| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/File.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/java/io/Externalizable.html)   [**NEXT CLASS**](http://docs.google.com/java/io/FileDescriptor.html) | [**FRAMES**](http://docs.google.com/index.html?java/io/File.html)    [**NO FRAMES**](http://docs.google.com/File.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#2et92p0) | [CONSTR](#tyjcwt) | [METHOD](#3dy6vkm) | DETAIL: [FIELD](#4d34og8) | [CONSTR](#lnxbz9) | [METHOD](#z337ya) |

## **java.io**

Class File

[java.lang.Object](http://docs.google.com/java/lang/Object.html)  
 **java.io.File**

**All Implemented Interfaces:** [Serializable](http://docs.google.com/java/io/Serializable.html), [Comparable](http://docs.google.com/java/lang/Comparable.html)<[File](http://docs.google.com/java/io/File.html)>

public class **File**extends [Object](http://docs.google.com/java/lang/Object.html)implements [Serializable](http://docs.google.com/java/io/Serializable.html), [Comparable](http://docs.google.com/java/lang/Comparable.html)<[File](http://docs.google.com/java/io/File.html)>

An abstract representation of file and directory pathnames.

User interfaces and operating systems use system-dependent *pathname strings* to name files and directories. This class presents an abstract, system-independent view of hierarchical pathnames. An *abstract pathname* has two components:

1. An optional system-dependent *prefix* string, such as a disk-drive specifier, "/" for the UNIX root directory, or "\\\\" for a Microsoft Windows UNC pathname, and
2. A sequence of zero or more string *names*.

The first name in an abstract pathname may be a directory name or, in the case of Microsoft Windows UNC pathnames, a hostname. Each subsequent name in an abstract pathname denotes a directory; the last name may denote either a directory or a file. The *empty* abstract pathname has no prefix and an empty name sequence.

The conversion of a pathname string to or from an abstract pathname is inherently system-dependent. When an abstract pathname is converted into a pathname string, each name is separated from the next by a single copy of the default *separator character*. The default name-separator character is defined by the system property file.separator, and is made available in the public static fields [separator](http://docs.google.com/java/io/File.html#separator) and [separatorChar](http://docs.google.com/java/io/File.html#separatorChar) of this class. When a pathname string is converted into an abstract pathname, the names within it may be separated by the default name-separator character or by any other name-separator character that is supported by the underlying system.

A pathname, whether abstract or in string form, may be either *absolute* or *relative*. An absolute pathname is complete in that no other information is required in order to locate the file that it denotes. A relative pathname, in contrast, must be interpreted in terms of information taken from some other pathname. By default the classes in the java.io package always resolve relative pathnames against the current user directory. This directory is named by the system property user.dir, and is typically the directory in which the Java virtual machine was invoked.

The *parent* of an abstract pathname may be obtained by invoking the [getParent()](http://docs.google.com/java/io/File.html#getParent()) method of this class and consists of the pathname's prefix and each name in the pathname's name sequence except for the last. Each directory's absolute pathname is an ancestor of any File object with an absolute abstract pathname which begins with the directory's absolute pathname. For example, the directory denoted by the abstract pathname "/usr" is an ancestor of the directory denoted by the pathname "/usr/local/bin".

The prefix concept is used to handle root directories on UNIX platforms, and drive specifiers, root directories and UNC pathnames on Microsoft Windows platforms, as follows:

* For UNIX platforms, the prefix of an absolute pathname is always "/". Relative pathnames have no prefix. The abstract pathname denoting the root directory has the prefix "/" and an empty name sequence.
* For Microsoft Windows platforms, the prefix of a pathname that contains a drive specifier consists of the drive letter followed by ":" and possibly followed by "\\" if the pathname is absolute. The prefix of a UNC pathname is "\\\\"; the hostname and the share name are the first two names in the name sequence. A relative pathname that does not specify a drive has no prefix.

Instances of this class may or may not denote an actual file-system object such as a file or a directory. If it does denote such an object then that object resides in a *partition*. A partition is an operating system-specific portion of storage for a file system. A single storage device (e.g. a physical disk-drive, flash memory, CD-ROM) may contain multiple partitions. The object, if any, will reside on the partition named by some ancestor of the absolute form of this pathname.

A file system may implement restrictions to certain operations on the actual file-system object, such as reading, writing, and executing. These restrictions are collectively known as *access permissions*. The file system may have multiple sets of access permissions on a single object. For example, one set may apply to the object's *owner*, and another may apply to all other users. The access permissions on an object may cause some methods in this class to fail.

Instances of the File class are immutable; that is, once created, the abstract pathname represented by a File object will never change.

**Since:** JDK1.0 **See Also:**[Serialized Form](http://docs.google.com/serialized-form.html#java.io.File)

| **Field Summary** | |
| --- | --- |
| static [String](http://docs.google.com/java/lang/String.html) | [**pathSeparator**](http://docs.google.com/java/io/File.html#pathSeparator)            The system-dependent path-separator character, represented as a string for convenience. |
| static char | [**pathSeparatorChar**](http://docs.google.com/java/io/File.html#pathSeparatorChar)            The system-dependent path-separator character. |
| static [String](http://docs.google.com/java/lang/String.html) | [**separator**](http://docs.google.com/java/io/File.html#separator)            The system-dependent default name-separator character, represented as a string for convenience. |
| static char | [**separatorChar**](http://docs.google.com/java/io/File.html#separatorChar)            The system-dependent default name-separator character. |

| **Constructor Summary** | |
| --- | --- |
| [**File**](http://docs.google.com/java/io/File.html#File(java.io.File,%20java.lang.String))([File](http://docs.google.com/java/io/File.html) parent, [String](http://docs.google.com/java/lang/String.html) child)            Creates a new File instance from a parent abstract pathname and a child pathname string. |
| [**File**](http://docs.google.com/java/io/File.html#File(java.lang.String))([String](http://docs.google.com/java/lang/String.html) pathname)            Creates a new File instance by converting the given pathname string into an abstract pathname. |
| [**File**](http://docs.google.com/java/io/File.html#File(java.lang.String,%20java.lang.String))([String](http://docs.google.com/java/lang/String.html) parent, [String](http://docs.google.com/java/lang/String.html) child)            Creates a new File instance from a parent pathname string and a child pathname string. |
| [**File**](http://docs.google.com/java/io/File.html#File(java.net.URI))([URI](http://docs.google.com/java/net/URI.html) uri)            Creates a new File instance by converting the given file: URI into an abstract pathname. |

