs.oracle.com/javase/8/docs/api/java/nio/ByteBuffer.html) | A byte buffer. |
| [**ByteOrder**](https://docs.oracle.com/javase/8/docs/api/java/nio/ByteOrder.html) | A typesafe enumeration for byte orders. |
| [**CharBuffer**](https://docs.oracle.com/javase/8/docs/api/java/nio/CharBuffer.html) | A char buffer. |
| [**DoubleBuffer**](https://docs.oracle.com/javase/8/docs/api/java/nio/DoubleBuffer.html) | A double buffer. |
| [**FloatBuffer**](https://docs.oracle.com/javase/8/docs/api/java/nio/FloatBuffer.html) | A float buffer. |
| [**IntBuffer**](https://docs.oracle.com/javase/8/docs/api/java/nio/IntBuffer.html) | An int buffer. |
| [**LongBuffer**](https://docs.oracle.com/javase/8/docs/api/java/nio/LongBuffer.html) | A long buffer. |
| [**MappedByteBuffer**](https://docs.oracle.com/javase/8/docs/api/java/nio/MappedByteBuffer.html) | A direct byte buffer whose content is a memory-mapped region of a file. |
| [**ShortBuffer**](https://docs.oracle.com/javase/8/docs/api/java/nio/ShortBuffer.html) | A short buffer. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**BufferOverflowException**](https://docs.oracle.com/javase/8/docs/api/java/nio/BufferOverflowException.html) | Unchecked exception thrown when a relative *put* operation reaches the target buffer's limit. |
| [**BufferUnderflowException**](https://docs.oracle.com/javase/8/docs/api/java/nio/BufferUnderflowException.html) | Unchecked exception thrown when a relative *get* operation reaches the source buffer's limit. |
| [**InvalidMarkException**](https://docs.oracle.com/javase/8/docs/api/java/nio/InvalidMarkException.html) | Unchecked exception thrown when an attempt is made to reset a buffer when its mark is not defined. |
| [**ReadOnlyBufferException**](https://docs.oracle.com/javase/8/docs/api/java/nio/ReadOnlyBufferException.html) | Unchecked exception thrown when a content-mutation method such as put or compact is invoked upon a read-only buffer. |

* + [***java.nio.channels***](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**AsynchronousByteChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/AsynchronousByteChannel.html) | An asynchronous channel that can read and write bytes. |
| [**AsynchronousChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/AsynchronousChannel.html) | A channel that supports asynchronous I/O operations. |
| [**ByteChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/ByteChannel.html) | A channel that can read and write bytes. |
| [**Channel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/Channel.html) | A nexus for I/O operations. |
| [**CompletionHandler**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/CompletionHandler.html)<V,A> | A handler for consuming the result of an asynchronous I/O operation. |
| [**GatheringByteChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/GatheringByteChannel.html) | A channel that can write bytes from a sequence of buffers. |
| [**InterruptibleChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/InterruptibleChannel.html) | A channel that can be asynchronously closed and interrupted. |
| [**MulticastChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/MulticastChannel.html) | A network channel that supports Internet Protocol (IP) multicasting. |
| [**NetworkChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/NetworkChannel.html) | A channel to a network socket. |
| [**ReadableByteChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/ReadableByteChannel.html) | A channel that can read bytes. |
| [**ScatteringByteChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/ScatteringByteChannel.html) | A channel that can read bytes into a sequence of buffers. |
| [**SeekableByteChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SeekableByteChannel.html) | A byte channel that maintains a current *position* and allows the position to be changed. |
| [**WritableByteChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/WritableByteChannel.html) | A channel that can write bytes. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AsynchronousChannelGroup**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/AsynchronousChannelGroup.html) | A grouping of asynchronous channels for the purpose of resource sharing. |
| [**AsynchronousFileChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/AsynchronousFileChannel.html) | An asynchronous channel for reading, writing, and manipulating a file. |
| [**AsynchronousServerSocketChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/AsynchronousServerSocketChannel.html) | An asynchronous channel for stream-oriented listening sockets. |
| [**AsynchronousSocketChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/AsynchronousSocketChannel.html) | An asynchronous channel for stream-oriented connecting sockets. |
| [**Channels**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/Channels.html) | Utility methods for channels and streams. |
| [**DatagramChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/DatagramChannel.html) | A selectable channel for datagram-oriented sockets. |
| [**FileChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/FileChannel.html) | A channel for reading, writing, mapping, and manipulating a file. |
| [**FileChannel.MapMode**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/FileChannel.MapMode.html) | A typesafe enumeration for file-mapping modes. |
| [**FileLock**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/FileLock.html) | A token representing a lock on a region of a file. |
| [**MembershipKey**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/MembershipKey.html) | A token representing the membership of an Internet Protocol (IP) multicast group. |
| [**Pipe**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/Pipe.html) | A pair of channels that implements a unidirectional pipe. |
| [**Pipe.SinkChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/Pipe.SinkChannel.html) | A channel representing the writable end of a [**Pipe**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/Pipe.html). |
| [**Pipe.SourceChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/Pipe.SourceChannel.html) | A channel representing the readable end of a [**Pipe**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/Pipe.html). |
| [**SelectableChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SelectableChannel.html) | A channel that can be multiplexed via a [**Selector**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/Selector.html). |
| [**SelectionKey**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SelectionKey.html) | A token representing the registration of a [**SelectableChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SelectableChannel.html) with a [**Selector**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/Selector.html). |
| [**Selector**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/Selector.html) | A multiplexor of [**SelectableChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SelectableChannel.html) objects. |
| [**ServerSocketChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/ServerSocketChannel.html) | A selectable channel for stream-oriented listening sockets. |
| [**SocketChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SocketChannel.html) | A selectable channel for stream-oriented connecting sockets. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**AcceptPendingException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/AcceptPendingException.html) | Unchecked exception thrown when an attempt is made to initiate an accept operation on a channel and a previous accept operation has not completed. |
| [**AlreadyBoundException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/AlreadyBoundException.html) | Unchecked exception thrown when an attempt is made to bind the socket a network oriented channel that is already bound. |
| [**AlreadyConnectedException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/AlreadyConnectedException.html) | Unchecked exception thrown when an attempt is made to connect a [**SocketChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SocketChannel.html) that is already connected. |
| [**AsynchronousCloseException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/AsynchronousCloseException.html) | Checked exception received by a thread when another thread closes the channel or the part of the channel upon which it is blocked in an I/O operation. |
| [**CancelledKeyException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/CancelledKeyException.html) | Unchecked exception thrown when an attempt is made to use a selection key that is no longer valid. |
| [**ClosedByInterruptException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/ClosedByInterruptException.html) | Checked exception received by a thread when another thread interrupts it while it is blocked in an I/O operation upon a channel. |
| [**ClosedChannelException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/ClosedChannelException.html) | Checked exception thrown when an attempt is made to invoke or complete an I/O operation upon channel that is closed, or at least closed to that operation. |
| [**ClosedSelectorException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/ClosedSelectorException.html) | Unchecked exception thrown when an attempt is made to invoke an I/O operation upon a closed selector. |
| [**ConnectionPendingException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/ConnectionPendingException.html) | Unchecked exception thrown when an attempt is made to connect a [**SocketChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SocketChannel.html) for which a non-blocking connection operation is already in progress. |
| [**FileLockInterruptionException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/FileLockInterruptionException.html) | Checked exception received by a thread when another thread interrupts it while it is waiting to acquire a file lock. |
| [**IllegalBlockingModeException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/IllegalBlockingModeException.html) | Unchecked exception thrown when a blocking-mode-specific operation is invoked upon a channel in the incorrect blocking mode. |
| [**IllegalChannelGroupException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/IllegalChannelGroupException.html) | Unchecked exception thrown when an attempt is made to open a channel in a group that was not created by the same provider. |
| [**IllegalSelectorException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/IllegalSelectorException.html) | Unchecked exception thrown when an attempt is made to register a channel with a selector that was not created by the provider that created the channel. |
| [**InterruptedByTimeoutException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/InterruptedByTimeoutException.html) | Checked exception received by a thread when a timeout elapses before an asynchronous operation completes. |
| [**NoConnectionPendingException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/NoConnectionPendingException.html) | Unchecked exception thrown when the [**finishConnect**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SocketChannel.html#finishConnect--) method of a [**SocketChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SocketChannel.html) is invoked without first successfully invoking its [**connect**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/SocketChannel.html#connect-java.net.SocketAddress-) method. |
| [**NonReadableChannelException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/NonReadableChannelException.html) | Unchecked exception thrown when an attempt is made to read from a channel that was not originally opened for reading. |
| [**NonWritableChannelException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/NonWritableChannelException.html) | Unchecked exception thrown when an attempt is made to write to a channel that was not originally opened for writing. |
| [**NotYetBoundException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/NotYetBoundException.html) | Unchecked exception thrown when an attempt is made to invoke an I/O operation upon a server socket channel that is not yet bound. |
| [**NotYetConnectedException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/NotYetConnectedException.html) | Unchecked exception thrown when an attempt is made to invoke an I/O operation upon a socket channel that is not yet connected. |
| [**OverlappingFileLockException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/OverlappingFileLockException.html) | Unchecked exception thrown when an attempt is made to acquire a lock on a region of a file that overlaps a region already locked by the same Java virtual machine, or when another thread is already waiting to lock an overlapping region of the same file. |
| [**ReadPendingException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/ReadPendingException.html) | Unchecked exception thrown when an attempt is made to read from an asynchronous socket channel and a previous read has not completed. |
| [**ShutdownChannelGroupException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/ShutdownChannelGroupException.html) | Unchecked exception thrown when an attempt is made to construct a channel in a group that is shutdown or the completion handler for an I/O operation cannot be invoked because the channel group has terminated. |
| [**UnresolvedAddressException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/UnresolvedAddressException.html) | Unchecked exception thrown when an attempt is made to invoke a network operation upon an unresolved socket address. |
| [**UnsupportedAddressTypeException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/UnsupportedAddressTypeException.html) | Unchecked exception thrown when an attempt is made to bind or connect to a socket address of a type that is not supported. |
| [**WritePendingException**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/WritePendingException.html) | Unchecked exception thrown when an attempt is made to write to an asynchronous socket channel and a previous write has not completed. |

* + [***java.nio.channels.spi***](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/spi/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**AbstractInterruptibleChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/spi/AbstractInterruptibleChannel.html) | Base implementation class for interruptible channels. |
| [**AbstractSelectableChannel**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/spi/AbstractSelectableChannel.html) | Base implementation class for selectable channels. |
| [**AbstractSelectionKey**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/spi/AbstractSelectionKey.html) | Base implementation class for selection keys. |
| [**AbstractSelector**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/spi/AbstractSelector.html) | Base implementation class for selectors. |
| [**AsynchronousChannelProvider**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/spi/AsynchronousChannelProvider.html) | Service-provider class for asynchronous channels. |
| [**SelectorProvider**](https://docs.oracle.com/javase/8/docs/api/java/nio/channels/spi/SelectorProvider.html) | Service-provider class for selectors and selectable channels. |

* + [***java.nio.charset***](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**Charset**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/Charset.html) | A named mapping between sequences of sixteen-bit Unicode [**code units**](https://docs.oracle.com/javase/8/docs/api/java/lang/Character.html#unicode) and sequences of bytes. |
| [**CharsetDecoder**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/CharsetDecoder.html) | An engine that can transform a sequence of bytes in a specific charset into a sequence of sixteen-bit Unicode characters. |
| [**CharsetEncoder**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/CharsetEncoder.html) | An engine that can transform a sequence of sixteen-bit Unicode characters into a sequence of bytes in a specific charset. |
| [**CoderResult**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/CoderResult.html) | A description of the result state of a coder. |
| [**CodingErrorAction**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/CodingErrorAction.html) | A typesafe enumeration for coding-error actions. |
| [**StandardCharsets**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/StandardCharsets.html) | Constant definitions for the standard [**Charsets**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/Charset.html). |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**CharacterCodingException**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/CharacterCodingException.html) | Checked exception thrown when a character encoding or decoding error occurs. |
| [**IllegalCharsetNameException**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/IllegalCharsetNameException.html) | Unchecked exception thrown when a string that is not a [**legal charset name**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/Charset.html#names) is used as such. |
| [**MalformedInputException**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/MalformedInputException.html) | Checked exception thrown when an input byte sequence is not legal for given charset, or an input character sequence is not a legal sixteen-bit Unicode sequence. |
| [**UnmappableCharacterException**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/UnmappableCharacterException.html) | Checked exception thrown when an input character (or byte) sequence is valid but cannot be mapped to an output byte (or character) sequence. |
| [**UnsupportedCharsetException**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/UnsupportedCharsetException.html) | Unchecked exception thrown when no support is available for a requested charset. |

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| **Error Summary** | |
| **Error** | **Description** |
| [**CoderMalfunctionError**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/CoderMalfunctionError.html) | Error thrown when the [**decodeLoop**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/CharsetDecoder.html#decodeLoop-java.nio.ByteBuffer-java.nio.CharBuffer-) method of a [**CharsetDecoder**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/CharsetDecoder.html), or the [**encodeLoop**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/CharsetEncoder.html#encodeLoop-java.nio.CharBuffer-java.nio.ByteBuffer-) method of a[**CharsetEncoder**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/CharsetEncoder.html), throws an unexpected exception. |

* + [***java.nio.charset.spi***](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/spi/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**CharsetProvider**](https://docs.oracle.com/javase/8/docs/api/java/nio/charset/spi/CharsetProvider.html) | Charset service-provider class. |

* + [***java.nio.file***](https://docs.oracle.com/javase/8/docs/api/java/nio/file/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**CopyOption**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/CopyOption.html) | An object that configures how to copy or move a file. |
| [**DirectoryStream**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/DirectoryStream.html)<T> | An object to iterate over the entries in a directory. |
| [**DirectoryStream.Filter**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/DirectoryStream.Filter.html)<T> | An interface that is implemented by objects that decide if a directory entry should be accepted or filtered. |
| [**FileVisitor**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileVisitor.html)<T> | A visitor of files. |
| [**OpenOption**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/OpenOption.html) | An object that configures how to open or create a file. |
| [**Path**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/Path.html) | An object that may be used to locate a file in a file system. |
| [**PathMatcher**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/PathMatcher.html) | An interface that is implemented by objects that perform match operations on paths. |
| [**SecureDirectoryStream**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/SecureDirectoryStream.html)<T> | A DirectoryStream that defines operations on files that are located relative to an open directory. |
| [**Watchable**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/Watchable.html) | An object that may be registered with a watch service so that it can be *watched* for changes and events. |
| [**WatchEvent**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/WatchEvent.html)<T> | An event or a repeated event for an object that is registered with a [**WatchService**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/WatchService.html). |
| [**WatchEvent.Kind**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/WatchEvent.Kind.html)<T> | An event kind, for the purposes of identification. |
| [**WatchEvent.Modifier**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/WatchEvent.Modifier.html) | An event modifier that qualifies how a [**Watchable**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/Watchable.html) is registered with a [**WatchService**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/WatchService.html). |
| [**WatchKey**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/WatchKey.html) | A token representing the registration of a [**watchable**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/Watchable.html) object with a [**WatchService**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/WatchService.html). |
| [**WatchService**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/WatchService.html) | A watch service that *watches* registered objects for changes and events. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**Files**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/Files.html) | This class consists exclusively of static methods that operate on files, directories, or other types of files. |
| [**FileStore**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileStore.html) | Storage for files. |
| [**FileSystem**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileSystem.html) | Provides an interface to a file system and is the factory for objects to access files and other objects in the file system. |
| [**FileSystems**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileSystems.html) | Factory methods for file systems. |
| [**LinkPermission**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/LinkPermission.html) | The Permission class for link creation operations. |
| [**Paths**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/Paths.html) | This class consists exclusively of static methods that return a [**Path**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/Path.html) by converting a path string or [**URI**](https://docs.oracle.com/javase/8/docs/api/java/net/URI.html). |
| [**SimpleFileVisitor**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/SimpleFileVisitor.html)<T> | A simple visitor of files with default behavior to visit all files and to re-throw I/O errors. |
| [**StandardWatchEventKinds**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/StandardWatchEventKinds.html) | Defines the *standard* event kinds. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**AccessMode**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/AccessMode.html) | Defines access modes used to test the accessibility of a file. |
| [**FileVisitOption**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileVisitOption.html) | Defines the file tree traversal options. |
| [**FileVisitResult**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileVisitResult.html) | The result type of a [**FileVisitor**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileVisitor.html). |
| [**LinkOption**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/LinkOption.html) | Defines the options as to how symbolic links are handled. |
| [**StandardCopyOption**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/StandardCopyOption.html) | Defines the standard copy options. |
| [**StandardOpenOption**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/StandardOpenOption.html) | Defines the standard open options. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**AccessDeniedException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/AccessDeniedException.html) | Checked exception thrown when a file system operation is denied, typically due to a file permission or other access check. |
| [**AtomicMoveNotSupportedException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/AtomicMoveNotSupportedException.html) | Checked exception thrown when a file cannot be moved as an atomic file system operation. |
| [**ClosedDirectoryStreamException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/ClosedDirectoryStreamException.html) | Unchecked exception thrown when an attempt is made to invoke an operation on a directory stream that is closed. |
| [**ClosedFileSystemException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/ClosedFileSystemException.html) | Unchecked exception thrown when an attempt is made to invoke an operation on a file and the file system is closed. |
| [**ClosedWatchServiceException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/ClosedWatchServiceException.html) | Unchecked exception thrown when an attempt is made to invoke an operation on a watch service that is closed. |
| [**DirectoryIteratorException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/DirectoryIteratorException.html) | Runtime exception thrown if an I/O error is encountered when iterating over the entries in a directory. |
| [**DirectoryNotEmptyException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/DirectoryNotEmptyException.html) | Checked exception thrown when a file system operation fails because a directory is not empty. |
| [**FileAlreadyExistsException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileAlreadyExistsException.html) | Checked exception thrown when an attempt is made to create a file or directory and a file of that name already exists. |
| [**FileSystemAlreadyExistsException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileSystemAlreadyExistsException.html) | Runtime exception thrown when an attempt is made to create a file system that already exists. |
| [**FileSystemException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileSystemException.html) | Thrown when a file system operation fails on one or two files. |
| [**FileSystemLoopException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileSystemLoopException.html) | Checked exception thrown when a file system loop, or cycle, is encountered. |
| [**FileSystemNotFoundException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileSystemNotFoundException.html) | Runtime exception thrown when a file system cannot be found. |
| [**InvalidPathException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/InvalidPathException.html) | Unchecked exception thrown when path string cannot be converted into a [**Path**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/Path.html) because the path string contains invalid characters, or the path string is invalid for other file system specific reasons. |
| [**NoSuchFileException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/NoSuchFileException.html) | Checked exception thrown when an attempt is made to access a file that does not exist. |
| [**NotDirectoryException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/NotDirectoryException.html) | Checked exception thrown when a file system operation, intended for a directory, fails because the file is not a directory. |
| [**NotLinkException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/NotLinkException.html) | Checked exception thrown when a file system operation fails because a file is not a symbolic link. |
| [**ProviderMismatchException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/ProviderMismatchException.html) | Unchecked exception thrown when an attempt is made to invoke a method on an object created by one file system provider with a parameter created by a different file system provider. |
| [**ProviderNotFoundException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/ProviderNotFoundException.html) | Runtime exception thrown when a provider of the required type cannot be found. |
| [**ReadOnlyFileSystemException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/ReadOnlyFileSystemException.html) | Unchecked exception thrown when an attempt is made to update an object associated with a[**read-only**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileSystem.html#isReadOnly--) FileSystem. |

