| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/Channels.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/nio/channels/Channel.html)   [**NEXT CLASS**](http://docs.google.com/java/nio/channels/ClosedByInterruptException.html) | [**FRAMES**](http://docs.google.com/index.html?java/nio/channels/Channels.html)    [**NO FRAMES**](http://docs.google.com/Channels.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | FIELD | CONSTR | [METHOD](#3znysh7) | DETAIL: FIELD | CONSTR | [METHOD](#tyjcwt) |

## **java.nio.channels**

Class Channels

[java.lang.Object](http://docs.google.com/java/lang/Object.html)  
 **java.nio.channels.Channels**

public final class **Channels**extends [Object](http://docs.google.com/java/lang/Object.html)

Utility methods for channels and streams.

This class defines static methods that support the interoperation of the stream classes of the [java.io](http://docs.google.com/java/io/package-summary.html) package with the channel classes of this package.

**Since:** 1.4

| **Method Summary** | |
| --- | --- |
| static [ReadableByteChannel](http://docs.google.com/java/nio/channels/ReadableByteChannel.html) | [**newChannel**](http://docs.google.com/java/nio/channels/Channels.html#newChannel(java.io.InputStream))([InputStream](http://docs.google.com/java/io/InputStream.html) in)            Constructs a channel that reads bytes from the given stream. |
| static [WritableByteChannel](http://docs.google.com/java/nio/channels/WritableByteChannel.html) | [**newChannel**](http://docs.google.com/java/nio/channels/Channels.html#newChannel(java.io.OutputStream))([OutputStream](http://docs.google.com/java/io/OutputStream.html) out)            Constructs a channel that writes bytes to the given stream. |
| static [InputStream](http://docs.google.com/java/io/InputStream.html) | [**newInputStream**](http://docs.google.com/java/nio/channels/Channels.html#newInputStream(java.nio.channels.ReadableByteChannel))([ReadableByteChannel](http://docs.google.com/java/nio/channels/ReadableByteChannel.html) ch)            Constructs a stream that reads bytes from the given channel. |
| static [OutputStream](http://docs.google.com/java/io/OutputStream.html) | [**newOutputStream**](http://docs.google.com/java/nio/channels/Channels.html#newOutputStream(java.nio.channels.WritableByteChannel))([WritableByteChannel](http://docs.google.com/java/nio/channels/WritableByteChannel.html) ch)            Constructs a stream that writes bytes to the given channel. |
| static [Reader](http://docs.google.com/java/io/Reader.html) | [**newReader**](http://docs.google.com/java/nio/channels/Channels.html#newReader(java.nio.channels.ReadableByteChannel,%20java.nio.charset.CharsetDecoder,%20int))([ReadableByteChannel](http://docs.google.com/java/nio/channels/ReadableByteChannel.html) ch, [CharsetDecoder](http://docs.google.com/java/nio/charset/CharsetDecoder.html) dec, int minBufferCap)            Constructs a reader that decodes bytes from the given channel using the given decoder. |
| static [Reader](http://docs.google.com/java/io/Reader.html) | [**newReader**](http://docs.google.com/java/nio/channels/Channels.html#newReader(java.nio.channels.ReadableByteChannel,%20java.lang.String))([ReadableByteChannel](http://docs.google.com/java/nio/channels/ReadableByteChannel.html) ch, [String](http://docs.google.com/java/lang/String.html) csName)            Constructs a reader that decodes bytes from the given channel according to the named charset. |
| static [Writer](http://docs.google.com/java/io/Writer.html) | [**newWriter**](http://docs.google.com/java/nio/channels/Channels.html#newWriter(java.nio.channels.WritableByteChannel,%20java.nio.charset.CharsetEncoder,%20int))([WritableByteChannel](http://docs.google.com/java/nio/channels/WritableByteChannel.html) ch, [CharsetEncoder](http://docs.google.com/java/nio/charset/CharsetEncoder.html) enc, int minBufferCap)            Constructs a writer that encodes characters using the given encoder and writes the resulting bytes to the given channel. |
| static [Writer](http://docs.google.com/java/io/Writer.html) | [**newWriter**](http://docs.google.com/java/nio/channels/Channels.html#newWriter(java.nio.channels.WritableByteChannel,%20java.lang.String))([WritableByteChannel](http://docs.google.com/java/nio/channels/WritableByteChannel.html) ch, [String](http://docs.google.com/java/lang/String.html) csName)            Constructs a writer that encodes characters according to the named charset and writes the resulting bytes to the given channel. |