| **Method Summary** | |
| --- | --- |
| boolean | [**canExecute**](http://docs.google.com/java/io/File.html#canExecute())()            Tests whether the application can execute the file denoted by this abstract pathname. |
| boolean | [**canRead**](http://docs.google.com/java/io/File.html#canRead())()            Tests whether the application can read the file denoted by this abstract pathname. |
| boolean | [**canWrite**](http://docs.google.com/java/io/File.html#canWrite())()            Tests whether the application can modify the file denoted by this abstract pathname. |
| int | [**compareTo**](http://docs.google.com/java/io/File.html#compareTo(java.io.File))([File](http://docs.google.com/java/io/File.html) pathname)            Compares two abstract pathnames lexicographically. |
| boolean | [**createNewFile**](http://docs.google.com/java/io/File.html#createNewFile())()            Atomically creates a new, empty file named by this abstract pathname if and only if a file with this name does not yet exist. |
| static [File](http://docs.google.com/java/io/File.html) | [**createTempFile**](http://docs.google.com/java/io/File.html#createTempFile(java.lang.String,%20java.lang.String))([String](http://docs.google.com/java/lang/String.html) prefix, [String](http://docs.google.com/java/lang/String.html) suffix)            Creates an empty file in the default temporary-file directory, using the given prefix and suffix to generate its name. |
| static [File](http://docs.google.com/java/io/File.html) | [**createTempFile**](http://docs.google.com/java/io/File.html#createTempFile(java.lang.String,%20java.lang.String,%20java.io.File))([String](http://docs.google.com/java/lang/String.html) prefix, [String](http://docs.google.com/java/lang/String.html) suffix, [File](http://docs.google.com/java/io/File.html) directory)             Creates a new empty file in the specified directory, using the given prefix and suffix strings to generate its name. |
| boolean | [**delete**](http://docs.google.com/java/io/File.html#delete())()            Deletes the file or directory denoted by this abstract pathname. |
| void | [**deleteOnExit**](http://docs.google.com/java/io/File.html#deleteOnExit())()            Requests that the file or directory denoted by this abstract pathname be deleted when the virtual machine terminates. |
| boolean | [**equals**](http://docs.google.com/java/io/File.html#equals(java.lang.Object))([Object](http://docs.google.com/java/lang/Object.html) obj)            Tests this abstract pathname for equality with the given object. |
| boolean | [**exists**](http://docs.google.com/java/io/File.html#exists())()            Tests whether the file or directory denoted by this abstract pathname exists. |
| [File](http://docs.google.com/java/io/File.html) | [**getAbsoluteFile**](http://docs.google.com/java/io/File.html#getAbsoluteFile())()            Returns the absolute form of this abstract pathname. |
| [String](http://docs.google.com/java/lang/String.html) | [**getAbsolutePath**](http://docs.google.com/java/io/File.html#getAbsolutePath())()            Returns the absolute pathname string of this abstract pathname. |
| [File](http://docs.google.com/java/io/File.html) | [**getCanonicalFile**](http://docs.google.com/java/io/File.html#getCanonicalFile())()            Returns the canonical form of this abstract pathname. |
| [String](http://docs.google.com/java/lang/String.html) | [**getCanonicalPath**](http://docs.google.com/java/io/File.html#getCanonicalPath())()            Returns the canonical pathname string of this abstract pathname. |
| long | [**getFreeSpace**](http://docs.google.com/java/io/File.html#getFreeSpace())()            Returns the number of unallocated bytes in the partition [named](#3znysh7) by this abstract path name. |
| [String](http://docs.google.com/java/lang/String.html) | [**getName**](http://docs.google.com/java/io/File.html#getName())()            Returns the name of the file or directory denoted by this abstract pathname. |
| [String](http://docs.google.com/java/lang/String.html) | [**getParent**](http://docs.google.com/java/io/File.html#getParent())()            Returns the pathname string of this abstract pathname's parent, or null if this pathname does not name a parent directory. |
| [File](http://docs.google.com/java/io/File.html) | [**getParentFile**](http://docs.google.com/java/io/File.html#getParentFile())()            Returns the abstract pathname of this abstract pathname's parent, or null if this pathname does not name a parent directory. |
| [String](http://docs.google.com/java/lang/String.html) | [**getPath**](http://docs.google.com/java/io/File.html#getPath())()            Converts this abstract pathname into a pathname string. |
| long | [**getTotalSpace**](http://docs.google.com/java/io/File.html#getTotalSpace())()            Returns the size of the partition [named](#3znysh7) by this abstract pathname. |
| long | [**getUsableSpace**](http://docs.google.com/java/io/File.html#getUsableSpace())()            Returns the number of bytes available to this virtual machine on the partition [named](#3znysh7) by this abstract pathname. |
| int | [**hashCode**](http://docs.google.com/java/io/File.html#hashCode())()            Computes a hash code for this abstract pathname. |
| boolean | [**isAbsolute**](http://docs.google.com/java/io/File.html#isAbsolute())()            Tests whether this abstract pathname is absolute. |
| boolean | [**isDirectory**](http://docs.google.com/java/io/File.html#isDirectory())()            Tests whether the file denoted by this abstract pathname is a directory. |
| boolean | [**isFile**](http://docs.google.com/java/io/File.html#isFile())()            Tests whether the file denoted by this abstract pathname is a normal file. |
| boolean | [**isHidden**](http://docs.google.com/java/io/File.html#isHidden())()            Tests whether the file named by this abstract pathname is a hidden file. |
| long | [**lastModified**](http://docs.google.com/java/io/File.html#lastModified())()            Returns the time that the file denoted by this abstract pathname was last modified. |
| long | [**length**](http://docs.google.com/java/io/File.html#length())()            Returns the length of the file denoted by this abstract pathname. |
| [String](http://docs.google.com/java/lang/String.html)[] | [**list**](http://docs.google.com/java/io/File.html#list())()            Returns an array of strings naming the files and directories in the directory denoted by this abstract pathname. |
| [String](http://docs.google.com/java/lang/String.html)[] | [**list**](http://docs.google.com/java/io/File.html#list(java.io.FilenameFilter))([FilenameFilter](http://docs.google.com/java/io/FilenameFilter.html) filter)            Returns an array of strings naming the files and directories in the directory denoted by this abstract pathname that satisfy the specified filter. |
| [File](http://docs.google.com/java/io/File.html)[] | [**listFiles**](http://docs.google.com/java/io/File.html#listFiles())()            Returns an array of abstract pathnames denoting the files in the directory denoted by this abstract pathname. |
| [File](http://docs.google.com/java/io/File.html)[] | [**listFiles**](http://docs.google.com/java/io/File.html#listFiles(java.io.FileFilter))([FileFilter](http://docs.google.com/java/io/FileFilter.html) filter)            Returns an array of abstract pathnames denoting the files and directories in the directory denoted by this abstract pathname that satisfy the specified filter. |
| [File](http://docs.google.com/java/io/File.html)[] | [**listFiles**](http://docs.google.com/java/io/File.html#listFiles(java.io.FilenameFilter))([FilenameFilter](http://docs.google.com/java/io/FilenameFilter.html) filter)            Returns an array of abstract pathnames denoting the files and directories in the directory denoted by this abstract pathname that satisfy the specified filter. |
| static [File](http://docs.google.com/java/io/File.html)[] | [**listRoots**](http://docs.google.com/java/io/File.html#listRoots())()            List the available filesystem roots. |
| boolean | [**mkdir**](http://docs.google.com/java/io/File.html#mkdir())()            Creates the directory named by this abstract pathname. |
| boolean | [**mkdirs**](http://docs.google.com/java/io/File.html#mkdirs())()            Creates the directory named by this abstract pathname, including any necessary but nonexistent parent directories. |
| boolean | [**renameTo**](http://docs.google.com/java/io/File.html#renameTo(java.io.File))([File](http://docs.google.com/java/io/File.html) dest)            Renames the file denoted by this abstract pathname. |
| boolean | [**setExecutable**](http://docs.google.com/java/io/File.html#setExecutable(boolean))(boolean executable)            A convenience method to set the owner's execute permission for this abstract pathname. |
| boolean | [**setExecutable**](http://docs.google.com/java/io/File.html#setExecutable(boolean,%20boolean))(boolean executable, boolean ownerOnly)            Sets the owner's or everybody's execute permission for this abstract pathname. |
| boolean | [**setLastModified**](http://docs.google.com/java/io/File.html#setLastModified(long))(long time)            Sets the last-modified time of the file or directory named by this abstract pathname. |
| boolean | [**setReadable**](http://docs.google.com/java/io/File.html#setReadable(boolean))(boolean readable)            A convenience method to set the owner's read permission for this abstract pathname. |
| boolean | [**setReadable**](http://docs.google.com/java/io/File.html#setReadable(boolean,%20boolean))(boolean readable, boolean ownerOnly)            Sets the owner's or everybody's read permission for this abstract pathname. |
| boolean | [**setReadOnly**](http://docs.google.com/java/io/File.html#setReadOnly())()            Marks the file or directory named by this abstract pathname so that only read operations are allowed. |
| boolean | [**setWritable**](http://docs.google.com/java/io/File.html#setWritable(boolean))(boolean writable)            A convenience method to set the owner's write permission for this abstract pathname. |
| boolean | [**setWritable**](http://docs.google.com/java/io/File.html#setWritable(boolean,%20boolean))(boolean writable, boolean ownerOnly)            Sets the owner's or everybody's write permission for this abstract pathname. |
| [String](http://docs.google.com/java/lang/String.html) | [**toString**](http://docs.google.com/java/io/File.html#toString())()            Returns the pathname string of this abstract pathname. |
| [URI](http://docs.google.com/java/net/URI.html) | [**toURI**](http://docs.google.com/java/io/File.html#toURI())()            Constructs a file: URI that represents this abstract pathname. |
| [URL](http://docs.google.com/java/net/URL.html) | [**toURL**](http://docs.google.com/java/io/File.html#toURL())()  **Deprecated.** *This method does not automatically escape characters that are illegal in URLs. It is recommended that new code convert an abstract pathname into a URL by first converting it into a URI, via the* [*toURI*](http://docs.google.com/java/io/File.html#toURI()) *method, and then converting the URI into a URL via the* [*URI.toURL*](http://docs.google.com/java/net/URI.html#toURL()) *method.* |

