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* [Overview](http://docs.google.com/overview-summary.html)
* [Package](http://docs.google.com/package-summary.html)
* Class
* [Use](http://docs.google.com/class-use/TreeBidiMap.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](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.ViewMap.html)
* [Next Class](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)
* [Frames](http://docs.google.com/index.html?org/apache/commons/collections4/bidimap/TreeBidiMap.html)
* [No Frames](http://docs.google.com/TreeBidiMap.html)
* [All Classes](http://docs.google.com/allclasses-noframe.html)
* Summary:
* Nested |
* Field |
* [Constr](#tyjcwt) |
* [Method](#3dy6vkm)
* Detail:
* Field |
* [Constr](#2s8eyo1) |
* [Method](#26in1rg)

org.apache.commons.collections4.bidimap

## Class TreeBidiMap<K extends [**Comparable**](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<K>,V extends [**Comparable**](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<V>>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + org.apache.commons.collections4.bidimap.TreeBidiMap<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>, [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>  
    
  public class TreeBidiMap<K extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<K>,V extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<V>>  
  extends [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)  
  implements [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html)<K,V>, [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true)  
  Red-Black tree-based implementation of BidiMap where all objects added implement the Comparable interface.  
  This class guarantees that the map will be in both ascending key order and ascending value order, sorted according to the natural order for the key's and value's classes.  
  This Map is intended for applications that need to be able to look up a key-value pairing by either key or value, and need to do so with equal efficiency.  
  While that goal could be accomplished by taking a pair of TreeMaps and redirecting requests to the appropriate TreeMap (e.g., containsKey would be directed to the TreeMap that maps values to keys, containsValue would be directed to the TreeMap that maps keys to values), there are problems with that implementation. If the data contained in the TreeMaps is large, the cost of redundant storage becomes significant. The [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html) and [DualHashBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualHashBidiMap.html) implementations use this approach.  
  This solution keeps minimizes the data storage by holding data only once. The red-black algorithm is based on [TreeMap](https://docs.oracle.com/javase/7/docs/api/java/util/TreeMap.html?is-external=true), but has been modified to simultaneously map a tree node by key and by value. This doubles the cost of put operations (but so does using two TreeMaps), and nearly doubles the cost of remove operations (there is a savings in that the lookup of the node to be removed only has to be performed once). And since only one node contains the key and value, storage is significantly less than that required by two TreeMaps.  
  The Map.Entry instances returned by the appropriate methods will not allow setValue() and will throw an UnsupportedOperationException on attempts to call that method.Since: 3.0 (previously DoubleOrderedMap v2.0) See Also: [Serialized Form](http://docs.google.com/serialized-form.html#org.apache.commons.collections4.bidimap.TreeBidiMap)

### Nested Class Summary

### 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

|  |
| --- |
| * + Constructor and Description |
| * + [TreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#TreeBidiMap--)() Constructs a new empty TreeBidiMap. |
| * + [TreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#TreeBidiMap-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/TreeBidiMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> map) Constructs a new TreeBidiMap by copying an existing Map. |

