

# Thread Bugs War Stories

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# Heinz Kabutz

- Author of The Java Specialists' Newsletter
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Java<sup>TM</sup>  
Champions

# What Is A Bug?



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# And What Is A Threading Bug?



# Race Condition



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# Deadlock



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# Contention



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# Thread Leak



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# Livelock



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# Visibility



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# How Do We Find A Threading Bug?



# #1 Persistence

Never give up



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# Never



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# Ever



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# Ever



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# Ever



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# Ever



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# Give



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# Up



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# #2 Luck



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# #3 Don't Touch



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# #4 Doubt Everything



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# Tools



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# Static Code Analysers



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# ThreadSafe

<http://www.contemplateltd.com/>

threadsafe



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# Google's JChord

[https://code.google.com/p/  
jchord/](https://code.google.com/p/jchord/)



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# Brute Force Analysers



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# jcstress

[http://openjdk.java.net/  
projects/code-tools/jcstress/](http://openjdk.java.net/projects/code-tools/jcstress/)



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# Questions?



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