* + [***java.nio.file.attribute***](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**AclFileAttributeView**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/AclFileAttributeView.html) | A file attribute view that supports reading or updating a file's Access Control Lists (ACL) or file owner attributes. |
| [**AttributeView**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/AttributeView.html) | An object that provides a read-only or updatable *view* of non-opaque values associated with an object in a filesystem. |
| [**BasicFileAttributes**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/BasicFileAttributes.html) | Basic attributes associated with a file in a file system. |
| [**BasicFileAttributeView**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/BasicFileAttributeView.html) | A file attribute view that provides a view of a *basic set* of file attributes common to many file systems. |
| [**DosFileAttributes**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/DosFileAttributes.html) | File attributes associated with a file in a file system that supports legacy "DOS" attributes. |
| [**DosFileAttributeView**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/DosFileAttributeView.html) | A file attribute view that provides a view of the legacy "DOS" file attributes. |
| [**FileAttribute**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/FileAttribute.html)<T> | An object that encapsulates the value of a file attribute that can be set atomically when creating a new file or directory by invoking the [**createFile**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/Files.html#createFile-java.nio.file.Path-java.nio.file.attribute.FileAttribute...-) or [**createDirectory**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/Files.html#createDirectory-java.nio.file.Path-java.nio.file.attribute.FileAttribute...-) methods. |
| [**FileAttributeView**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/FileAttributeView.html) | An attribute view that is a read-only or updatable view of non-opaque values associated with a file in a filesystem. |
| [**FileOwnerAttributeView**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/FileOwnerAttributeView.html) | A file attribute view that supports reading or updating the owner of a file. |
| [**FileStoreAttributeView**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/FileStoreAttributeView.html) | An attribute view that is a read-only or updatable view of the attributes of a [**FileStore**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/FileStore.html). |
| [**GroupPrincipal**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/GroupPrincipal.html) | A UserPrincipal representing a *group identity*, used to determine access rights to objects in a file system. |
| [**PosixFileAttributes**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/PosixFileAttributes.html) | File attributes associated with files on file systems used by operating systems that implement the Portable Operating System Interface (POSIX) family of standards. |
| [**PosixFileAttributeView**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/PosixFileAttributeView.html) | A file attribute view that provides a view of the file attributes commonly associated with files on file systems used by operating systems that implement the Portable Operating System Interface (POSIX) family of standards. |
| [**UserDefinedFileAttributeView**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/UserDefinedFileAttributeView.html) | A file attribute view that provides a view of a file's user-defined attributes, sometimes known as*extended attributes*. |
| [**UserPrincipal**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/UserPrincipal.html) | A Principal representing an identity used to determine access rights to objects in a file system. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AclEntry**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/AclEntry.html) | An entry in an access control list (ACL). |
| [**AclEntry.Builder**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/AclEntry.Builder.html) | A builder of [**AclEntry**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/AclEntry.html) objects. |
| [**FileTime**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/FileTime.html) | Represents the value of a file's time stamp attribute. |
| [**PosixFilePermissions**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/PosixFilePermissions.html) | This class consists exclusively of static methods that operate on sets of [**PosixFilePermission**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/PosixFilePermission.html) objects. |
| [**UserPrincipalLookupService**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/UserPrincipalLookupService.html) | An object to lookup user and group principals by name. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**AclEntryFlag**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/AclEntryFlag.html) | Defines the flags for used by the flags component of an ACL [**entry**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/AclEntry.html). |
| [**AclEntryPermission**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/AclEntryPermission.html) | Defines the permissions for use with the permissions component of an ACL [**entry**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/AclEntry.html). |
| [**AclEntryType**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/AclEntryType.html) | A typesafe enumeration of the access control entry types. |
| [**PosixFilePermission**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/PosixFilePermission.html) | Defines the bits for use with the [**permissions**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/PosixFileAttributes.html#permissions--) attribute. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**UserPrincipalNotFoundException**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/UserPrincipalNotFoundException.html) | Checked exception thrown when a lookup of [**UserPrincipal**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/attribute/UserPrincipal.html) fails because the principal does not exist. |

* + [***java.nio.file.spi***](https://docs.oracle.com/javase/8/docs/api/java/nio/file/spi/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**FileSystemProvider**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/spi/FileSystemProvider.html) | Service-provider class for file systems. |
| [**FileTypeDetector**](https://docs.oracle.com/javase/8/docs/api/java/nio/file/spi/FileTypeDetector.html) | A file type detector for probing a file to guess its file type. |

* + [***java.security***](https://docs.oracle.com/javase/8/docs/api/java/security/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**AlgorithmConstraints**](https://docs.oracle.com/javase/8/docs/api/java/security/AlgorithmConstraints.html) | This interface specifies constraints for cryptographic algorithms, keys (key sizes), and other algorithm parameters. |
| [**Certificate**](https://docs.oracle.com/javase/8/docs/api/java/security/Certificate.html) | Deprecated  *A new certificate handling package is created in the Java platform.* |
| [**DomainCombiner**](https://docs.oracle.com/javase/8/docs/api/java/security/DomainCombiner.html) | A DomainCombiner provides a means to dynamically update the ProtectionDomains associated with the current AccessControlContext. |
| [**Guard**](https://docs.oracle.com/javase/8/docs/api/java/security/Guard.html) | This interface represents a guard, which is an object that is used to protect access to another object. |
| [**Key**](https://docs.oracle.com/javase/8/docs/api/java/security/Key.html) | The Key interface is the top-level interface for all keys. |
| [**KeyStore.Entry**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.Entry.html) | A marker interface for KeyStore entry types. |
| [**KeyStore.Entry.Attribute**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.Entry.Attribute.html) | An attribute associated with a keystore entry. |
| [**KeyStore.LoadStoreParameter**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.LoadStoreParameter.html) | A marker interface for KeyStore [**load**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.html#load-java.security.KeyStore.LoadStoreParameter-) and [**store**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.html#store-java.security.KeyStore.LoadStoreParameter-) parameters. |
| [**KeyStore.ProtectionParameter**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.ProtectionParameter.html) | A marker interface for keystore protection parameters. |
| [**Policy.Parameters**](https://docs.oracle.com/javase/8/docs/api/java/security/Policy.Parameters.html) | This represents a marker interface for Policy parameters. |
| [**Principal**](https://docs.oracle.com/javase/8/docs/api/java/security/Principal.html) | This interface represents the abstract notion of a principal, which can be used to represent any entity, such as an individual, a corporation, and a login id. |
| [**PrivateKey**](https://docs.oracle.com/javase/8/docs/api/java/security/PrivateKey.html) | A private key. |
| [**PrivilegedAction**](https://docs.oracle.com/javase/8/docs/api/java/security/PrivilegedAction.html)<T> | A computation to be performed with privileges enabled. |
| [**PrivilegedExceptionAction**](https://docs.oracle.com/javase/8/docs/api/java/security/PrivilegedExceptionAction.html)<T> | A computation to be performed with privileges enabled, that throws one or more checked exceptions. |
| [**PublicKey**](https://docs.oracle.com/javase/8/docs/api/java/security/PublicKey.html) | A public key. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AccessControlContext**](https://docs.oracle.com/javase/8/docs/api/java/security/AccessControlContext.html) | An AccessControlContext is used to make system resource access decisions based on the context it encapsulates. |
| [**AccessController**](https://docs.oracle.com/javase/8/docs/api/java/security/AccessController.html) | The AccessController class is used for access control operations and decisions. |
| [**AlgorithmParameterGenerator**](https://docs.oracle.com/javase/8/docs/api/java/security/AlgorithmParameterGenerator.html) | The AlgorithmParameterGenerator class is used to generate a set of parameters to be used with a certain algorithm. |
| [**AlgorithmParameterGeneratorSpi**](https://docs.oracle.com/javase/8/docs/api/java/security/AlgorithmParameterGeneratorSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the AlgorithmParameterGeneratorclass, which is used to generate a set of parameters to be used with a certain algorithm. |
| [**AlgorithmParameters**](https://docs.oracle.com/javase/8/docs/api/java/security/AlgorithmParameters.html) | This class is used as an opaque representation of cryptographic parameters. |
| [**AlgorithmParametersSpi**](https://docs.oracle.com/javase/8/docs/api/java/security/AlgorithmParametersSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the AlgorithmParameters class, which is used to manage algorithm parameters. |
| [**AllPermission**](https://docs.oracle.com/javase/8/docs/api/java/security/AllPermission.html) | The AllPermission is a permission that implies all other permissions. |
| [**AuthProvider**](https://docs.oracle.com/javase/8/docs/api/java/security/AuthProvider.html) | This class defines login and logout methods for a provider. |
| [**BasicPermission**](https://docs.oracle.com/javase/8/docs/api/java/security/BasicPermission.html) | The BasicPermission class extends the Permission class, and can be used as the base class for permissions that want to follow the same naming convention as BasicPermission. |
| [**CodeSigner**](https://docs.oracle.com/javase/8/docs/api/java/security/CodeSigner.html) | This class encapsulates information about a code signer. |
| [**CodeSource**](https://docs.oracle.com/javase/8/docs/api/java/security/CodeSource.html) | This class extends the concept of a codebase to encapsulate not only the location (URL) but also the certificate chains that were used to verify signed code originating from that location. |
| [**DigestInputStream**](https://docs.oracle.com/javase/8/docs/api/java/security/DigestInputStream.html) | A transparent stream that updates the associated message digest using the bits going through the stream. |
| [**DigestOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/security/DigestOutputStream.html) | A transparent stream that updates the associated message digest using the bits going through the stream. |
| [**DomainLoadStoreParameter**](https://docs.oracle.com/javase/8/docs/api/java/security/DomainLoadStoreParameter.html) | Configuration data that specifies the keystores in a keystore domain. |
| [**GuardedObject**](https://docs.oracle.com/javase/8/docs/api/java/security/GuardedObject.html) | A GuardedObject is an object that is used to protect access to another object. |
| [**Identity**](https://docs.oracle.com/javase/8/docs/api/java/security/Identity.html) | Deprecated  *This class is no longer used.* |
| [**IdentityScope**](https://docs.oracle.com/javase/8/docs/api/java/security/IdentityScope.html) | Deprecated  *This class is no longer used.* |
| [**KeyFactory**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyFactory.html) | Key factories are used to convert *keys* (opaque cryptographic keys of type Key) into *key specifications* (transparent representations of the underlying key material), and vice versa. |
| [**KeyFactorySpi**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyFactorySpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the KeyFactory class. |
| [**KeyPair**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyPair.html) | This class is a simple holder for a key pair (a public key and a private key). |
| [**KeyPairGenerator**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyPairGenerator.html) | The KeyPairGenerator class is used to generate pairs of public and private keys. |
| [**KeyPairGeneratorSpi**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyPairGeneratorSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the KeyPairGenerator class, which is used to generate pairs of public and private keys. |
| [**KeyRep**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyRep.html) | Standardized representation for serialized Key objects. |
| [**KeyStore**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.html) | This class represents a storage facility for cryptographic keys and certificates. |
| [**KeyStore.Builder**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.Builder.html) | A description of a to-be-instantiated KeyStore object. |
| [**KeyStore.CallbackHandlerProtection**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.CallbackHandlerProtection.html) | A ProtectionParameter encapsulating a CallbackHandler. |
| [**KeyStore.PasswordProtection**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.PasswordProtection.html) | A password-based implementation of ProtectionParameter. |
| [**KeyStore.PrivateKeyEntry**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.PrivateKeyEntry.html) | A KeyStore entry that holds a PrivateKey and corresponding certificate chain. |
| [**KeyStore.SecretKeyEntry**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.SecretKeyEntry.html) | A KeyStore entry that holds a SecretKey. |
| [**KeyStore.TrustedCertificateEntry**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStore.TrustedCertificateEntry.html) | A KeyStore entry that holds a trusted Certificate. |
| [**KeyStoreSpi**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStoreSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the KeyStore class. |
| [**MessageDigest**](https://docs.oracle.com/javase/8/docs/api/java/security/MessageDigest.html) | This MessageDigest class provides applications the functionality of a message digest algorithm, such as SHA-1 or SHA-256. |
| [**MessageDigestSpi**](https://docs.oracle.com/javase/8/docs/api/java/security/MessageDigestSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the MessageDigest class, which provides the functionality of a message digest algorithm, such as MD5 or SHA. |
| [**Permission**](https://docs.oracle.com/javase/8/docs/api/java/security/Permission.html) | Abstract class for representing access to a system resource. |
| [**PermissionCollection**](https://docs.oracle.com/javase/8/docs/api/java/security/PermissionCollection.html) | Abstract class representing a collection of Permission objects. |
| [**Permissions**](https://docs.oracle.com/javase/8/docs/api/java/security/Permissions.html) | This class represents a heterogeneous collection of Permissions. |
| [**PKCS12Attribute**](https://docs.oracle.com/javase/8/docs/api/java/security/PKCS12Attribute.html) | An attribute associated with a PKCS12 keystore entry. |
| [**Policy**](https://docs.oracle.com/javase/8/docs/api/java/security/Policy.html) | A Policy object is responsible for determining whether code executing in the Java runtime environment has permission to perform a security-sensitive operation. |
| [**PolicySpi**](https://docs.oracle.com/javase/8/docs/api/java/security/PolicySpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the Policy class. |
| [**ProtectionDomain**](https://docs.oracle.com/javase/8/docs/api/java/security/ProtectionDomain.html) | This ProtectionDomain class encapsulates the characteristics of a domain, which encloses a set of classes whose instances are granted a set of permissions when being executed on behalf of a given set of Principals. |
| [**Provider**](https://docs.oracle.com/javase/8/docs/api/java/security/Provider.html) | This class represents a "provider" for the Java Security API, where a provider implements some or all parts of Java Security. |
| [**Provider.Service**](https://docs.oracle.com/javase/8/docs/api/java/security/Provider.Service.html) | The description of a security service. |
| [**SecureClassLoader**](https://docs.oracle.com/javase/8/docs/api/java/security/SecureClassLoader.html) | This class extends ClassLoader with additional support for defining classes with an associated code source and permissions which are retrieved by the system policy by default. |
| [**SecureRandom**](https://docs.oracle.com/javase/8/docs/api/java/security/SecureRandom.html) | This class provides a cryptographically strong random number generator (RNG). |
| [**SecureRandomSpi**](https://docs.oracle.com/javase/8/docs/api/java/security/SecureRandomSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the SecureRandom class. |
| [**Security**](https://docs.oracle.com/javase/8/docs/api/java/security/Security.html) | This class centralizes all security properties and common security methods. |
| [**SecurityPermission**](https://docs.oracle.com/javase/8/docs/api/java/security/SecurityPermission.html) | This class is for security permissions. |
| [**Signature**](https://docs.oracle.com/javase/8/docs/api/java/security/Signature.html) | The Signature class is used to provide applications the functionality of a digital signature algorithm. |
| [**SignatureSpi**](https://docs.oracle.com/javase/8/docs/api/java/security/SignatureSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the Signature class, which is used to provide the functionality of a digital signature algorithm. |
| [**SignedObject**](https://docs.oracle.com/javase/8/docs/api/java/security/SignedObject.html) | SignedObject is a class for the purpose of creating authentic runtime objects whose integrity cannot be compromised without being detected. |
| [**Signer**](https://docs.oracle.com/javase/8/docs/api/java/security/Signer.html) | Deprecated  *This class is no longer used.* |
| [**Timestamp**](https://docs.oracle.com/javase/8/docs/api/java/security/Timestamp.html) | This class encapsulates information about a signed timestamp. |
| [**UnresolvedPermission**](https://docs.oracle.com/javase/8/docs/api/java/security/UnresolvedPermission.html) | The UnresolvedPermission class is used to hold Permissions that were "unresolved" when the Policy was initialized. |
| [**URIParameter**](https://docs.oracle.com/javase/8/docs/api/java/security/URIParameter.html) | A parameter that contains a URI pointing to data intended for a PolicySpi or ConfigurationSpi implementation. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**CryptoPrimitive**](https://docs.oracle.com/javase/8/docs/api/java/security/CryptoPrimitive.html) | An enumeration of cryptographic primitives. |
| [**KeyRep.Type**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyRep.Type.html) | Key type. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**AccessControlException**](https://docs.oracle.com/javase/8/docs/api/java/security/AccessControlException.html) | This exception is thrown by the AccessController to indicate that a requested access (to a critical system resource such as the file system or the network) is denied. |
| [**DigestException**](https://docs.oracle.com/javase/8/docs/api/java/security/DigestException.html) | This is the generic Message Digest exception. |
| [**GeneralSecurityException**](https://docs.oracle.com/javase/8/docs/api/java/security/GeneralSecurityException.html) | The GeneralSecurityException class is a generic security exception class that provides type safety for all the security-related exception classes that extend from it. |
| [**InvalidAlgorithmParameterException**](https://docs.oracle.com/javase/8/docs/api/java/security/InvalidAlgorithmParameterException.html) | This is the exception for invalid or inappropriate algorithm parameters. |
| [**InvalidKeyException**](https://docs.oracle.com/javase/8/docs/api/java/security/InvalidKeyException.html) | This is the exception for invalid Keys (invalid encoding, wrong length, uninitialized, etc). |
| [**InvalidParameterException**](https://docs.oracle.com/javase/8/docs/api/java/security/InvalidParameterException.html) | This exception, designed for use by the JCA/JCE engine classes, is thrown when an invalid parameter is passed to a method. |
| [**KeyException**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyException.html) | This is the basic key exception. |
| [**KeyManagementException**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyManagementException.html) | This is the general key management exception for all operations dealing with key management. |
| [**KeyStoreException**](https://docs.oracle.com/javase/8/docs/api/java/security/KeyStoreException.html) | This is the generic KeyStore exception. |
| [**NoSuchAlgorithmException**](https://docs.oracle.com/javase/8/docs/api/java/security/NoSuchAlgorithmException.html) | This exception is thrown when a particular cryptographic algorithm is requested but is not available in the environment. |
| [**NoSuchProviderException**](https://docs.oracle.com/javase/8/docs/api/java/security/NoSuchProviderException.html) | This exception is thrown when a particular security provider is requested but is not available in the environment. |
| [**PrivilegedActionException**](https://docs.oracle.com/javase/8/docs/api/java/security/PrivilegedActionException.html) | This exception is thrown by doPrivileged(PrivilegedExceptionAction) anddoPrivileged(PrivilegedExceptionAction, AccessControlContext context) to indicate that the action being performed threw a checked exception. |
| [**ProviderException**](https://docs.oracle.com/javase/8/docs/api/java/security/ProviderException.html) | A runtime exception for Provider exceptions (such as misconfiguration errors or unrecoverable internal errors), which may be subclassed by Providers to throw specialized, provider-specific runtime errors. |
| [**SignatureException**](https://docs.oracle.com/javase/8/docs/api/java/security/SignatureException.html) | This is the generic Signature exception. |
| [**UnrecoverableEntryException**](https://docs.oracle.com/javase/8/docs/api/java/security/UnrecoverableEntryException.html) | This exception is thrown if an entry in the keystore cannot be recovered. |
| [**UnrecoverableKeyException**](https://docs.oracle.com/javase/8/docs/api/java/security/UnrecoverableKeyException.html) | This exception is thrown if a key in the keystore cannot be recovered. |

