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org.apache.commons.collections4.map

## Class AbstractHashedMap<K,V>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + [java.util.AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<K,V>
    - org.apache.commons.collections4.map.AbstractHashedMap<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: [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<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>, [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<K,V> Direct Known Subclasses: [AbstractLinkedMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractLinkedMap.html), [AbstractReferenceMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractReferenceMap.html), [CaseInsensitiveMap](http://docs.google.com/org/apache/commons/collections4/map/CaseInsensitiveMap.html), [HashedMap](http://docs.google.com/org/apache/commons/collections4/map/HashedMap.html)  
    
  public class AbstractHashedMap<K,V>  
  extends [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<K,V>  
  implements [IterableMap](http://docs.google.com/org/apache/commons/collections4/IterableMap.html)<K,V>  
  An abstract implementation of a hash-based map which provides numerous points for subclasses to override.  
  This class implements all the features necessary for a subclass hash-based map. Key-value entries are stored in instances of the HashEntry class, which can be overridden and replaced. The iterators can similarly be replaced, without the need to replace the KeySet, EntrySet and Values view classes.  
  Overridable methods are provided to change the default hashing behaviour, and to change how entries are added to and removed from the map. Hopefully, all you need for unusual subclasses is here.  
  NOTE: From Commons Collections 3.1 this class extends AbstractMap. This is to provide backwards compatibility for ReferenceMap between v3.0 and v3.1. This extends clause will be removed in v5.0.Since: 3.0

### Nested Class SummaryNested Classes

|  |  |
| --- | --- |
| * + Modifier and Type | * + Class and Description |
| * + protected static class | * + [AbstractHashedMap.EntrySet](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.EntrySet.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.EntrySet.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.EntrySet.html)> EntrySet implementation. |
| * + protected static class | * + [AbstractHashedMap.EntrySetIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.EntrySetIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.EntrySetIterator.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.EntrySetIterator.html)> EntrySet iterator. |
| * + protected static class | * + [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)> HashEntry used to store the data. |
| * + protected static class | * + [AbstractHashedMap.HashIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashIterator.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashIterator.html)> Base Iterator |
| * + protected static class | * + [AbstractHashedMap.HashMapIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashMapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashMapIterator.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashMapIterator.html)> MapIterator implementation. |
| * + protected static class | * + [AbstractHashedMap.KeySet](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.KeySet.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.KeySet.html)> KeySet implementation. |
| * + protected static class | * + [AbstractHashedMap.KeySetIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.KeySetIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.KeySetIterator.html)> KeySet iterator. |
| * + protected static class | * + [AbstractHashedMap.Values](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.Values.html)<[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.Values.html)> Values implementation. |
| * + protected static class | * + [AbstractHashedMap.ValuesIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.ValuesIterator.html)<[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.ValuesIterator.html)> Values iterator. |

### Nested classes/interfaces inherited from class java.util.[**AbstractMap**](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)[AbstractMap.SimpleEntry](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.SimpleEntry.html?is-external=true)<[K](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.SimpleEntry.html?is-external=true),[V](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.SimpleEntry.html?is-external=true)>, [AbstractMap.SimpleImmutableEntry](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.SimpleImmutableEntry.html?is-external=true)<[K](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.SimpleImmutableEntry.html?is-external=true),[V](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.SimpleImmutableEntry.html?is-external=true)>

