27th July 2011 Size of an entry in a Map

Overview

The have been some very good articles on the size of a map. However as a map grows, it initial size become less important and the size per entry is what matters.

How are the sizes measured

In these tests an *int* key and *long* values are used. This adds a small but realistic size to each entry.

Size per entry of a medium sized Map

The following are the size per entry in bytes. The Map has 1024 entries.

Type of Map	32-bit	64-bit compressed	64-bit not compressed
TIntLongHashMap	26.9	26.9	27.0
FastMap (recycled)	32.0	39.9	47.9
IdentityHashMap	48.0	56.0	80.0
ConcurrentSkipListMap	68.3	76.1	108.3
TreeMap	64.0	80.0	112.0
HashMap	64.0	80.0	112.0
SynchronizedMap	64.0	80.0	112.0
ConcurrentHashMap	65.2	81.4	114.0
Properties	68.0	84.0	120.0
Hashtable	68.0	84.0	120.0
LinkedHashMap	72.0	88.0	128.1
WeakHashMap	80.0	88.0	136.1

The Javolution FastMap needed to be recycled. If it is not recycled, it was the largest per entry.

Conclusion

It may be worth considering The GNU Trove collections if you have primitive keys and/or values. However if you have non-trivial keys or values classes, the size of the collection is less likely to matter.

The Code

SizeOfMapsTest.java [http://code.google.com/p/core-java-performance-examples/source/browse/trunk/src/test/java/com/google/code/java/core/sizeof/SizeOfMapsTest.java]

Related Links

Java: How much memory do different arrays consume [http://vanillajava.blogspot.com/2011/07/java-how-much-memory-do-different.html]

Memory Usage of Maps [http://www.javaspecialists.eu/archive/Issue193.html]

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