JavaScript is disabled on your browser.

[Skip navigation links](#1fob9te)

* [Overview](http://docs.google.com/overview-summary.html)
* [Package](http://docs.google.com/package-summary.html)
* Class
* [Use](http://docs.google.com/class-use/AbstractLinkedList.html)
* [Tree](http://docs.google.com/package-tree.html)
* [Deprecated](http://docs.google.com/deprecated-list.html)
* [Index](http://docs.google.com/index-all.html)
* [Help](http://docs.google.com/help-doc.html)
* Prev Class
* [Next Class](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedListIterator.html)
* [Frames](http://docs.google.com/index.html?org/apache/commons/collections4/list/AbstractLinkedList.html)
* [No Frames](http://docs.google.com/AbstractLinkedList.html)
* [All Classes](http://docs.google.com/allclasses-noframe.html)
* Summary:
* [Nested](#3znysh7) |
* Field |
* [Constr](#2et92p0) |
* [Method](#tyjcwt)
* Detail:
* Field |
* [Constr](#17dp8vu) |
* [Method](#lnxbz9)

org.apache.commons.collections4.list

## Class AbstractLinkedList<E>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + org.apache.commons.collections4.list.AbstractLinkedList<E>
* All Implemented Interfaces: [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E>, [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<E>, [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<E> Direct Known Subclasses: [CursorableLinkedList](http://docs.google.com/org/apache/commons/collections4/list/CursorableLinkedList.html), [NodeCachingLinkedList](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html)  
    
  public abstract class AbstractLinkedList<E>  
  extends [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)  
  implements [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<E>  
  An abstract implementation of a linked list which provides numerous points for subclasses to override.  
  Overridable methods are provided to change the storage node and to change how nodes are added to and removed. Hopefully, all you need for unusual subclasses is here.Since: 3.0

### Nested Class SummaryNested Classes

|  |  |
| --- | --- |
| * + Modifier and Type | * + Class and Description |
| * + protected static class | * + [AbstractLinkedList.LinkedListIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedListIterator.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedListIterator.html)> A list iterator over the linked list. |
| * + protected static class | * + [AbstractLinkedList.LinkedSubList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedSubList.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedSubList.html)> The sublist implementation for AbstractLinkedList. |
| * + protected static class | * + [AbstractLinkedList.LinkedSubListIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedSubListIterator.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedSubListIterator.html)> A list iterator over the linked sub list. |
| * + protected static class | * + [AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)> A node within the linked list. |

### Constructor SummaryConstructors

|  |  |
| --- | --- |
| * + Modifier | * + Constructor and Description |
| * + protected | * + [AbstractLinkedList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#AbstractLinkedList--)() Constructor that does nothing intended for deserialization. |
| * + protected | * + [AbstractLinkedList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#AbstractLinkedList-java.util.Collection-)([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> coll) Constructs a list copying data from the specified collection. |

