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org.apache.commons.collections4.multimap

## Class AbstractMultiValuedMap<K,V>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + org.apache.commons.collections4.multimap.AbstractMultiValuedMap<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: [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<K,V> Direct Known Subclasses: [AbstractListValuedMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html), [AbstractSetValuedMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractSetValuedMap.html)  
    
  public abstract class AbstractMultiValuedMap<K,V>  
  extends [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)  
  implements [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<K,V>  
  Abstract implementation of the [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html) interface to simplify the creation of subclass implementations.  
  Subclasses specify a Map implementation to use as the internal storage.Since: 4.1

### Constructor SummaryConstructors

|  |  |
| --- | --- |
| * + Modifier | * + Constructor and Description |
| * + protected | * + [AbstractMultiValuedMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#AbstractMultiValuedMap--)() Constructor needed for subclass serialisation. |
| * + protected | * + [AbstractMultiValuedMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#AbstractMultiValuedMap-java.util.Map-)([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/multimap/AbstractMultiValuedMap.html),? extends [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>> map) Constructor that wraps (not copies). |

### Method SummaryAll Methods Instance Methods Abstract Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + [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/multimap/AbstractMultiValuedMap.html),[Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>> | * + [asMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#asMap--)() Returns a view of this multi-valued map as a Map from each distinct key to the non-empty collection of that key's associated values. |
| * + void | * + [clear](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#clear--)() Removes all of the mappings from this map (optional operation). |
| * + boolean | * + [containsKey](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#containsKey-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Returns true if this map contains a mapping for the specified key. |
| * + boolean | * + [containsMapping](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#containsMapping-java.lang.Object-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Checks whether the map contains a mapping for the specified key and value. |
| * + boolean | * + [containsValue](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#containsValue-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Checks whether the map contains at least one mapping for the specified value. |
| * + protected abstract [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> | * + [createCollection](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#createCollection--)() |
| * + protected void | * + [doReadObject](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#doReadObject-java.io.ObjectInputStream-)([ObjectInputStream](https://docs.oracle.com/javase/7/docs/api/java/io/ObjectInputStream.html?is-external=true) in) Read the map in using a custom routine. |
| * + protected void | * + [doWriteObject](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#doWriteObject-java.io.ObjectOutputStream-)([ObjectOutputStream](https://docs.oracle.com/javase/7/docs/api/java/io/ObjectOutputStream.html?is-external=true) out) Write the map out using a custom routine. |
| * + [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.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/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>> | * + [entries](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#entries--)() Returns a [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true) view of the mappings contained in this multi-valued map. |
| * + boolean | * + [equals](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#equals-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) obj) |
| * + [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> | * + [get](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#get-K-)([K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html) key) Gets the collection of values associated with the specified key. |
| * + protected [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/multimap/AbstractMultiValuedMap.html),? extends [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>> | * + [getMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#getMap--)() Gets the map being wrapped. |
| * + int | * + [hashCode](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#hashCode--)() |
| * + boolean | * + [isEmpty](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#isEmpty--)() Returns true if this map contains no key-value mappings. |
| * + [MultiSet](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> | * + [keys](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#keys--)() Returns a [MultiSet](http://docs.google.com/org/apache/commons/collections4/MultiSet.html) view of the key mapping contained in this map. |
| * + [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/multimap/AbstractMultiValuedMap.html)> | * + [keySet](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#keySet--)() Returns a [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true) view of the keys contained in this multi-valued map. |
| * + [MapIterator](http://docs.google.com/org/apache/commons/collections4/MapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> | * + [mapIterator](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#mapIterator--)() Obtains a MapIterator over this multi-valued map. |
| * + boolean | * + [put](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#put-K-V-)([K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html) value) Adds the value to the collection associated with the specified key. |
| * + boolean | * + [putAll](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#putAll-K-java.lang.Iterable-)([K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html) key, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends [V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> values) Adds Iterable values to the collection associated with the specified key. |
| * + boolean | * + [putAll](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.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/multimap/AbstractMultiValuedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> map) Copies all of the mappings from the specified map to this map. |
| * + boolean | * + [putAll](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#putAll-org.apache.commons.collections4.MultiValuedMap-)([MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<? extends [K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> map) Copies all of the mappings from the specified MultiValuedMap to this map. |
| * + [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> | * + [remove](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#remove-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Removes all values associated with the specified key. |
| * + boolean | * + [removeMapping](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#removeMapping-java.lang.Object-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Removes a specific key/value mapping from the multi-valued map. |
| * + protected void | * + [setMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#setMap-java.util.Map-)([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/multimap/AbstractMultiValuedMap.html),? extends [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>> map) Sets the map being wrapped. |
| * + int | * + [size](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#size--)() Gets the total size of the 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/multimap/AbstractMultiValuedMap.html#toString--)() |
| * + [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> | * + [values](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#values--)() Gets a collection containing all the values in the map. |

