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Package org.apache.commons.collections4.map

This package contains implementations of the [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true), [IterableMap](http://docs.google.com/org/apache/commons/collections4/IterableMap.html), [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html) and [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true) interfaces.

See: [Description](#3znysh7)

* Interface Summary

|  |  |
| --- | --- |
| * Interface | * Description |
| * [CompositeMap.MapMutator](http://docs.google.com/org/apache/commons/collections4/map/CompositeMap.MapMutator.html)<K,V> | * This interface allows definition for all of the indeterminate mutators in a CompositeMap, as well as providing a hook for callbacks on key collisions. |
| * [PassiveExpiringMap.ExpirationPolicy](http://docs.google.com/org/apache/commons/collections4/map/PassiveExpiringMap.ExpirationPolicy.html)<K,V> | * A policy to determine the expiration time for key-value entries. |

* Class Summary

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| --- | --- |
| * Class | * Description |
| * [AbstractHashedMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)<K,V> | * An abstract implementation of a hash-based map which provides numerous points for subclasses to override. |
| * [AbstractHashedMap.EntrySet](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.EntrySet.html)<K,V> | * EntrySet implementation. |
| * [AbstractHashedMap.EntrySetIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.EntrySetIterator.html)<K,V> | * EntrySet iterator. |
| * [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<K,V> | * HashEntry used to store the data. |
| * [AbstractHashedMap.HashIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashIterator.html)<K,V> | * Base Iterator |
| * [AbstractHashedMap.HashMapIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashMapIterator.html)<K,V> | * MapIterator implementation. |
| * [AbstractHashedMap.KeySet](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.KeySet.html)<K> | * KeySet implementation. |
| * [AbstractHashedMap.KeySetIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.KeySetIterator.html)<K> | * KeySet iterator. |
| * [AbstractHashedMap.Values](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.Values.html)<V> | * Values implementation. |
| * [AbstractHashedMap.ValuesIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.ValuesIterator.html)<V> | * Values iterator. |
| * [AbstractIterableMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractIterableMap.html)<K,V> | * Provide a basic [IterableMap](http://docs.google.com/org/apache/commons/collections4/IterableMap.html) implementation. |
| * [AbstractLinkedMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractLinkedMap.html)<K,V> | * An abstract implementation of a hash-based map that links entries to create an ordered map and which provides numerous points for subclasses to override. |
| * [AbstractLinkedMap.EntrySetIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractLinkedMap.EntrySetIterator.html)<K,V> | * EntrySet iterator. |
| * [AbstractLinkedMap.KeySetIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractLinkedMap.KeySetIterator.html)<K> | * KeySet iterator. |
| * [AbstractLinkedMap.LinkEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractLinkedMap.LinkEntry.html)<K,V> | * LinkEntry that stores the data. |
| * [AbstractLinkedMap.LinkIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractLinkedMap.LinkIterator.html)<K,V> | * Base Iterator that iterates in link order. |
| * [AbstractLinkedMap.LinkMapIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractLinkedMap.LinkMapIterator.html)<K,V> | * MapIterator implementation. |
| * [AbstractLinkedMap.ValuesIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractLinkedMap.ValuesIterator.html)<V> | * Values iterator. |
| * [AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<K,V> | * Provides a base decorator that enables additional functionality to be added to a Map via decoration. |
| * [AbstractOrderedMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractOrderedMapDecorator.html)<K,V> | * Provides a base decorator that enables additional functionality to be added to an OrderedMap via decoration. |
| * [AbstractReferenceMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractReferenceMap.html)<K,V> | * An abstract implementation of a hash-based map that allows the entries to be removed by the garbage collector. |
| * [AbstractReferenceMap.ReferenceEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractReferenceMap.ReferenceEntry.html)<K,V> | * A MapEntry implementation for the map. |
| * [AbstractSortedMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractSortedMapDecorator.html)<K,V> | * Provides a base decorator that enables additional functionality to be added to a Map via decoration. |
| * [AbstractSortedMapDecorator.SortedMapIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractSortedMapDecorator.SortedMapIterator.html)<K,V> | * OrderedMapIterator implementation. |
| * [CaseInsensitiveMap](http://docs.google.com/org/apache/commons/collections4/map/CaseInsensitiveMap.html)<K,V> | * A case-insensitive Map. |
| * [CompositeMap](http://docs.google.com/org/apache/commons/collections4/map/CompositeMap.html)<K,V> | * Decorates a map of other maps to provide a single unified view. |