* + [***java.security.cert***](https://docs.oracle.com/javase/8/docs/api/java/security/cert/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**CertPathBuilderResult**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathBuilderResult.html) | A specification of the result of a certification path builder algorithm. |
| [**CertPathChecker**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathChecker.html) | Performs one or more checks on each Certificate of a CertPath. |
| [**CertPathParameters**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathParameters.html) | A specification of certification path algorithm parameters. |
| [**CertPathValidatorException.Reason**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathValidatorException.Reason.html) | The reason the validation algorithm failed. |
| [**CertPathValidatorResult**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathValidatorResult.html) | A specification of the result of a certification path validator algorithm. |
| [**CertSelector**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertSelector.html) | A selector that defines a set of criteria for selecting Certificates. |
| [**CertStoreParameters**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertStoreParameters.html) | A specification of CertStore parameters. |
| [**CRLSelector**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CRLSelector.html) | A selector that defines a set of criteria for selecting CRLs. |
| [**Extension**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/Extension.html) | This interface represents an X.509 extension. |
| [**PolicyNode**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/PolicyNode.html) | An immutable valid policy tree node as defined by the PKIX certification path validation algorithm. |
| [**X509Extension**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/X509Extension.html) | Interface for an X.509 extension. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**Certificate**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/Certificate.html) | Abstract class for managing a variety of identity certificates. |
| [**Certificate.CertificateRep**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/Certificate.CertificateRep.html) | Alternate Certificate class for serialization. |
| [**CertificateFactory**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertificateFactory.html) | This class defines the functionality of a certificate factory, which is used to generate certificate, certification path (CertPath) and certificate revocation list (CRL) objects from their encodings. |
| [**CertificateFactorySpi**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertificateFactorySpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the CertificateFactory class. |
| [**CertPath**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPath.html) | An immutable sequence of certificates (a certification path). |
| [**CertPath.CertPathRep**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPath.CertPathRep.html) | Alternate CertPath class for serialization. |
| [**CertPathBuilder**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathBuilder.html) | A class for building certification paths (also known as certificate chains). |
| [**CertPathBuilderSpi**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathBuilderSpi.html) | The *Service Provider Interface* (**SPI**) for the [**CertPathBuilder**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathBuilder.html) class. |
| [**CertPathValidator**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathValidator.html) | A class for validating certification paths (also known as certificate chains). |
| [**CertPathValidatorSpi**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathValidatorSpi.html) | The *Service Provider Interface* (**SPI**) for the [**CertPathValidator**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathValidator.html) class. |
| [**CertStore**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertStore.html) | A class for retrieving Certificates and CRLs from a repository. |
| [**CertStoreSpi**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertStoreSpi.html) | The *Service Provider Interface* (**SPI**) for the [**CertStore**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertStore.html) class. |
| [**CollectionCertStoreParameters**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CollectionCertStoreParameters.html) | Parameters used as input for the Collection CertStore algorithm. |
| [**CRL**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CRL.html) | This class is an abstraction of certificate revocation lists (CRLs) that have different formats but important common uses. |
| [**LDAPCertStoreParameters**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/LDAPCertStoreParameters.html) | Parameters used as input for the LDAP CertStore algorithm. |
| [**PKIXBuilderParameters**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/PKIXBuilderParameters.html) | Parameters used as input for the PKIX CertPathBuilder algorithm. |
| [**PKIXCertPathBuilderResult**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/PKIXCertPathBuilderResult.html) | This class represents the successful result of the PKIX certification path builder algorithm. |
| [**PKIXCertPathChecker**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/PKIXCertPathChecker.html) | An abstract class that performs one or more checks on an X509Certificate. |
| [**PKIXCertPathValidatorResult**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/PKIXCertPathValidatorResult.html) | This class represents the successful result of the PKIX certification path validation algorithm. |
| [**PKIXParameters**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/PKIXParameters.html) | Parameters used as input for the PKIX CertPathValidator algorithm. |
| [**PKIXRevocationChecker**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/PKIXRevocationChecker.html) | A PKIXCertPathChecker for checking the revocation status of certificates with the PKIX algorithm. |
| [**PolicyQualifierInfo**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/PolicyQualifierInfo.html) | An immutable policy qualifier represented by the ASN.1 PolicyQualifierInfo structure. |
| [**TrustAnchor**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/TrustAnchor.html) | A trust anchor or most-trusted Certification Authority (CA). |
| [**X509Certificate**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/X509Certificate.html) | Abstract class for X.509 certificates. |
| [**X509CertSelector**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/X509CertSelector.html) | A CertSelector that selects X509Certificates that match all specified criteria. |
| [**X509CRL**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/X509CRL.html) | Abstract class for an X.509 Certificate Revocation List (CRL). |
| [**X509CRLEntry**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/X509CRLEntry.html) | Abstract class for a revoked certificate in a CRL (Certificate Revocation List). |
| [**X509CRLSelector**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/X509CRLSelector.html) | A CRLSelector that selects X509CRLs that match all specified criteria. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**CertPathValidatorException.BasicReason**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathValidatorException.BasicReason.html) | The BasicReason enumerates the potential reasons that a certification path of any type may be invalid. |
| [**CRLReason**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CRLReason.html) | The CRLReason enumeration specifies the reason that a certificate is revoked, as defined in[**RFC 3280: Internet X.509 Public Key Infrastructure Certificate and CRL Profile**](http://www.ietf.org/rfc/rfc3280.txt). |
| [**PKIXReason**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/PKIXReason.html) | The PKIXReason enumerates the potential PKIX-specific reasons that an X.509 certification path may be invalid according to the PKIX (RFC 3280) standard. |
| [**PKIXRevocationChecker.Option**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/PKIXRevocationChecker.Option.html) | Various revocation options that can be specified for the revocation checking mechanism. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**CertificateEncodingException**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertificateEncodingException.html) | Certificate Encoding Exception. |
| [**CertificateException**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertificateException.html) | This exception indicates one of a variety of certificate problems. |
| [**CertificateExpiredException**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertificateExpiredException.html) | Certificate Expired Exception. |
| [**CertificateNotYetValidException**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertificateNotYetValidException.html) | Certificate is not yet valid exception. |
| [**CertificateParsingException**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertificateParsingException.html) | Certificate Parsing Exception. |
| [**CertificateRevokedException**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertificateRevokedException.html) | An exception that indicates an X.509 certificate is revoked. |
| [**CertPathBuilderException**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathBuilderException.html) | An exception indicating one of a variety of problems encountered when building a certification path with a CertPathBuilder. |
| [**CertPathValidatorException**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertPathValidatorException.html) | An exception indicating one of a variety of problems encountered when validating a certification path. |
| [**CertStoreException**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CertStoreException.html) | An exception indicating one of a variety of problems retrieving certificates and CRLs from aCertStore. |
| [**CRLException**](https://docs.oracle.com/javase/8/docs/api/java/security/cert/CRLException.html) | CRL (Certificate Revocation List) Exception. |

* + [***java.security.interfaces***](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**DSAKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/DSAKey.html) | The interface to a DSA public or private key. |
| [**DSAKeyPairGenerator**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/DSAKeyPairGenerator.html) | An interface to an object capable of generating DSA key pairs. |
| [**DSAParams**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/DSAParams.html) | Interface to a DSA-specific set of key parameters, which defines a DSA *key family*. |
| [**DSAPrivateKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/DSAPrivateKey.html) | The standard interface to a DSA private key. |
| [**DSAPublicKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/DSAPublicKey.html) | The interface to a DSA public key. |
| [**ECKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/ECKey.html) | The interface to an elliptic curve (EC) key. |
| [**ECPrivateKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/ECPrivateKey.html) | The interface to an elliptic curve (EC) private key. |
| [**ECPublicKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/ECPublicKey.html) | The interface to an elliptic curve (EC) public key. |
| [**RSAKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/RSAKey.html) | The interface to an RSA public or private key. |
| [**RSAMultiPrimePrivateCrtKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/RSAMultiPrimePrivateCrtKey.html) | The interface to an RSA multi-prime private key, as defined in the PKCS#1 v2.1, using the *Chinese Remainder Theorem* (CRT) information values. |
| [**RSAPrivateCrtKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/RSAPrivateCrtKey.html) | The interface to an RSA private key, as defined in the PKCS#1 standard, using the *Chinese Remainder Theorem* (CRT) information values. |
| [**RSAPrivateKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/RSAPrivateKey.html) | The interface to an RSA private key. |
| [**RSAPublicKey**](https://docs.oracle.com/javase/8/docs/api/java/security/interfaces/RSAPublicKey.html) | The interface to an RSA public key. |

* + [***java.security.spec***](https://docs.oracle.com/javase/8/docs/api/java/security/spec/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**AlgorithmParameterSpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/AlgorithmParameterSpec.html) | A (transparent) specification of cryptographic parameters. |
| [**ECField**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/ECField.html) | This interface represents an elliptic curve (EC) finite field. |
| [**KeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/KeySpec.html) | A (transparent) specification of the key material that constitutes a cryptographic key. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**DSAGenParameterSpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/DSAGenParameterSpec.html) | This immutable class specifies the set of parameters used for generating DSA parameters as specified in [**FIPS 186-3 Digital Signature Standard (DSS)**](http://csrc.nist.gov/publications/fips/fips186-3/fips_186-3.pdf). |
| [**DSAParameterSpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/DSAParameterSpec.html) | This class specifies the set of parameters used with the DSA algorithm. |
| [**DSAPrivateKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/DSAPrivateKeySpec.html) | This class specifies a DSA private key with its associated parameters. |
| [**DSAPublicKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/DSAPublicKeySpec.html) | This class specifies a DSA public key with its associated parameters. |
| [**ECFieldF2m**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/ECFieldF2m.html) | This immutable class defines an elliptic curve (EC) characteristic 2 finite field. |
| [**ECFieldFp**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/ECFieldFp.html) | This immutable class defines an elliptic curve (EC) prime finite field. |
| [**ECGenParameterSpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/ECGenParameterSpec.html) | This immutable class specifies the set of parameters used for generating elliptic curve (EC) domain parameters. |
| [**ECParameterSpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/ECParameterSpec.html) | This immutable class specifies the set of domain parameters used with elliptic curve cryptography (ECC). |
| [**ECPoint**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/ECPoint.html) | This immutable class represents a point on an elliptic curve (EC) in affine coordinates. |
| [**ECPrivateKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/ECPrivateKeySpec.html) | This immutable class specifies an elliptic curve private key with its associated parameters. |
| [**ECPublicKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/ECPublicKeySpec.html) | This immutable class specifies an elliptic curve public key with its associated parameters. |
| [**EllipticCurve**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/EllipticCurve.html) | This immutable class holds the necessary values needed to represent an elliptic curve. |
| [**EncodedKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/EncodedKeySpec.html) | This class represents a public or private key in encoded format. |
| [**MGF1ParameterSpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/MGF1ParameterSpec.html) | This class specifies the set of parameters used with mask generation function MGF1 in OAEP Padding and RSA-PSS signature scheme, as defined in the [**PKCS #1 v2.1**](http://www.ietf.org/rfc/rfc3447.txt) standard. |
| [**PKCS8EncodedKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/PKCS8EncodedKeySpec.html) | This class represents the ASN.1 encoding of a private key, encoded according to the ASN.1 typePrivateKeyInfo. |
| [**PSSParameterSpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/PSSParameterSpec.html) | This class specifies a parameter spec for RSA-PSS signature scheme, as defined in the [**PKCS#1 v2.1**](http://www.ietf.org/rfc/rfc3447.txt) standard. |
| [**RSAKeyGenParameterSpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/RSAKeyGenParameterSpec.html) | This class specifies the set of parameters used to generate an RSA key pair. |
| [**RSAMultiPrimePrivateCrtKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/RSAMultiPrimePrivateCrtKeySpec.html) | This class specifies an RSA multi-prime private key, as defined in the PKCS#1 v2.1, using the Chinese Remainder Theorem (CRT) information values for efficiency. |
| [**RSAOtherPrimeInfo**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/RSAOtherPrimeInfo.html) | This class represents the triplet (prime, exponent, and coefficient) inside RSA's OtherPrimeInfo structure, as defined in the PKCS#1 v2.1. |
| [**RSAPrivateCrtKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/RSAPrivateCrtKeySpec.html) | This class specifies an RSA private key, as defined in the PKCS#1 standard, using the Chinese Remainder Theorem (CRT) information values for efficiency. |
| [**RSAPrivateKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/RSAPrivateKeySpec.html) | This class specifies an RSA private key. |
| [**RSAPublicKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/RSAPublicKeySpec.html) | This class specifies an RSA public key. |
| [**X509EncodedKeySpec**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/X509EncodedKeySpec.html) | This class represents the ASN.1 encoding of a public key, encoded according to the ASN.1 typeSubjectPublicKeyInfo. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**InvalidKeySpecException**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/InvalidKeySpecException.html) | This is the exception for invalid key specifications. |
| [**InvalidParameterSpecException**](https://docs.oracle.com/javase/8/docs/api/java/security/spec/InvalidParameterSpecException.html) | This is the exception for invalid parameter specifications. |

* + [***java.text***](https://docs.oracle.com/javase/8/docs/api/java/text/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**AttributedCharacterIterator**](https://docs.oracle.com/javase/8/docs/api/java/text/AttributedCharacterIterator.html) | An AttributedCharacterIterator allows iteration through both text and related attribute information. |
| [**CharacterIterator**](https://docs.oracle.com/javase/8/docs/api/java/text/CharacterIterator.html) | This interface defines a protocol for bidirectional iteration over text. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**Annotation**](https://docs.oracle.com/javase/8/docs/api/java/text/Annotation.html) | An Annotation object is used as a wrapper for a text attribute value if the attribute has annotation characteristics. |
| [**AttributedCharacterIterator.Attribute**](https://docs.oracle.com/javase/8/docs/api/java/text/AttributedCharacterIterator.Attribute.html) | Defines attribute keys that are used to identify text attributes. |
| [**AttributedString**](https://docs.oracle.com/javase/8/docs/api/java/text/AttributedString.html) | An AttributedString holds text and related attribute information. |
| [**Bidi**](https://docs.oracle.com/javase/8/docs/api/java/text/Bidi.html) | This class implements the Unicode Bidirectional Algorithm. |
| [**BreakIterator**](https://docs.oracle.com/javase/8/docs/api/java/text/BreakIterator.html) | The BreakIterator class implements methods for finding the location of boundaries in text. |
| [**ChoiceFormat**](https://docs.oracle.com/javase/8/docs/api/java/text/ChoiceFormat.html) | A ChoiceFormat allows you to attach a format to a range of numbers. |
| [**CollationElementIterator**](https://docs.oracle.com/javase/8/docs/api/java/text/CollationElementIterator.html) | The CollationElementIterator class is used as an iterator to walk through each character of an international string. |
| [**CollationKey**](https://docs.oracle.com/javase/8/docs/api/java/text/CollationKey.html) | A CollationKey represents a String under the rules of a specific Collator object. |
| [**Collator**](https://docs.oracle.com/javase/8/docs/api/java/text/Collator.html) | The Collator class performs locale-sensitive String comparison. |
| [**DateFormat**](https://docs.oracle.com/javase/8/docs/api/java/text/DateFormat.html) | DateFormat is an abstract class for date/time formatting subclasses which formats and parses dates or time in a language-independent manner. |
| [**DateFormat.Field**](https://docs.oracle.com/javase/8/docs/api/java/text/DateFormat.Field.html) | Defines constants that are used as attribute keys in the AttributedCharacterIteratorreturned from DateFormat.formatToCharacterIterator and as field identifiers inFieldPosition. |
| [**DateFormatSymbols**](https://docs.oracle.com/javase/8/docs/api/java/text/DateFormatSymbols.html) | DateFormatSymbols is a public class for encapsulating localizable date-time formatting data, such as the names of the months, the names of the days of the week, and the time zone data. |
| [**DecimalFormat**](https://docs.oracle.com/javase/8/docs/api/java/text/DecimalFormat.html) | DecimalFormat is a concrete subclass of NumberFormat that formats decimal numbers. |
| [**DecimalFormatSymbols**](https://docs.oracle.com/javase/8/docs/api/java/text/DecimalFormatSymbols.html) | This class represents the set of symbols (such as the decimal separator, the grouping separator, and so on) needed by DecimalFormat to format numbers. |
| [**FieldPosition**](https://docs.oracle.com/javase/8/docs/api/java/text/FieldPosition.html) | FieldPosition is a simple class used by Format and its subclasses to identify fields in formatted output. |
| [**Format**](https://docs.oracle.com/javase/8/docs/api/java/text/Format.html) | Format is an abstract base class for formatting locale-sensitive information such as dates, messages, and numbers. |
| [**Format.Field**](https://docs.oracle.com/javase/8/docs/api/java/text/Format.Field.html) | Defines constants that are used as attribute keys in the AttributedCharacterIteratorreturned from Format.formatToCharacterIterator and as field identifiers in FieldPosition. |
| [**MessageFormat**](https://docs.oracle.com/javase/8/docs/api/java/text/MessageFormat.html) | MessageFormat provides a means to produce concatenated messages in a language-neutral way. |
| [**MessageFormat.Field**](https://docs.oracle.com/javase/8/docs/api/java/text/MessageFormat.Field.html) | Defines constants that are used as attribute keys in the AttributedCharacterIteratorreturned from MessageFormat.formatToCharacterIterator. |
| [**Normalizer**](https://docs.oracle.com/javase/8/docs/api/java/text/Normalizer.html) | This class provides the method normalize which transforms Unicode text into an equivalent composed or decomposed form, allowing for easier sorting and searching of text. |
| [**NumberFormat**](https://docs.oracle.com/javase/8/docs/api/java/text/NumberFormat.html) | NumberFormat is the abstract base class for all number formats. |
| [**NumberFormat.Field**](https://docs.oracle.com/javase/8/docs/api/java/text/NumberFormat.Field.html) | Defines constants that are used as attribute keys in the AttributedCharacterIteratorreturned from NumberFormat.formatToCharacterIterator and as field identifiers inFieldPosition. |
| [**ParsePosition**](https://docs.oracle.com/javase/8/docs/api/java/text/ParsePosition.html) | ParsePosition is a simple class used by Format and its subclasses to keep track of the current position during parsing. |
| [**RuleBasedCollator**](https://docs.oracle.com/javase/8/docs/api/java/text/RuleBasedCollator.html) | The RuleBasedCollator class is a concrete subclass of Collator that provides a simple, data-driven, table collator. |
| [**SimpleDateFormat**](https://docs.oracle.com/javase/8/docs/api/java/text/SimpleDateFormat.html) | SimpleDateFormat is a concrete class for formatting and parsing dates in a locale-sensitive manner. |
| [**StringCharacterIterator**](https://docs.oracle.com/javase/8/docs/api/java/text/StringCharacterIterator.html) | StringCharacterIterator implements the CharacterIterator protocol for a String. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**Normalizer.Form**](https://docs.oracle.com/javase/8/docs/api/java/text/Normalizer.Form.html) | This enum provides constants of the four Unicode normalization forms that are described in [**Unicode Standard Annex #15 — Unicode Normalization Forms**](http://www.unicode.org/unicode/reports/tr15/tr15-23.html) and two methods to access them. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**ParseException**](https://docs.oracle.com/javase/8/docs/api/java/text/ParseException.html) | Signals that an error has been reached unexpectedly while parsing. |