### 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-)

### Constructor Detail

#### AbstractMultiValuedMap protected AbstractMultiValuedMap() Constructor needed for subclass serialisation.

#### AbstractMultiValuedMap protected AbstractMultiValuedMap([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/multimap/AbstractMultiValuedMap.html),? extends [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>> map) Constructor that wraps (not copies).Parameters: map - the map to wrap, must not be null Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the map is null

### Method Detail

#### getMap protected [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/multimap/AbstractMultiValuedMap.html),? extends [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>> getMap() Gets the map being wrapped.Returns: the wrapped map

#### setMap protected void setMap([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/multimap/AbstractMultiValuedMap.html),? extends [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>> map) Sets the map being wrapped. **NOTE:** this method should only be used during deserializationParameters: map - the map to wrap

#### createCollection protected abstract [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> createCollection()

#### containsKey public boolean containsKey([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Description copied from interface: [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#containsKey-java.lang.Object-) Returns true if this map contains a mapping for the specified key. More formally, returns true if and only if this map contains a mapping for a key k such that (key==null ? k==null : key.equals(k)). (There can be at most one such mapping.)Specified by: [containsKey](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#containsKey-java.lang.Object-) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.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

#### containsValue public boolean containsValue([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Description copied from interface: [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#containsValue-java.lang.Object-) Checks whether the map contains at least one mapping for the specified value.Specified by: [containsValue](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#containsValue-java.lang.Object-) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Parameters: value - the value to search for Returns: true if the map contains the value

#### containsMapping public boolean containsMapping([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Description copied from interface: [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#containsMapping-java.lang.Object-java.lang.Object-) Checks whether the map contains a mapping for the specified key and value.Specified by: [containsMapping](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#containsMapping-java.lang.Object-java.lang.Object-) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Parameters: key - the key to search for value - the value to search for Returns: true if the map contains the value

#### entries public [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.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/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>> entries() Description copied from interface: [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#entries--) Returns a [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true) view of the mappings contained in this multi-valued map. The collection is backed by the map, so changes to the map are reflected in the collection, and vice-versa.Specified by: [entries](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#entries--) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Returns: a set view of the mappings contained in this map

#### get public [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> get([K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html) key) Gets the collection of values associated with the specified key. This would return an empty collection in case the mapping is not presentSpecified by: [get](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#get-K-) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Parameters: key - the key to retrieve Returns: the Collection of values, will return an empty Collection for no mapping

#### remove public [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> remove([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Removes all values associated with the specified key. A subsequent get(Object) would return an empty collection.Specified by: [remove](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#remove-java.lang.Object-) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Parameters: key - the key to remove values from Returns: the Collection of values removed, will return an empty, unmodifiable collection for no mapping found

#### removeMapping public boolean removeMapping([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Removes a specific key/value mapping from the multi-valued map. The value is removed from the collection mapped to the specified key. Other values attached to that key are unaffected. If the last value for a key is removed, an empty collection would be returned from a subsequent [get(Object)](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#get-K-).Specified by: [removeMapping](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#removeMapping-java.lang.Object-java.lang.Object-) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Parameters: key - the key to remove from value - the value to remove Returns: true if the mapping was removed, false otherwise

#### isEmpty public boolean isEmpty() Description copied from interface: [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#isEmpty--) Returns true if this map contains no key-value mappings.Specified by: [isEmpty](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#isEmpty--) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Returns: true if this map contains no key-value mappings

#### 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/multimap/AbstractMultiValuedMap.html)> keySet() Description copied from interface: [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#keySet--) Returns a [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true) view of the keys contained in this multi-valued map. 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 (except through the iterator's own remove operation), the result of the iteration is undefined. The set supports element removal, which removes the corresponding mapping from the map, via the Iterator.remove, Set.remove, removeAll, retainAll, and clear operations. It does not support the add or addAll operations.Specified by: [keySet](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#keySet--) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Returns: a set view of the keys contained in this map

#### size public int size() Gets the total size of the map. Implementations would return the total size of the map which is the count of the values from all keys. This implementation does **not** cache the total size of the multi-valued map, but rather calculates it by iterating over the entries of the underlying map.Specified by: [size](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#size--) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Returns: the total size of the map

#### values public [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> values() Gets a collection containing all the values in the map. Returns a collection containing all the values from all keys.Specified by: [values](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#values--) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Returns: a collection view of the values contained in this map

