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org.apache.commons.collections4.list

## Class NodeCachingLinkedList<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](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)<E>
    - org.apache.commons.collections4.list.NodeCachingLinkedList<E>
* All Implemented Interfaces: [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true), [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>  
    
  public class NodeCachingLinkedList<E>  
  extends [AbstractLinkedList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)<E>  
  implements [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true)  
  A List implementation that stores a cache of internal Node objects in an effort to reduce wasteful object creation.  
  A linked list creates one Node for each item of data added. This can result in a lot of object creation and garbage collection. This implementation seeks to avoid that by maintaining a store of cached nodes.  
  This implementation is suitable for long-lived lists where both add and remove are used. Short-lived lists, or lists which only grow will have worse performance using this class.  
  **Note that this implementation is not synchronized.**Since: 3.0 See Also: [Serialized Form](http://docs.google.com/serialized-form.html#org.apache.commons.collections4.list.NodeCachingLinkedList)

### Nested Class Summary

### Nested classes/interfaces inherited from class org.apache.commons.collections4.list.[**AbstractLinkedList**](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)[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)>, [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)>, [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)>, [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)>

### Constructor SummaryConstructors

|  |
| --- |
| * + Constructor and Description |
| * + [NodeCachingLinkedList](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#NodeCachingLinkedList--)() Constructor that creates. |
| * + [NodeCachingLinkedList](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#NodeCachingLinkedList-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/NodeCachingLinkedList.html)> coll) Constructor that copies the specified collection |
| * + [NodeCachingLinkedList](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#NodeCachingLinkedList-int-)(int maximumCacheSize) Constructor that species the maximum cache size. |

### Method SummaryAll Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + protected void | * + [addNodeToCache](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#addNodeToCache-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/NodeCachingLinkedList.html)> node) Adds a node to the cache, if the cache isn't full. |
| * + 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/NodeCachingLinkedList.html)> | * + [createNode](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#createNode-E-)([E](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html) value) Creates a new node, either by reusing one from the cache or creating a new one. |
| * + protected int | * + [getMaximumCacheSize](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#getMaximumCacheSize--)() Gets the maximum size of the cache. |
| * + 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/NodeCachingLinkedList.html)> | * + [getNodeFromCache](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#getNodeFromCache--)() Gets a node from the cache. |
| * + protected boolean | * + [isCacheFull](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#isCacheFull--)() Checks whether the cache is full. |
| * + protected void | * + [removeAllNodes](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#removeAllNodes--)() Removes all the nodes from the list, storing as many as required in the cache for reuse. |
| * + protected void | * + [removeNode](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.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/NodeCachingLinkedList.html)> node) Removes the node from the list, storing it in the cache for reuse if the cache is not yet full. |
| * + protected void | * + [setMaximumCacheSize](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#setMaximumCacheSize-int-)(int maximumCacheSize) Sets the maximum size of the cache. |
| * + protected void | * + [shrinkCacheToMaximumSize](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#shrinkCacheToMaximumSize--)() Reduce the size of the cache to the maximum, if necessary. |