* + [***java.text.spi***](https://docs.oracle.com/javase/8/docs/api/java/text/spi/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**BreakIteratorProvider**](https://docs.oracle.com/javase/8/docs/api/java/text/spi/BreakIteratorProvider.html) | An abstract class for service providers that provide concrete implementations of the [**BreakIterator**](https://docs.oracle.com/javase/8/docs/api/java/text/BreakIterator.html)class. |
| [**CollatorProvider**](https://docs.oracle.com/javase/8/docs/api/java/text/spi/CollatorProvider.html) | An abstract class for service providers that provide concrete implementations of the [**Collator**](https://docs.oracle.com/javase/8/docs/api/java/text/Collator.html) class. |
| [**DateFormatProvider**](https://docs.oracle.com/javase/8/docs/api/java/text/spi/DateFormatProvider.html) | An abstract class for service providers that provide concrete implementations of the [**DateFormat**](https://docs.oracle.com/javase/8/docs/api/java/text/DateFormat.html)class. |
| [**DateFormatSymbolsProvider**](https://docs.oracle.com/javase/8/docs/api/java/text/spi/DateFormatSymbolsProvider.html) | An abstract class for service providers that provide instances of the [**DateFormatSymbols**](https://docs.oracle.com/javase/8/docs/api/java/text/DateFormatSymbols.html) class. |
| [**DecimalFormatSymbolsProvider**](https://docs.oracle.com/javase/8/docs/api/java/text/spi/DecimalFormatSymbolsProvider.html) | An abstract class for service providers that provide instances of the [**DecimalFormatSymbols**](https://docs.oracle.com/javase/8/docs/api/java/text/DecimalFormatSymbols.html) class. |
| [**NumberFormatProvider**](https://docs.oracle.com/javase/8/docs/api/java/text/spi/NumberFormatProvider.html) | An abstract class for service providers that provide concrete implementations of the [**NumberFormat**](https://docs.oracle.com/javase/8/docs/api/java/text/NumberFormat.html)class. |

* + [***java.time***](https://docs.oracle.com/javase/8/docs/api/java/time/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**Clock**](https://docs.oracle.com/javase/8/docs/api/java/time/Clock.html) | A clock providing access to the current instant, date and time using a time-zone. |
| [**Duration**](https://docs.oracle.com/javase/8/docs/api/java/time/Duration.html) | A time-based amount of time, such as '34.5 seconds'. |
| [**Instant**](https://docs.oracle.com/javase/8/docs/api/java/time/Instant.html) | An instantaneous point on the time-line. |
| [**LocalDate**](https://docs.oracle.com/javase/8/docs/api/java/time/LocalDate.html) | A date without a time-zone in the ISO-8601 calendar system, such as 2007-12-03. |
| [**LocalDateTime**](https://docs.oracle.com/javase/8/docs/api/java/time/LocalDateTime.html) | A date-time without a time-zone in the ISO-8601 calendar system, such as 2007-12-03T10:15:30. |
| [**LocalTime**](https://docs.oracle.com/javase/8/docs/api/java/time/LocalTime.html) | A time without a time-zone in the ISO-8601 calendar system, such as 10:15:30. |
| [**MonthDay**](https://docs.oracle.com/javase/8/docs/api/java/time/MonthDay.html) | A month-day in the ISO-8601 calendar system, such as --12-03. |
| [**OffsetDateTime**](https://docs.oracle.com/javase/8/docs/api/java/time/OffsetDateTime.html) | A date-time with an offset from UTC/Greenwich in the ISO-8601 calendar system, such as 2007-12-03T10:15:30+01:00. |
| [**OffsetTime**](https://docs.oracle.com/javase/8/docs/api/java/time/OffsetTime.html) | A time with an offset from UTC/Greenwich in the ISO-8601 calendar system, such as10:15:30+01:00. |
| [**Period**](https://docs.oracle.com/javase/8/docs/api/java/time/Period.html) | A date-based amount of time in the ISO-8601 calendar system, such as '2 years, 3 months and 4 days'. |
| [**Year**](https://docs.oracle.com/javase/8/docs/api/java/time/Year.html) | A year in the ISO-8601 calendar system, such as 2007. |
| [**YearMonth**](https://docs.oracle.com/javase/8/docs/api/java/time/YearMonth.html) | A year-month in the ISO-8601 calendar system, such as 2007-12. |
| [**ZonedDateTime**](https://docs.oracle.com/javase/8/docs/api/java/time/ZonedDateTime.html) | A date-time with a time-zone in the ISO-8601 calendar system, such as 2007-12-03T10:15:30+01:00 Europe/Paris. |
| [**ZoneId**](https://docs.oracle.com/javase/8/docs/api/java/time/ZoneId.html) | A time-zone ID, such as Europe/Paris. |
| [**ZoneOffset**](https://docs.oracle.com/javase/8/docs/api/java/time/ZoneOffset.html) | A time-zone offset from Greenwich/UTC, such as +02:00. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**DayOfWeek**](https://docs.oracle.com/javase/8/docs/api/java/time/DayOfWeek.html) | A day-of-week, such as 'Tuesday'. |
| [**Month**](https://docs.oracle.com/javase/8/docs/api/java/time/Month.html) | A month-of-year, such as 'July'. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**DateTimeException**](https://docs.oracle.com/javase/8/docs/api/java/time/DateTimeException.html) | Exception used to indicate a problem while calculating a date-time. |

* + [***java.time.chrono***](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**ChronoLocalDate**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/ChronoLocalDate.html) | A date without time-of-day or time-zone in an arbitrary chronology, intended for advanced globalization use cases. |
| [**ChronoLocalDateTime**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/ChronoLocalDateTime.html)<D extends [**ChronoLocalDate**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/ChronoLocalDate.html)> | A date-time without a time-zone in an arbitrary chronology, intended for advanced globalization use cases. |
| [**Chronology**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/Chronology.html) | A calendar system, used to organize and identify dates. |
| [**ChronoPeriod**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/ChronoPeriod.html) | A date-based amount of time, such as '3 years, 4 months and 5 days' in an arbitrary chronology, intended for advanced globalization use cases. |
| [**ChronoZonedDateTime**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/ChronoZonedDateTime.html)<D extends [**ChronoLocalDate**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/ChronoLocalDate.html)> | A date-time with a time-zone in an arbitrary chronology, intended for advanced globalization use cases. |
| [**Era**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/Era.html) | An era of the time-line. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AbstractChronology**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/AbstractChronology.html) | An abstract implementation of a calendar system, used to organize and identify dates. |
| [**HijrahChronology**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/HijrahChronology.html) | The Hijrah calendar is a lunar calendar supporting Islamic calendars. |
| [**HijrahDate**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/HijrahDate.html) | A date in the Hijrah calendar system. |
| [**IsoChronology**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/IsoChronology.html) | The ISO calendar system. |
| [**JapaneseChronology**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/JapaneseChronology.html) | The Japanese Imperial calendar system. |
| [**JapaneseDate**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/JapaneseDate.html) | A date in the Japanese Imperial calendar system. |
| [**JapaneseEra**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/JapaneseEra.html) | An era in the Japanese Imperial calendar system. |
| [**MinguoChronology**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/MinguoChronology.html) | The Minguo calendar system. |
| [**MinguoDate**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/MinguoDate.html) | A date in the Minguo calendar system. |
| [**ThaiBuddhistChronology**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/ThaiBuddhistChronology.html) | The Thai Buddhist calendar system. |
| [**ThaiBuddhistDate**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/ThaiBuddhistDate.html) | A date in the Thai Buddhist calendar system. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**HijrahEra**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/HijrahEra.html) | An era in the Hijrah calendar system. |
| [**IsoEra**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/IsoEra.html) | An era in the ISO calendar system. |
| [**MinguoEra**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/MinguoEra.html) | An era in the Minguo calendar system. |
| [**ThaiBuddhistEra**](https://docs.oracle.com/javase/8/docs/api/java/time/chrono/ThaiBuddhistEra.html) | An era in the Thai Buddhist calendar system. |

* + [***java.time.format***](https://docs.oracle.com/javase/8/docs/api/java/time/format/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**DateTimeFormatter**](https://docs.oracle.com/javase/8/docs/api/java/time/format/DateTimeFormatter.html) | Formatter for printing and parsing date-time objects. |
| [**DateTimeFormatterBuilder**](https://docs.oracle.com/javase/8/docs/api/java/time/format/DateTimeFormatterBuilder.html) | Builder to create date-time formatters. |
| [**DecimalStyle**](https://docs.oracle.com/javase/8/docs/api/java/time/format/DecimalStyle.html) | Localized decimal style used in date and time formatting. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**FormatStyle**](https://docs.oracle.com/javase/8/docs/api/java/time/format/FormatStyle.html) | Enumeration of the style of a localized date, time or date-time formatter. |
| [**ResolverStyle**](https://docs.oracle.com/javase/8/docs/api/java/time/format/ResolverStyle.html) | Enumeration of different ways to resolve dates and times. |
| [**SignStyle**](https://docs.oracle.com/javase/8/docs/api/java/time/format/SignStyle.html) | Enumeration of ways to handle the positive/negative sign. |
| [**TextStyle**](https://docs.oracle.com/javase/8/docs/api/java/time/format/TextStyle.html) | Enumeration of the style of text formatting and parsing. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**DateTimeParseException**](https://docs.oracle.com/javase/8/docs/api/java/time/format/DateTimeParseException.html) | An exception thrown when an error occurs during parsing. |

* + [***java.time.temporal***](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Temporal**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/Temporal.html) | Framework-level interface defining read-write access to a temporal object, such as a date, time, offset or some combination of these. |
| [**TemporalAccessor**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/TemporalAccessor.html) | Framework-level interface defining read-only access to a temporal object, such as a date, time, offset or some combination of these. |
| [**TemporalAdjuster**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/TemporalAdjuster.html) | Strategy for adjusting a temporal object. |
| [**TemporalAmount**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/TemporalAmount.html) | Framework-level interface defining an amount of time, such as "6 hours", "8 days" or "2 years and 3 months". |
| [**TemporalField**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/TemporalField.html) | A field of date-time, such as month-of-year or hour-of-minute. |
| [**TemporalQuery**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/TemporalQuery.html)<R> | Strategy for querying a temporal object. |
| [**TemporalUnit**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/TemporalUnit.html) | A unit of date-time, such as Days or Hours. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**IsoFields**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/IsoFields.html) | Fields and units specific to the ISO-8601 calendar system, including quarter-of-year and week-based-year. |
| [**JulianFields**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/JulianFields.html) | A set of date fields that provide access to Julian Days. |
| [**TemporalAdjusters**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/TemporalAdjusters.html) | Common and useful TemporalAdjusters. |
| [**TemporalQueries**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/TemporalQueries.html) | Common implementations of TemporalQuery. |
| [**ValueRange**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/ValueRange.html) | The range of valid values for a date-time field. |
| [**WeekFields**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/WeekFields.html) | Localized definitions of the day-of-week, week-of-month and week-of-year fields. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**ChronoField**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/ChronoField.html) | A standard set of fields. |
| [**ChronoUnit**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/ChronoUnit.html) | A standard set of date periods units. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**UnsupportedTemporalTypeException**](https://docs.oracle.com/javase/8/docs/api/java/time/temporal/UnsupportedTemporalTypeException.html) | UnsupportedTemporalTypeException indicates that a ChronoField or ChronoUnit is not supported for a Temporal class. |

* + [***java.time.zone***](https://docs.oracle.com/javase/8/docs/api/java/time/zone/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**ZoneOffsetTransition**](https://docs.oracle.com/javase/8/docs/api/java/time/zone/ZoneOffsetTransition.html) | A transition between two offsets caused by a discontinuity in the local time-line. |
| [**ZoneOffsetTransitionRule**](https://docs.oracle.com/javase/8/docs/api/java/time/zone/ZoneOffsetTransitionRule.html) | A rule expressing how to create a transition. |
| [**ZoneRules**](https://docs.oracle.com/javase/8/docs/api/java/time/zone/ZoneRules.html) | The rules defining how the zone offset varies for a single time-zone. |
| [**ZoneRulesProvider**](https://docs.oracle.com/javase/8/docs/api/java/time/zone/ZoneRulesProvider.html) | Provider of time-zone rules to the system. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**ZoneOffsetTransitionRule.TimeDefinition**](https://docs.oracle.com/javase/8/docs/api/java/time/zone/ZoneOffsetTransitionRule.TimeDefinition.html) | A definition of the way a local time can be converted to the actual transition date-time. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**ZoneRulesException**](https://docs.oracle.com/javase/8/docs/api/java/time/zone/ZoneRulesException.html) | Thrown to indicate a problem with time-zone configuration. |