| **Methods inherited from class java.lang.**[**Object**](http://docs.google.com/java/lang/Object.html) |
| --- |
| [clone](http://docs.google.com/java/lang/Object.html#clone()), [finalize](http://docs.google.com/java/lang/Object.html#finalize()), [getClass](http://docs.google.com/java/lang/Object.html#getClass()), [notify](http://docs.google.com/java/lang/Object.html#notify()), [notifyAll](http://docs.google.com/java/lang/Object.html#notifyAll()), [wait](http://docs.google.com/java/lang/Object.html#wait()), [wait](http://docs.google.com/java/lang/Object.html#wait(long)), [wait](http://docs.google.com/java/lang/Object.html#wait(long,%20int)) |

| **Field Detail** |
| --- |

### separatorChar

public static final char **separatorChar**

The system-dependent default name-separator character. This field is initialized to contain the first character of the value of the system property file.separator. On UNIX systems the value of this field is '/'; on Microsoft Windows systems it is '\\'.

**See Also:**[System.getProperty(java.lang.String)](http://docs.google.com/java/lang/System.html#getProperty(java.lang.String))

### separator

public static final [String](http://docs.google.com/java/lang/String.html) **separator**

The system-dependent default name-separator character, represented as a string for convenience. This string contains a single character, namely [separatorChar](http://docs.google.com/java/io/File.html#separatorChar).

### pathSeparatorChar

public static final char **pathSeparatorChar**

The system-dependent path-separator character. This field is initialized to contain the first character of the value of the system property path.separator. This character is used to separate filenames in a sequence of files given as a *path list*. On UNIX systems, this character is ':'; on Microsoft Windows systems it is ';'.

**See Also:**[System.getProperty(java.lang.String)](http://docs.google.com/java/lang/System.html#getProperty(java.lang.String))

### pathSeparator

public static final [String](http://docs.google.com/java/lang/String.html) **pathSeparator**

The system-dependent path-separator character, represented as a string for convenience. This string contains a single character, namely [pathSeparatorChar](http://docs.google.com/java/io/File.html#pathSeparatorChar).

| **Constructor Detail** |
| --- |

### File

public **File**([String](http://docs.google.com/java/lang/String.html) pathname)

Creates a new File instance by converting the given pathname string into an abstract pathname. If the given string is the empty string, then the result is the empty abstract pathname.

**Parameters:**pathname - A pathname string **Throws:** [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - If the pathname argument is null

### File

public **File**([String](http://docs.google.com/java/lang/String.html) parent,  
 [String](http://docs.google.com/java/lang/String.html) child)

Creates a new File instance from a parent pathname string and a child pathname string.

If parent is null then the new File instance is created as if by invoking the single-argument File constructor on the given child pathname string.

Otherwise the parent pathname string is taken to denote a directory, and the child pathname string is taken to denote either a directory or a file. If the child pathname string is absolute then it is converted into a relative pathname in a system-dependent way. If parent is the empty string then the new File instance is created by converting child into an abstract pathname and resolving the result against a system-dependent default directory. Otherwise each pathname string is converted into an abstract pathname and the child abstract pathname is resolved against the parent.

**Parameters:**parent - The parent pathname stringchild - The child pathname string **Throws:** [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - If child is null

### File

public **File**([File](http://docs.google.com/java/io/File.html) parent,  
 [String](http://docs.google.com/java/lang/String.html) child)

Creates a new File instance from a parent abstract pathname and a child pathname string.

If parent is null then the new File instance is created as if by invoking the single-argument File constructor on the given child pathname string.

Otherwise the parent abstract pathname is taken to denote a directory, and the child pathname string is taken to denote either a directory or a file. If the child pathname string is absolute then it is converted into a relative pathname in a system-dependent way. If parent is the empty abstract pathname then the new File instance is created by converting child into an abstract pathname and resolving the result against a system-dependent default directory. Otherwise each pathname string is converted into an abstract pathname and the child abstract pathname is resolved against the parent.

**Parameters:**parent - The parent abstract pathnamechild - The child pathname string **Throws:** [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - If child is null

### File

public **File**([URI](http://docs.google.com/java/net/URI.html) uri)

Creates a new File instance by converting the given file: URI into an abstract pathname.

The exact form of a file: URI is system-dependent, hence the transformation performed by this constructor is also system-dependent.