### 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)>

### Field SummaryFields

|  |  |
| --- | --- |
| * + Modifier and Type | * + Field and Description |
| * + protected static int | * + [DEFAULT\_CAPACITY](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#DEFAULT_CAPACITY) The default capacity to use |
| * + protected static float | * + [DEFAULT\_LOAD\_FACTOR](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#DEFAULT_LOAD_FACTOR) The default load factor to use |
| * + protected static int | * + [DEFAULT\_THRESHOLD](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#DEFAULT_THRESHOLD) The default threshold to use |
| * + protected static [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) | * + [GETKEY\_INVALID](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#GETKEY_INVALID) |
| * + protected static [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) | * + [GETVALUE\_INVALID](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#GETVALUE_INVALID) |
| * + protected static int | * + [MAXIMUM\_CAPACITY](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#MAXIMUM_CAPACITY) The maximum capacity allowed |
| * + protected static [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) | * + [NO\_NEXT\_ENTRY](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#NO_NEXT_ENTRY) |
| * + protected static [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) | * + [NO\_PREVIOUS\_ENTRY](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#NO_PREVIOUS_ENTRY) |
| * + protected static [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) | * + [NULL](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#NULL) An object for masking null |
| * + protected static [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) | * + [REMOVE\_INVALID](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#REMOVE_INVALID) |
| * + protected static [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) | * + [SETVALUE\_INVALID](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#SETVALUE_INVALID) |

### Constructor SummaryConstructors

|  |  |
| --- | --- |
| * + Modifier | * + Constructor and Description |
| * + protected | * + [AbstractHashedMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#AbstractHashedMap--)() Constructor only used in deserialization, do not use otherwise. |
| * + protected | * + [AbstractHashedMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#AbstractHashedMap-int-)(int initialCapacity) Constructs a new, empty map with the specified initial capacity and default load factor. |
| * + protected | * + [AbstractHashedMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#AbstractHashedMap-int-float-)(int initialCapacity, float loadFactor) Constructs a new, empty map with the specified initial capacity and load factor. |
| * + protected | * + [AbstractHashedMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#AbstractHashedMap-int-float-int-)(int initialCapacity, float loadFactor, int threshold) Constructor which performs no validation on the passed in parameters. |
| * + protected | * + [AbstractHashedMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#AbstractHashedMap-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/map/AbstractHashedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> map) Constructor copying elements from another map. |

