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org.apache.commons.collections4.multimap

## Class AbstractListValuedMap<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](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)<K,V>
    - org.apache.commons.collections4.multimap.AbstractListValuedMap<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: [ListValuedMap](http://docs.google.com/org/apache/commons/collections4/ListValuedMap.html)<K,V>, [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<K,V> Direct Known Subclasses: [ArrayListValuedHashMap](http://docs.google.com/org/apache/commons/collections4/multimap/ArrayListValuedHashMap.html)  
    
  public abstract class AbstractListValuedMap<K,V>  
  extends [AbstractMultiValuedMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)<K,V>  
  implements [ListValuedMap](http://docs.google.com/org/apache/commons/collections4/ListValuedMap.html)<K,V>  
  Abstract implementation of the [ListValuedMap](http://docs.google.com/org/apache/commons/collections4/ListValuedMap.html) interface to simplify the creation of subclass implementations.  
  Subclasses specify a Map implementation to use as the internal storage and the List implementation to use as values.Since: 4.1

### Constructor SummaryConstructors

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

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

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + protected abstract [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)> | * + [createCollection](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html#createCollection--)() Creates a new value collection using the provided factory. |
| * + [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)> | * + [get](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html#get-K-)([K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html) key) Gets the list 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/AbstractListValuedMap.html),[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)>> | * + [getMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html#getMap--)() Gets the map being wrapped. |
| * + [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)> | * + [remove](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.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. |

### Methods inherited from class org.apache.commons.collections4.multimap.[**AbstractMultiValuedMap**](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)[asMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#asMap--), [clear](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#clear--), [containsKey](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#containsKey-java.lang.Object-), [containsMapping](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#containsMapping-java.lang.Object-java.lang.Object-), [containsValue](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#containsValue-java.lang.Object-), [doReadObject](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#doReadObject-java.io.ObjectInputStream-), [doWriteObject](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#doWriteObject-java.io.ObjectOutputStream-), [entries](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#entries--), [equals](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#equals-java.lang.Object-), [hashCode](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#hashCode--), [isEmpty](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#isEmpty--), [keys](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#keys--), [keySet](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#keySet--), [mapIterator](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#mapIterator--), [put](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#put-K-V-), [putAll](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#putAll-K-java.lang.Iterable-), [putAll](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#putAll-java.util.Map-), [putAll](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#putAll-org.apache.commons.collections4.MultiValuedMap-), [removeMapping](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#removeMapping-java.lang.Object-java.lang.Object-), [setMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#setMap-java.util.Map-), [size](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#size--), [toString](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#toString--), [values](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#values--)

### Methods inherited from class java.lang.[**Object**](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)[clone](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#clone--), [finalize](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#finalize--), [getClass](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#getClass--), [notify](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#notify--), [notifyAll](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#notifyAll--), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait--), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait-long-), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait-long-int-)

### Methods inherited from interface org.apache.commons.collections4.[**MultiValuedMap**](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)[asMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#asMap--), [clear](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#clear--), [containsKey](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#containsKey-java.lang.Object-), [containsMapping](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#containsMapping-java.lang.Object-java.lang.Object-), [containsValue](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#containsValue-java.lang.Object-), [entries](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#entries--), [isEmpty](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#isEmpty--), [keys](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#keys--), [keySet](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#keySet--), [mapIterator](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#mapIterator--), [put](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#put-K-V-), [putAll](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#putAll-K-java.lang.Iterable-), [putAll](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#putAll-java.util.Map-), [putAll](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#putAll-org.apache.commons.collections4.MultiValuedMap-), [removeMapping](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#removeMapping-java.lang.Object-java.lang.Object-), [size](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#size--), [values](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html#values--)

### Constructor Detail

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

#### AbstractListValuedMap protected AbstractListValuedMap([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/AbstractListValuedMap.html),? extends [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)>> map) A constructor that wraps, not copiesParameters: 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/AbstractListValuedMap.html),[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)>> getMap() Description copied from class: [AbstractMultiValuedMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#getMap--) Gets the map being wrapped.Overrides: [getMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#getMap--) in class [AbstractMultiValuedMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)> Returns: the wrapped map

#### createCollection protected abstract [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)> createCollection() Creates a new value collection using the provided factory.Specified by: [createCollection](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#createCollection--) in class [AbstractMultiValuedMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)> Returns: a new list

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

#### remove public [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.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 list.Specified by: [remove](http://docs.google.com/org/apache/commons/collections4/ListValuedMap.html#remove-java.lang.Object-) in interface [ListValuedMap](http://docs.google.com/org/apache/commons/collections4/ListValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)> 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/AbstractListValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)> Overrides: [remove](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html#remove-java.lang.Object-) in class [AbstractMultiValuedMap](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractMultiValuedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/multimap/AbstractListValuedMap.html)> Parameters: key - the key to remove values from Returns: the List of values removed, will return an empty, unmodifiable list for no mapping found.

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