### Method SummaryAll Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + boolean | * + [add](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#add-E-)([E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) |
| * + void | * + [add](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#add-int-E-)(int index, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) |
| * + boolean | * + [addAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addAll-java.util.Collection-)([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> coll) |
| * + boolean | * + [addAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addAll-int-java.util.Collection-)(int index, [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> coll) |
| * + boolean | * + [addFirst](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addFirst-E-)([E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) o) |
| * + boolean | * + [addLast](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addLast-E-)([E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) o) |
| * + protected void | * + [addNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addNode-org.apache.commons.collections4.list.AbstractLinkedList.Node-org.apache.commons.collections4.list.AbstractLinkedList.Node-)([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> nodeToInsert, [AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> insertBeforeNode) Inserts a new node into the list. |
| * + protected void | * + [addNodeAfter](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addNodeAfter-org.apache.commons.collections4.list.AbstractLinkedList.Node-E-)([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> node, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) Creates a new node with the specified object as its value and inserts it after node. |
| * + protected void | * + [addNodeBefore](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addNodeBefore-org.apache.commons.collections4.list.AbstractLinkedList.Node-E-)([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> node, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) Creates a new node with the specified object as its value and inserts it before node. |
| * + void | * + [clear](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#clear--)() |
| * + boolean | * + [contains](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#contains-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) |
| * + boolean | * + [containsAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#containsAll-java.util.Collection-)([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) |
| * + protected [AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> | * + [createHeaderNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#createHeaderNode--)() Creates a new node with previous, next and element all set to null. |
| * + protected [AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> | * + [createNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#createNode-E-)([E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) Creates a new node with the specified properties. |
| * + protected [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> | * + [createSubListIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#createSubListIterator-org.apache.commons.collections4.list.AbstractLinkedList.LinkedSubList-)([AbstractLinkedList.LinkedSubList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedSubList.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> subList) Creates an iterator for the sublist. |
| * + protected [ListIterator](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> | * + [createSubListListIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#createSubListListIterator-org.apache.commons.collections4.list.AbstractLinkedList.LinkedSubList-int-)([AbstractLinkedList.LinkedSubList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedSubList.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> subList, int fromIndex) Creates a list iterator for the sublist. |
| * + protected void | * + [doReadObject](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#doReadObject-java.io.ObjectInputStream-)([ObjectInputStream](https://docs.oracle.com/javase/7/docs/api/java/io/ObjectInputStream.html?is-external=true) inputStream) Deserializes the data held in this object to the stream specified. |
| * + protected void | * + [doWriteObject](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#doWriteObject-java.io.ObjectOutputStream-)([ObjectOutputStream](https://docs.oracle.com/javase/7/docs/api/java/io/ObjectOutputStream.html?is-external=true) outputStream) Serializes the data held in this object to the stream specified. |
| * + boolean | * + [equals](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#equals-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) obj) |
| * + [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) | * + [get](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#get-int-)(int index) |
| * + [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) | * + [getFirst](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#getFirst--)() |
| * + [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) | * + [getLast](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#getLast--)() |
| * + protected [AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> | * + [getNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#getNode-int-boolean-)(int index, boolean endMarkerAllowed) Gets the node at a particular index. |
| * + int | * + [hashCode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#hashCode--)() |
| * + int | * + [indexOf](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#indexOf-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) |
| * + protected void | * + [init](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#init--)() The equivalent of a default constructor, broken out so it can be called by any constructor and by readObject. |
| * + boolean | * + [isEmpty](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#isEmpty--)() |
| * + protected boolean | * + [isEqualValue](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#isEqualValue-java.lang.Object-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value1, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value2) Compares two values for equals. |
| * + [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> | * + [iterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#iterator--)() |
| * + int | * + [lastIndexOf](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#lastIndexOf-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) |
| * + [ListIterator](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> | * + [listIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#listIterator--)() |
| * + [ListIterator](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> | * + [listIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#listIterator-int-)(int fromIndex) |
| * + [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) | * + [remove](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#remove-int-)(int index) |
| * + boolean | * + [remove](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#remove-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) |
| * + boolean | * + [removeAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#removeAll-java.util.Collection-)([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) |
| * + protected void | * + [removeAllNodes](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#removeAllNodes--)() Removes all nodes by resetting the circular list marker. |
| * + [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) | * + [removeFirst](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#removeFirst--)() |
| * + [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) | * + [removeLast](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#removeLast--)() |
| * + protected void | * + [removeNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#removeNode-org.apache.commons.collections4.list.AbstractLinkedList.Node-)([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> node) Removes the specified node from the list. |
| * + boolean | * + [retainAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#retainAll-java.util.Collection-)([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) |
| * + [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) | * + [set](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#set-int-E-)(int index, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) |
| * + int | * + [size](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#size--)() |
| * + [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> | * + [subList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#subList-int-int-)(int fromIndexInclusive, int toIndexExclusive) Gets a sublist of the main list. |
| * + [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)[] | * + [toArray](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#toArray--)() |
| * + <T> T[] | * + [toArray](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#toArray-T:A-)(T[] array) |
| * + [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) | * + [toString](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#toString--)() |
| * + protected void | * + [updateNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#updateNode-org.apache.commons.collections4.list.AbstractLinkedList.Node-E-)([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> node, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) Updates the node with a new value. |