### Method SummaryAll Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + void | * + [clear](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#clear--)() Removes all mappings from this map. |
| * + boolean | * + [containsKey](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#containsKey-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Checks whether this map contains the a mapping for the specified key. |
| * + boolean | * + [containsValue](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#containsValue-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Checks whether this map contains the a mapping for the specified value. |
| * + [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[Map.Entry](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> | * + [entrySet](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#entrySet--)() Returns a set view of the entries contained in this map in key order. |
| * + boolean | * + [equals](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#equals-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) obj) Compares for equals as per the API. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) | * + [firstKey](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#firstKey--)() Gets the first (lowest) key currently in this map. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) | * + [get](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#get-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the value to which this map maps the specified key. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) | * + [getKey](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#getKey-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Returns the key to which this map maps the specified value. |
| * + int | * + [hashCode](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#hashCode--)() Gets the hash code value for this map as per the API. |
| * + [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> | * + [inverseBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#inverseBidiMap--)() Gets the inverse map for comparison. |
| * + boolean | * + [isEmpty](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#isEmpty--)() Checks whether the map is empty or not. |
| * + [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> | * + [keySet](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#keySet--)() Returns a set view of the keys contained in this map in key order. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) | * + [lastKey](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#lastKey--)() Gets the last (highest) 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/TreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> | * + [mapIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#mapIterator--)() Obtains a MapIterator over the map. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) | * + [nextKey](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#nextKey-K-)([K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) key) Gets the next key after the one specified. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) | * + [previousKey](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#previousKey-K-)([K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) key) Gets the previous key before the one specified. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) | * + [put](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#put-K-V-)([K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) value) Puts the key-value pair into the map, replacing any previous pair. |
| * + void | * + [putAll](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#putAll-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/TreeBidiMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> map) Puts all the mappings from the specified map into this map. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) | * + [remove](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#remove-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Removes the mapping for this key from this map if present. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) | * + [removeValue](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#removeValue-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Removes the mapping for this value from this map if present. |
| * + int | * + [size](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#size--)() Returns the number of key-value mappings in this map. |
| * + [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/bidimap/TreeBidiMap.html#toString--)() Returns a string version of this Map in standard format. |
| * + [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> | * + [values](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html#values--)() Returns a set view of the values contained in this map in key order. |

### 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.[**Map**](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)[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-), [forEach](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#forEach-java.util.function.BiConsumer-), [getOrDefault](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#getOrDefault-java.lang.Object-V-), [merge](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#merge-K-V-java.util.function.BiFunction-), [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-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-)

### Constructor Detail

#### TreeBidiMap public TreeBidiMap() Constructs a new empty TreeBidiMap.

#### TreeBidiMap public TreeBidiMap([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/TreeBidiMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> map) Constructs a new TreeBidiMap by copying an existing Map.Parameters: map - the map to copy Throws: [ClassCastException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassCastException.html?is-external=true) - if the keys/values in the map are not Comparable or are not mutually comparable [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if any key or value in the map is null

### Method Detail

#### size public int size() Returns the number of key-value mappings in this map.Specified by: [size](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#size--) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [size](http://docs.google.com/org/apache/commons/collections4/Get.html#size--) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Returns: the number of key-value mappings in this map See Also: [Map.size()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#size--)

#### isEmpty public boolean isEmpty() Checks whether the map is empty or not.Specified by: [isEmpty](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#isEmpty--) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [isEmpty](http://docs.google.com/org/apache/commons/collections4/Get.html#isEmpty--) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Returns: true if the map is empty See Also: [Map.isEmpty()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#isEmpty--)

#### containsKey public boolean containsKey([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Checks whether this map contains the a mapping for the specified key. The key must implement Comparable.Specified by: [containsKey](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#containsKey-java.lang.Object-) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [containsKey](http://docs.google.com/org/apache/commons/collections4/Get.html#containsKey-java.lang.Object-) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Parameters: key - key whose presence in this map is to be tested Returns: true if this map contains a mapping for the specified key Throws: [ClassCastException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassCastException.html?is-external=true) - if the key is of an inappropriate type [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the key is null See Also: [Map.containsKey(Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#containsKey-java.lang.Object-)

#### containsValue public boolean containsValue([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Checks whether this map contains the a mapping for the specified value. The value must implement Comparable.Specified by: [containsValue](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#containsValue-java.lang.Object-) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [containsValue](http://docs.google.com/org/apache/commons/collections4/Get.html#containsValue-java.lang.Object-) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Parameters: value - value whose presence in this map is to be tested Returns: true if this map contains a mapping for the specified value Throws: [ClassCastException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassCastException.html?is-external=true) - if the value is of an inappropriate type [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the value is null See Also: [Map.containsValue(Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#containsValue-java.lang.Object-)

#### get public [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) get([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the value to which this map maps the specified key. Returns null if the map contains no mapping for this key. The key must implement Comparable.Specified by: [get](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#get-java.lang.Object-) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [get](http://docs.google.com/org/apache/commons/collections4/Get.html#get-java.lang.Object-) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Parameters: key - key whose associated value is to be returned Returns: the value to which this map maps the specified key, or null if the map contains no mapping for this key Throws: [ClassCastException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassCastException.html?is-external=true) - if the key is of an inappropriate type [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the key is null See Also: [Map.get(Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#get-java.lang.Object-)