### Method SummaryAll Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + protected void | * + [addEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#addEntry-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-int-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry, int hashIndex) Adds an entry into this map. |
| * + protected void | * + [addMapping](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#addMapping-int-int-K-V-)(int hashIndex, int hashCode, [K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) value) Adds a new key-value mapping into this map. |
| * + protected int | * + [calculateNewCapacity](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#calculateNewCapacity-int-)(int proposedCapacity) Calculates the new capacity of the map. |
| * + protected int | * + [calculateThreshold](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#calculateThreshold-int-float-)(int newCapacity, float factor) Calculates the new threshold of the map, where it will be resized. |
| * + protected void | * + [checkCapacity](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#checkCapacity--)() Checks the capacity of the map and enlarges it if necessary. |
| * + void | * + [clear](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#clear--)() Clears the map, resetting the size to zero and nullifying references to avoid garbage collection issues. |
| * + protected [AbstractHashedMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> | * + [clone](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#clone--)() Clones the map without cloning the keys or values. |
| * + boolean | * + [containsKey](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#containsKey-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Checks whether the map contains the specified key. |
| * + boolean | * + [containsValue](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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 the specified value. |
| * + protected [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) | * + [convertKey](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#convertKey-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Converts input keys to another object for storage in the map. |
| * + protected [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> | * + [createEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#createEntry-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-int-K-V-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> next, int hashCode, [K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) value) Creates an entry to store the key-value data. |
| * + protected [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)>> | * + [createEntrySetIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#createEntrySetIterator--)() Creates an entry set iterator. |
| * + protected [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> | * + [createKeySetIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#createKeySetIterator--)() Creates a key set iterator. |
| * + protected [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> | * + [createValuesIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#createValuesIterator--)() Creates a values iterator. |
| * + protected void | * + [destroyEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#destroyEntry-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry) Kills an entry ready for the garbage collector. |
| * + protected void | * + [doReadObject](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#doReadObject-java.io.ObjectInputStream-)([ObjectInputStream](https://docs.oracle.com/javase/7/docs/api/java/io/ObjectInputStream.html?is-external=true) in) Reads the map data from the stream. |
| * + protected void | * + [doWriteObject](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#doWriteObject-java.io.ObjectOutputStream-)([ObjectOutputStream](https://docs.oracle.com/javase/7/docs/api/java/io/ObjectOutputStream.html?is-external=true) out) Writes the map data to the stream. |
| * + protected void | * + [ensureCapacity](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#ensureCapacity-int-)(int newCapacity) Changes the size of the data structure to the capacity proposed. |
| * + protected int | * + [entryHashCode](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#entryHashCode-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry) Gets the hashCode field from a HashEntry. |
| * + protected [K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) | * + [entryKey](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#entryKey-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry) Gets the key field from a HashEntry. |
| * + protected [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> | * + [entryNext](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#entryNext-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry) Gets the next field from a HashEntry. |
| * + [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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)>> | * + [entrySet](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#entrySet--)() Gets the entrySet view of the map. |
| * + protected [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) | * + [entryValue](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#entryValue-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry) Gets the value field from a HashEntry. |
| * + boolean | * + [equals](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#equals-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) obj) Compares this map with another. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) | * + [get](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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 mapped to the key specified. |
| * + protected [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> | * + [getEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#getEntry-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the entry mapped to the key specified. |
| * + protected int | * + [hash](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#hash-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the hash code for the key specified. |
| * + int | * + [hashCode](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#hashCode--)() Gets the standard Map hashCode. |
| * + protected int | * + [hashIndex](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#hashIndex-int-int-)(int hashCode, int dataSize) Gets the index into the data storage for the hashCode specified. |
| * + protected void | * + [init](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#init--)() Initialise subclasses during construction, cloning or deserialization. |
| * + boolean | * + [isEmpty](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#isEmpty--)() Checks whether the map is currently empty. |
| * + protected boolean | * + [isEqualKey](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#isEqualKey-java.lang.Object-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key1, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key2) Compares two keys, in internal converted form, to see if they are equal. |
| * + protected boolean | * + [isEqualValue](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#isEqualValue-java.lang.Object-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value1, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value2) Compares two values, in external form, to see if they are equal. |
| * + [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/map/AbstractHashedMap.html)> | * + [keySet](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#keySet--)() Gets the keySet view of the map. |
| * + [MapIterator](http://docs.google.com/org/apache/commons/collections4/MapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> | * + [mapIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#mapIterator--)() Gets an iterator over the map. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) | * + [put](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#put-K-V-)([K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) value) Puts a key-value mapping into this map. |
| * + void | * + [putAll](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> map) Puts all the values from the specified map into this map. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) | * + [remove](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#remove-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Removes the specified mapping from this map. |
| * + protected void | * + [removeEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#removeEntry-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-int-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry, int hashIndex, [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> previous) Removes an entry from the chain stored in a particular index. |
| * + protected void | * + [removeMapping](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#removeMapping-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-int-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry, int hashIndex, [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> previous) Removes a mapping from the map. |
| * + protected void | * + [reuseEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#reuseEntry-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-int-int-K-V-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry, int hashIndex, int hashCode, [K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) value) Reuses an existing key-value mapping, storing completely new data. |
| * + int | * + [size](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#size--)() Gets the 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/map/AbstractHashedMap.html#toString--)() Gets the map as a String. |
| * + protected void | * + [updateEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#updateEntry-org.apache.commons.collections4.map.AbstractHashedMap.HashEntry-V-)([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry, [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) newValue) Updates an existing key-value mapping to change the value. |
| * + [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/map/AbstractHashedMap.html)> | * + [values](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#values--)() Gets the values view of the map. |

### Methods inherited from class java.lang.[**Object**](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)[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-)

### Field Detail

#### NO\_NEXT\_ENTRY protected static final [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) NO\_NEXT\_ENTRYSee Also: [Constant Field Values](http://docs.google.com/constant-values.html#org.apache.commons.collections4.map.AbstractHashedMap.NO_NEXT_ENTRY)