### Methods inherited from class org.apache.commons.collections4.list.[**AbstractLinkedList**](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)[add](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#add-E-), [add](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#add-int-E-), [addAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addAll-java.util.Collection-), [addAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addAll-int-java.util.Collection-), [addFirst](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addFirst-E-), [addLast](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addLast-E-), [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-), [addNodeAfter](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addNodeAfter-org.apache.commons.collections4.list.AbstractLinkedList.Node-E-), [addNodeBefore](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#addNodeBefore-org.apache.commons.collections4.list.AbstractLinkedList.Node-E-), [clear](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#clear--), [contains](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#contains-java.lang.Object-), [containsAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#containsAll-java.util.Collection-), [createHeaderNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#createHeaderNode--), [createSubListIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#createSubListIterator-org.apache.commons.collections4.list.AbstractLinkedList.LinkedSubList-), [createSubListListIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#createSubListListIterator-org.apache.commons.collections4.list.AbstractLinkedList.LinkedSubList-int-), [doReadObject](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#doReadObject-java.io.ObjectInputStream-), [doWriteObject](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#doWriteObject-java.io.ObjectOutputStream-), [equals](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#equals-java.lang.Object-), [get](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#get-int-), [getFirst](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#getFirst--), [getLast](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#getLast--), [getNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#getNode-int-boolean-), [hashCode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#hashCode--), [indexOf](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#indexOf-java.lang.Object-), [init](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#init--), [isEmpty](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#isEmpty--), [isEqualValue](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#isEqualValue-java.lang.Object-java.lang.Object-), [iterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#iterator--), [lastIndexOf](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#lastIndexOf-java.lang.Object-), [listIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#listIterator--), [listIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#listIterator-int-), [remove](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#remove-int-), [remove](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#remove-java.lang.Object-), [removeAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#removeAll-java.util.Collection-), [removeFirst](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#removeFirst--), [removeLast](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#removeLast--), [retainAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#retainAll-java.util.Collection-), [set](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#set-int-E-), [size](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#size--), [subList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#subList-int-int-), [toArray](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#toArray--), [toArray](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#toArray-T:A-), [toString](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#toString--), [updateNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#updateNode-org.apache.commons.collections4.list.AbstractLinkedList.Node-E-)

### 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

#### NodeCachingLinkedList public NodeCachingLinkedList() Constructor that creates.

#### NodeCachingLinkedList public NodeCachingLinkedList([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/NodeCachingLinkedList.html)> coll) Constructor that copies the specified collectionParameters: coll - the collection to copy

#### NodeCachingLinkedList public NodeCachingLinkedList(int maximumCacheSize) Constructor that species the maximum cache size.Parameters: maximumCacheSize - the maximum cache size

### Method Detail

#### getMaximumCacheSize protected int getMaximumCacheSize() Gets the maximum size of the cache.Returns: the maximum cache size

#### setMaximumCacheSize protected void setMaximumCacheSize(int maximumCacheSize) Sets the maximum size of the cache.Parameters: maximumCacheSize - the new maximum cache size

#### shrinkCacheToMaximumSize protected void shrinkCacheToMaximumSize() Reduce the size of the cache to the maximum, if necessary.

#### getNodeFromCache 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/NodeCachingLinkedList.html)> getNodeFromCache() Gets a node from the cache. If a node is returned, then the value of [cacheSize](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html#cacheSize) is decreased accordingly. The node that is returned will have null values for next, previous and element.Returns: a node, or null if there are no nodes in the cache.

#### isCacheFull protected boolean isCacheFull() Checks whether the cache is full.Returns: true if the cache is full

#### addNodeToCache protected void addNodeToCache([AbstractLinkedList.Node](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.Node.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html)> node) Adds a node to the cache, if the cache isn't full. The node's contents are cleared to so they can be garbage collected.Parameters: node - the node to add to the cache

#### 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/NodeCachingLinkedList.html)> createNode([E](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html) value) Creates a new node, either by reusing one from the cache or creating a new one.Overrides: [createNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#createNode-E-) in class [AbstractLinkedList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html)> Parameters: value - value of the new node Returns: the newly created node

#### 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/NodeCachingLinkedList.html)> node) Removes the node from the list, storing it in the cache for reuse if the cache is not yet full.Overrides: [removeNode](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#removeNode-org.apache.commons.collections4.list.AbstractLinkedList.Node-) in class [AbstractLinkedList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html)> Parameters: node - the node to remove

#### removeAllNodes protected void removeAllNodes() Removes all the nodes from the list, storing as many as required in the cache for reuse.Overrides: [removeAllNodes](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html#removeAllNodes--) in class [AbstractLinkedList](http://docs.google.com/org/apache/commons/collections4/list/AbstractLinkedList.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/NodeCachingLinkedList.html)>

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