### Methods inherited from class java.lang.[**Object**](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)[clone](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#clone--), [finalize](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#finalize--), [getClass](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#getClass--), [notify](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#notify--), [notifyAll](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#notifyAll--), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait--), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait-long-), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait-long-int-)

### Methods inherited from interface java.util.[**List**](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)[replaceAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#replaceAll-java.util.function.UnaryOperator-), [sort](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#sort-java.util.Comparator-), [spliterator](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#spliterator--)

### Methods inherited from interface java.util.[**Collection**](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)[parallelStream](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#parallelStream--), [removeIf](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#removeIf-java.util.function.Predicate-), [stream](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#stream--)

### Methods inherited from interface java.lang.[**Iterable**](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)[forEach](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true#forEach-java.util.function.Consumer-)

### Constructor Detail

#### AbstractLinkedList protected AbstractLinkedList() Constructor that does nothing intended for deserialization. If this constructor is used by a serializable subclass then the init() method must be called.

#### AbstractLinkedList protected AbstractLinkedList([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> coll) Constructs a list copying data from the specified collection.Parameters: coll - the collection to copy

### Method Detail

#### init protected void init() The equivalent of a default constructor, broken out so it can be called by any constructor and by readObject. Subclasses which override this method should make sure they call super, so the list is initialised properly.

#### size public int size()Specified by: [size](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#size--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [size](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#size--) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### isEmpty public boolean isEmpty()Specified by: [isEmpty](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#isEmpty--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [isEmpty](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#isEmpty--) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### get public [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) get(int index)Specified by: [get](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#get-int-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### iterator public [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> iterator()Specified by: [iterator](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true#iterator--) in interface [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#iterator--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [iterator](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#iterator--) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### listIterator public [ListIterator](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> listIterator()Specified by: [listIterator](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#listIterator--) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### listIterator public [ListIterator](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> listIterator(int fromIndex)Specified by: [listIterator](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#listIterator-int-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### indexOf public int indexOf([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value)Specified by: [indexOf](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#indexOf-java.lang.Object-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### lastIndexOf public int lastIndexOf([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value)Specified by: [lastIndexOf](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#lastIndexOf-java.lang.Object-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### contains public boolean contains([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value)Specified by: [contains](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#contains-java.lang.Object-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [contains](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#contains-java.lang.Object-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### containsAll public boolean containsAll([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll)Specified by: [containsAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#containsAll-java.util.Collection-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [containsAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#containsAll-java.util.Collection-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### toArray public [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)[] toArray()Specified by: [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#toArray--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#toArray--) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### toArray public <T> T[] toArray(T[] array)Specified by: [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#toArray-T:A-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#toArray-T:A-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### subList public [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> subList(int fromIndexInclusive, int toIndexExclusive) Gets a sublist of the main list.Specified by: [subList](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#subList-int-int-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Parameters: fromIndexInclusive - the index to start from toIndexExclusive - the index to end at Returns: the new sublist