#### NO\_PREVIOUS\_ENTRY protected static final [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) NO\_PREVIOUS\_ENTRYSee Also: [Constant Field Values](http://docs.google.com/constant-values.html#org.apache.commons.collections4.map.AbstractHashedMap.NO_PREVIOUS_ENTRY)

#### REMOVE\_INVALID protected static final [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) REMOVE\_INVALIDSee Also: [Constant Field Values](http://docs.google.com/constant-values.html#org.apache.commons.collections4.map.AbstractHashedMap.REMOVE_INVALID)

#### GETKEY\_INVALID protected static final [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) GETKEY\_INVALIDSee Also: [Constant Field Values](http://docs.google.com/constant-values.html#org.apache.commons.collections4.map.AbstractHashedMap.GETKEY_INVALID)

#### GETVALUE\_INVALID protected static final [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) GETVALUE\_INVALIDSee Also: [Constant Field Values](http://docs.google.com/constant-values.html#org.apache.commons.collections4.map.AbstractHashedMap.GETVALUE_INVALID)

#### SETVALUE\_INVALID protected static final [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) SETVALUE\_INVALIDSee Also: [Constant Field Values](http://docs.google.com/constant-values.html#org.apache.commons.collections4.map.AbstractHashedMap.SETVALUE_INVALID)

#### DEFAULT\_CAPACITY protected static final int DEFAULT\_CAPACITY The default capacity to useSee Also: [Constant Field Values](http://docs.google.com/constant-values.html#org.apache.commons.collections4.map.AbstractHashedMap.DEFAULT_CAPACITY)

#### DEFAULT\_THRESHOLD protected static final int DEFAULT\_THRESHOLD The default threshold to useSee Also: [Constant Field Values](http://docs.google.com/constant-values.html#org.apache.commons.collections4.map.AbstractHashedMap.DEFAULT_THRESHOLD)

#### DEFAULT\_LOAD\_FACTOR protected static final float DEFAULT\_LOAD\_FACTOR The default load factor to useSee Also: [Constant Field Values](http://docs.google.com/constant-values.html#org.apache.commons.collections4.map.AbstractHashedMap.DEFAULT_LOAD_FACTOR)

#### MAXIMUM\_CAPACITY protected static final int MAXIMUM\_CAPACITY The maximum capacity allowedSee Also: [Constant Field Values](http://docs.google.com/constant-values.html#org.apache.commons.collections4.map.AbstractHashedMap.MAXIMUM_CAPACITY)

#### NULL protected static final [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) NULL An object for masking null

### Constructor Detail

#### AbstractHashedMap protected AbstractHashedMap() Constructor only used in deserialization, do not use otherwise.

#### AbstractHashedMap protected AbstractHashedMap(int initialCapacity, float loadFactor, int threshold) Constructor which performs no validation on the passed in parameters.Parameters: initialCapacity - the initial capacity, must be a power of two loadFactor - the load factor, must be > 0.0f and generally < 1.0f threshold - the threshold, must be sensible

#### AbstractHashedMap protected AbstractHashedMap(int initialCapacity) Constructs a new, empty map with the specified initial capacity and default load factor.Parameters: initialCapacity - the initial capacity Throws: [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if the initial capacity is negative

#### AbstractHashedMap protected AbstractHashedMap(int initialCapacity, float loadFactor) Constructs a new, empty map with the specified initial capacity and load factor.Parameters: initialCapacity - the initial capacity loadFactor - the load factor Throws: [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if the initial capacity is negative [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if the load factor is less than or equal to zero

#### AbstractHashedMap protected AbstractHashedMap([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/map/AbstractHashedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> map) Constructor copying elements from another map.Parameters: map - the map to copy Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the map is null

### Method Detail

#### init protected void init() Initialise subclasses during construction, cloning or deserialization.

#### get public [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) get([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the value mapped to the key specified.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [get](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#get-java.lang.Object-) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Parameters: key - the key Returns: the mapped value, null if no match See Also: [Map.get(Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#get-java.lang.Object-)

