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Package org.apache.commons.collections4.bidimap

This package contains implementations of the [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html), [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html) and [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html) interfaces.

See: [Description](#3znysh7)

* Class Summary

|  |  |
| --- | --- |
| * Class | * Description |
| * [AbstractBidiMapDecorator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html)<K,V> | * Provides a base decorator that enables additional functionality to be added to a BidiMap via decoration. |
| * [AbstractDualBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.html)<K,V> | * Abstract [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html) implemented using two maps. |
| * [AbstractDualBidiMap.BidiMapIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.BidiMapIterator.html)<K,V> | * Inner class MapIterator. |
| * [AbstractDualBidiMap.EntrySet](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.EntrySet.html)<K,V> | * Inner class EntrySet. |
| * [AbstractDualBidiMap.EntrySetIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.EntrySetIterator.html)<K,V> | * Inner class EntrySetIterator. |
| * [AbstractDualBidiMap.KeySet](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.KeySet.html)<K> | * Inner class KeySet. |
| * [AbstractDualBidiMap.KeySetIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.KeySetIterator.html)<K> | * Inner class KeySetIterator. |
| * [AbstractDualBidiMap.MapEntry](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.MapEntry.html)<K,V> | * Inner class MapEntry. |
| * [AbstractDualBidiMap.Values](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.Values.html)<V> | * Inner class Values. |
| * [AbstractDualBidiMap.ValuesIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.ValuesIterator.html)<V> | * Inner class ValuesIterator. |
| * [AbstractDualBidiMap.View](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractDualBidiMap.View.html)<K,V,E> | * Inner class View. |
| * [AbstractOrderedBidiMapDecorator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractOrderedBidiMapDecorator.html)<K,V> | * Provides a base decorator that enables additional functionality to be added to an OrderedBidiMap via decoration. |
| * [AbstractSortedBidiMapDecorator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractSortedBidiMapDecorator.html)<K,V> | * Provides a base decorator that enables additional functionality to be added to a SortedBidiMap via decoration. |
| * [DualHashBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualHashBidiMap.html)<K,V> | * Implementation of [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html) that uses two [HashMap](https://docs.oracle.com/javase/7/docs/api/java/util/HashMap.html?is-external=true) instances. |
| * [DualLinkedHashBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualLinkedHashBidiMap.html)<K,V> | * Implementation of BidiMap that uses two LinkedHashMap instances. |
| * [DualTreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.html)<K,V> | * 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. |
| * [DualTreeBidiMap.BidiOrderedMapIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.BidiOrderedMapIterator.html)<K,V> | * Inner class MapIterator. |
| * [DualTreeBidiMap.ViewMap](http://docs.google.com/org/apache/commons/collections4/bidimap/DualTreeBidiMap.ViewMap.html)<K,V> | * Internal sorted map view. |
| * [TreeBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/TreeBidiMap.html)<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>> | * Red-Black tree-based implementation of BidiMap where all objects added implement the Comparable interface. |
| * [UnmodifiableBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)<K,V> | * Decorates another [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html) to ensure it can't be altered. |
| * [UnmodifiableOrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableOrderedBidiMap.html)<K,V> | * Decorates another [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html) to ensure it can't be altered. |
| * [UnmodifiableSortedBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableSortedBidiMap.html)<K,V> | * Decorates another [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html) to ensure it can't be altered. |

## Package org.apache.commons.collections4.bidimap Description

This package contains implementations of the [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html), [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html) and [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html) interfaces. A BidiMap is an extension to Map that allows keys and values to be looked up with equal ease. One example usage is a system communicating to a legacy datasource that must convert codes from the new format to the old format and vice versa.

The following implementations are provided in the package:

* DualHashBidiMap - uses two HashMaps to implement BidiMap
* DualLinkedHashBidiMap - uses two LinkedHashMaps to implement BidiMap
* DualTreeBidiMap - uses two TreeMaps to implement SortedBidiMap
* TreeBidiMap - red-black tree implementation of OrderedBidiMap

The following decorators are provided in the package:

* Unmodifiable - ensures the map cannot be altered

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