For a given abstract pathname *f* it is guaranteed that

new File(*f*.[toURI](http://docs.google.com/java/io/File.html#toURI())()).equals(*f*.[getAbsoluteFile](http://docs.google.com/java/io/File.html#getAbsoluteFile())())so long as the original abstract pathname, the URI, and the new abstract pathname are all created in (possibly different invocations of) the same Java virtual machine. This relationship typically does not hold, however, when a file: URI that is created in a virtual machine on one operating system is converted into an abstract pathname in a virtual machine on a different operating system.

**Parameters:**uri - An absolute, hierarchical URI with a scheme equal to "file", a non-empty path component, and undefined authority, query, and fragment components **Throws:** [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - If uri is null [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the preconditions on the parameter do not hold**Since:** 1.4 **See Also:**[toURI()](http://docs.google.com/java/io/File.html#toURI()), [URI](http://docs.google.com/java/net/URI.html)

| **Method Detail** |
| --- |

### getName

public [String](http://docs.google.com/java/lang/String.html) **getName**()

Returns the name of the file or directory denoted by this abstract pathname. This is just the last name in the pathname's name sequence. If the pathname's name sequence is empty, then the empty string is returned.

**Returns:**The name of the file or directory denoted by this abstract pathname, or the empty string if this pathname's name sequence is empty

### getParent

public [String](http://docs.google.com/java/lang/String.html) **getParent**()

Returns the pathname string of this abstract pathname's parent, or null if this pathname does not name a parent directory.

The *parent* of an abstract pathname consists of the pathname's prefix, if any, and each name in the pathname's name sequence except for the last. If the name sequence is empty then the pathname does not name a parent directory.

**Returns:**The pathname string of the parent directory named by this abstract pathname, or null if this pathname does not name a parent

### getParentFile

public [File](http://docs.google.com/java/io/File.html) **getParentFile**()

Returns the abstract pathname of this abstract pathname's parent, or null if this pathname does not name a parent directory.

The *parent* of an abstract pathname consists of the pathname's prefix, if any, and each name in the pathname's name sequence except for the last. If the name sequence is empty then the pathname does not name a parent directory.

**Returns:**The abstract pathname of the parent directory named by this abstract pathname, or null if this pathname does not name a parent**Since:** 1.2

### getPath

public [String](http://docs.google.com/java/lang/String.html) **getPath**()

Converts this abstract pathname into a pathname string. The resulting string uses the [default name-separator character](http://docs.google.com/java/io/File.html#separator) to separate the names in the name sequence.

**Returns:**The string form of this abstract pathname

### isAbsolute

public boolean **isAbsolute**()

Tests whether this abstract pathname is absolute. The definition of absolute pathname is system dependent. On UNIX systems, a pathname is absolute if its prefix is "/". On Microsoft Windows systems, a pathname is absolute if its prefix is a drive specifier followed by "\\", or if its prefix is "\\\\".

**Returns:**true if this abstract pathname is absolute, false otherwise

### getAbsolutePath

public [String](http://docs.google.com/java/lang/String.html) **getAbsolutePath**()

Returns the absolute pathname string of this abstract pathname.

If this abstract pathname is already absolute, then the pathname string is simply returned as if by the [getPath()](http://docs.google.com/java/io/File.html#getPath()) method. If this abstract pathname is the empty abstract pathname then the pathname string of the current user directory, which is named by the system property user.dir, is returned. Otherwise this pathname is resolved in a system-dependent way. On UNIX systems, a relative pathname is made absolute by resolving it against the current user directory. On Microsoft Windows systems, a relative pathname is made absolute by resolving it against the current directory of the drive named by the pathname, if any; if not, it is resolved against the current user directory.

**Returns:**The absolute pathname string denoting the same file or directory as this abstract pathname **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a required system property value cannot be accessed.**See Also:**[isAbsolute()](http://docs.google.com/java/io/File.html#isAbsolute())

### getAbsoluteFile

public [File](http://docs.google.com/java/io/File.html) **getAbsoluteFile**()

Returns the absolute form of this abstract pathname. Equivalent to new File(this.[getAbsolutePath()](http://docs.google.com/java/io/File.html#getAbsolutePath())).

**Returns:**The absolute abstract pathname denoting the same file or directory as this abstract pathname **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a required system property value cannot be accessed.**Since:** 1.2

### getCanonicalPath

public [String](http://docs.google.com/java/lang/String.html) **getCanonicalPath**()  
 throws [IOException](http://docs.google.com/java/io/IOException.html)

Returns the canonical pathname string of this abstract pathname.

A canonical pathname is both absolute and unique. The precise definition of canonical form is system-dependent. This method first converts this pathname to absolute form if necessary, as if by invoking the [getAbsolutePath()](http://docs.google.com/java/io/File.html#getAbsolutePath()) method, and then maps it to its unique form in a system-dependent way. This typically involves removing redundant names such as "." and ".." from the pathname, resolving symbolic links (on UNIX platforms), and converting drive letters to a standard case (on Microsoft Windows platforms).

Every pathname that denotes an existing file or directory has a unique canonical form. Every pathname that denotes a nonexistent file or directory also has a unique canonical form. The canonical form of the pathname of a nonexistent file or directory may be different from the canonical form of the same pathname after the file or directory is created. Similarly, the canonical form of the pathname of an existing file or directory may be different from the canonical form of the same pathname after the file or directory is deleted.

**Returns:**The canonical pathname string denoting the same file or directory as this abstract pathname **Throws:** [IOException](http://docs.google.com/java/io/IOException.html) - If an I/O error occurs, which is possible because the construction of the canonical pathname may require filesystem queries [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a required system property value cannot be accessed, or if a security manager exists and its [SecurityManager.checkRead(java.io.FileDescriptor)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.io.FileDescriptor)) method denies read access to the file**Since:** JDK1.1

### getCanonicalFile

public [File](http://docs.google.com/java/io/File.html) **getCanonicalFile**()  
 throws [IOException](http://docs.google.com/java/io/IOException.html)

Returns the canonical form of this abstract pathname. Equivalent to new File(this.[getCanonicalPath()](http://docs.google.com/java/io/File.html#getCanonicalPath())).

**Returns:**The canonical pathname string denoting the same file or directory as this abstract pathname **Throws:** [IOException](http://docs.google.com/java/io/IOException.html) - If an I/O error occurs, which is possible because the construction of the canonical pathname may require filesystem queries [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a required system property value cannot be accessed, or if a security manager exists and its [SecurityManager.checkRead(java.io.FileDescriptor)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.io.FileDescriptor)) method denies read access to the file**Since:** 1.2

### toURL

[@Deprecated](http://docs.google.com/java/lang/Deprecated.html)  
public [URL](http://docs.google.com/java/net/URL.html) **toURL**()  
 throws [MalformedURLException](http://docs.google.com/java/net/MalformedURLException.html)

**Deprecated.** *This method does not automatically escape characters that are illegal in URLs. It is recommended that new code convert an abstract pathname into a URL by first converting it into a URI, via the* [*toURI*](http://docs.google.com/java/io/File.html#toURI()) *method, and then converting the URI into a URL via the* [*URI.toURL*](http://docs.google.com/java/net/URI.html#toURL()) *method.*

Converts this abstract pathname into a file: URL. The exact form of the URL is system-dependent. If it can be determined that the file denoted by this abstract pathname is a directory, then the resulting URL will end with a slash.