#### size public int size() Gets the size of the 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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [size](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#size--) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Returns: the size 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 currently empty.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [isEmpty](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#isEmpty--) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Returns: true if the map is currently size zero 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 the map contains the specified key.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [containsKey](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#containsKey-java.lang.Object-) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Parameters: key - the key to search for Returns: true if the map contains the key 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 the map contains the specified value.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [containsValue](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#containsValue-java.lang.Object-) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Parameters: value - the value to search for Returns: true if the map contains the value See Also: [Map.containsValue(Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#containsValue-java.lang.Object-)

#### put public [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) put([K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) value) Puts a key-value mapping into this map.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [put](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#put-K-V-) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Parameters: key - the key to add value - the value to add Returns: the value previously mapped to this key, null if none 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/map/AbstractHashedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> map) Puts all the values from the specified map into this map. This implementation iterates around the specified map and uses [put(Object, Object)](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#put-K-V-).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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [putAll](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#putAll-java.util.Map-) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Parameters: map - the map to add Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the map is null 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/map/AbstractHashedMap.html) remove([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Removes the specified mapping from this map.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [remove](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#remove-java.lang.Object-) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Parameters: key - the mapping to remove Returns: the value mapped to the removed key, null if key not in map 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() Clears the map, resetting the size to zero and nullifying references to avoid garbage collection issues.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [clear](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#clear--) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> See Also: [Map.clear()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#clear--)

#### convertKey protected [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) convertKey([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Converts input keys to another object for storage in the map. This implementation masks nulls. Subclasses can override this to perform alternate key conversions. The reverse conversion can be changed, if required, by overriding the getKey() method in the hash entry.Parameters: key - the key convert Returns: the converted key

#### hash protected int hash([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the hash code for the key specified. This implementation uses the additional hashing routine from JDK1.4. Subclasses can override this to return alternate hash codes.Parameters: key - the key to get a hash code for Returns: the hash code

#### isEqualKey protected boolean isEqualKey([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key1, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key2) Compares two keys, in internal converted form, to see if they are equal. This implementation uses the equals method and assumes neither key is null. Subclasses can override this to match differently.Parameters: key1 - the first key to compare passed in from outside key2 - the second key extracted from the entry via entry.key Returns: true if equal

#### isEqualValue protected boolean isEqualValue([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value1, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value2) Compares two values, in external form, to see if they are equal. This implementation uses the equals method and assumes neither value is null. Subclasses can override this to match differently.Parameters: value1 - the first value to compare passed in from outside value2 - the second value extracted from the entry via getValue() Returns: true if equal

#### hashIndex protected int hashIndex(int hashCode, int dataSize) Gets the index into the data storage for the hashCode specified. This implementation uses the least significant bits of the hashCode. Subclasses can override this to return alternate bucketing.Parameters: hashCode - the hash code to use dataSize - the size of the data to pick a bucket from Returns: the bucket index

#### getEntry protected [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> getEntry([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the entry mapped to the key specified. This method exists for subclasses that may need to perform a multi-step process accessing the entry. The public methods in this class don't use this method to gain a small performance boost.Parameters: key - the key Returns: the entry, null if no match

#### updateEntry protected void updateEntry([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry, [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) newValue) Updates an existing key-value mapping to change the value. This implementation calls setValue() on the entry. Subclasses could override to handle changes to the map.Parameters: entry - the entry to update newValue - the new value to store

#### reuseEntry protected void reuseEntry([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry, int hashIndex, int hashCode, [K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) value) Reuses an existing key-value mapping, storing completely new data. This implementation sets all the data fields on the entry. Subclasses could populate additional entry fields.Parameters: entry - the entry to update, not null hashIndex - the index in the data array hashCode - the hash code of the key to add key - the key to add value - the value to add