#### clear public void clear() Description copied from interface: [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#clear--) Removes all of the mappings from this map (optional operation). The map will be empty after this call returns.Specified by: [clear](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#clear--) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>

#### put public boolean put([K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html) value) Adds the value to the collection associated with the specified key. Unlike a normal Map the previous value is not replaced. Instead the new value is added to the collection stored against the key.Specified by: [put](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#put-K-V-) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Parameters: key - the key to store against value - the value to add to the collection at the key Returns: the value added if the map changed and null if the map did not change

#### putAll public boolean 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/multimap/AbstractMultiValuedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> map) Copies all of the mappings from the specified map to this map. The effect of this call is equivalent to that of calling [put(k, v)](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#put-K-V-) on this map once for each mapping from key k to value v in the specified map. The behavior of this operation is undefined if the specified map is modified while the operation is in progress.Specified by: [putAll](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#putAll-java.util.Map-) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Parameters: map - mappings to be stored in this map, may not be null Returns: true if the map changed as a result of this operation Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if map is null

#### putAll public boolean putAll([MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<? extends [K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> map) Copies all of the mappings from the specified MultiValuedMap to this map. The effect of this call is equivalent to that of calling [put(k, v)](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#put-K-V-) on this map once for each mapping from key k to value v in the specified map. The behavior of this operation is undefined if the specified map is modified while the operation is in progress.Specified by: [putAll](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#putAll-org.apache.commons.collections4.MultiValuedMap-) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Parameters: map - mappings to be stored in this map, may not be null Returns: true if the map changed as a result of this operation Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if map is null

#### keys public [MultiSet](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> keys() Returns a [MultiSet](http://docs.google.com/org/apache/commons/collections4/MultiSet.html) view of the key mapping contained in this map. Returns a MultiSet of keys with its values count as the count of the MultiSet. This multiset is backed by the map, so any changes in the map is reflected here. Any method which modifies this multiset like add, remove, [Iterator.remove()](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true#remove--) etc throws UnsupportedOperationException.Specified by: [keys](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#keys--) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Returns: a bag view of the key mapping contained in this map

#### asMap public [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/multimap/AbstractMultiValuedMap.html),[Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)>> asMap() Description copied from interface: [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#asMap--) Returns a view of this multi-valued map as a Map from each distinct key to the non-empty collection of that key's associated values. Note that this.asMap().get(k) is equivalent to this.get(k) only when k is a key contained in the multi-valued map; otherwise it returns null as opposed to an empty collection. Changes to the returned map or the collections that serve as its values will update the underlying multi-valued map, and vice versa. The map does not support put or putAll, nor do its entries support [setValue](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true#setValue-V-).Specified by: [asMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#asMap--) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Returns: a map view of the mappings in this multi-valued map

#### putAll public boolean putAll([K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html) key, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends [V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> values) Adds Iterable values to the collection associated with the specified key.Specified by: [putAll](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#putAll-K-java.lang.Iterable-) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Parameters: key - the key to store against values - the values to add to the collection at the key, may not be null Returns: true if this map changed Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if values is null

#### mapIterator public [MapIterator](http://docs.google.com/org/apache/commons/collections4/MapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> mapIterator() Description copied from interface: [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#mapIterator--) Obtains a MapIterator over this multi-valued map. A map iterator is an efficient way of iterating over maps. There is no need to access the entries collection or use Map.Entry objects.Specified by: [mapIterator](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#mapIterator--) in interface [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)> Returns: a map iterator

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

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

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

#### doWriteObject protected void doWriteObject([ObjectOutputStream](https://docs.oracle.com/javase/7/docs/api/java/io/ObjectOutputStream.html?is-external=true) out) throws [IOException](https://docs.oracle.com/javase/7/docs/api/java/io/IOException.html?is-external=true) Write the map out using a custom routine.Parameters: out - the output stream Throws: [IOException](https://docs.oracle.com/javase/7/docs/api/java/io/IOException.html?is-external=true) - any of the usual I/O related exceptions

#### doReadObject protected void doReadObject([ObjectInputStream](https://docs.oracle.com/javase/7/docs/api/java/io/ObjectInputStream.html?is-external=true) in) throws [IOException](https://docs.oracle.com/javase/7/docs/api/java/io/IOException.html?is-external=true), [ClassNotFoundException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassNotFoundException.html?is-external=true) Read the map in using a custom routine.Parameters: in - the input stream Throws: [IOException](https://docs.oracle.com/javase/7/docs/api/java/io/IOException.html?is-external=true) - any of the usual I/O related exceptions [ClassNotFoundException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassNotFoundException.html?is-external=true) - if the stream contains an object which class can not be loaded [ClassCastException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassCastException.html?is-external=true) - if the stream does not contain the correct objects

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