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org.apache.commons.collections4.bidimap

## Class DualTreeBidiMap<K,V>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + [org.apache.commons.collections4.bidimap.AbstractDualBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html)<K,V>
    - org.apache.commons.collections4.bidimap.DualTreeBidiMap<K,V>
* Type Parameters: K - the type of the keys in this map V - the type of the values in this map All Implemented Interfaces: [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true), [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<K,V>, [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<K,V>, [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<K,V>, [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<K,V>, [IterableGet](http://docs.google.com/org/apache/commons/collections4/IterableGet.html)<K,V>, [IterableMap](http://docs.google.com/org/apache/commons/collections4/IterableMap.html)<K,V>, [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html)<K,V>, [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<K,V>, [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<K,V>, [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html)<K,V>  
    
  public class DualTreeBidiMap<K,V>  
  extends [AbstractDualBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html)<K,V>  
  implements [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html)<K,V>, [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true)  
  Implementation of [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html) that uses two [TreeMap](https://docs.oracle.com/javase/7/docs/api/java/util/TreeMap.html?is-external=true) instances.  
  The setValue() method on iterators will succeed only if the new value being set is not already in the bidimap.  
  When considering whether to use this class, the [TreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) class should also be considered. It implements the interface using a dedicated design, and does not store each object twice, which can save on memory use.  
  NOTE: From Commons Collections 3.1, all subclasses will use [TreeMap](https://docs.oracle.com/javase/7/docs/api/java/util/TreeMap.html?is-external=true) and the flawed createMap method is ignored.Since: 3.0 See Also: [Serialized Form](http://docs.google.com/serialized-form.html#org.apache.commons.collections4.bidimap.DualTreeBidiMap)

### Nested Class SummaryNested Classes

|  |  |
| --- | --- |
| * + Modifier and Type | * + Class and Description |
| * + protected static class | * + [DualTreeBidiMap.BidiOrderedMapIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.BidiOrderedMapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.BidiOrderedMapIterator.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.BidiOrderedMapIterator.html)> Inner class MapIterator. |
| * + protected static class | * + [DualTreeBidiMap.ViewMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.ViewMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.ViewMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.ViewMap.html)> Internal sorted map view. |

### Nested classes/interfaces inherited from class org.apache.commons.collections4.bidimap.[**AbstractDualBidiMap**](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html)[AbstractDualBidiMap.BidiMapIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.BidiMapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.BidiMapIterator.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.BidiMapIterator.html)>, [AbstractDualBidiMap.EntrySet](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.EntrySet.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.EntrySet.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.EntrySet.html)>, [AbstractDualBidiMap.EntrySetIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.EntrySetIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.EntrySetIterator.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.EntrySetIterator.html)>, [AbstractDualBidiMap.KeySet](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.KeySet.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.KeySet.html)>, [AbstractDualBidiMap.KeySetIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.KeySetIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.KeySetIterator.html)>, [AbstractDualBidiMap.MapEntry](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.MapEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.MapEntry.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.MapEntry.html)>, [AbstractDualBidiMap.Values](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.Values.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.Values.html)>, [AbstractDualBidiMap.ValuesIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.ValuesIterator.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.ValuesIterator.html)>, [AbstractDualBidiMap.View](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.View.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.View.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.View.html),[E](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.View.html)>

### Nested classes/interfaces inherited from interface java.util.[**Map**](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)[Map.Entry](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true)<[K](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true),[V](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true)>

### Constructor SummaryConstructors

|  |  |
| --- | --- |
| * + Modifier | * + Constructor and Description |
|  | * + [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#DualTreeBidiMap--)() Creates an empty DualTreeBidiMap |
|  | * + [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#DualTreeBidiMap-java.util.Comparator-java.util.Comparator-)([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> keyComparator, [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> valueComparator) Constructs a [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) using the specified [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true). |
|  | * + [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#DualTreeBidiMap-java.util.Map-)([Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<? extends [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> map) Constructs a DualTreeBidiMap and copies the mappings from specified Map. |
| * + protected | * + [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#DualTreeBidiMap-java.util.Map-java.util.Map-org.apache.commons.collections4.BidiMap-)([Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> normalMap, [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> reverseMap, [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> inverseBidiMap) Constructs a [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) that decorates the specified maps. |