**Returns:**A URL object representing the equivalent file URL **Throws:** [MalformedURLException](http://docs.google.com/java/net/MalformedURLException.html) - If the path cannot be parsed as a URL**Since:** 1.2 **See Also:**[toURI()](http://docs.google.com/java/io/File.html#toURI()), [URI](http://docs.google.com/java/net/URI.html), [URI.toURL()](http://docs.google.com/java/net/URI.html#toURL()), [URL](http://docs.google.com/java/net/URL.html)

### toURI

public [URI](http://docs.google.com/java/net/URI.html) **toURI**()

Constructs a file: URI that represents this abstract pathname.

The exact form of the URI is system-dependent. If it can be determined that the file denoted by this abstract pathname is a directory, then the resulting URI will end with a slash.

For a given abstract pathname *f*, it is guaranteed that

new [File](http://docs.google.com/java/io/File.html#File(java.net.URI))(*f*.toURI()).equals(*f*.[getAbsoluteFile](http://docs.google.com/java/io/File.html#getAbsoluteFile())())so long as the original abstract pathname, the URI, and the new abstract pathname are all created in (possibly different invocations of) the same Java virtual machine. Due to the system-dependent nature of abstract pathnames, however, this relationship typically does not hold when a file: URI that is created in a virtual machine on one operating system is converted into an abstract pathname in a virtual machine on a different operating system.

**Returns:**An absolute, hierarchical URI with a scheme equal to "file", a path representing this abstract pathname, and undefined authority, query, and fragment components **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a required system property value cannot be accessed.**Since:** 1.4 **See Also:**[File(java.net.URI)](http://docs.google.com/java/io/File.html#File(java.net.URI)), [URI](http://docs.google.com/java/net/URI.html), [URI.toURL()](http://docs.google.com/java/net/URI.html#toURL())

### canRead

public boolean **canRead**()

Tests whether the application can read the file denoted by this abstract pathname.

**Returns:**true if and only if the file specified by this abstract pathname exists *and* can be read by the application; false otherwise **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the file

### canWrite

public boolean **canWrite**()

Tests whether the application can modify the file denoted by this abstract pathname.

**Returns:**true if and only if the file system actually contains a file denoted by this abstract pathname *and* the application is allowed to write to the file; false otherwise. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to the file

### exists

public boolean **exists**()

Tests whether the file or directory denoted by this abstract pathname exists.

**Returns:**true if and only if the file or directory denoted by this abstract pathname exists; false otherwise **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the file or directory

### isDirectory

public boolean **isDirectory**()

Tests whether the file denoted by this abstract pathname is a directory.

**Returns:**true if and only if the file denoted by this abstract pathname exists *and* is a directory; false otherwise **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the file

### isFile

public boolean **isFile**()

Tests whether the file denoted by this abstract pathname is a normal file. A file is *normal* if it is not a directory and, in addition, satisfies other system-dependent criteria. Any non-directory file created by a Java application is guaranteed to be a normal file.

**Returns:**true if and only if the file denoted by this abstract pathname exists *and* is a normal file; false otherwise **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the file

### isHidden

public boolean **isHidden**()

Tests whether the file named by this abstract pathname is a hidden file. The exact definition of *hidden* is system-dependent. On UNIX systems, a file is considered to be hidden if its name begins with a period character ('.'). On Microsoft Windows systems, a file is considered to be hidden if it has been marked as such in the filesystem.

**Returns:**true if and only if the file denoted by this abstract pathname is hidden according to the conventions of the underlying platform **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the file**Since:** 1.2

### lastModified

public long **lastModified**()

Returns the time that the file denoted by this abstract pathname was last modified.

**Returns:**A long value representing the time the file was last modified, measured in milliseconds since the epoch (00:00:00 GMT, January 1, 1970), or 0L if the file does not exist or if an I/O error occurs **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the file

### length

public long **length**()

Returns the length of the file denoted by this abstract pathname. The return value is unspecified if this pathname denotes a directory.

**Returns:**The length, in bytes, of the file denoted by this abstract pathname, or 0L if the file does not exist. Some operating systems may return 0L for pathnames denoting system-dependent entities such as devices or pipes. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the file

### createNewFile

public boolean **createNewFile**()  
 throws [IOException](http://docs.google.com/java/io/IOException.html)

Atomically creates a new, empty file named by this abstract pathname if and only if a file with this name does not yet exist. The check for the existence of the file and the creation of the file if it does not exist are a single operation that is atomic with respect to all other filesystem activities that might affect the file.

Note: this method should *not* be used for file-locking, as the resulting protocol cannot be made to work reliably. The [FileLock](http://docs.google.com/java/nio/channels/FileLock.html) facility should be used instead.

**Returns:**true if the named file does not exist and was successfully created; false if the named file already exists **Throws:** [IOException](http://docs.google.com/java/io/IOException.html) - If an I/O error occurred [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to the file**Since:** 1.2

### delete

public boolean **delete**()

Deletes the file or directory denoted by this abstract pathname. If this pathname denotes a directory, then the directory must be empty in order to be deleted.

**Returns:**true if and only if the file or directory is successfully deleted; false otherwise **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkDelete(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkDelete(java.lang.String)) method denies delete access to the file

### deleteOnExit

public void **deleteOnExit**()

Requests that the file or directory denoted by this abstract pathname be deleted when the virtual machine terminates. Files (or directories) are deleted in the reverse order that they are registered. Invoking this method to delete a file or directory that is already registered for deletion has no effect. Deletion will be attempted only for normal termination of the virtual machine, as defined by the Java Language Specification.

Once deletion has been requested, it is not possible to cancel the request. This method should therefore be used with care.

Note: this method should *not* be used for file-locking, as the resulting protocol cannot be made to work reliably. The [FileLock](http://docs.google.com/java/nio/channels/FileLock.html) facility should be used instead.

**Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkDelete(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkDelete(java.lang.String)) method denies delete access to the file**Since:** 1.2 **See Also:**[delete()](http://docs.google.com/java/io/File.html#delete())

### list

public [String](http://docs.google.com/java/lang/String.html)[] **list**()

Returns an array of strings naming the files and directories in the directory denoted by this abstract pathname.

If this abstract pathname does not denote a directory, then this method returns null. Otherwise an array of strings is returned, one for each file or directory in the directory. Names denoting the directory itself and the directory's parent directory are not included in the result. Each string is a file name rather than a complete path.

There is no guarantee that the name strings in the resulting array will appear in any specific order; they are not, in particular, guaranteed to appear in alphabetical order.

**Returns:**An array of strings naming the files and directories in the directory denoted by this abstract pathname. The array will be empty if the directory is empty. Returns null if this abstract pathname does not denote a directory, or if an I/O error occurs. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the directory

### list

public [String](http://docs.google.com/java/lang/String.html)[] **list**([FilenameFilter](http://docs.google.com/java/io/FilenameFilter.html) filter)

Returns an array of strings naming the files and directories in the directory denoted by this abstract pathname that satisfy the specified filter. The behavior of this method is the same as that of the [list()](http://docs.google.com/java/io/File.html#list()) method, except that the strings in the returned array must satisfy the filter. If the given filter is null then all names are accepted. Otherwise, a name satisfies the filter if and only if the value true results when the [FilenameFilter.accept(java.io.File, java.lang.String)](http://docs.google.com/java/io/FilenameFilter.html#accept(java.io.File,%20java.lang.String)) method of the filter is invoked on this abstract pathname and the name of a file or directory in the directory that it denotes.