* + [***java.util***](https://docs.oracle.com/javase/8/docs/api/java/util/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Collection**](https://docs.oracle.com/javase/8/docs/api/java/util/Collection.html)<E> | The root interface in the *collection hierarchy*. |
| [**Comparator**](https://docs.oracle.com/javase/8/docs/api/java/util/Comparator.html)<T> | A comparison function, which imposes a *total ordering* on some collection of objects. |
| [**Deque**](https://docs.oracle.com/javase/8/docs/api/java/util/Deque.html)<E> | A linear collection that supports element insertion and removal at both ends. |
| [**Enumeration**](https://docs.oracle.com/javase/8/docs/api/java/util/Enumeration.html)<E> | An object that implements the Enumeration interface generates a series of elements, one at a time. |
| [**EventListener**](https://docs.oracle.com/javase/8/docs/api/java/util/EventListener.html) | A tagging interface that all event listener interfaces must extend. |
| [**Formattable**](https://docs.oracle.com/javase/8/docs/api/java/util/Formattable.html) | The Formattable interface must be implemented by any class that needs to perform custom formatting using the 's' conversion specifier of[**Formatter**](https://docs.oracle.com/javase/8/docs/api/java/util/Formatter.html). |
| [**Iterator**](https://docs.oracle.com/javase/8/docs/api/java/util/Iterator.html)<E> | An iterator over a collection. |
| [**List**](https://docs.oracle.com/javase/8/docs/api/java/util/List.html)<E> | An ordered collection (also known as a *sequence*). |
| [**ListIterator**](https://docs.oracle.com/javase/8/docs/api/java/util/ListIterator.html)<E> | An iterator for lists that allows the programmer to traverse the list in either direction, modify the list during iteration, and obtain the iterator's current position in the list. |
| [**Map**](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)<K,V> | An object that maps keys to values. |
| [**Map.Entry**](https://docs.oracle.com/javase/8/docs/api/java/util/Map.Entry.html)<K,V> | A map entry (key-value pair). |
| [**NavigableMap**](https://docs.oracle.com/javase/8/docs/api/java/util/NavigableMap.html)<K,V> | A [**SortedMap**](https://docs.oracle.com/javase/8/docs/api/java/util/SortedMap.html) extended with navigation methods returning the closest matches for given search targets. |
| [**NavigableSet**](https://docs.oracle.com/javase/8/docs/api/java/util/NavigableSet.html)<E> | A [**SortedSet**](https://docs.oracle.com/javase/8/docs/api/java/util/SortedSet.html) extended with navigation methods reporting closest matches for given search targets. |
| [**Observer**](https://docs.oracle.com/javase/8/docs/api/java/util/Observer.html) | A class can implement the Observerinterface when it wants to be informed of changes in observable objects. |
| [**PrimitiveIterator**](https://docs.oracle.com/javase/8/docs/api/java/util/PrimitiveIterator.html)<T,T\_CONS> | A base type for primitive specializations of Iterator. |
| [**PrimitiveIterator.OfDouble**](https://docs.oracle.com/javase/8/docs/api/java/util/PrimitiveIterator.OfDouble.html) | An Iterator specialized for doublevalues. |
| [**PrimitiveIterator.OfInt**](https://docs.oracle.com/javase/8/docs/api/java/util/PrimitiveIterator.OfInt.html) | An Iterator specialized for int values. |
| [**PrimitiveIterator.OfLong**](https://docs.oracle.com/javase/8/docs/api/java/util/PrimitiveIterator.OfLong.html) | An Iterator specialized for longvalues. |
| [**Queue**](https://docs.oracle.com/javase/8/docs/api/java/util/Queue.html)<E> | A collection designed for holding elements prior to processing. |
| [**RandomAccess**](https://docs.oracle.com/javase/8/docs/api/java/util/RandomAccess.html) | Marker interface used by Listimplementations to indicate that they support fast (generally constant time) random access. |
| [**Set**](https://docs.oracle.com/javase/8/docs/api/java/util/Set.html)<E> | A collection that contains no duplicate elements. |
| [**SortedMap**](https://docs.oracle.com/javase/8/docs/api/java/util/SortedMap.html)<K,V> | A [**Map**](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) that further provides a *total ordering* on its keys. |
| [**SortedSet**](https://docs.oracle.com/javase/8/docs/api/java/util/SortedSet.html)<E> | A [**Set**](https://docs.oracle.com/javase/8/docs/api/java/util/Set.html) that further provides a *total ordering* on its elements. |
| [**Spliterator**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterator.html)<T> | An object for traversing and partitioning elements of a source. |
| [**Spliterator.OfDouble**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterator.OfDouble.html) | A Spliterator specialized for doublevalues. |
| [**Spliterator.OfInt**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterator.OfInt.html) | A Spliterator specialized for intvalues. |
| [**Spliterator.OfLong**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterator.OfLong.html) | A Spliterator specialized for longvalues. |
| [**Spliterator.OfPrimitive**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterator.OfPrimitive.html)<T,T\_CONS,T\_SPLITR extends [**Spliterator.OfPrimitive**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterator.OfPrimitive.html)<T,T\_CONS,T\_SPLITR>> | A Spliterator specialized for primitive values. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AbstractCollection**](https://docs.oracle.com/javase/8/docs/api/java/util/AbstractCollection.html)<E> | This class provides a skeletal implementation of the Collection interface, to minimize the effort required to implement this interface. |
| [**AbstractList**](https://docs.oracle.com/javase/8/docs/api/java/util/AbstractList.html)<E> | This class provides a skeletal implementation of the [**List**](https://docs.oracle.com/javase/8/docs/api/java/util/List.html) interface to minimize the effort required to implement this interface backed by a "random access" data store (such as an array). |
| [**AbstractMap**](https://docs.oracle.com/javase/8/docs/api/java/util/AbstractMap.html)<K,V> | This class provides a skeletal implementation of the Map interface, to minimize the effort required to implement this interface. |
| [**AbstractMap.SimpleEntry**](https://docs.oracle.com/javase/8/docs/api/java/util/AbstractMap.SimpleEntry.html)<K,V> | An Entry maintaining a key and a value. |
| [**AbstractMap.SimpleImmutableEntry**](https://docs.oracle.com/javase/8/docs/api/java/util/AbstractMap.SimpleImmutableEntry.html)<K,V> | An Entry maintaining an immutable key and value. |
| [**AbstractQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/AbstractQueue.html)<E> | This class provides skeletal implementations of some [**Queue**](https://docs.oracle.com/javase/8/docs/api/java/util/Queue.html) operations. |
| [**AbstractSequentialList**](https://docs.oracle.com/javase/8/docs/api/java/util/AbstractSequentialList.html)<E> | This class provides a skeletal implementation of the List interface to minimize the effort required to implement this interface backed by a "sequential access" data store (such as a linked list). |
| [**AbstractSet**](https://docs.oracle.com/javase/8/docs/api/java/util/AbstractSet.html)<E> | This class provides a skeletal implementation of the Set interface to minimize the effort required to implement this interface. |
| [**ArrayDeque**](https://docs.oracle.com/javase/8/docs/api/java/util/ArrayDeque.html)<E> | Resizable-array implementation of the [**Deque**](https://docs.oracle.com/javase/8/docs/api/java/util/Deque.html) interface. |
| [**ArrayList**](https://docs.oracle.com/javase/8/docs/api/java/util/ArrayList.html)<E> | Resizable-array implementation of the List interface. |
| [**Arrays**](https://docs.oracle.com/javase/8/docs/api/java/util/Arrays.html) | This class contains various methods for manipulating arrays (such as sorting and searching). |
| [**Base64**](https://docs.oracle.com/javase/8/docs/api/java/util/Base64.html) | This class consists exclusively of static methods for obtaining encoders and decoders for the Base64 encoding scheme. |
| [**Base64.Decoder**](https://docs.oracle.com/javase/8/docs/api/java/util/Base64.Decoder.html) | This class implements a decoder for decoding byte data using the Base64 encoding scheme as specified in RFC 4648 and RFC 2045. |
| [**Base64.Encoder**](https://docs.oracle.com/javase/8/docs/api/java/util/Base64.Encoder.html) | This class implements an encoder for encoding byte data using the Base64 encoding scheme as specified in RFC 4648 and RFC 2045. |
| [**BitSet**](https://docs.oracle.com/javase/8/docs/api/java/util/BitSet.html) | This class implements a vector of bits that grows as needed. |
| [**Calendar**](https://docs.oracle.com/javase/8/docs/api/java/util/Calendar.html) | The Calendar class is an abstract class that provides methods for converting between a specific instant in time and a set of [**calendar fields**](https://docs.oracle.com/javase/8/docs/api/java/util/Calendar.html#fields) such as YEAR, MONTH,DAY\_OF\_MONTH, HOUR, and so on, and for manipulating the calendar fields, such as getting the date of the next week. |
| [**Calendar.Builder**](https://docs.oracle.com/javase/8/docs/api/java/util/Calendar.Builder.html) | Calendar.Builder is used for creating a Calendar from various date-time parameters. |
| [**Collections**](https://docs.oracle.com/javase/8/docs/api/java/util/Collections.html) | This class consists exclusively of static methods that operate on or return collections. |
| [**Currency**](https://docs.oracle.com/javase/8/docs/api/java/util/Currency.html) | Represents a currency. |
| [**Date**](https://docs.oracle.com/javase/8/docs/api/java/util/Date.html) | The class Date represents a specific instant in time, with millisecond precision. |
| [**Dictionary**](https://docs.oracle.com/javase/8/docs/api/java/util/Dictionary.html)<K,V> | The Dictionary class is the abstract parent of any class, such as Hashtable, which maps keys to values. |
| [**DoubleSummaryStatistics**](https://docs.oracle.com/javase/8/docs/api/java/util/DoubleSummaryStatistics.html) | A state object for collecting statistics such as count, min, max, sum, and average. |
| [**EnumMap**](https://docs.oracle.com/javase/8/docs/api/java/util/EnumMap.html)<K extends [**Enum**](https://docs.oracle.com/javase/8/docs/api/java/lang/Enum.html)<K>,V> | A specialized [**Map**](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) implementation for use with enum type keys. |
| [**EnumSet**](https://docs.oracle.com/javase/8/docs/api/java/util/EnumSet.html)<E extends [**Enum**](https://docs.oracle.com/javase/8/docs/api/java/lang/Enum.html)<E>> | A specialized [**Set**](https://docs.oracle.com/javase/8/docs/api/java/util/Set.html) implementation for use with enum types. |
| [**EventListenerProxy**](https://docs.oracle.com/javase/8/docs/api/java/util/EventListenerProxy.html)<T extends [**EventListener**](https://docs.oracle.com/javase/8/docs/api/java/util/EventListener.html)> | An abstract wrapper class for an EventListener class which associates a set of additional parameters with the listener. |
| [**EventObject**](https://docs.oracle.com/javase/8/docs/api/java/util/EventObject.html) | The root class from which all event state objects shall be derived. |
| [**FormattableFlags**](https://docs.oracle.com/javase/8/docs/api/java/util/FormattableFlags.html) | FomattableFlags are passed to the [**Formattable.formatTo()**](https://docs.oracle.com/javase/8/docs/api/java/util/Formattable.html#formatTo-java.util.Formatter-int-int-int-) method and modify the output format for [**Formattables**](https://docs.oracle.com/javase/8/docs/api/java/util/Formattable.html). |
| [**Formatter**](https://docs.oracle.com/javase/8/docs/api/java/util/Formatter.html) | An interpreter for printf-style format strings. |
| [**GregorianCalendar**](https://docs.oracle.com/javase/8/docs/api/java/util/GregorianCalendar.html) | GregorianCalendar is a concrete subclass of Calendar and provides the standard calendar system used by most of the world. |
| [**HashMap**](https://docs.oracle.com/javase/8/docs/api/java/util/HashMap.html)<K,V> | Hash table based implementation of the Map interface. |
| [**HashSet**](https://docs.oracle.com/javase/8/docs/api/java/util/HashSet.html)<E> | This class implements the Set interface, backed by a hash table (actually a HashMapinstance). |
| [**Hashtable**](https://docs.oracle.com/javase/8/docs/api/java/util/Hashtable.html)<K,V> | This class implements a hash table, which maps keys to values. |
| [**IdentityHashMap**](https://docs.oracle.com/javase/8/docs/api/java/util/IdentityHashMap.html)<K,V> | This class implements the Map interface with a hash table, using reference-equality in place of object-equality when comparing keys (and values). |
| [**IntSummaryStatistics**](https://docs.oracle.com/javase/8/docs/api/java/util/IntSummaryStatistics.html) | A state object for collecting statistics such as count, min, max, sum, and average. |
| [**LinkedHashMap**](https://docs.oracle.com/javase/8/docs/api/java/util/LinkedHashMap.html)<K,V> | Hash table and linked list implementation of the Map interface, with predictable iteration order. |
| [**LinkedHashSet**](https://docs.oracle.com/javase/8/docs/api/java/util/LinkedHashSet.html)<E> | Hash table and linked list implementation of the Set interface, with predictable iteration order. |
| [**LinkedList**](https://docs.oracle.com/javase/8/docs/api/java/util/LinkedList.html)<E> | Doubly-linked list implementation of the List and Deque interfaces. |
| [**ListResourceBundle**](https://docs.oracle.com/javase/8/docs/api/java/util/ListResourceBundle.html) | ListResourceBundle is an abstract subclass of ResourceBundle that manages resources for a locale in a convenient and easy to use list. |
| [**Locale**](https://docs.oracle.com/javase/8/docs/api/java/util/Locale.html) | A Locale object represents a specific geographical, political, or cultural region. |
| [**Locale.Builder**](https://docs.oracle.com/javase/8/docs/api/java/util/Locale.Builder.html) | Builder is used to build instances of Locale from values configured by the setters. |
| [**Locale.LanguageRange**](https://docs.oracle.com/javase/8/docs/api/java/util/Locale.LanguageRange.html) | This class expresses a *Language Range* defined in [**RFC 4647 Matching of Language Tags**](http://tools.ietf.org/html/rfc4647). |
| [**LongSummaryStatistics**](https://docs.oracle.com/javase/8/docs/api/java/util/LongSummaryStatistics.html) | A state object for collecting statistics such as count, min, max, sum, and average. |
| [**Objects**](https://docs.oracle.com/javase/8/docs/api/java/util/Objects.html) | This class consists of static utility methods for operating on objects. |
| [**Observable**](https://docs.oracle.com/javase/8/docs/api/java/util/Observable.html) | This class represents an observable object, or "data" in the model-view paradigm. |
| [**Optional**](https://docs.oracle.com/javase/8/docs/api/java/util/Optional.html)<T> | A container object which may or may not contain a non-null value. |
| [**OptionalDouble**](https://docs.oracle.com/javase/8/docs/api/java/util/OptionalDouble.html) | A container object which may or may not contain a double value. |
| [**OptionalInt**](https://docs.oracle.com/javase/8/docs/api/java/util/OptionalInt.html) | A container object which may or may not contain a int value. |
| [**OptionalLong**](https://docs.oracle.com/javase/8/docs/api/java/util/OptionalLong.html) | A container object which may or may not contain a long value. |
| [**PriorityQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/PriorityQueue.html)<E> | An unbounded priority [**queue**](https://docs.oracle.com/javase/8/docs/api/java/util/Queue.html) based on a priority heap. |
| [**Properties**](https://docs.oracle.com/javase/8/docs/api/java/util/Properties.html) | The Properties class represents a persistent set of properties. |
| [**PropertyPermission**](https://docs.oracle.com/javase/8/docs/api/java/util/PropertyPermission.html) | This class is for property permissions. |
| [**PropertyResourceBundle**](https://docs.oracle.com/javase/8/docs/api/java/util/PropertyResourceBundle.html) | PropertyResourceBundle is a concrete subclass of ResourceBundle that manages resources for a locale using a set of static strings from a property file. |
| [**Random**](https://docs.oracle.com/javase/8/docs/api/java/util/Random.html) | An instance of this class is used to generate a stream of pseudorandom numbers. |
| [**ResourceBundle**](https://docs.oracle.com/javase/8/docs/api/java/util/ResourceBundle.html) | Resource bundles contain locale-specific objects. |
| [**ResourceBundle.Control**](https://docs.oracle.com/javase/8/docs/api/java/util/ResourceBundle.Control.html) | ResourceBundle.Control defines a set of callback methods that are invoked by the[**ResourceBundle.getBundle**](https://docs.oracle.com/javase/8/docs/api/java/util/ResourceBundle.html#getBundle-java.lang.String-java.util.Locale-java.lang.ClassLoader-java.util.ResourceBundle.Control-) factory methods during the bundle loading process. |
| [**Scanner**](https://docs.oracle.com/javase/8/docs/api/java/util/Scanner.html) | A simple text scanner which can parse primitive types and strings using regular expressions. |
| [**ServiceLoader**](https://docs.oracle.com/javase/8/docs/api/java/util/ServiceLoader.html)<S> | A simple service-provider loading facility. |
| [**SimpleTimeZone**](https://docs.oracle.com/javase/8/docs/api/java/util/SimpleTimeZone.html) | SimpleTimeZone is a concrete subclass of TimeZone that represents a time zone for use with a Gregorian calendar. |
| [**Spliterators**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterators.html) | Static classes and methods for operating on or creating instances of [**Spliterator**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterator.html) and its primitive specializations [**Spliterator.OfInt**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterator.OfInt.html), [**Spliterator.OfLong**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterator.OfLong.html), and[**Spliterator.OfDouble**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterator.OfDouble.html). |
| [**Spliterators.AbstractDoubleSpliterator**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterators.AbstractDoubleSpliterator.html) | An abstract Spliterator.OfDouble that implements trySplit to permit limited parallelism. |
| [**Spliterators.AbstractIntSpliterator**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterators.AbstractIntSpliterator.html) | An abstract Spliterator.OfInt that implements trySplit to permit limited parallelism. |
| [**Spliterators.AbstractLongSpliterator**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterators.AbstractLongSpliterator.html) | An abstract Spliterator.OfLong that implements trySplit to permit limited parallelism. |
| [**Spliterators.AbstractSpliterator**](https://docs.oracle.com/javase/8/docs/api/java/util/Spliterators.AbstractSpliterator.html)<T> | An abstract Spliterator that implements trySplit to permit limited parallelism. |
| [**SplittableRandom**](https://docs.oracle.com/javase/8/docs/api/java/util/SplittableRandom.html) | A generator of uniform pseudorandom values applicable for use in (among other contexts) isolated parallel computations that may generate subtasks. |
| [**Stack**](https://docs.oracle.com/javase/8/docs/api/java/util/Stack.html)<E> | The Stack class represents a last-in-first-out (LIFO) stack of objects. |
| [**StringJoiner**](https://docs.oracle.com/javase/8/docs/api/java/util/StringJoiner.html) | StringJoiner is used to construct a sequence of characters separated by a delimiter and optionally starting with a supplied prefix and ending with a supplied suffix. |
| [**StringTokenizer**](https://docs.oracle.com/javase/8/docs/api/java/util/StringTokenizer.html) | The string tokenizer class allows an application to break a string into tokens. |
| [**Timer**](https://docs.oracle.com/javase/8/docs/api/java/util/Timer.html) | A facility for threads to schedule tasks for future execution in a background thread. |
| [**TimerTask**](https://docs.oracle.com/javase/8/docs/api/java/util/TimerTask.html) | A task that can be scheduled for one-time or repeated execution by a Timer. |
| [**TimeZone**](https://docs.oracle.com/javase/8/docs/api/java/util/TimeZone.html) | TimeZone represents a time zone offset, and also figures out daylight savings. |
| [**TreeMap**](https://docs.oracle.com/javase/8/docs/api/java/util/TreeMap.html)<K,V> | A Red-Black tree based [**NavigableMap**](https://docs.oracle.com/javase/8/docs/api/java/util/NavigableMap.html) implementation. |
| [**TreeSet**](https://docs.oracle.com/javase/8/docs/api/java/util/TreeSet.html)<E> | A [**NavigableSet**](https://docs.oracle.com/javase/8/docs/api/java/util/NavigableSet.html) implementation based on a [**TreeMap**](https://docs.oracle.com/javase/8/docs/api/java/util/TreeMap.html). |
| [**UUID**](https://docs.oracle.com/javase/8/docs/api/java/util/UUID.html) | A class that represents an immutable universally unique identifier (UUID). |
| [**Vector**](https://docs.oracle.com/javase/8/docs/api/java/util/Vector.html)<E> | The Vector class implements a growable array of objects. |
| [**WeakHashMap**](https://docs.oracle.com/javase/8/docs/api/java/util/WeakHashMap.html)<K,V> | Hash table based implementation of the Map interface, with *weak keys*. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**Formatter.BigDecimalLayoutForm**](https://docs.oracle.com/javase/8/docs/api/java/util/Formatter.BigDecimalLayoutForm.html) | Enum for BigDecimal formatting. |
| [**Locale.Category**](https://docs.oracle.com/javase/8/docs/api/java/util/Locale.Category.html) | Enum for locale categories. |
| [**Locale.FilteringMode**](https://docs.oracle.com/javase/8/docs/api/java/util/Locale.FilteringMode.html) | This enum provides constants to select a filtering mode for locale matching. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**ConcurrentModificationException**](https://docs.oracle.com/javase/8/docs/api/java/util/ConcurrentModificationException.html) | This exception may be thrown by methods that have detected concurrent modification of an object when such modification is not permissible. |
| [**DuplicateFormatFlagsException**](https://docs.oracle.com/javase/8/docs/api/java/util/DuplicateFormatFlagsException.html) | Unchecked exception thrown when duplicate flags are provided in the format specifier. |
| [**EmptyStackException**](https://docs.oracle.com/javase/8/docs/api/java/util/EmptyStackException.html) | Thrown by methods in the Stack class to indicate that the stack is empty. |
| [**FormatFlagsConversionMismatchException**](https://docs.oracle.com/javase/8/docs/api/java/util/FormatFlagsConversionMismatchException.html) | Unchecked exception thrown when a conversion and flag are incompatible. |
| [**FormatterClosedException**](https://docs.oracle.com/javase/8/docs/api/java/util/FormatterClosedException.html) | Unchecked exception thrown when the formatter has been closed. |
| [**IllegalFormatCodePointException**](https://docs.oracle.com/javase/8/docs/api/java/util/IllegalFormatCodePointException.html) | Unchecked exception thrown when a character with an invalid Unicode code point as defined by [**Character.isValidCodePoint(int)**](https://docs.oracle.com/javase/8/docs/api/java/lang/Character.html#isValidCodePoint-int-) is passed to the [**Formatter**](https://docs.oracle.com/javase/8/docs/api/java/util/Formatter.html). |
| [**IllegalFormatConversionException**](https://docs.oracle.com/javase/8/docs/api/java/util/IllegalFormatConversionException.html) | Unchecked exception thrown when the argument corresponding to the format specifier is of an incompatible type. |
| [**IllegalFormatException**](https://docs.oracle.com/javase/8/docs/api/java/util/IllegalFormatException.html) | Unchecked exception thrown when a format string contains an illegal syntax or a format specifier that is incompatible with the given arguments. |
| [**IllegalFormatFlagsException**](https://docs.oracle.com/javase/8/docs/api/java/util/IllegalFormatFlagsException.html) | Unchecked exception thrown when an illegal combination flags is given. |
| [**IllegalFormatPrecisionException**](https://docs.oracle.com/javase/8/docs/api/java/util/IllegalFormatPrecisionException.html) | Unchecked exception thrown when the precision is a negative value other than -1, the conversion does not support a precision, or the value is otherwise unsupported. |
| [**IllegalFormatWidthException**](https://docs.oracle.com/javase/8/docs/api/java/util/IllegalFormatWidthException.html) | Unchecked exception thrown when the format width is a negative value other than -1 or is otherwise unsupported. |
| [**IllformedLocaleException**](https://docs.oracle.com/javase/8/docs/api/java/util/IllformedLocaleException.html) | Thrown by methods in [**Locale**](https://docs.oracle.com/javase/8/docs/api/java/util/Locale.html) and [**Locale.Builder**](https://docs.oracle.com/javase/8/docs/api/java/util/Locale.Builder.html) to indicate that an argument is not a well-formed BCP 47 tag. |
| [**InputMismatchException**](https://docs.oracle.com/javase/8/docs/api/java/util/InputMismatchException.html) | Thrown by a Scanner to indicate that the token retrieved does not match the pattern for the expected type, or that the token is out of range for the expected type. |
| [**InvalidPropertiesFormatException**](https://docs.oracle.com/javase/8/docs/api/java/util/InvalidPropertiesFormatException.html) | Thrown to indicate that an operation could not complete because the input did not conform to the appropriate XML document type for a collection of properties, as per the[**Properties**](https://docs.oracle.com/javase/8/docs/api/java/util/Properties.html) specification. |
| [**MissingFormatArgumentException**](https://docs.oracle.com/javase/8/docs/api/java/util/MissingFormatArgumentException.html) | Unchecked exception thrown when there is a format specifier which does not have a corresponding argument or if an argument index refers to an argument that does not exist. |
| [**MissingFormatWidthException**](https://docs.oracle.com/javase/8/docs/api/java/util/MissingFormatWidthException.html) | Unchecked exception thrown when the format width is required. |
| [**MissingResourceException**](https://docs.oracle.com/javase/8/docs/api/java/util/MissingResourceException.html) | Signals that a resource is missing. |
| [**NoSuchElementException**](https://docs.oracle.com/javase/8/docs/api/java/util/NoSuchElementException.html) | Thrown by various accessor methods to indicate that the element being requested does not exist. |
| [**TooManyListenersException**](https://docs.oracle.com/javase/8/docs/api/java/util/TooManyListenersException.html) | The TooManyListenersException Exception is used as part of the Java Event model to annotate and implement a unicast special case of a multicast Event Source. |
| [**UnknownFormatConversionException**](https://docs.oracle.com/javase/8/docs/api/java/util/UnknownFormatConversionException.html) | Unchecked exception thrown when an unknown conversion is given. |
| [**UnknownFormatFlagsException**](https://docs.oracle.com/javase/8/docs/api/java/util/UnknownFormatFlagsException.html) | Unchecked exception thrown when an unknown flag is given. |