#### put public [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) put([K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) value) Puts the key-value pair into the map, replacing any previous pair. When adding a key-value pair, the value may already exist in the map against a different key. That mapping is removed, to ensure that the value only occurs once in the inverse map. BidiMap map1 = new TreeBidiMap(); map.put("A","B"); // contains A mapped to B, as per Map map.put("A","C"); // contains A mapped to C, as per Map BidiMap map2 = new TreeBidiMap(); map.put("A","B"); // contains A mapped to B, as per Map map.put("C","B"); // contains C mapped to B, key A is removed Both key and value must implement Comparable.Specified by: [put](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#put-K-V-) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [put](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#put-K-V-) in interface [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [put](http://docs.google.com/org/apache/commons/collections4/Put.html#put-K-V-) in interface [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Parameters: key - key with which the specified value is to be associated value - value to be associated with the specified key Returns: the previous value for the key Throws: [ClassCastException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassCastException.html?is-external=true) - if the key is of an inappropriate type [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the key is null See Also: [Map.put(Object, Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#put-K-V-)

#### putAll public void putAll([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/TreeBidiMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> map) Puts all the mappings from the specified map into this map. All keys and values must implement Comparable.Specified by: [putAll](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#putAll-java.util.Map-) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [putAll](http://docs.google.com/org/apache/commons/collections4/Put.html#putAll-java.util.Map-) in interface [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Parameters: map - the map to copy from See Also: [Map.putAll(Map)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#putAll-java.util.Map-)

#### remove public [V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) remove([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Removes the mapping for this key from this map if present. The key must implement Comparable.Specified by: [remove](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#remove-java.lang.Object-) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [remove](http://docs.google.com/org/apache/commons/collections4/Get.html#remove-java.lang.Object-) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Parameters: key - key whose mapping is to be removed from the map. Returns: previous value associated with specified key, or null if there was no mapping for key. Throws: [ClassCastException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassCastException.html?is-external=true) - if the key is of an inappropriate type [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the key is null See Also: [Map.remove(Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#remove-java.lang.Object-)

#### clear public void clear() Removes all mappings from this map.Specified by: [clear](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#clear--) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [clear](http://docs.google.com/org/apache/commons/collections4/Put.html#clear--) in interface [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> See Also: [Map.clear()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#clear--)

#### getKey public [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) getKey([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Returns the key to which this map maps the specified value. Returns null if the map contains no mapping for this value. The value must implement Comparable.Specified by: [getKey](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#getKey-java.lang.Object-) in interface [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Parameters: value - value whose associated key is to be returned. Returns: the key to which this map maps the specified value, or null if the map contains no mapping for this value. Throws: [ClassCastException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassCastException.html?is-external=true) - if the value is of an inappropriate type [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the value is null

#### removeValue public [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) removeValue([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Removes the mapping for this value from this map if present. The value must implement Comparable.Specified by: [removeValue](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#removeValue-java.lang.Object-) in interface [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Parameters: value - value whose mapping is to be removed from the map Returns: previous key associated with specified value, or null if there was no mapping for value. Throws: [ClassCastException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassCastException.html?is-external=true) - if the value is of an inappropriate type [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the value is null

#### firstKey public [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) firstKey() Gets the first (lowest) key currently in this map.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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Returns: the first (lowest) key currently in this sorted map Throws: [NoSuchElementException](https://docs.oracle.com/javase/7/docs/api/java/util/NoSuchElementException.html?is-external=true) - if this map is empty

#### lastKey public [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) lastKey() Gets the last (highest) key currently in this map.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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Returns: the last (highest) key currently in this sorted map Throws: [NoSuchElementException](https://docs.oracle.com/javase/7/docs/api/java/util/NoSuchElementException.html?is-external=true) - if this map is empty