#### addMapping protected void addMapping(int hashIndex, int hashCode, [K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) value) Adds a new key-value mapping into this map. This implementation calls createEntry(), addEntry() and checkCapacity(). It also handles changes to modCount and size. Subclasses could override to fully control adds to the map.Parameters: hashIndex - the index into the data array to store at hashCode - the hash code of the key to add key - the key to add value - the value to add

#### createEntry protected [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> createEntry([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> next, int hashCode, [K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) value) Creates an entry to store the key-value data. This implementation creates a new HashEntry instance. Subclasses can override this to return a different storage class, or implement caching.Parameters: next - the next entry in sequence hashCode - the hash code to use key - the key to store value - the value to store Returns: the newly created entry

#### addEntry protected void addEntry([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry, int hashIndex) Adds an entry into this map. This implementation adds the entry to the data storage table. Subclasses could override to handle changes to the map.Parameters: entry - the entry to add hashIndex - the index into the data array to store at

#### removeMapping protected void removeMapping([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry, int hashIndex, [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> previous) Removes a mapping from the map. This implementation calls removeEntry() and destroyEntry(). It also handles changes to modCount and size. Subclasses could override to fully control removals from the map.Parameters: entry - the entry to remove hashIndex - the index into the data structure previous - the previous entry in the chain

#### removeEntry protected void removeEntry([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry, int hashIndex, [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> previous) Removes an entry from the chain stored in a particular index. This implementation removes the entry from the data storage table. The size is not updated. Subclasses could override to handle changes to the map.Parameters: entry - the entry to remove hashIndex - the index into the data structure previous - the previous entry in the chain

#### destroyEntry protected void destroyEntry([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry) Kills an entry ready for the garbage collector. This implementation prepares the HashEntry for garbage collection. Subclasses can override this to implement caching (override clear as well).Parameters: entry - the entry to destroy

#### checkCapacity protected void checkCapacity() Checks the capacity of the map and enlarges it if necessary. This implementation uses the threshold to check if the map needs enlarging

#### ensureCapacity protected void ensureCapacity(int newCapacity) Changes the size of the data structure to the capacity proposed.Parameters: newCapacity - the new capacity of the array (a power of two, less or equal to max)

#### calculateNewCapacity protected int calculateNewCapacity(int proposedCapacity) Calculates the new capacity of the map. This implementation normalizes the capacity to a power of two.Parameters: proposedCapacity - the proposed capacity Returns: the normalized new capacity

#### calculateThreshold protected int calculateThreshold(int newCapacity, float factor) Calculates the new threshold of the map, where it will be resized. This implementation uses the load factor.Parameters: newCapacity - the new capacity factor - the load factor Returns: the new resize threshold

#### entryNext protected [AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entryNext([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry) Gets the next field from a HashEntry. Used in subclasses that have no visibility of the field.Parameters: entry - the entry to query, must not be null Returns: the next field of the entry Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the entry is null Since: 3.1

#### entryHashCode protected int entryHashCode([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry) Gets the hashCode field from a HashEntry. Used in subclasses that have no visibility of the field.Parameters: entry - the entry to query, must not be null Returns: the hashCode field of the entry Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the entry is null Since: 3.1

#### entryKey protected [K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) entryKey([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry) Gets the key field from a HashEntry. Used in subclasses that have no visibility of the field.Parameters: entry - the entry to query, must not be null Returns: the key field of the entry Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the entry is null Since: 3.1

#### entryValue protected [V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html) entryValue([AbstractHashedMap.HashEntry](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.HashEntry.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> entry) Gets the value field from a HashEntry. Used in subclasses that have no visibility of the field.Parameters: entry - the entry to query, must not be null Returns: the value field of the entry Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the entry is null Since: 3.1

#### mapIterator public [MapIterator](http://docs.google.com/org/apache/commons/collections4/MapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> mapIterator() Gets an iterator over the map. Changes made to the iterator affect this map. A MapIterator returns the keys in the map. It also provides convenient methods to get the key and value, and set the value. It avoids the need to create an entrySet/keySet/values object. It also avoids creating the Map.Entry object.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Returns: the map iterator