### Method SummaryAll Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> | * + [comparator](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#comparator--)() |
| * + protected [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> | * + [createBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#createBidiMap-java.util.Map-java.util.Map-org.apache.commons.collections4.BidiMap-)([Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> normalMap, [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> reverseMap, [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> inverseMap) Creates a new instance of this object. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) | * + [firstKey](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#firstKey--)() Gets the first key currently in this map. |
| * + [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> | * + [headMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#headMap-K-)([K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) toKey) |
| * + [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> | * + [inverseBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#inverseBidiMap--)() Gets a view of this map where the keys and values are reversed. |
| * + [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> | * + [inverseOrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#inverseOrderedBidiMap--)() |
| * + [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> | * + [inverseSortedBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#inverseSortedBidiMap--)() |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) | * + [lastKey](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#lastKey--)() Gets the last key currently in this map. |
| * + [OrderedMapIterator](http://docs.google.com/org/apache/commons/collections4/OrderedMapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> | * + [mapIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#mapIterator--)() Obtains an ordered map iterator. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) | * + [nextKey](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#nextKey-K-)([K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) key) Gets the next key after the one specified. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) | * + [previousKey](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#previousKey-K-)([K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) key) Gets the previous key before the one specified. |
| * + [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> | * + [subMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#subMap-K-K-)([K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) fromKey, [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) toKey) |
| * + [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> | * + [tailMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#tailMap-K-)([K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) fromKey) |
| * + [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> | * + [valueComparator](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html#valueComparator--)() Get the comparator used for the values in the value-to-key map aspect. |

### Methods inherited from class org.apache.commons.collections4.bidimap.[**AbstractDualBidiMap**](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html)[clear](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#clear--), [containsKey](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#containsKey-java.lang.Object-), [containsValue](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#containsValue-java.lang.Object-), [createEntrySetIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#createEntrySetIterator-java.util.Iterator-), [createKeySetIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#createKeySetIterator-java.util.Iterator-), [createValuesIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#createValuesIterator-java.util.Iterator-), [entrySet](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#entrySet--), [equals](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#equals-java.lang.Object-), [get](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#get-java.lang.Object-), [getKey](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#getKey-java.lang.Object-), [hashCode](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#hashCode--), [isEmpty](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#isEmpty--), [keySet](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#keySet--), [put](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#put-K-V-), [putAll](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#putAll-java.util.Map-), [remove](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#remove-java.lang.Object-), [removeValue](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#removeValue-java.lang.Object-), [size](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#size--), [toString](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#toString--), [values](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#values--)

### 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 org.apache.commons.collections4.[**BidiMap**](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)[getKey](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#getKey-java.lang.Object-), [put](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#put-K-V-), [removeValue](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#removeValue-java.lang.Object-), [values](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#values--)

### Methods inherited from interface java.util.[**Map**](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)[clear](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#clear--), [compute](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#compute-K-java.util.function.BiFunction-), [computeIfAbsent](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#computeIfAbsent-K-java.util.function.Function-), [computeIfPresent](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#computeIfPresent-K-java.util.function.BiFunction-), [containsKey](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#containsKey-java.lang.Object-), [containsValue](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#containsValue-java.lang.Object-), [entrySet](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#entrySet--), [equals](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#equals-java.lang.Object-), [forEach](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#forEach-java.util.function.BiConsumer-), [get](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#get-java.lang.Object-), [getOrDefault](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#getOrDefault-java.lang.Object-V-), [hashCode](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#hashCode--), [isEmpty](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#isEmpty--), [keySet](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#keySet--), [merge](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#merge-K-V-java.util.function.BiFunction-), [putAll](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#putAll-java.util.Map-), [putIfAbsent](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#putIfAbsent-K-V-), [remove](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#remove-java.lang.Object-), [remove](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#remove-java.lang.Object-java.lang.Object-), [replace](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#replace-K-V-), [replace](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#replace-K-V-V-), [replaceAll](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#replaceAll-java.util.function.BiFunction-), [size](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#size--)

### Methods inherited from interface org.apache.commons.collections4.[**Put**](http://docs.google.com/org/apache/commons/collections4/Put.html)[clear](http://docs.google.com/org/apache/commons/collections4/Put.html#clear--), [putAll](http://docs.google.com/org/apache/commons/collections4/Put.html#putAll-java.util.Map-)

### Methods inherited from interface org.apache.commons.collections4.[**Get**](http://docs.google.com/org/apache/commons/collections4/Get.html)[containsKey](http://docs.google.com/org/apache/commons/collections4/Get.html#containsKey-java.lang.Object-), [containsValue](http://docs.google.com/org/apache/commons/collections4/Get.html#containsValue-java.lang.Object-), [entrySet](http://docs.google.com/org/apache/commons/collections4/Get.html#entrySet--), [get](http://docs.google.com/org/apache/commons/collections4/Get.html#get-java.lang.Object-), [isEmpty](http://docs.google.com/org/apache/commons/collections4/Get.html#isEmpty--), [keySet](http://docs.google.com/org/apache/commons/collections4/Get.html#keySet--), [remove](http://docs.google.com/org/apache/commons/collections4/Get.html#remove-java.lang.Object-), [size](http://docs.google.com/org/apache/commons/collections4/Get.html#size--)

### Methods inherited from interface java.util.[**SortedMap**](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)[entrySet](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#entrySet--), [keySet](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#keySet--), [values](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#values--)