| * [DefaultedMap](http://docs.google.com/org/apache/commons/collections4/map/DefaultedMap.html)<K,V> | * Decorates another Map returning a default value if the map does not contain the requested key. |
| * [EntrySetToMapIteratorAdapter](http://docs.google.com/org/apache/commons/collections4/map/EntrySetToMapIteratorAdapter.html)<K,V> | * Adapts a Map entrySet to the MapIterator interface. |
| * [FixedSizeMap](http://docs.google.com/org/apache/commons/collections4/map/FixedSizeMap.html)<K,V> | * Decorates another Map to fix the size, preventing add/remove. |
| * [FixedSizeSortedMap](http://docs.google.com/org/apache/commons/collections4/map/FixedSizeSortedMap.html)<K,V> | * Decorates another SortedMap to fix the size blocking add/remove. |
| * [Flat3Map](http://docs.google.com/org/apache/commons/collections4/map/Flat3Map.html)<K,V> | * A Map implementation that stores data in simple fields until the size is greater than 3. |
| * [HashedMap](http://docs.google.com/org/apache/commons/collections4/map/HashedMap.html)<K,V> | * A Map implementation that is a general purpose alternative to HashMap. |
| * [LazyMap](http://docs.google.com/org/apache/commons/collections4/map/LazyMap.html)<K,V> | * Decorates another Map to create objects in the map on demand. |
| * [LazySortedMap](http://docs.google.com/org/apache/commons/collections4/map/LazySortedMap.html)<K,V> | * Decorates another SortedMap to create objects in the map on demand. |
| * [LinkedMap](http://docs.google.com/org/apache/commons/collections4/map/LinkedMap.html)<K,V> | * A Map implementation that maintains the order of the entries. |
| * [ListOrderedMap](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)<K,V> | * Decorates a Map to ensure that the order of addition is retained using a List to maintain order. |
| * [LRUMap](http://docs.google.com/org/apache/commons/collections4/map/LRUMap.html)<K,V> | * A Map implementation with a fixed maximum size which removes the least recently used entry if an entry is added when full. |
| * [MultiKeyMap](http://docs.google.com/org/apache/commons/collections4/map/MultiKeyMap.html)<K,V> | * A Map implementation that uses multiple keys to map the value. |
| * [MultiValueMap](http://docs.google.com/org/apache/commons/collections4/map/MultiValueMap.html)<K,V> | * Deprecated since 4.1, use [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html) instead |
| * [PassiveExpiringMap](http://docs.google.com/org/apache/commons/collections4/map/PassiveExpiringMap.html)<K,V> | * Decorates a Map to evict expired entries once their expiration time has been reached. |
| * [PassiveExpiringMap.ConstantTimeToLiveExpirationPolicy](http://docs.google.com/org/apache/commons/collections4/map/PassiveExpiringMap.ConstantTimeToLiveExpirationPolicy.html)<K,V> | * A [ExpirationPolicy](http://docs.google.com/org/apache/commons/collections4/map/PassiveExpiringMap.ExpirationPolicy.html) that returns a expiration time that is a constant about of time in the future from the current time. |
| * [PredicatedMap](http://docs.google.com/org/apache/commons/collections4/map/PredicatedMap.html)<K,V> | * Decorates another Map to validate that additions match a specified predicate. |
| * [PredicatedSortedMap](http://docs.google.com/org/apache/commons/collections4/map/PredicatedSortedMap.html)<K,V> | * Decorates another SortedMap to validate that additions match a specified predicate. |
| * [ReferenceIdentityMap](http://docs.google.com/org/apache/commons/collections4/map/ReferenceIdentityMap.html)<K,V> | * A Map implementation that allows mappings to be removed by the garbage collector and matches keys and values based on == not equals(). |
| * [ReferenceMap](http://docs.google.com/org/apache/commons/collections4/map/ReferenceMap.html)<K,V> | * A Map implementation that allows mappings to be removed by the garbage collector. |
| * [SingletonMap](http://docs.google.com/org/apache/commons/collections4/map/SingletonMap.html)<K,V> | * A Map implementation that holds a single item and is fixed size. |
| * [StaticBucketMap](http://docs.google.com/org/apache/commons/collections4/map/StaticBucketMap.html)<K,V> | * A StaticBucketMap is an efficient, thread-safe implementation of java.util.Map that performs well in in a highly thread-contentious environment. |
| * [TransformedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html)<K,V> | * Decorates another Map to transform objects that are added. |
| * [TransformedSortedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)<K,V> | * Decorates another SortedMap to transform objects that are added. |
| * [UnmodifiableEntrySet](http://docs.google.com/org/apache/commons/collections4/map/UnmodifiableEntrySet.html)<K,V> | * Decorates a map entry Set to ensure it can't be altered. |
| * [UnmodifiableMap](http://docs.google.com/org/apache/commons/collections4/map/UnmodifiableMap.html)<K,V> | * Decorates another Map to ensure it can't be altered. |
| * [UnmodifiableOrderedMap](http://docs.google.com/org/apache/commons/collections4/map/UnmodifiableOrderedMap.html)<K,V> | * Decorates another OrderedMap to ensure it can't be altered. |
| * [UnmodifiableSortedMap](http://docs.google.com/org/apache/commons/collections4/map/UnmodifiableSortedMap.html)<K,V> | * Decorates another SortedMap to ensure it can't be altered. |