#### nextKey public [K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) nextKey([K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) key) Gets the next key after the one specified. The key must implement Comparable.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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.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/TreeBidiMap.html) previousKey([K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) key) Gets the previous key before the one specified. The key must implement Comparable.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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Parameters: key - the key to search for previous from Returns: the previous key, null if no match or at start

#### keySet public [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> keySet() Returns a set view of the keys contained in this map in key order. The set is backed by the map, so changes to the map are reflected in the set, and vice-versa. If the map is modified while an iteration over the set is in progress, the results of the iteration are undefined. The set supports element removal, which removes the corresponding mapping from the map. It does not support the add or addAll operations.Specified by: [keySet](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#keySet--) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [keySet](http://docs.google.com/org/apache/commons/collections4/Get.html#keySet--) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Returns: a set view of the keys contained in this map. See Also: [Map.keySet()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#keySet--)

#### values public [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> values() Returns a set view of the values contained in this map in key order. The returned object can be cast to a Set. The set is backed by the map, so changes to the map are reflected in the set, and vice-versa. If the map is modified while an iteration over the set is in progress, the results of the iteration are undefined. The set supports element removal, which removes the corresponding mapping from the map. It does not support the add or addAll operations.Specified by: [values](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#values--) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [values](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#values--) in interface [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [values](http://docs.google.com/org/apache/commons/collections4/Get.html#values--) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Returns: a set view of the values contained in this map. See Also: [Map.values()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#values--)

#### entrySet public [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[Map.Entry](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> entrySet() Returns a set view of the entries contained in this map in key order. For simple iteration through the map, the MapIterator is quicker. The set is backed by the map, so changes to the map are reflected in the set, and vice-versa. If the map is modified while an iteration over the set is in progress, the results of the iteration are undefined. The set supports element removal, which removes the corresponding mapping from the map. It does not support the add or addAll operations. The returned MapEntry objects do not support setValue.Specified by: [entrySet](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#entrySet--) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Specified by: [entrySet](http://docs.google.com/org/apache/commons/collections4/Get.html#entrySet--) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Returns: a set view of the values contained in this map. See Also: [Map.entrySet()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#entrySet--)

#### mapIterator public [OrderedMapIterator](http://docs.google.com/org/apache/commons/collections4/OrderedMapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> mapIterator() Description copied from interface: [IterableGet](http://docs.google.com/org/apache/commons/collections4/IterableGet.html#mapIterator--) Obtains a MapIterator over the map. A map iterator is an efficient way of iterating over maps. There is no need to access the entry set or use Map Entry objects. IterableMap<String,Integer> map = new HashedMap<String,Integer>(); MapIterator<String,Integer> it = map.mapIterator(); while (it.hasNext()) { String key = it.next(); Integer value = it.getValue(); it.setValue(value + 1); } 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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Returns: a map iterator

#### inverseBidiMap public [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)> inverseBidiMap() Gets the inverse map for comparison.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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>> Returns: the inverse map

#### equals public boolean equals([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) obj) Compares for equals as per the API.Specified by: [equals](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#equals-java.lang.Object-) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.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) Parameters: obj - the object to compare to Returns: true if equal

#### hashCode public int hashCode() Gets the hash code value for this map as per the API.Specified by: [hashCode](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#hashCode--) in interface [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/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)>,[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html) extends [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.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) Returns: the hash code value for this map

#### toString public [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) toString() Returns a string version of this Map in standard format.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) Returns: a standard format string version of the map

[Skip navigation links](#1v1yuxt)

* [Overview](http://docs.google.com/overview-summary.html)
* [Package](http://docs.google.com/package-summary.html)
* Class
* [Use](http://docs.google.com/class-use/TreeBidiMap.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](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.ViewMap.html)
* [Next Class](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)
* [Frames](http://docs.google.com/index.html?org/apache/commons/collections4/bidimap/TreeBidiMap.html)
* [No Frames](http://docs.google.com/TreeBidiMap.html)
* [All Classes](http://docs.google.com/allclasses-noframe.html)
* Summary:
* Nested |
* Field |
* [Constr](#tyjcwt) |
* [Method](#3dy6vkm)
* Detail:
* Field |
* [Constr](#2s8eyo1) |
* [Method](#26in1rg)

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