| **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()), [equals](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)), [finalize](http://docs.google.com/java/lang/Object.html#finalize()), [getClass](http://docs.google.com/java/lang/Object.html#getClass()), [hashCode](http://docs.google.com/java/lang/Object.html#hashCode()), [notify](http://docs.google.com/java/lang/Object.html#notify()), [notifyAll](http://docs.google.com/java/lang/Object.html#notifyAll()), [toString](http://docs.google.com/java/lang/Object.html#toString()), [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)) |

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

### newInputStream

public static [InputStream](http://docs.google.com/java/io/InputStream.html) **newInputStream**([ReadableByteChannel](http://docs.google.com/java/nio/channels/ReadableByteChannel.html) ch)

Constructs a stream that reads bytes from the given channel.

The read methods of the resulting stream will throw an [IllegalBlockingModeException](http://docs.google.com/java/nio/channels/IllegalBlockingModeException.html) if invoked while the underlying channel is in non-blocking mode. The stream will not be buffered, and it will not support the [mark](http://docs.google.com/java/io/InputStream.html#mark(int)) or [reset](http://docs.google.com/java/io/InputStream.html#reset()) methods. The stream will be safe for access by multiple concurrent threads. Closing the stream will in turn cause the channel to be closed.

**Parameters:**ch - The channel from which bytes will be read **Returns:**A new input stream

### newOutputStream

public static [OutputStream](http://docs.google.com/java/io/OutputStream.html) **newOutputStream**([WritableByteChannel](http://docs.google.com/java/nio/channels/WritableByteChannel.html) ch)

Constructs a stream that writes bytes to the given channel.

The write methods of the resulting stream will throw an [IllegalBlockingModeException](http://docs.google.com/java/nio/channels/IllegalBlockingModeException.html) if invoked while the underlying channel is in non-blocking mode. The stream will not be buffered. The stream will be safe for access by multiple concurrent threads. Closing the stream will in turn cause the channel to be closed.

**Parameters:**ch - The channel to which bytes will be written **Returns:**A new output stream

### newChannel

public static [ReadableByteChannel](http://docs.google.com/java/nio/channels/ReadableByteChannel.html) **newChannel**([InputStream](http://docs.google.com/java/io/InputStream.html) in)

Constructs a channel that reads bytes from the given stream.

The resulting channel will not be buffered; it will simply redirect its I/O operations to the given stream. Closing the channel will in turn cause the stream to be closed.

**Parameters:**in - The stream from which bytes are to be read **Returns:**A new readable byte channel

### newChannel

public static [WritableByteChannel](http://docs.google.com/java/nio/channels/WritableByteChannel.html) **newChannel**([OutputStream](http://docs.google.com/java/io/OutputStream.html) out)

Constructs a channel that writes bytes to the given stream.

The resulting channel will not be buffered; it will simply redirect its I/O operations to the given stream. Closing the channel will in turn cause the stream to be closed.

**Parameters:**out - The stream to which bytes are to be written **Returns:**A new writable byte channel

### newReader

public static [Reader](http://docs.google.com/java/io/Reader.html) **newReader**([ReadableByteChannel](http://docs.google.com/java/nio/channels/ReadableByteChannel.html) ch,  
 [CharsetDecoder](http://docs.google.com/java/nio/charset/CharsetDecoder.html) dec,  
 int minBufferCap)

Constructs a reader that decodes bytes from the given channel using the given decoder.