#### add public boolean add([E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value)Specified by: [add](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#add-E-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [add](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#add-E-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### add public void add(int index, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value)Specified by: [add](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#add-int-E-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### addAll public boolean addAll([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> coll)Specified by: [addAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#addAll-java.util.Collection-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [addAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#addAll-java.util.Collection-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### addAll public boolean addAll(int index, [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> coll)Specified by: [addAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#addAll-int-java.util.Collection-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### remove public [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) remove(int index)Specified by: [remove](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#remove-int-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### remove public boolean remove([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value)Specified by: [remove](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#remove-java.lang.Object-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [remove](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#remove-java.lang.Object-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### removeAll public boolean removeAll([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) This implementation iterates over the elements of this list, checking each element in turn to see if it's contained in coll. If it's contained, it's removed from this list. As a consequence, it is advised to use a collection type for coll that provides a fast (e.g. O(1)) implementation of [Collection.contains(Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#contains-java.lang.Object-).Specified by: [removeAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#removeAll-java.util.Collection-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [removeAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#removeAll-java.util.Collection-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### retainAll public boolean retainAll([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) This implementation iterates over the elements of this list, checking each element in turn to see if it's contained in coll. If it's not contained, it's removed from this list. As a consequence, it is advised to use a collection type for coll that provides a fast (e.g. O(1)) implementation of [Collection.contains(Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#contains-java.lang.Object-).Specified by: [retainAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#retainAll-java.util.Collection-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [retainAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#retainAll-java.util.Collection-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### set public [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) set(int index, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value)Specified by: [set](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#set-int-E-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### clear public void clear()Specified by: [clear](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#clear--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [clear](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#clear--) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)>

#### getFirst public [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) getFirst()

#### getLast public [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) getLast()

#### addFirst public boolean addFirst([E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) o)

#### addLast public boolean addLast([E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) o)

#### removeFirst public [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) removeFirst()

#### removeLast public [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) removeLast()

#### equals public boolean equals([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) obj)Specified by: [equals](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#equals-java.lang.Object-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [equals](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#equals-java.lang.Object-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Overrides: [equals](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#equals-java.lang.Object-) in class [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)

#### hashCode public int hashCode()Specified by: [hashCode](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#hashCode--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Specified by: [hashCode](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#hashCode--) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> Overrides: [hashCode](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#hashCode--) in class [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)

#### toString public [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) toString()Overrides: [toString](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#toString--) in class [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)

#### isEqualValue protected boolean isEqualValue([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value1, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value2) Compares two values for equals. This implementation uses the equals method. Subclasses can override this to match differently.Parameters: value1 - the first value to compare, may be null value2 - the second value to compare, may be null Returns: true if equal

#### updateNode protected void updateNode([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> node, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) Updates the node with a new value. This implementation sets the value on the node. Subclasses can override this to record the change.Parameters: node - node to update value - new value of the node

#### createHeaderNode protected [AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> createHeaderNode() Creates a new node with previous, next and element all set to null. This implementation creates a new empty Node. Subclasses can override this to create a different class.Returns: newly created node

#### createNode protected [AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> createNode([E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) Creates a new node with the specified properties. This implementation creates a new Node with data. Subclasses can override this to create a different class.Parameters: value - value of the new node Returns: a new node containing the value

#### addNodeBefore protected void addNodeBefore([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> node, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) Creates a new node with the specified object as its value and inserts it before node. This implementation uses [createNode(Object)](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#createNode-E-) and [addNode(AbstractLinkedList.Node,AbstractLinkedList.Node)](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addNode-org.apache.commons.collections4.list.AbstractLinkedList.Node-org.apache.commons.collections4.list.AbstractLinkedList.Node-).Parameters: node - node to insert before value - value of the newly added node Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if node is null

#### addNodeAfter protected void addNodeAfter([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> node, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html) value) Creates a new node with the specified object as its value and inserts it after node. This implementation uses [createNode(Object)](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#createNode-E-) and [addNode(AbstractLinkedList.Node,AbstractLinkedList.Node)](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addNode-org.apache.commons.collections4.list.AbstractLinkedList.Node-org.apache.commons.collections4.list.AbstractLinkedList.Node-).Parameters: node - node to insert after value - value of the newly added node Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if node is null

#### addNode protected void addNode([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> nodeToInsert, [AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> insertBeforeNode) Inserts a new node into the list.Parameters: nodeToInsert - new node to insert insertBeforeNode - node to insert before Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either node is null