**Parameters:**filter - A filename filter **Returns:**An array of strings naming the files and directories in the directory denoted by this abstract pathname that were accepted by the given filter. The array will be empty if the directory is empty or if no names were accepted by the filter. Returns null if this abstract pathname does not denote a directory, or if an I/O error occurs. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the directory

### listFiles

public [File](http://docs.google.com/java/io/File.html)[] **listFiles**()

Returns an array of abstract pathnames denoting the files in the directory denoted by this abstract pathname.

If this abstract pathname does not denote a directory, then this method returns null. Otherwise an array of File objects is returned, one for each file or directory in the directory. Pathnames denoting the directory itself and the directory's parent directory are not included in the result. Each resulting abstract pathname is constructed from this abstract pathname using the [File(File, String)](http://docs.google.com/java/io/File.html#File(java.io.File,%20java.lang.String)) constructor. Therefore if this pathname is absolute then each resulting pathname is absolute; if this pathname is relative then each resulting pathname will be relative to the same directory.

There is no guarantee that the name strings in the resulting array will appear in any specific order; they are not, in particular, guaranteed to appear in alphabetical order.

**Returns:**An array of abstract pathnames denoting the files and directories in the directory denoted by this abstract pathname. The array will be empty if the directory is empty. Returns null if this abstract pathname does not denote a directory, or if an I/O error occurs. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the directory**Since:** 1.2

### listFiles

public [File](http://docs.google.com/java/io/File.html)[] **listFiles**([FilenameFilter](http://docs.google.com/java/io/FilenameFilter.html) filter)

Returns an array of abstract pathnames denoting the files and directories in the directory denoted by this abstract pathname that satisfy the specified filter. The behavior of this method is the same as that of the [listFiles()](http://docs.google.com/java/io/File.html#listFiles()) method, except that the pathnames in the returned array must satisfy the filter. If the given filter is null then all pathnames are accepted. Otherwise, a pathname satisfies the filter if and only if the value true results when the [FilenameFilter.accept(java.io.File, java.lang.String)](http://docs.google.com/java/io/FilenameFilter.html#accept(java.io.File,%20java.lang.String)) method of the filter is invoked on this abstract pathname and the name of a file or directory in the directory that it denotes.

**Parameters:**filter - A filename filter **Returns:**An array of abstract pathnames denoting the files and directories in the directory denoted by this abstract pathname. The array will be empty if the directory is empty. Returns null if this abstract pathname does not denote a directory, or if an I/O error occurs. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the directory**Since:** 1.2

### listFiles

public [File](http://docs.google.com/java/io/File.html)[] **listFiles**([FileFilter](http://docs.google.com/java/io/FileFilter.html) filter)

Returns an array of abstract pathnames denoting the files and directories in the directory denoted by this abstract pathname that satisfy the specified filter. The behavior of this method is the same as that of the [listFiles()](http://docs.google.com/java/io/File.html#listFiles()) method, except that the pathnames in the returned array must satisfy the filter. If the given filter is null then all pathnames are accepted. Otherwise, a pathname satisfies the filter if and only if the value true results when the [FileFilter.accept(java.io.File)](http://docs.google.com/java/io/FileFilter.html#accept(java.io.File)) method of the filter is invoked on the pathname.

**Parameters:**filter - A file filter **Returns:**An array of abstract pathnames denoting the files and directories in the directory denoted by this abstract pathname. The array will be empty if the directory is empty. Returns null if this abstract pathname does not denote a directory, or if an I/O error occurs. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the directory**Since:** 1.2

### mkdir

public boolean **mkdir**()

Creates the directory named by this abstract pathname.

**Returns:**true if and only if the directory was created; false otherwise **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method does not permit the named directory to be created

### mkdirs

public boolean **mkdirs**()

Creates the directory named by this abstract pathname, including any necessary but nonexistent parent directories. Note that if this operation fails it may have succeeded in creating some of the necessary parent directories.

**Returns:**true if and only if the directory was created, along with all necessary parent directories; false otherwise **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method does not permit verification of the existence of the named directory and all necessary parent directories; or if the [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method does not permit the named directory and all necessary parent directories to be created

### renameTo

public boolean **renameTo**([File](http://docs.google.com/java/io/File.html) dest)

Renames the file denoted by this abstract pathname.

Many aspects of the behavior of this method are inherently platform-dependent: The rename operation might not be able to move a file from one filesystem to another, it might not be atomic, and it might not succeed if a file with the destination abstract pathname already exists. The return value should always be checked to make sure that the rename operation was successful.

**Parameters:**dest - The new abstract pathname for the named file **Returns:**true if and only if the renaming succeeded; false otherwise **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to either the old or new pathnames [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - If parameter dest is null

### setLastModified

public boolean **setLastModified**(long time)

Sets the last-modified time of the file or directory named by this abstract pathname.

All platforms support file-modification times to the nearest second, but some provide more precision. The argument will be truncated to fit the supported precision. If the operation succeeds and no intervening operations on the file take place, then the next invocation of the [lastModified()](http://docs.google.com/java/io/File.html#lastModified()) method will return the (possibly truncated) time argument that was passed to this method.

**Parameters:**time - The new last-modified time, measured in milliseconds since the epoch (00:00:00 GMT, January 1, 1970) **Returns:**true if and only if the operation succeeded; false otherwise **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the argument is negative [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to the named file**Since:** 1.2

### setReadOnly

public boolean **setReadOnly**()

Marks the file or directory named by this abstract pathname so that only read operations are allowed. After invoking this method the file or directory is guaranteed not to change until it is either deleted or marked to allow write access. Whether or not a read-only file or directory may be deleted depends upon the underlying system.

**Returns:**true if and only if the operation succeeded; false otherwise **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to the named file**Since:** 1.2

### setWritable

public boolean **setWritable**(boolean writable,  
 boolean ownerOnly)

Sets the owner's or everybody's write permission for this abstract pathname.

**Parameters:**writable - If true, sets the access permission to allow write operations; if false to disallow write operationsownerOnly - If true, the write permission applies only to the owner's write permission; otherwise, it applies to everybody. If the underlying file system can not distinguish the owner's write permission from that of others, then the permission will apply to everybody, regardless of this value. **Returns:**true if and only if the operation succeeded. The operation will fail if the user does not have permission to change the access permissions of this abstract pathname. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to the named file**Since:** 1.6

### setWritable

public boolean **setWritable**(boolean writable)

A convenience method to set the owner's write permission for this abstract pathname.

An invocation of this method of the form file.setWritable(arg) behaves in exactly the same way as the invocation

file.setWritable(arg, true)

**Parameters:**writable - If true, sets the access permission to allow write operations; if false to disallow write operations **Returns:**true if and only if the operation succeeded. The operation will fail if the user does not have permission to change the access permissions of this abstract pathname. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to the file**Since:** 1.6

### setReadable

public boolean **setReadable**(boolean readable,  
 boolean ownerOnly)

Sets the owner's or everybody's read permission for this abstract pathname.