The resulting stream will contain an internal input buffer of at least minBufferCap bytes. The stream's read methods will, as needed, fill the buffer by reading bytes from the underlying channel; if the channel is in non-blocking mode when bytes are to be read then an [IllegalBlockingModeException](http://docs.google.com/java/nio/channels/IllegalBlockingModeException.html) will be thrown. The resulting stream will not otherwise be buffered, and it will not support the [mark](http://docs.google.com/java/io/Reader.html#mark(int)) or [reset](http://docs.google.com/java/io/Reader.html#reset()) methods. Closing the stream will in turn cause the channel to be closed.

**Parameters:**ch - The channel from which bytes will be readdec - The charset decoder to be usedminBufferCap - The minimum capacity of the internal byte buffer, or -1 if an implementation-dependent default capacity is to be used **Returns:**A new reader

### newReader

public static [Reader](http://docs.google.com/java/io/Reader.html) **newReader**([ReadableByteChannel](http://docs.google.com/java/nio/channels/ReadableByteChannel.html) ch,  
 [String](http://docs.google.com/java/lang/String.html) csName)

Constructs a reader that decodes bytes from the given channel according to the named charset.

An invocation of this method of the form

Channels.newReader(ch, csname)

behaves in exactly the same way as the expression

Channels.newReader(ch,  
 Charset.forName(csName)  
 .newDecoder(),  
 -1);

**Parameters:**ch - The channel from which bytes will be readcsName - The name of the charset to be used **Returns:**A new reader **Throws:** [UnsupportedCharsetException](http://docs.google.com/java/nio/charset/UnsupportedCharsetException.html) - If no support for the named charset is available in this instance of the Java virtual machine

### newWriter

public static [Writer](http://docs.google.com/java/io/Writer.html) **newWriter**([WritableByteChannel](http://docs.google.com/java/nio/channels/WritableByteChannel.html) ch,  
 [CharsetEncoder](http://docs.google.com/java/nio/charset/CharsetEncoder.html) enc,  
 int minBufferCap)

Constructs a writer that encodes characters using the given encoder and writes the resulting bytes to the given channel.

The resulting stream will contain an internal output buffer of at least minBufferCap bytes. The stream's write methods will, as needed, flush the buffer by writing bytes to the underlying channel; if the channel is in non-blocking mode when bytes are to be written then an [IllegalBlockingModeException](http://docs.google.com/java/nio/channels/IllegalBlockingModeException.html) will be thrown. The resulting stream will not otherwise be buffered. Closing the stream will in turn cause the channel to be closed.

**Parameters:**ch - The channel to which bytes will be writtenenc - The charset encoder to be usedminBufferCap - The minimum capacity of the internal byte buffer, or -1 if an implementation-dependent default capacity is to be used **Returns:**A new writer

### newWriter

public static [Writer](http://docs.google.com/java/io/Writer.html) **newWriter**([WritableByteChannel](http://docs.google.com/java/nio/channels/WritableByteChannel.html) ch,  
 [String](http://docs.google.com/java/lang/String.html) csName)

Constructs a writer that encodes characters according to the named charset and writes the resulting bytes to the given channel.

An invocation of this method of the form

Channels.newWriter(ch, csname)

behaves in exactly the same way as the expression

Channels.newWriter(ch,  
 Charset.forName(csName)  
 .newEncoder(),  
 -1);

**Parameters:**ch - The channel to which bytes will be writtencsName - The name of the charset to be used **Returns:**A new writer **Throws:** [UnsupportedCharsetException](http://docs.google.com/java/nio/charset/UnsupportedCharsetException.html) - If no support for the named charset is available in this instance of the Java virtual machine

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/Channels.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/nio/channels/Channel.html)   [**NEXT CLASS**](http://docs.google.com/java/nio/channels/ClosedByInterruptException.html) | [**FRAMES**](http://docs.google.com/index.html?java/nio/channels/Channels.html)    [**NO FRAMES**](http://docs.google.com/Channels.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | FIELD | CONSTR | [METHOD](#3znysh7) | DETAIL: FIELD | CONSTR | [METHOD](#tyjcwt) |

[Submit a bug or feature](http://bugs.sun.com/services/bugreport/index.jsp)

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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