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| **Error Summary** | |
| **Error** | **Description** |
| [**ServiceConfigurationError**](https://docs.oracle.com/javase/8/docs/api/java/util/ServiceConfigurationError.html) | Error thrown when something goes wrong while loading a service provider. |

* + [***java.util.concurrent***](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**BlockingDeque**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/BlockingDeque.html)<E> | A [**Deque**](https://docs.oracle.com/javase/8/docs/api/java/util/Deque.html) that additionally supports blocking operations that wait for the deque to become non-empty when retrieving an element, and wait for space to become available in the deque when storing an element. |
| [**BlockingQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/BlockingQueue.html)<E> | A [**Queue**](https://docs.oracle.com/javase/8/docs/api/java/util/Queue.html) that additionally supports operations that wait for the queue to become non-empty when retrieving an element, and wait for space to become available in the queue when storing an element. |
| [**Callable**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Callable.html)<V> | A task that returns a result and may throw an exception. |
| [**CompletableFuture.AsynchronousCompletionTask**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CompletableFuture.AsynchronousCompletionTask.html) | A marker interface identifying asynchronous tasks produced by async methods. |
| [**CompletionService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CompletionService.html)<V> | A service that decouples the production of new asynchronous tasks from the consumption of the results of completed tasks. |
| [**CompletionStage**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CompletionStage.html)<T> | A stage of a possibly asynchronous computation, that performs an action or computes a value when another CompletionStage completes. |
| [**ConcurrentMap**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentMap.html)<K,V> | A [**Map**](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) providing thread safety and atomicity guarantees. |
| [**ConcurrentNavigableMap**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentNavigableMap.html)<K,V> | A [**ConcurrentMap**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentMap.html) supporting [**NavigableMap**](https://docs.oracle.com/javase/8/docs/api/java/util/NavigableMap.html) operations, and recursively so for its navigable sub-maps. |
| [**Delayed**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Delayed.html) | A mix-in style interface for marking objects that should be acted upon after a given delay. |
| [**Executor**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Executor.html) | An object that executes submitted [**Runnable**](https://docs.oracle.com/javase/8/docs/api/java/lang/Runnable.html) tasks. |
| [**ExecutorService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ExecutorService.html) | An [**Executor**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Executor.html) that provides methods to manage termination and methods that can produce a [**Future**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Future.html) for tracking progress of one or more asynchronous tasks. |
| [**ForkJoinPool.ForkJoinWorkerThreadFactory**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinPool.ForkJoinWorkerThreadFactory.html) | Factory for creating new [**ForkJoinWorkerThread**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinWorkerThread.html)s. |
| [**ForkJoinPool.ManagedBlocker**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinPool.ManagedBlocker.html) | Interface for extending managed parallelism for tasks running in [**ForkJoinPool**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinPool.html)s. |
| [**Future**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Future.html)<V> | A Future represents the result of an asynchronous computation. |
| [**RejectedExecutionHandler**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/RejectedExecutionHandler.html) | A handler for tasks that cannot be executed by a [**ThreadPoolExecutor**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ThreadPoolExecutor.html). |
| [**RunnableFuture**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/RunnableFuture.html)<V> | A [**Future**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Future.html) that is [**Runnable**](https://docs.oracle.com/javase/8/docs/api/java/lang/Runnable.html). |
| [**RunnableScheduledFuture**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/RunnableScheduledFuture.html)<V> | A [**ScheduledFuture**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ScheduledFuture.html) that is [**Runnable**](https://docs.oracle.com/javase/8/docs/api/java/lang/Runnable.html). |
| [**ScheduledExecutorService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ScheduledExecutorService.html) | An [**ExecutorService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ExecutorService.html) that can schedule commands to run after a given delay, or to execute periodically. |
| [**ScheduledFuture**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ScheduledFuture.html)<V> | A delayed result-bearing action that can be cancelled. |
| [**ThreadFactory**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ThreadFactory.html) | An object that creates new threads on demand. |
| [**TransferQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/TransferQueue.html)<E> | A [**BlockingQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/BlockingQueue.html) in which producers may wait for consumers to receive elements. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AbstractExecutorService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/AbstractExecutorService.html) | Provides default implementations of [**ExecutorService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ExecutorService.html) execution methods. |
| [**ArrayBlockingQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ArrayBlockingQueue.html)<E> | A bounded [**blocking queue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/BlockingQueue.html) backed by an array. |
| [**CompletableFuture**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CompletableFuture.html)<T> | A [**Future**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Future.html) that may be explicitly completed (setting its value and status), and may be used as a [**CompletionStage**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CompletionStage.html), supporting dependent functions and actions that trigger upon its completion. |
| [**ConcurrentHashMap**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentHashMap.html)<K,V> | A hash table supporting full concurrency of retrievals and high expected concurrency for updates. |
| [**ConcurrentHashMap.KeySetView**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentHashMap.KeySetView.html)<K,V> | A view of a ConcurrentHashMap as a [**Set**](https://docs.oracle.com/javase/8/docs/api/java/util/Set.html) of keys, in which additions may optionally be enabled by mapping to a common value. |
| [**ConcurrentLinkedDeque**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentLinkedDeque.html)<E> | An unbounded concurrent [**deque**](https://docs.oracle.com/javase/8/docs/api/java/util/Deque.html) based on linked nodes. |
| [**ConcurrentLinkedQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentLinkedQueue.html)<E> | An unbounded thread-safe [**queue**](https://docs.oracle.com/javase/8/docs/api/java/util/Queue.html) based on linked nodes. |
| [**ConcurrentSkipListMap**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentSkipListMap.html)<K,V> | A scalable concurrent [**ConcurrentNavigableMap**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentNavigableMap.html) implementation. |
| [**ConcurrentSkipListSet**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentSkipListSet.html)<E> | A scalable concurrent [**NavigableSet**](https://docs.oracle.com/javase/8/docs/api/java/util/NavigableSet.html) implementation based on a [**ConcurrentSkipListMap**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ConcurrentSkipListMap.html). |
| [**CopyOnWriteArrayList**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CopyOnWriteArrayList.html)<E> | A thread-safe variant of [**ArrayList**](https://docs.oracle.com/javase/8/docs/api/java/util/ArrayList.html) in which all mutative operations (add, set, and so on) are implemented by making a fresh copy of the underlying array. |
| [**CopyOnWriteArraySet**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CopyOnWriteArraySet.html)<E> | A [**Set**](https://docs.oracle.com/javase/8/docs/api/java/util/Set.html) that uses an internal [**CopyOnWriteArrayList**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CopyOnWriteArrayList.html) for all of its operations. |
| [**CountDownLatch**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CountDownLatch.html) | A synchronization aid that allows one or more threads to wait until a set of operations being performed in other threads completes. |
| [**CountedCompleter**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CountedCompleter.html)<T> | A [**ForkJoinTask**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinTask.html) with a completion action performed when triggered and there are no remaining pending actions. |
| [**CyclicBarrier**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CyclicBarrier.html) | A synchronization aid that allows a set of threads to all wait for each other to reach a common barrier point. |
| [**DelayQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/DelayQueue.html)<E extends [**Delayed**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Delayed.html)> | An unbounded [**blocking queue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/BlockingQueue.html) of Delayed elements, in which an element can only be taken when its delay has expired. |
| [**Exchanger**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Exchanger.html)<V> | A synchronization point at which threads can pair and swap elements within pairs. |
| [**ExecutorCompletionService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ExecutorCompletionService.html)<V> | A [**CompletionService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CompletionService.html) that uses a supplied [**Executor**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Executor.html) to execute tasks. |
| [**Executors**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Executors.html) | Factory and utility methods for [**Executor**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Executor.html), [**ExecutorService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ExecutorService.html), [**ScheduledExecutorService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ScheduledExecutorService.html),[**ThreadFactory**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ThreadFactory.html), and [**Callable**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Callable.html) classes defined in this package. |
| [**ForkJoinPool**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinPool.html) | An [**ExecutorService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ExecutorService.html) for running [**ForkJoinTask**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinTask.html)s. |
| [**ForkJoinTask**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinTask.html)<V> | Abstract base class for tasks that run within a [**ForkJoinPool**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinPool.html). |
| [**ForkJoinWorkerThread**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinWorkerThread.html) | A thread managed by a [**ForkJoinPool**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinPool.html), which executes [**ForkJoinTask**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinTask.html)s. |
| [**FutureTask**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/FutureTask.html)<V> | A cancellable asynchronous computation. |
| [**LinkedBlockingDeque**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/LinkedBlockingDeque.html)<E> | An optionally-bounded [**blocking deque**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/BlockingDeque.html) based on linked nodes. |
| [**LinkedBlockingQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/LinkedBlockingQueue.html)<E> | An optionally-bounded [**blocking queue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/BlockingQueue.html) based on linked nodes. |
| [**LinkedTransferQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/LinkedTransferQueue.html)<E> | An unbounded [**TransferQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/TransferQueue.html) based on linked nodes. |
| [**Phaser**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Phaser.html) | A reusable synchronization barrier, similar in functionality to [**CyclicBarrier**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CyclicBarrier.html) and[**CountDownLatch**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CountDownLatch.html) but supporting more flexible usage. |
| [**PriorityBlockingQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/PriorityBlockingQueue.html)<E> | An unbounded [**blocking queue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/BlockingQueue.html) that uses the same ordering rules as class [**PriorityQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/PriorityQueue.html)and supplies blocking retrieval operations. |
| [**RecursiveAction**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/RecursiveAction.html) | A recursive resultless [**ForkJoinTask**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinTask.html). |
| [**RecursiveTask**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/RecursiveTask.html)<V> | A recursive result-bearing [**ForkJoinTask**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ForkJoinTask.html). |
| [**ScheduledThreadPoolExecutor**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ScheduledThreadPoolExecutor.html) | A [**ThreadPoolExecutor**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ThreadPoolExecutor.html) that can additionally schedule commands to run after a given delay, or to execute periodically. |
| [**Semaphore**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Semaphore.html) | A counting semaphore. |
| [**SynchronousQueue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/SynchronousQueue.html)<E> | A [**blocking queue**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/BlockingQueue.html) in which each insert operation must wait for a corresponding remove operation by another thread, and vice versa. |
| [**ThreadLocalRandom**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ThreadLocalRandom.html) | A random number generator isolated to the current thread. |
| [**ThreadPoolExecutor**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ThreadPoolExecutor.html) | An [**ExecutorService**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ExecutorService.html) that executes each submitted task using one of possibly several pooled threads, normally configured using [**Executors**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Executors.html) factory methods. |
| [**ThreadPoolExecutor.AbortPolicy**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ThreadPoolExecutor.AbortPolicy.html) | A handler for rejected tasks that throws a RejectedExecutionException. |
| [**ThreadPoolExecutor.CallerRunsPolicy**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ThreadPoolExecutor.CallerRunsPolicy.html) | A handler for rejected tasks that runs the rejected task directly in the calling thread of theexecute method, unless the executor has been shut down, in which case the task is discarded. |
| [**ThreadPoolExecutor.DiscardOldestPolicy**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ThreadPoolExecutor.DiscardOldestPolicy.html) | A handler for rejected tasks that discards the oldest unhandled request and then retriesexecute, unless the executor is shut down, in which case the task is discarded. |
| [**ThreadPoolExecutor.DiscardPolicy**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ThreadPoolExecutor.DiscardPolicy.html) | A handler for rejected tasks that silently discards the rejected task. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**TimeUnit**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/TimeUnit.html) | A TimeUnit represents time durations at a given unit of granularity and provides utility methods to convert across units, and to perform timing and delay operations in these units. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**BrokenBarrierException**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/BrokenBarrierException.html) | Exception thrown when a thread tries to wait upon a barrier that is in a broken state, or which enters the broken state while the thread is waiting. |
| [**CancellationException**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CancellationException.html) | Exception indicating that the result of a value-producing task, such as a [**FutureTask**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/FutureTask.html), cannot be retrieved because the task was cancelled. |
| [**CompletionException**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/CompletionException.html) | Exception thrown when an error or other exception is encountered in the course of completing a result or task. |
| [**ExecutionException**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/ExecutionException.html) | Exception thrown when attempting to retrieve the result of a task that aborted by throwing an exception. |
| [**RejectedExecutionException**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/RejectedExecutionException.html) | Exception thrown by an [**Executor**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/Executor.html) when a task cannot be accepted for execution. |
| [**TimeoutException**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/TimeoutException.html) | Exception thrown when a blocking operation times out. |

* + [***java.util.concurrent.atomic***](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**AtomicBoolean**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicBoolean.html) | A boolean value that may be updated atomically. |
| [**AtomicInteger**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicInteger.html) | An int value that may be updated atomically. |
| [**AtomicIntegerArray**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicIntegerArray.html) | An int array in which elements may be updated atomically. |
| [**AtomicIntegerFieldUpdater**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicIntegerFieldUpdater.html)<T> | A reflection-based utility that enables atomic updates to designated volatile int fields of designated classes. |
| [**AtomicLong**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicLong.html) | A long value that may be updated atomically. |
| [**AtomicLongArray**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicLongArray.html) | A long array in which elements may be updated atomically. |
| [**AtomicLongFieldUpdater**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicLongFieldUpdater.html)<T> | A reflection-based utility that enables atomic updates to designated volatile long fields of designated classes. |
| [**AtomicMarkableReference**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicMarkableReference.html)<V> | An AtomicMarkableReference maintains an object reference along with a mark bit, that can be updated atomically. |
| [**AtomicReference**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicReference.html)<V> | An object reference that may be updated atomically. |
| [**AtomicReferenceArray**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicReferenceArray.html)<E> | An array of object references in which elements may be updated atomically. |
| [**AtomicReferenceFieldUpdater**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicReferenceFieldUpdater.html)<T,V> | A reflection-based utility that enables atomic updates to designated volatile reference fields of designated classes. |
| [**AtomicStampedReference**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/AtomicStampedReference.html)<V> | An AtomicStampedReference maintains an object reference along with an integer "stamp", that can be updated atomically. |
| [**DoubleAccumulator**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/DoubleAccumulator.html) | One or more variables that together maintain a running double value updated using a supplied function. |
| [**DoubleAdder**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/DoubleAdder.html) | One or more variables that together maintain an initially zero double sum. |
| [**LongAccumulator**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/LongAccumulator.html) | One or more variables that together maintain a running long value updated using a supplied function. |
| [**LongAdder**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/atomic/LongAdder.html) | One or more variables that together maintain an initially zero long sum. |

* + [***java.util.concurrent.locks***](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Condition**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/Condition.html) | Condition factors out the Object monitor methods ([**wait**](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html#wait--), [**notify**](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html#notify--) and [**notifyAll**](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html#notifyAll--)) into distinct objects to give the effect of having multiple wait-sets per object, by combining them with the use of arbitrary [**Lock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/Lock.html) implementations. |
| [**Lock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/Lock.html) | Lock implementations provide more extensive locking operations than can be obtained usingsynchronized methods and statements. |
| [**ReadWriteLock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/ReadWriteLock.html) | A ReadWriteLock maintains a pair of associated [**locks**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/Lock.html), one for read-only operations and one for writing. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AbstractOwnableSynchronizer**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/AbstractOwnableSynchronizer.html) | A synchronizer that may be exclusively owned by a thread. |
| [**AbstractQueuedLongSynchronizer**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/AbstractQueuedLongSynchronizer.html) | A version of [**AbstractQueuedSynchronizer**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/AbstractQueuedSynchronizer.html) in which synchronization state is maintained as along. |
| [**AbstractQueuedSynchronizer**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/AbstractQueuedSynchronizer.html) | Provides a framework for implementing blocking locks and related synchronizers (semaphores, events, etc) that rely on first-in-first-out (FIFO) wait queues. |
| [**LockSupport**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/LockSupport.html) | Basic thread blocking primitives for creating locks and other synchronization classes. |
| [**ReentrantLock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/ReentrantLock.html) | A reentrant mutual exclusion [**Lock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/Lock.html) with the same basic behavior and semantics as the implicit monitor lock accessed using synchronized methods and statements, but with extended capabilities. |
| [**ReentrantReadWriteLock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/ReentrantReadWriteLock.html) | An implementation of [**ReadWriteLock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/ReadWriteLock.html) supporting similar semantics to [**ReentrantLock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/ReentrantLock.html). |
| [**ReentrantReadWriteLock.ReadLock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/ReentrantReadWriteLock.ReadLock.html) | The lock returned by method [**ReentrantReadWriteLock.readLock()**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/ReentrantReadWriteLock.html#readLock--). |
| [**ReentrantReadWriteLock.WriteLock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/ReentrantReadWriteLock.WriteLock.html) | The lock returned by method [**ReentrantReadWriteLock.writeLock()**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/ReentrantReadWriteLock.html#writeLock--). |
| [**StampedLock**](https://docs.oracle.com/javase/8/docs/api/java/util/concurrent/locks/StampedLock.html) | A capability-based lock with three modes for controlling read/write access. |