**Parameters:**readable - If true, sets the access permission to allow read operations; if false to disallow read operationsownerOnly - If true, the read permission applies only to the owner's read permission; otherwise, it applies to everybody. If the underlying file system can not distinguish the owner's read permission from that of others, then the permission will apply to everybody, regardless of this value. **Returns:**true if and only if the operation succeeded. The operation will fail if the user does not have permission to change the access permissions of this abstract pathname. If readable is false and the underlying file system does not implement a read permission, then the operation will fail. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to the file**Since:** 1.6

### setReadable

public boolean **setReadable**(boolean readable)

A convenience method to set the owner's read permission for this abstract pathname.

An invocation of this method of the form file.setReadable(arg) behaves in exactly the same way as the invocation

file.setReadable(arg, true)

**Parameters:**readable - If true, sets the access permission to allow read operations; if false to disallow read operations **Returns:**true if and only if the operation succeeded. The operation will fail if the user does not have permission to change the access permissions of this abstract pathname. If readable is false and the underlying file system does not implement a read permission, then the operation will fail. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to the file**Since:** 1.6

### setExecutable

public boolean **setExecutable**(boolean executable,  
 boolean ownerOnly)

Sets the owner's or everybody's execute permission for this abstract pathname.

**Parameters:**executable - If true, sets the access permission to allow execute operations; if false to disallow execute operationsownerOnly - If true, the execute permission applies only to the owner's execute permission; otherwise, it applies to everybody. If the underlying file system can not distinguish the owner's execute permission from that of others, then the permission will apply to everybody, regardless of this value. **Returns:**true if and only if the operation succeeded. The operation will fail if the user does not have permission to change the access permissions of this abstract pathname. If executable is false and the underlying file system does not implement an execute permission, then the operation will fail. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to the file**Since:** 1.6

### setExecutable

public boolean **setExecutable**(boolean executable)

A convenience method to set the owner's execute permission for this abstract pathname.

An invocation of this method of the form file.setExcutable(arg) behaves in exactly the same way as the invocation

file.setExecutable(arg, true)

**Parameters:**executable - If true, sets the access permission to allow execute operations; if false to disallow execute operations **Returns:**true if and only if the operation succeeded. The operation will fail if the user does not have permission to change the access permissions of this abstract pathname. If executable is false and the underlying file system does not implement an excute permission, then the operation will fail. **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method denies write access to the file**Since:** 1.6

### canExecute

public boolean **canExecute**()

Tests whether the application can execute the file denoted by this abstract pathname.

**Returns:**true if and only if the abstract pathname exists *and* the application is allowed to execute the file **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkExec(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkExec(java.lang.String)) method denies execute access to the file**Since:** 1.6

### listRoots

public static [File](http://docs.google.com/java/io/File.html)[] **listRoots**()

List the available filesystem roots.

A particular Java platform may support zero or more hierarchically-organized file systems. Each file system has a root directory from which all other files in that file system can be reached. Windows platforms, for example, have a root directory for each active drive; UNIX platforms have a single root directory, namely "/". The set of available filesystem roots is affected by various system-level operations such as the insertion or ejection of removable media and the disconnecting or unmounting of physical or virtual disk drives.

This method returns an array of File objects that denote the root directories of the available filesystem roots. It is guaranteed that the canonical pathname of any file physically present on the local machine will begin with one of the roots returned by this method.

The canonical pathname of a file that resides on some other machine and is accessed via a remote-filesystem protocol such as SMB or NFS may or may not begin with one of the roots returned by this method. If the pathname of a remote file is syntactically indistinguishable from the pathname of a local file then it will begin with one of the roots returned by this method. Thus, for example, File objects denoting the root directories of the mapped network drives of a Windows platform will be returned by this method, while File objects containing UNC pathnames will not be returned by this method.

Unlike most methods in this class, this method does not throw security exceptions. If a security manager exists and its [SecurityManager.checkRead(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to a particular root directory, then that directory will not appear in the result.

**Returns:**An array of File objects denoting the available filesystem roots, or null if the set of roots could not be determined. The array will be empty if there are no filesystem roots.**Since:** 1.2

### getTotalSpace

public long **getTotalSpace**()

Returns the size of the partition [named](#3znysh7) by this abstract pathname.

**Returns:**The size, in bytes, of the partition or 0L if this abstract pathname does not name a partition **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager has been installed and it denies [RuntimePermission](http://docs.google.com/java/lang/RuntimePermission.html)("getFileSystemAttributes") or its [SecurityManager.checkRead(String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the file named by this abstract pathname**Since:** 1.6

### getFreeSpace

public long **getFreeSpace**()

Returns the number of unallocated bytes in the partition [named](#3znysh7) by this abstract path name.

The returned number of unallocated bytes is a hint, but not a guarantee, that it is possible to use most or any of these bytes. The number of unallocated bytes is most likely to be accurate immediately after this call. It is likely to be made inaccurate by any external I/O operations including those made on the system outside of this virtual machine. This method makes no guarantee that write operations to this file system will succeed.

**Returns:**The number of unallocated bytes on the partition 0L if the abstract pathname does not name a partition. This value will be less than or equal to the total file system size returned by [getTotalSpace()](http://docs.google.com/java/io/File.html#getTotalSpace()). **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager has been installed and it denies [RuntimePermission](http://docs.google.com/java/lang/RuntimePermission.html)("getFileSystemAttributes") or its [SecurityManager.checkRead(String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the file named by this abstract pathname**Since:** 1.6

### getUsableSpace

public long **getUsableSpace**()

Returns the number of bytes available to this virtual machine on the partition [named](#3znysh7) by this abstract pathname. When possible, this method checks for write permissions and other operating system restrictions and will therefore usually provide a more accurate estimate of how much new data can actually be written than [getFreeSpace()](http://docs.google.com/java/io/File.html#getFreeSpace()).

The returned number of available bytes is a hint, but not a guarantee, that it is possible to use most or any of these bytes. The number of unallocated bytes is most likely to be accurate immediately after this call. It is likely to be made inaccurate by any external I/O operations including those made on the system outside of this virtual machine. This method makes no guarantee that write operations to this file system will succeed.

**Returns:**The number of available bytes on the partition or 0L if the abstract pathname does not name a partition. On systems where this information is not available, this method will be equivalent to a call to [getFreeSpace()](http://docs.google.com/java/io/File.html#getFreeSpace()). **Throws:** [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager has been installed and it denies [RuntimePermission](http://docs.google.com/java/lang/RuntimePermission.html)("getFileSystemAttributes") or its [SecurityManager.checkRead(String)](http://docs.google.com/java/lang/SecurityManager.html#checkRead(java.lang.String)) method denies read access to the file named by this abstract pathname**Since:** 1.6

### createTempFile

public static [File](http://docs.google.com/java/io/File.html) **createTempFile**([String](http://docs.google.com/java/lang/String.html) prefix,  
 [String](http://docs.google.com/java/lang/String.html) suffix,  
 [File](http://docs.google.com/java/io/File.html) directory)  
 throws [IOException](http://docs.google.com/java/io/IOException.html)

Creates a new empty file in the specified directory, using the given prefix and suffix strings to generate its name. If this method returns successfully then it is guaranteed that:

1. The file denoted by the returned abstract pathname did not exist before this method was invoked, and
2. Neither this method nor any of its variants will return the same abstract pathname again in the current invocation of the virtual machine.