#### removeNode protected void removeNode([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> node) Removes the specified node from the list.Parameters: node - the node to remove Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if node is null

#### removeAllNodes protected void removeAllNodes() Removes all nodes by resetting the circular list marker.

#### getNode protected [AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> getNode(int index, boolean endMarkerAllowed) throws [IndexOutOfBoundsException](https://docs.oracle.com/javase/7/docs/api/java/lang/IndexOutOfBoundsException.html?is-external=true) Gets the node at a particular index.Parameters: index - the index, starting from 0 endMarkerAllowed - whether or not the end marker can be returned if startIndex is set to the list's size Returns: the node at the given index Throws: [IndexOutOfBoundsException](https://docs.oracle.com/javase/7/docs/api/java/lang/IndexOutOfBoundsException.html?is-external=true) - if the index is less than 0; equal to the size of the list and endMakerAllowed is false; or greater than the size of the list

#### createSubListIterator protected [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> createSubListIterator([AbstractLinkedList.LinkedSubList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedSubList.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> subList) Creates an iterator for the sublist.Parameters: subList - the sublist to get an iterator for Returns: a new iterator on the given sublist

#### createSubListListIterator protected [ListIterator](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> createSubListListIterator([AbstractLinkedList.LinkedSubList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedSubList.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)> subList, int fromIndex) Creates a list iterator for the sublist.Parameters: subList - the sublist to get an iterator for fromIndex - the index to start from, relative to the sublist Returns: a new list iterator on the given sublist

#### doWriteObject protected void doWriteObject([ObjectOutputStream](https://docs.oracle.com/javase/7/docs/api/java/io/ObjectOutputStream.html?is-external=true) outputStream) throws [IOException](https://docs.oracle.com/javase/7/docs/api/java/io/IOException.html?is-external=true) Serializes the data held in this object to the stream specified. The first serializable subclass must call this method from writeObject.Parameters: outputStream - the stream to write the object to Throws: [IOException](https://docs.oracle.com/javase/7/docs/api/java/io/IOException.html?is-external=true) - if anything goes wrong

#### doReadObject protected void doReadObject([ObjectInputStream](https://docs.oracle.com/javase/7/docs/api/java/io/ObjectInputStream.html?is-external=true) inputStream) throws [IOException](https://docs.oracle.com/javase/7/docs/api/java/io/IOException.html?is-external=true), [ClassNotFoundException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassNotFoundException.html?is-external=true) Deserializes the data held in this object to the stream specified. The first serializable subclass must call this method from readObject.Parameters: inputStream - the stream to read the object from Throws: [IOException](https://docs.oracle.com/javase/7/docs/api/java/io/IOException.html?is-external=true) - if any error occurs while reading from the stream [ClassNotFoundException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassNotFoundException.html?is-external=true) - if a class read from the stream can not be loaded

[Skip navigation links](#xvir7l)

* [Overview](http://docs.google.com/overview-summary.html)
* [Package](http://docs.google.com/package-summary.html)
* Class
* [Use](http://docs.google.com/class-use/AbstractLinkedList.html)
* [Tree](http://docs.google.com/package-tree.html)
* [Deprecated](http://docs.google.com/deprecated-list.html)
* [Index](http://docs.google.com/index-all.html)
* [Help](http://docs.google.com/help-doc.html)
* Prev Class
* [Next Class](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.LinkedListIterator.html)
* [Frames](http://docs.google.com/index.html?org/apache/commons/collections4/list/AbstractLinkedList.html)
* [No Frames](http://docs.google.com/AbstractLinkedList.html)
* [All Classes](http://docs.google.com/allclasses-noframe.html)
* Summary:
* [Nested](#3znysh7) |
* Field |
* [Constr](#2et92p0) |
* [Method](#tyjcwt)
* Detail:
* Field |
* [Constr](#17dp8vu) |
* [Method](#lnxbz9)

Copyright © 2001–2019 [The Apache Software Foundation](https://www.apache.org/). All rights reserved.