### Constructor Detail

#### DualTreeBidiMap public DualTreeBidiMap() Creates an empty DualTreeBidiMap

#### DualTreeBidiMap public DualTreeBidiMap([Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<? extends [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> map) Constructs a DualTreeBidiMap and copies the mappings from specified Map.Parameters: map - the map whose mappings are to be placed in this map

#### DualTreeBidiMap public DualTreeBidiMap([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> keyComparator, [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> valueComparator) Constructs a [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) using the specified [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true).Parameters: keyComparator - the comparator valueComparator - the values comparator to use

#### DualTreeBidiMap protected DualTreeBidiMap([Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> normalMap, [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> reverseMap, [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> inverseBidiMap) Constructs a [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) that decorates the specified maps.Parameters: normalMap - the normal direction map reverseMap - the reverse direction map inverseBidiMap - the inverse BidiMap

### Method Detail

#### createBidiMap protected [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> createBidiMap([Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> normalMap, [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> reverseMap, [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> inverseMap) Creates a new instance of this object.Specified by: [createBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#createBidiMap-java.util.Map-java.util.Map-org.apache.commons.collections4.BidiMap-) in class [AbstractDualBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Parameters: normalMap - the normal direction map reverseMap - the reverse direction map inverseMap - the inverse BidiMap Returns: new bidi map

#### comparator public [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> comparator()Specified by: [comparator](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#comparator--) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)>

#### valueComparator public [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> valueComparator() Description copied from interface: [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html#valueComparator--) Get the comparator used for the values in the value-to-key map aspect.Specified by: [valueComparator](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html#valueComparator--) in interface [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Returns: Comparator<? super V>

#### firstKey public [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) firstKey() Description copied from interface: [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#firstKey--) Gets the first key currently in this map.Specified by: [firstKey](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#firstKey--) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Specified by: [firstKey](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#firstKey--) in interface [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Returns: the first key currently in this map

#### lastKey public [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) lastKey() Description copied from interface: [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#lastKey--) Gets the last key currently in this map.Specified by: [lastKey](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#lastKey--) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Specified by: [lastKey](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#lastKey--) in interface [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Returns: the last key currently in this map

#### nextKey public [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) nextKey([K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) key) Description copied from interface: [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#nextKey-K-) Gets the next key after the one specified.Specified by: [nextKey](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#nextKey-K-) in interface [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Parameters: key - the key to search for next from Returns: the next key, null if no match or at end

#### previousKey public [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) previousKey([K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) key) Description copied from interface: [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#previousKey-K-) Gets the previous key before the one specified.Specified by: [previousKey](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#previousKey-K-) in interface [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Parameters: key - the key to search for previous from Returns: the previous key, null if no match or at start

#### mapIterator public [OrderedMapIterator](http://docs.google.com/org/apache/commons/collections4/OrderedMapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> mapIterator() Obtains an ordered map iterator. This implementation copies the elements to an ArrayList in order to provide the forward/backward behaviour.Specified by: [mapIterator](http://docs.google.com/org/apache/commons/collections4/IterableGet.html#mapIterator--) in interface [IterableGet](http://docs.google.com/org/apache/commons/collections4/IterableGet.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Specified by: [mapIterator](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#mapIterator--) in interface [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Overrides: [mapIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#mapIterator--) in class [AbstractDualBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Returns: a new ordered map iterator

#### inverseSortedBidiMap public [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> inverseSortedBidiMap()

#### inverseOrderedBidiMap public [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> inverseOrderedBidiMap()

#### headMap public [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> headMap([K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) toKey)Specified by: [headMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#headMap-K-) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)>

#### tailMap public [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> tailMap([K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) fromKey)Specified by: [tailMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#tailMap-K-) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)>

#### subMap public [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> subMap([K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) fromKey, [K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) toKey)Specified by: [subMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#subMap-K-K-) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)>

#### inverseBidiMap public [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> inverseBidiMap() Description copied from interface: [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#inverseBidiMap--) Gets a view of this map where the keys and values are reversed. Changes to one map will be visible in the other and vice versa. This enables both directions of the map to be accessed as a Map. Implementations should seek to avoid creating a new object every time this method is called. See AbstractMap.values() etc. Calling this method on the inverse map should return the original.Specified by: [inverseBidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#inverseBidiMap--) in interface [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Specified by: [inverseBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html#inverseBidiMap--) in interface [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Specified by: [inverseBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html#inverseBidiMap--) in interface [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Overrides: [inverseBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html#inverseBidiMap--) in class [AbstractDualBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)> Returns: an inverted bidirectional map

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* [Index](http://docs.google.com/index-all.html)
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* [Prev Class](http://docs.google.com/org/apache/commons/collections4/bidimap/DualLinkedHashBidiMap.html)
* [Next Class](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.BidiOrderedMapIterator.html)
* [Frames](http://docs.google.com/index.html?org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)
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