#### 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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)>> entrySet() Gets the entrySet view of the map. Changes made to the view affect this map. To simply iterate through the entries, use [mapIterator()](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#mapIterator--).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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Specified by: [entrySet](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#entrySet--) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Returns: the entrySet view See Also: [Map.entrySet()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#entrySet--)

#### createEntrySetIterator protected [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)>> createEntrySetIterator() Creates an entry set iterator. Subclasses can override this to return iterators with different properties.Returns: the entrySet iterator

#### 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/map/AbstractHashedMap.html)> keySet() Gets the keySet view of the map. Changes made to the view affect this map. To simply iterate through the keys, use [mapIterator()](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#mapIterator--).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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [keySet](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#keySet--) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Returns: the keySet view See Also: [Map.keySet()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#keySet--)

#### createKeySetIterator protected [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> createKeySetIterator() Creates a key set iterator. Subclasses can override this to return iterators with different properties.Returns: the keySet iterator

#### 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/map/AbstractHashedMap.html)> values() Gets the values view of the map. Changes made to the view affect this map. To simply iterate through the values, use [mapIterator()](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html#mapIterator--).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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [values](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#values--) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Returns: the values view See Also: [Map.values()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#values--)

#### createValuesIterator protected [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> createValuesIterator() Creates a values iterator. Subclasses can override this to return iterators with different properties.Returns: the values iterator

#### 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) Writes the map data to the stream. This method must be overridden if a subclass must be setup before put() is used. Serialization is not one of the JDK's nicest topics. Normal serialization will initialise the superclass before the subclass. Sometimes however, this isn't what you want, as in this case the put() method on read can be affected by subclass state. The solution adopted here is to serialize the state data of this class in this protected method. This method must be called by the writeObject() of the first serializable subclass. Subclasses may override if they have a specific field that must be present on read before this implementation will work. Generally, the read determines what must be serialized here, if anything.Parameters: out - the output stream Throws: [IOException](https://docs.oracle.com/javase/7/docs/api/java/io/IOException.html?is-external=true) - if an error occurs while writing tothe stream

#### 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) Reads the map data from the stream. This method must be overridden if a subclass must be setup before put() is used. Serialization is not one of the JDK's nicest topics. Normal serialization will initialise the superclass before the subclass. Sometimes however, this isn't what you want, as in this case the put() method on read can be affected by subclass state. The solution adopted here is to deserialize the state data of this class in this protected method. This method must be called by the readObject() of the first serializable subclass. Subclasses may override if the subclass has a specific field that must be present before put() or calculateThreshold() will work correctly.Parameters: in - the input stream Throws: [IOException](https://docs.oracle.com/javase/7/docs/api/java/io/IOException.html?is-external=true) - if an error occurs while reading from the stream [ClassNotFoundException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassNotFoundException.html?is-external=true) - if an object read from the stream can not be loaded

#### clone protected [AbstractHashedMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> clone() Clones the map without cloning the keys or values. To implement clone(), a subclass must implement the Cloneable interface and make this method public.Overrides: [clone](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#clone--) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Returns: a shallow clone Throws: [InternalError](https://docs.oracle.com/javase/7/docs/api/java/lang/InternalError.html?is-external=true) - if [AbstractMap.clone()](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#clone--) failed

#### equals public boolean equals([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) obj) Compares this map with another.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [equals](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#equals-java.lang.Object-) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Parameters: obj - the object to compare to Returns: true if equal

#### hashCode public int hashCode() Gets the standard Map hashCode.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/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Overrides: [hashCode](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#hashCode--) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Returns: the hash code defined in the Map interface

#### toString public [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) toString() Gets the map as a String.Overrides: [toString](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true#toString--) in class [AbstractMap](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/AbstractHashedMap.html)> Returns: a string version of the map

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