* + [***java.util.function***](https://docs.oracle.com/javase/8/docs/api/java/util/function/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**BiConsumer**](https://docs.oracle.com/javase/8/docs/api/java/util/function/BiConsumer.html)<T,U> | Represents an operation that accepts two input arguments and returns no result. |
| [**BiFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/BiFunction.html)<T,U,R> | Represents a function that accepts two arguments and produces a result. |
| [**BinaryOperator**](https://docs.oracle.com/javase/8/docs/api/java/util/function/BinaryOperator.html)<T> | Represents an operation upon two operands of the same type, producing a result of the same type as the operands. |
| [**BiPredicate**](https://docs.oracle.com/javase/8/docs/api/java/util/function/BiPredicate.html)<T,U> | Represents a predicate (boolean-valued function) of two arguments. |
| [**BooleanSupplier**](https://docs.oracle.com/javase/8/docs/api/java/util/function/BooleanSupplier.html) | Represents a supplier of boolean-valued results. |
| [**Consumer**](https://docs.oracle.com/javase/8/docs/api/java/util/function/Consumer.html)<T> | Represents an operation that accepts a single input argument and returns no result. |
| [**DoubleBinaryOperator**](https://docs.oracle.com/javase/8/docs/api/java/util/function/DoubleBinaryOperator.html) | Represents an operation upon two double-valued operands and producing a double-valued result. |
| [**DoubleConsumer**](https://docs.oracle.com/javase/8/docs/api/java/util/function/DoubleConsumer.html) | Represents an operation that accepts a single double-valued argument and returns no result. |
| [**DoubleFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/DoubleFunction.html)<R> | Represents a function that accepts a double-valued argument and produces a result. |
| [**DoublePredicate**](https://docs.oracle.com/javase/8/docs/api/java/util/function/DoublePredicate.html) | Represents a predicate (boolean-valued function) of one double-valued argument. |
| [**DoubleSupplier**](https://docs.oracle.com/javase/8/docs/api/java/util/function/DoubleSupplier.html) | Represents a supplier of double-valued results. |
| [**DoubleToIntFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/DoubleToIntFunction.html) | Represents a function that accepts a double-valued argument and produces an int-valued result. |
| [**DoubleToLongFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/DoubleToLongFunction.html) | Represents a function that accepts a double-valued argument and produces a long-valued result. |
| [**DoubleUnaryOperator**](https://docs.oracle.com/javase/8/docs/api/java/util/function/DoubleUnaryOperator.html) | Represents an operation on a single double-valued operand that produces a double-valued result. |
| [**Function**](https://docs.oracle.com/javase/8/docs/api/java/util/function/Function.html)<T,R> | Represents a function that accepts one argument and produces a result. |
| [**IntBinaryOperator**](https://docs.oracle.com/javase/8/docs/api/java/util/function/IntBinaryOperator.html) | Represents an operation upon two int-valued operands and producing an int-valued result. |
| [**IntConsumer**](https://docs.oracle.com/javase/8/docs/api/java/util/function/IntConsumer.html) | Represents an operation that accepts a single int-valued argument and returns no result. |
| [**IntFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/IntFunction.html)<R> | Represents a function that accepts an int-valued argument and produces a result. |
| [**IntPredicate**](https://docs.oracle.com/javase/8/docs/api/java/util/function/IntPredicate.html) | Represents a predicate (boolean-valued function) of one int-valued argument. |
| [**IntSupplier**](https://docs.oracle.com/javase/8/docs/api/java/util/function/IntSupplier.html) | Represents a supplier of int-valued results. |
| [**IntToDoubleFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/IntToDoubleFunction.html) | Represents a function that accepts an int-valued argument and produces a double-valued result. |
| [**IntToLongFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/IntToLongFunction.html) | Represents a function that accepts an int-valued argument and produces a long-valued result. |
| [**IntUnaryOperator**](https://docs.oracle.com/javase/8/docs/api/java/util/function/IntUnaryOperator.html) | Represents an operation on a single int-valued operand that produces an int-valued result. |
| [**LongBinaryOperator**](https://docs.oracle.com/javase/8/docs/api/java/util/function/LongBinaryOperator.html) | Represents an operation upon two long-valued operands and producing a long-valued result. |
| [**LongConsumer**](https://docs.oracle.com/javase/8/docs/api/java/util/function/LongConsumer.html) | Represents an operation that accepts a single long-valued argument and returns no result. |
| [**LongFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/LongFunction.html)<R> | Represents a function that accepts a long-valued argument and produces a result. |
| [**LongPredicate**](https://docs.oracle.com/javase/8/docs/api/java/util/function/LongPredicate.html) | Represents a predicate (boolean-valued function) of one long-valued argument. |
| [**LongSupplier**](https://docs.oracle.com/javase/8/docs/api/java/util/function/LongSupplier.html) | Represents a supplier of long-valued results. |
| [**LongToDoubleFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/LongToDoubleFunction.html) | Represents a function that accepts a long-valued argument and produces a double-valued result. |
| [**LongToIntFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/LongToIntFunction.html) | Represents a function that accepts a long-valued argument and produces an int-valued result. |
| [**LongUnaryOperator**](https://docs.oracle.com/javase/8/docs/api/java/util/function/LongUnaryOperator.html) | Represents an operation on a single long-valued operand that produces a long-valued result. |
| [**ObjDoubleConsumer**](https://docs.oracle.com/javase/8/docs/api/java/util/function/ObjDoubleConsumer.html)<T> | Represents an operation that accepts an object-valued and a double-valued argument, and returns no result. |
| [**ObjIntConsumer**](https://docs.oracle.com/javase/8/docs/api/java/util/function/ObjIntConsumer.html)<T> | Represents an operation that accepts an object-valued and a int-valued argument, and returns no result. |
| [**ObjLongConsumer**](https://docs.oracle.com/javase/8/docs/api/java/util/function/ObjLongConsumer.html)<T> | Represents an operation that accepts an object-valued and a long-valued argument, and returns no result. |
| [**Predicate**](https://docs.oracle.com/javase/8/docs/api/java/util/function/Predicate.html)<T> | Represents a predicate (boolean-valued function) of one argument. |
| [**Supplier**](https://docs.oracle.com/javase/8/docs/api/java/util/function/Supplier.html)<T> | Represents a supplier of results. |
| [**ToDoubleBiFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/ToDoubleBiFunction.html)<T,U> | Represents a function that accepts two arguments and produces a double-valued result. |
| [**ToDoubleFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/ToDoubleFunction.html)<T> | Represents a function that produces a double-valued result. |
| [**ToIntBiFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/ToIntBiFunction.html)<T,U> | Represents a function that accepts two arguments and produces an int-valued result. |
| [**ToIntFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/ToIntFunction.html)<T> | Represents a function that produces an int-valued result. |
| [**ToLongBiFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/ToLongBiFunction.html)<T,U> | Represents a function that accepts two arguments and produces a long-valued result. |
| [**ToLongFunction**](https://docs.oracle.com/javase/8/docs/api/java/util/function/ToLongFunction.html)<T> | Represents a function that produces a long-valued result. |
| [**UnaryOperator**](https://docs.oracle.com/javase/8/docs/api/java/util/function/UnaryOperator.html)<T> | Represents an operation on a single operand that produces a result of the same type as its operand. |

* + [***java.util.jar***](https://docs.oracle.com/javase/8/docs/api/java/util/jar/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Pack200.Packer**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/Pack200.Packer.html) | The packer engine applies various transformations to the input JAR file, making the pack stream highly compressible by a compressor such as gzip or zip. |
| [**Pack200.Unpacker**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/Pack200.Unpacker.html) | The unpacker engine converts the packed stream to a JAR file. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**Attributes**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/Attributes.html) | The Attributes class maps Manifest attribute names to associated string values. |
| [**Attributes.Name**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/Attributes.Name.html) | The Attributes.Name class represents an attribute name stored in this Map. |
| [**JarEntry**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/JarEntry.html) | This class is used to represent a JAR file entry. |
| [**JarFile**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/JarFile.html) | The JarFile class is used to read the contents of a jar file from any file that can be opened withjava.io.RandomAccessFile. |
| [**JarInputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/JarInputStream.html) | The JarInputStream class is used to read the contents of a JAR file from any input stream. |
| [**JarOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/JarOutputStream.html) | The JarOutputStream class is used to write the contents of a JAR file to any output stream. |
| [**Manifest**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/Manifest.html) | The Manifest class is used to maintain Manifest entry names and their associated Attributes. |
| [**Pack200**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/Pack200.html) | Transforms a JAR file to or from a packed stream in Pack200 format. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**JarException**](https://docs.oracle.com/javase/8/docs/api/java/util/jar/JarException.html) | Signals that an error of some sort has occurred while reading from or writing to a JAR file. |

* + [***java.util.logging***](https://docs.oracle.com/javase/8/docs/api/java/util/logging/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Filter**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/Filter.html) | A Filter can be used to provide fine grain control over what is logged, beyond the control provided by log levels. |
| [**LoggingMXBean**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/LoggingMXBean.html) | The management interface for the logging facility. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**ConsoleHandler**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/ConsoleHandler.html) | This Handler publishes log records to System.err. |
| [**ErrorManager**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/ErrorManager.html) | ErrorManager objects can be attached to Handlers to process any error that occurs on a Handler during Logging. |
| [**FileHandler**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/FileHandler.html) | Simple file logging Handler. |
| [**Formatter**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/Formatter.html) | A Formatter provides support for formatting LogRecords. |
| [**Handler**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/Handler.html) | A Handler object takes log messages from a Logger and exports them. |
| [**Level**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/Level.html) | The Level class defines a set of standard logging levels that can be used to control logging output. |
| [**Logger**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/Logger.html) | A Logger object is used to log messages for a specific system or application component. |
| [**LoggingPermission**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/LoggingPermission.html) | The permission which the SecurityManager will check when code that is running with a SecurityManager calls one of the logging control methods (such as Logger.setLevel). |
| [**LogManager**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/LogManager.html) | There is a single global LogManager object that is used to maintain a set of shared state about Loggers and log services. |
| [**LogRecord**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/LogRecord.html) | LogRecord objects are used to pass logging requests between the logging framework and individual log Handlers. |
| [**MemoryHandler**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/MemoryHandler.html) | Handler that buffers requests in a circular buffer in memory. |
| [**SimpleFormatter**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/SimpleFormatter.html) | Print a brief summary of the LogRecord in a human readable format. |
| [**SocketHandler**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/SocketHandler.html) | Simple network logging Handler. |
| [**StreamHandler**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/StreamHandler.html) | Stream based logging Handler. |
| [**XMLFormatter**](https://docs.oracle.com/javase/8/docs/api/java/util/logging/XMLFormatter.html) | Format a LogRecord into a standard XML format. |

* + [***java.util.regex***](https://docs.oracle.com/javase/8/docs/api/java/util/regex/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**MatchResult**](https://docs.oracle.com/javase/8/docs/api/java/util/regex/MatchResult.html) | The result of a match operation. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**Matcher**](https://docs.oracle.com/javase/8/docs/api/java/util/regex/Matcher.html) | An engine that performs match operations on a [**character sequence**](https://docs.oracle.com/javase/8/docs/api/java/lang/CharSequence.html) by interpreting a [**Pattern**](https://docs.oracle.com/javase/8/docs/api/java/util/regex/Pattern.html). |
| [**Pattern**](https://docs.oracle.com/javase/8/docs/api/java/util/regex/Pattern.html) | A compiled representation of a regular expression. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**PatternSyntaxException**](https://docs.oracle.com/javase/8/docs/api/java/util/regex/PatternSyntaxException.html) | Unchecked exception thrown to indicate a syntax error in a regular-expression pattern. |

* + [***java.util.spi***](https://docs.oracle.com/javase/8/docs/api/java/util/spi/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**ResourceBundleControlProvider**](https://docs.oracle.com/javase/8/docs/api/java/util/spi/ResourceBundleControlProvider.html) | An interface for service providers that provide implementations of [**ResourceBundle.Control**](https://docs.oracle.com/javase/8/docs/api/java/util/ResourceBundle.Control.html). |

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| **Class Summary** | |
| **Class** | **Description** |
| [**CalendarDataProvider**](https://docs.oracle.com/javase/8/docs/api/java/util/spi/CalendarDataProvider.html) | An abstract class for service providers that provide locale-dependent [**Calendar**](https://docs.oracle.com/javase/8/docs/api/java/util/Calendar.html) parameters. |
| [**CalendarNameProvider**](https://docs.oracle.com/javase/8/docs/api/java/util/spi/CalendarNameProvider.html) | An abstract class for service providers that provide localized string representations (display names) of Calendar field values. |
| [**CurrencyNameProvider**](https://docs.oracle.com/javase/8/docs/api/java/util/spi/CurrencyNameProvider.html) | An abstract class for service providers that provide localized currency symbols and display names for the [**Currency**](https://docs.oracle.com/javase/8/docs/api/java/util/Currency.html) class. |
| [**LocaleNameProvider**](https://docs.oracle.com/javase/8/docs/api/java/util/spi/LocaleNameProvider.html) | An abstract class for service providers that provide localized names for the [**Locale**](https://docs.oracle.com/javase/8/docs/api/java/util/Locale.html) class. |
| [**LocaleServiceProvider**](https://docs.oracle.com/javase/8/docs/api/java/util/spi/LocaleServiceProvider.html) | This is the super class of all the locale sensitive service provider interfaces (SPIs). |
| [**TimeZoneNameProvider**](https://docs.oracle.com/javase/8/docs/api/java/util/spi/TimeZoneNameProvider.html) | An abstract class for service providers that provide localized time zone names for the [**TimeZone**](https://docs.oracle.com/javase/8/docs/api/java/util/TimeZone.html) class. |

* + [***java.util.stream***](https://docs.oracle.com/javase/8/docs/api/java/util/stream/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**BaseStream**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/BaseStream.html)<T,S extends [**BaseStream**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/BaseStream.html)<T,S>> | Base interface for streams, which are sequences of elements supporting sequential and parallel aggregate operations. |
| [**Collector**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/Collector.html)<T,A,R> | A [**mutable reduction operation**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/package-summary.html#Reduction) that accumulates input elements into a mutable result container, optionally transforming the accumulated result into a final representation after all input elements have been processed. |
| [**DoubleStream**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/DoubleStream.html) | A sequence of primitive double-valued elements supporting sequential and parallel aggregate operations. |
| [**DoubleStream.Builder**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/DoubleStream.Builder.html) | A mutable builder for a DoubleStream. |
| [**IntStream**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/IntStream.html) | A sequence of primitive int-valued elements supporting sequential and parallel aggregate operations. |
| [**IntStream.Builder**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/IntStream.Builder.html) | A mutable builder for an IntStream. |
| [**LongStream**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/LongStream.html) | A sequence of primitive long-valued elements supporting sequential and parallel aggregate operations. |
| [**LongStream.Builder**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/LongStream.Builder.html) | A mutable builder for a LongStream. |
| [**Stream**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/Stream.html)<T> | A sequence of elements supporting sequential and parallel aggregate operations. |
| [**Stream.Builder**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/Stream.Builder.html)<T> | A mutable builder for a Stream. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**Collectors**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/Collectors.html) | Implementations of [**Collector**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/Collector.html) that implement various useful reduction operations, such as accumulating elements into collections, summarizing elements according to various criteria, etc. |
| [**StreamSupport**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/StreamSupport.html) | Low-level utility methods for creating and manipulating streams. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**Collector.Characteristics**](https://docs.oracle.com/javase/8/docs/api/java/util/stream/Collector.Characteristics.html) | Characteristics indicating properties of a Collector, which can be used to optimize reduction implementations. |

* + [***java.util.zip***](https://docs.oracle.com/javase/8/docs/api/java/util/zip/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Checksum**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/Checksum.html) | An interface representing a data checksum. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**Adler32**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/Adler32.html) | A class that can be used to compute the Adler-32 checksum of a data stream. |
| [**CheckedInputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/CheckedInputStream.html) | An input stream that also maintains a checksum of the data being read. |
| [**CheckedOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/CheckedOutputStream.html) | An output stream that also maintains a checksum of the data being written. |
| [**CRC32**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/CRC32.html) | A class that can be used to compute the CRC-32 of a data stream. |
| [**Deflater**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/Deflater.html) | This class provides support for general purpose compression using the popular ZLIB compression library. |
| [**DeflaterInputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/DeflaterInputStream.html) | Implements an input stream filter for compressing data in the "deflate" compression format. |
| [**DeflaterOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/DeflaterOutputStream.html) | This class implements an output stream filter for compressing data in the "deflate" compression format. |
| [**GZIPInputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/GZIPInputStream.html) | This class implements a stream filter for reading compressed data in the GZIP file format. |
| [**GZIPOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/GZIPOutputStream.html) | This class implements a stream filter for writing compressed data in the GZIP file format. |
| [**Inflater**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/Inflater.html) | This class provides support for general purpose decompression using the popular ZLIB compression library. |
| [**InflaterInputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/InflaterInputStream.html) | This class implements a stream filter for uncompressing data in the "deflate" compression format. |
| [**InflaterOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/InflaterOutputStream.html) | Implements an output stream filter for uncompressing data stored in the "deflate" compression format. |
| [**ZipEntry**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/ZipEntry.html) | This class is used to represent a ZIP file entry. |
| [**ZipFile**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/ZipFile.html) | This class is used to read entries from a zip file. |
| [**ZipInputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/ZipInputStream.html) | This class implements an input stream filter for reading files in the ZIP file format. |
| [**ZipOutputStream**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/ZipOutputStream.html) | This class implements an output stream filter for writing files in the ZIP file format. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**DataFormatException**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/DataFormatException.html) | Signals that a data format error has occurred. |
| [**ZipException**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/ZipException.html) | Signals that a Zip exception of some sort has occurred. |

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| **Error Summary** | |
| **Error** | **Description** |
| [**ZipError**](https://docs.oracle.com/javase/8/docs/api/java/util/zip/ZipError.html) | Signals that an unrecoverable error has occurred. |

* + [***javax.crypto***](https://docs.oracle.com/javase/8/docs/api/javax/crypto/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**SecretKey**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/SecretKey.html) | A secret (symmetric) key. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**Cipher**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/Cipher.html) | This class provides the functionality of a cryptographic cipher for encryption and decryption. |
| [**CipherInputStream**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/CipherInputStream.html) | A CipherInputStream is composed of an InputStream and a Cipher so that read() methods return data that are read in from the underlying InputStream but have been additionally processed by the Cipher. |
| [**CipherOutputStream**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/CipherOutputStream.html) | A CipherOutputStream is composed of an OutputStream and a Cipher so that write() methods first process the data before writing them out to the underlying OutputStream. |
| [**CipherSpi**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/CipherSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the Cipher class. |
| [**EncryptedPrivateKeyInfo**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/EncryptedPrivateKeyInfo.html) | This class implements the EncryptedPrivateKeyInfo type as defined in PKCS #8. |
| [**ExemptionMechanism**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/ExemptionMechanism.html) | This class provides the functionality of an exemption mechanism, examples of which are *key recovery*,*key weakening*, and *key escrow*. |
| [**ExemptionMechanismSpi**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/ExemptionMechanismSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the ExemptionMechanism class. |
| [**KeyAgreement**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/KeyAgreement.html) | This class provides the functionality of a key agreement (or key exchange) protocol. |
| [**KeyAgreementSpi**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/KeyAgreementSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the KeyAgreement class. |
| [**KeyGenerator**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/KeyGenerator.html) | This class provides the functionality of a secret (symmetric) key generator. |
| [**KeyGeneratorSpi**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/KeyGeneratorSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the KeyGenerator class. |
| [**Mac**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/Mac.html) | This class provides the functionality of a "Message Authentication Code" (MAC) algorithm. |
| [**MacSpi**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/MacSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the Mac class. |
| [**NullCipher**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/NullCipher.html) | The NullCipher class is a class that provides an "identity cipher" -- one that does not transform the plain text. |
| [**SealedObject**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/SealedObject.html) | This class enables a programmer to create an object and protect its confidentiality with a cryptographic algorithm. |
| [**SecretKeyFactory**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/SecretKeyFactory.html) | This class represents a factory for secret keys. |
| [**SecretKeyFactorySpi**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/SecretKeyFactorySpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the SecretKeyFactory class. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**AEADBadTagException**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/AEADBadTagException.html) | This exception is thrown when a [**Cipher**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/Cipher.html) operating in an AEAD mode (such as GCM/CCM) is unable to verify the supplied authentication tag. |
| [**BadPaddingException**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/BadPaddingException.html) | This exception is thrown when a particular padding mechanism is expected for the input data but the data is not padded properly. |
| [**ExemptionMechanismException**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/ExemptionMechanismException.html) | This is the generic ExemptionMechanism exception. |
| [**IllegalBlockSizeException**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/IllegalBlockSizeException.html) | This exception is thrown when the length of data provided to a block cipher is incorrect, i.e., does not match the block size of the cipher. |
| [**NoSuchPaddingException**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/NoSuchPaddingException.html) | This exception is thrown when a particular padding mechanism is requested but is not available in the environment. |
| [**ShortBufferException**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/ShortBufferException.html) | This exception is thrown when an output buffer provided by the user is too short to hold the operation result. |