This method provides only part of a temporary-file facility. To arrange for a file created by this method to be deleted automatically, use the [deleteOnExit()](http://docs.google.com/java/io/File.html#deleteOnExit()) method.

The prefix argument must be at least three characters long. It is recommended that the prefix be a short, meaningful string such as "hjb" or "mail". The suffix argument may be null, in which case the suffix ".tmp" will be used.

To create the new file, the prefix and the suffix may first be adjusted to fit the limitations of the underlying platform. If the prefix is too long then it will be truncated, but its first three characters will always be preserved. If the suffix is too long then it too will be truncated, but if it begins with a period character ('.') then the period and the first three characters following it will always be preserved. Once these adjustments have been made the name of the new file will be generated by concatenating the prefix, five or more internally-generated characters, and the suffix.

If the directory argument is null then the system-dependent default temporary-file directory will be used. The default temporary-file directory is specified by the system property java.io.tmpdir. On UNIX systems the default value of this property is typically "/tmp" or "/var/tmp"; on Microsoft Windows systems it is typically "C:\\WINNT\\TEMP". A different value may be given to this system property when the Java virtual machine is invoked, but programmatic changes to this property are not guaranteed to have any effect upon the temporary directory used by this method.

**Parameters:**prefix - The prefix string to be used in generating the file's name; must be at least three characters longsuffix - The suffix string to be used in generating the file's name; may be null, in which case the suffix ".tmp" will be useddirectory - The directory in which the file is to be created, or null if the default temporary-file directory is to be used **Returns:**An abstract pathname denoting a newly-created empty file **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the prefix argument contains fewer than three characters [IOException](http://docs.google.com/java/io/IOException.html) - If a file could not be created [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method does not allow a file to be created**Since:** 1.2

### createTempFile

public static [File](http://docs.google.com/java/io/File.html) **createTempFile**([String](http://docs.google.com/java/lang/String.html) prefix,  
 [String](http://docs.google.com/java/lang/String.html) suffix)  
 throws [IOException](http://docs.google.com/java/io/IOException.html)

Creates an empty file in the default temporary-file directory, using the given prefix and suffix to generate its name. Invoking this method is equivalent to invoking [createTempFile(prefix, suffix, null)](http://docs.google.com/java/io/File.html#createTempFile(java.lang.String,%20java.lang.String,%20java.io.File)).

**Parameters:**prefix - The prefix string to be used in generating the file's name; must be at least three characters longsuffix - The suffix string to be used in generating the file's name; may be null, in which case the suffix ".tmp" will be used **Returns:**An abstract pathname denoting a newly-created empty file **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the prefix argument contains fewer than three characters [IOException](http://docs.google.com/java/io/IOException.html) - If a file could not be created [SecurityException](http://docs.google.com/java/lang/SecurityException.html) - If a security manager exists and its [SecurityManager.checkWrite(java.lang.String)](http://docs.google.com/java/lang/SecurityManager.html#checkWrite(java.lang.String)) method does not allow a file to be created**Since:** 1.2

### compareTo

public int **compareTo**([File](http://docs.google.com/java/io/File.html) pathname)

Compares two abstract pathnames lexicographically. The ordering defined by this method depends upon the underlying system. On UNIX systems, alphabetic case is significant in comparing pathnames; on Microsoft Windows systems it is not.

**Specified by:**[compareTo](http://docs.google.com/java/lang/Comparable.html#compareTo(T)) in interface [Comparable](http://docs.google.com/java/lang/Comparable.html)<[File](http://docs.google.com/java/io/File.html)> **Parameters:**pathname - The abstract pathname to be compared to this abstract pathname **Returns:**Zero if the argument is equal to this abstract pathname, a value less than zero if this abstract pathname is lexicographically less than the argument, or a value greater than zero if this abstract pathname is lexicographically greater than the argument**Since:** 1.2

### equals

public boolean **equals**([Object](http://docs.google.com/java/lang/Object.html) obj)

Tests this abstract pathname for equality with the given object. Returns true if and only if the argument is not null and is an abstract pathname that denotes the same file or directory as this abstract pathname. Whether or not two abstract pathnames are equal depends upon the underlying system. On UNIX systems, alphabetic case is significant in comparing pathnames; on Microsoft Windows systems it is not.

**Overrides:**[equals](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)) in class [Object](http://docs.google.com/java/lang/Object.html) **Parameters:**obj - The object to be compared with this abstract pathname **Returns:**true if and only if the objects are the same; false otherwise**See Also:**[Object.hashCode()](http://docs.google.com/java/lang/Object.html#hashCode()), [Hashtable](http://docs.google.com/java/util/Hashtable.html)

### hashCode

public int **hashCode**()

Computes a hash code for this abstract pathname. Because equality of abstract pathnames is inherently system-dependent, so is the computation of their hash codes. On UNIX systems, the hash code of an abstract pathname is equal to the exclusive *or* of the hash code of its pathname string and the decimal value 1234321. On Microsoft Windows systems, the hash code is equal to the exclusive *or* of the hash code of its pathname string converted to lower case and the decimal value 1234321. Locale is not taken into account on lowercasing the pathname string.

**Overrides:**[hashCode](http://docs.google.com/java/lang/Object.html#hashCode()) in class [Object](http://docs.google.com/java/lang/Object.html) **Returns:**A hash code for this abstract pathname**See Also:**[Object.equals(java.lang.Object)](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)), [Hashtable](http://docs.google.com/java/util/Hashtable.html)

### toString

public [String](http://docs.google.com/java/lang/String.html) **toString**()

Returns the pathname string of this abstract pathname. This is just the string returned by the [getPath()](http://docs.google.com/java/io/File.html#getPath()) method.

**Overrides:**[toString](http://docs.google.com/java/lang/Object.html#toString()) in class [Object](http://docs.google.com/java/lang/Object.html) **Returns:**The string form of this abstract pathname

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/File.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/java/io/Externalizable.html)   [**NEXT CLASS**](http://docs.google.com/java/io/FileDescriptor.html) | [**FRAMES**](http://docs.google.com/index.html?java/io/File.html)    [**NO FRAMES**](http://docs.google.com/File.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#2et92p0) | [CONSTR](#tyjcwt) | [METHOD](#3dy6vkm) | DETAIL: [FIELD](#4d34og8) | [CONSTR](#lnxbz9) | [METHOD](#z337ya) |

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For further API reference and developer documentation, see [Java SE Developer Documentation](http://docs.google.com/webnotes/devdocs-vs-specs.html). That documentation contains more detailed, developer-targeted descriptions, with conceptual overviews, definitions of terms, workarounds, and working code examples.

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