* Enum Summary

|  |  |
| --- | --- |
| * Enum | * Description |
| * [AbstractReferenceMap.ReferenceStrength](http://docs.google.com/org/apache/commons/collections4/map/AbstractReferenceMap.ReferenceStrength.html) | * Reference type enum. |

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

This package contains implementations of the [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true), [IterableMap](http://docs.google.com/org/apache/commons/collections4/IterableMap.html), [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html) and [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true) interfaces. A Map provides a lookup from a key to a value. A number of implementations also support the new MapIterator interface that enables simple iteration of map keys and values.

The following implementations are provided:

* CaseInsensitiveMap - map that compares keys in a case insensitive way
* CompositeMap - map that combines multiple maps into a single view
* HashedMap - general purpose HashMap replacement supporting MapIterator
* Flat3Map - designed for good performance at size 3 or less
* LinkedMap - a hash map that maintains insertion order, supporting OrderedMapIterator
* LRUMap - a hash map that maintains a maximum size by removing the least recently used entries
* MultiKeyMap - map that provides special methods for using more than one key to access the value
* ReferenceMap - allows the garbage collector to collect keys and values using equals() for comparison
* ReferenceIdentityMap - allows the garbage collector to collect keys and values using == for comparison
* SingletonMap - a fully featured map to hold one key-value pair
* StaticBucketMap - internally synchronized and designed for thread-contentious environments

The following decorators are provided:

* Unmodifiable - ensures the collection cannot be altered
* Predicated - ensures that only elements that are valid according to a predicate can be added
* Transformed - transforms each element added
* FixedSize - ensures that the size of the map cannot change
* Defaulted - provides default values for non-existing keys
* Lazy - creates objects in the map on demand
* ListOrdered - ensures that insertion order is retained

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