* + [***javax.crypto.interfaces***](https://docs.oracle.com/javase/8/docs/api/javax/crypto/interfaces/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**DHKey**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/interfaces/DHKey.html) | The interface to a Diffie-Hellman key. |
| [**DHPrivateKey**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/interfaces/DHPrivateKey.html) | The interface to a Diffie-Hellman private key. |
| [**DHPublicKey**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/interfaces/DHPublicKey.html) | The interface to a Diffie-Hellman public key. |
| [**PBEKey**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/interfaces/PBEKey.html) | The interface to a PBE key. |

* + [***javax.crypto.spec***](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**DESedeKeySpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/DESedeKeySpec.html) | This class specifies a DES-EDE ("triple-DES") key. |
| [**DESKeySpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/DESKeySpec.html) | This class specifies a DES key. |
| [**DHGenParameterSpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/DHGenParameterSpec.html) | This class specifies the set of parameters used for generating Diffie-Hellman (system) parameters for use in Diffie-Hellman key agreement. |
| [**DHParameterSpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/DHParameterSpec.html) | This class specifies the set of parameters used with the Diffie-Hellman algorithm, as specified in PKCS #3: *Diffie-Hellman Key-Agreement Standard*. |
| [**DHPrivateKeySpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/DHPrivateKeySpec.html) | This class specifies a Diffie-Hellman private key with its associated parameters. |
| [**DHPublicKeySpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/DHPublicKeySpec.html) | This class specifies a Diffie-Hellman public key with its associated parameters. |
| [**GCMParameterSpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/GCMParameterSpec.html) | Specifies the set of parameters required by a [**Cipher**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/Cipher.html) using the Galois/Counter Mode (GCM) mode. |
| [**IvParameterSpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/IvParameterSpec.html) | This class specifies an *initialization vector* (IV). |
| [**OAEPParameterSpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/OAEPParameterSpec.html) | This class specifies the set of parameters used with OAEP Padding, as defined in the [**PKCS #1**](http://www.ietf.org/rfc/rfc3447.txt)standard. |
| [**PBEKeySpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/PBEKeySpec.html) | A user-chosen password that can be used with password-based encryption (*PBE*). |
| [**PBEParameterSpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/PBEParameterSpec.html) | This class specifies the set of parameters used with password-based encryption (PBE), as defined in the [**PKCS #5**](http://www.ietf.org/rfc/rfc2898.txt) standard. |
| [**PSource**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/PSource.html) | This class specifies the source for encoding input P in OAEP Padding, as defined in the [**PKCS #1**](http://www.ietf.org/rfc/rfc3447.txt)standard. |
| [**PSource.PSpecified**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/PSource.PSpecified.html) | This class is used to explicitly specify the value for encoding input P in OAEP Padding. |
| [**RC2ParameterSpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/RC2ParameterSpec.html) | This class specifies the parameters used with the [***RC2***](http://www.ietf.org/rfc/rfc2268.txt) algorithm. |
| [**RC5ParameterSpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/RC5ParameterSpec.html) | This class specifies the parameters used with the [***RC5***](http://www.ietf.org/rfc/rfc2040.txt) algorithm. |
| [**SecretKeySpec**](https://docs.oracle.com/javase/8/docs/api/javax/crypto/spec/SecretKeySpec.html) | This class specifies a secret key in a provider-independent fashion. |

* + [***javax.net***](https://docs.oracle.com/javase/8/docs/api/javax/net/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**ServerSocketFactory**](https://docs.oracle.com/javase/8/docs/api/javax/net/ServerSocketFactory.html) | This class creates server sockets. |
| [**SocketFactory**](https://docs.oracle.com/javase/8/docs/api/javax/net/SocketFactory.html) | This class creates sockets. |

* + [***javax.net.ssl***](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**HandshakeCompletedListener**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/HandshakeCompletedListener.html) | This interface is implemented by any class which wants to receive notifications about the completion of an SSL protocol handshake on a given SSL connection. |
| [**HostnameVerifier**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/HostnameVerifier.html) | This class is the base interface for hostname verification. |
| [**KeyManager**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/KeyManager.html) | This is the base interface for JSSE key managers. |
| [**ManagerFactoryParameters**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/ManagerFactoryParameters.html) | This class is the base interface for providing algorithm-specific information to a KeyManagerFactory or TrustManagerFactory. |
| [**SSLSession**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLSession.html) | In SSL, sessions are used to describe an ongoing relationship between two entities. |
| [**SSLSessionBindingListener**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLSessionBindingListener.html) | This interface is implemented by objects which want to know when they are being bound or unbound from a SSLSession. |
| [**SSLSessionContext**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLSessionContext.html) | A SSLSessionContext represents a set of SSLSessions associated with a single entity. |
| [**TrustManager**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/TrustManager.html) | This is the base interface for JSSE trust managers. |
| [**X509KeyManager**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/X509KeyManager.html) | Instances of this interface manage which X509 certificate-based key pairs are used to authenticate the local side of a secure socket. |
| [**X509TrustManager**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/X509TrustManager.html) | Instance of this interface manage which X509 certificates may be used to authenticate the remote side of a secure socket. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**CertPathTrustManagerParameters**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/CertPathTrustManagerParameters.html) | A wrapper for CertPathParameters. |
| [**ExtendedSSLSession**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/ExtendedSSLSession.html) | Extends the SSLSession interface to support additional session attributes. |
| [**HandshakeCompletedEvent**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/HandshakeCompletedEvent.html) | This event indicates that an SSL handshake completed on a given SSL connection. |
| [**HttpsURLConnection**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/HttpsURLConnection.html) | HttpsURLConnection extends HttpURLConnection with support for https-specific features. |
| [**KeyManagerFactory**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/KeyManagerFactory.html) | This class acts as a factory for key managers based on a source of key material. |
| [**KeyManagerFactorySpi**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/KeyManagerFactorySpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the KeyManagerFactory class. |
| [**KeyStoreBuilderParameters**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/KeyStoreBuilderParameters.html) | A parameters object for X509KeyManagers that encapsulates a List of KeyStore.Builders. |
| [**SNIHostName**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SNIHostName.html) | Instances of this class represent a server name of type [**host\_name**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/StandardConstants.html#SNI_HOST_NAME) in a Server Name Indication (SNI) extension. |
| [**SNIMatcher**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SNIMatcher.html) | Instances of this class represent a matcher that performs match operations on an [**SNIServerName**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SNIServerName.html)instance. |
| [**SNIServerName**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SNIServerName.html) | Instances of this class represent a server name in a Server Name Indication (SNI) extension. |
| [**SSLContext**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLContext.html) | Instances of this class represent a secure socket protocol implementation which acts as a factory for secure socket factories or SSLEngines. |
| [**SSLContextSpi**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLContextSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the SSLContext class. |
| [**SSLEngine**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLEngine.html) | A class which enables secure communications using protocols such as the Secure Sockets Layer (SSL) or [**IETF RFC 2246 "Transport Layer Security" (TLS)**](http://www.ietf.org/rfc/rfc2246.txt)protocols, but is transport independent. |
| [**SSLEngineResult**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLEngineResult.html) | An encapsulation of the result state produced by SSLEngine I/O calls. |
| [**SSLParameters**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLParameters.html) | Encapsulates parameters for an SSL/TLS connection. |
| [**SSLPermission**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLPermission.html) | This class is for various network permissions. |
| [**SSLServerSocket**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLServerSocket.html) | This class extends ServerSockets and provides secure server sockets using protocols such as the Secure Sockets Layer (SSL) or Transport Layer Security (TLS) protocols. |
| [**SSLServerSocketFactory**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLServerSocketFactory.html) | SSLServerSocketFactorys create SSLServerSockets. |
| [**SSLSessionBindingEvent**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLSessionBindingEvent.html) | This event is propagated to a SSLSessionBindingListener. |
| [**SSLSocket**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLSocket.html) | This class extends Sockets and provides secure socket using protocols such as the "Secure Sockets Layer" (SSL) or IETF "Transport Layer Security" (TLS) protocols. |
| [**SSLSocketFactory**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLSocketFactory.html) | SSLSocketFactorys create SSLSockets. |
| [**StandardConstants**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/StandardConstants.html) | Standard constants definitions |
| [**TrustManagerFactory**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/TrustManagerFactory.html) | This class acts as a factory for trust managers based on a source of trust material. |
| [**TrustManagerFactorySpi**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/TrustManagerFactorySpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the TrustManagerFactory class. |
| [**X509ExtendedKeyManager**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/X509ExtendedKeyManager.html) | Abstract class that provides for extension of the X509KeyManager interface. |
| [**X509ExtendedTrustManager**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/X509ExtendedTrustManager.html) | Extensions to the X509TrustManager interface to support SSL/TLS connection sensitive trust management. |

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| **Enum Summary** | |
| **Enum** | **Description** |
| [**SSLEngineResult.HandshakeStatus**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLEngineResult.HandshakeStatus.html) | An SSLEngineResult enum describing the current handshaking state of this SSLEngine. |
| [**SSLEngineResult.Status**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLEngineResult.Status.html) | An SSLEngineResult enum describing the overall result of the SSLEngine operation. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**SSLException**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLException.html) | Indicates some kind of error detected by an SSL subsystem. |
| [**SSLHandshakeException**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLHandshakeException.html) | Indicates that the client and server could not negotiate the desired level of security. |
| [**SSLKeyException**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLKeyException.html) | Reports a bad SSL key. |
| [**SSLPeerUnverifiedException**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLPeerUnverifiedException.html) | Indicates that the peer's identity has not been verified. |
| [**SSLProtocolException**](https://docs.oracle.com/javase/8/docs/api/javax/net/ssl/SSLProtocolException.html) | Reports an error in the operation of the SSL protocol. |

* + [***javax.script***](https://docs.oracle.com/javase/8/docs/api/javax/script/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Bindings**](https://docs.oracle.com/javase/8/docs/api/javax/script/Bindings.html) | A mapping of key/value pairs, all of whose keys are Strings. |
| [**Compilable**](https://docs.oracle.com/javase/8/docs/api/javax/script/Compilable.html) | The optional interface implemented by ScriptEngines whose methods compile scripts to a form that can be executed repeatedly without recompilation. |
| [**Invocable**](https://docs.oracle.com/javase/8/docs/api/javax/script/Invocable.html) | The optional interface implemented by ScriptEngines whose methods allow the invocation of procedures in scripts that have previously been executed. |
| [**ScriptContext**](https://docs.oracle.com/javase/8/docs/api/javax/script/ScriptContext.html) | The interface whose implementing classes are used to connect Script Engines with objects, such as scoped Bindings, in hosting applications. |
| [**ScriptEngine**](https://docs.oracle.com/javase/8/docs/api/javax/script/ScriptEngine.html) | ScriptEngine is the fundamental interface whose methods must be fully functional in every implementation of this specification. |
| [**ScriptEngineFactory**](https://docs.oracle.com/javase/8/docs/api/javax/script/ScriptEngineFactory.html) | ScriptEngineFactory is used to describe and instantiate ScriptEngines. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AbstractScriptEngine**](https://docs.oracle.com/javase/8/docs/api/javax/script/AbstractScriptEngine.html) | Provides a standard implementation for several of the variants of the eval method. |
| [**CompiledScript**](https://docs.oracle.com/javase/8/docs/api/javax/script/CompiledScript.html) | Extended by classes that store results of compilations. |
| [**ScriptEngineManager**](https://docs.oracle.com/javase/8/docs/api/javax/script/ScriptEngineManager.html) | The ScriptEngineManager implements a discovery and instantiation mechanism for ScriptEngineclasses and also maintains a collection of key/value pairs storing state shared by all engines created by the Manager. |
| [**SimpleBindings**](https://docs.oracle.com/javase/8/docs/api/javax/script/SimpleBindings.html) | A simple implementation of Bindings backed by a HashMap or some other specified Map. |
| [**SimpleScriptContext**](https://docs.oracle.com/javase/8/docs/api/javax/script/SimpleScriptContext.html) | Simple implementation of ScriptContext. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**ScriptException**](https://docs.oracle.com/javase/8/docs/api/javax/script/ScriptException.html) | The generic Exception class for the Scripting APIs. |

* + [***javax.security.auth***](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Destroyable**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/Destroyable.html) | Objects such as credentials may optionally implement this interface to provide the capability to destroy its contents. |
| [**Refreshable**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/Refreshable.html) | Objects such as credentials may optionally implement this interface to provide the capability to refresh itself. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AuthPermission**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/AuthPermission.html) | This class is for authentication permissions. |
| [**Policy**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/Policy.html) | Deprecated  *as of JDK version 1.4 -- Replaced by java.security.Policy.* |
| [**PrivateCredentialPermission**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/PrivateCredentialPermission.html) | This class is used to protect access to private Credentials belonging to a particular Subject. |
| [**Subject**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/Subject.html) | A Subject represents a grouping of related information for a single entity, such as a person. |
| [**SubjectDomainCombiner**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/SubjectDomainCombiner.html) | A SubjectDomainCombiner updates ProtectionDomains with Principals from the Subject associated with this SubjectDomainCombiner. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**DestroyFailedException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/DestroyFailedException.html) | Signals that a destroy operation failed. |
| [**RefreshFailedException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/RefreshFailedException.html) | Signals that a refresh operation failed. |

* + [***javax.security.auth.callback***](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Callback**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/Callback.html) | Implementations of this interface are passed to a CallbackHandler, allowing underlying security services the ability to interact with a calling application to retrieve specific authentication data such as usernames and passwords, or to display certain information, such as error and warning messages. |
| [**CallbackHandler**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/CallbackHandler.html) | An application implements a CallbackHandler and passes it to underlying security services so that they may interact with the application to retrieve specific authentication data, such as usernames and passwords, or to display certain information, such as error and warning messages. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**ChoiceCallback**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/ChoiceCallback.html) | Underlying security services instantiate and pass a ChoiceCallback to the handle method of aCallbackHandler to display a list of choices and to retrieve the selected choice(s). |
| [**ConfirmationCallback**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/ConfirmationCallback.html) | Underlying security services instantiate and pass a ConfirmationCallback to the handle method of aCallbackHandler to ask for YES/NO, OK/CANCEL, YES/NO/CANCEL or other similar confirmations. |
| [**LanguageCallback**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/LanguageCallback.html) | Underlying security services instantiate and pass a LanguageCallback to the handle method of aCallbackHandler to retrieve the Locale used for localizing text. |
| [**NameCallback**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/NameCallback.html) | Underlying security services instantiate and pass a NameCallback to the handle method of aCallbackHandler to retrieve name information. |
| [**PasswordCallback**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/PasswordCallback.html) | Underlying security services instantiate and pass a PasswordCallback to the handle method of aCallbackHandler to retrieve password information. |
| [**TextInputCallback**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/TextInputCallback.html) | Underlying security services instantiate and pass a TextInputCallback to the handle method of aCallbackHandler to retrieve generic text information. |
| [**TextOutputCallback**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/TextOutputCallback.html) | Underlying security services instantiate and pass a TextOutputCallback to the handle method of aCallbackHandler to display information messages, warning messages and error messages. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**UnsupportedCallbackException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/callback/UnsupportedCallbackException.html) | Signals that a CallbackHandler does not recognize a particular Callback. |

* + [***javax.security.auth.login***](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**Configuration.Parameters**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/Configuration.Parameters.html) | This represents a marker interface for Configuration parameters. |

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| **Class Summary** | |
| **Class** | **Description** |
| [**AppConfigurationEntry**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/AppConfigurationEntry.html) | This class represents a single LoginModule entry configured for the application specified in the getAppConfigurationEntry(String appName) method in theConfiguration class. |
| [**AppConfigurationEntry.LoginModuleControlFlag**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/AppConfigurationEntry.LoginModuleControlFlag.html) | This class represents whether or not a LoginModule is REQUIRED, REQUISITE, SUFFICIENT or OPTIONAL. |
| [**Configuration**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/Configuration.html) | A Configuration object is responsible for specifying which LoginModules should be used for a particular application, and in what order the LoginModules should be invoked. |
| [**ConfigurationSpi**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/ConfigurationSpi.html) | This class defines the *Service Provider Interface* (**SPI**) for the Configuration class. |
| [**LoginContext**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/LoginContext.html) | The LoginContext class describes the basic methods used to authenticate Subjects and provides a way to develop an application independent of the underlying authentication technology. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**AccountException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/AccountException.html) | A generic account exception. |
| [**AccountExpiredException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/AccountExpiredException.html) | Signals that a user account has expired. |
| [**AccountLockedException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/AccountLockedException.html) | Signals that an account was locked. |
| [**AccountNotFoundException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/AccountNotFoundException.html) | Signals that an account was not found. |
| [**CredentialException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/CredentialException.html) | A generic credential exception. |
| [**CredentialExpiredException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/CredentialExpiredException.html) | Signals that a Credential has expired. |
| [**CredentialNotFoundException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/CredentialNotFoundException.html) | Signals that a credential was not found. |
| [**FailedLoginException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/FailedLoginException.html) | Signals that user authentication failed. |
| [**LoginException**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/login/LoginException.html) | This is the basic login exception. |

* + [***javax.security.auth.spi***](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/spi/compact1-package-summary.html)

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| **Interface Summary** | |
| **Interface** | **Description** |
| [**LoginModule**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/spi/LoginModule.html) | LoginModule describes the interface implemented by authentication technology providers. |

* + [***javax.security.auth.x500***](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/x500/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**X500Principal**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/x500/X500Principal.html) | This class represents an X.500 Principal. |
| [**X500PrivateCredential**](https://docs.oracle.com/javase/8/docs/api/javax/security/auth/x500/X500PrivateCredential.html) | This class represents an X500PrivateCredential. |

* + [***javax.security.cert***](https://docs.oracle.com/javase/8/docs/api/javax/security/cert/compact1-package-summary.html)

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| **Class Summary** | |
| **Class** | **Description** |
| [**Certificate**](https://docs.oracle.com/javase/8/docs/api/javax/security/cert/Certificate.html) | Abstract class for managing a variety of identity certificates. |
| [**X509Certificate**](https://docs.oracle.com/javase/8/docs/api/javax/security/cert/X509Certificate.html) | Abstract class for X.509 v1 certificates. |

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| **Exception Summary** | |
| **Exception** | **Description** |
| [**CertificateEncodingException**](https://docs.oracle.com/javase/8/docs/api/javax/security/cert/CertificateEncodingException.html) | Certificate Encoding Exception. |
| [**CertificateException**](https://docs.oracle.com/javase/8/docs/api/javax/security/cert/CertificateException.html) | This exception indicates one of a variety of certificate problems. |
| [**CertificateExpiredException**](https://docs.oracle.com/javase/8/docs/api/javax/security/cert/CertificateExpiredException.html) | Certificate Expired Exception. |
| [**CertificateNotYetValidException**](https://docs.oracle.com/javase/8/docs/api/javax/security/cert/CertificateNotYetValidException.html) | Certificate is not yet valid exception. |
| [**CertificateParsingException**](https://docs.oracle.com/javase/8/docs/api/javax/security/cert/CertificateParsingException.html) | Certificate Parsing Exception. |