**SUMMARY**

A concurrency bug in Tomcat 5-5.0.28.

**DETAILS**

Some details can also be found at: https://bz.apache.org/bugzilla/show\_bug.cgi?id=40170

This bug is due to a data race.

Use a single reference to the cache during lookup (the cache array could be concurrently replaced).

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| --- | --- |
| Thread1 (ResourceCache.java) | Thread2 (ResourceCache.java) |
| public CacheEntry lookup(String name) {  /\* current code, ResourceCache.java line 286 \*/ CacheEntry cacheEntry =  null; ...  int pos = find(cache, name);  /\* ArrayIndexOutOfBoundsException occurs when backing array modified between  these lines \*/  if ((pos != -1) && (name.equals(cache[pos].name))) {  cacheEntry = cache[pos];  } | private final CacheEntry removeCache(String name) {  CacheEntry[] oldCache = cache;  int pos = find(oldCache, name);  if ((pos != -1) && (name.equals(oldCache[pos].name))) {  CacheEntry[] newCache = new CacheEntry[cache.length - 1];  System.arraycopy(oldCache, 0, newCache, 0, pos);  System.arraycopy(oldCache, pos + 1, newCache, pos,  oldCache.length - pos - 1);  cache = newCache;  return oldCache[pos];  }  return null;  } |
| private static final int find(CacheEntry[] map, String name) {  int a = 0;  int b = map.length - 1;  ..  name.compareTo(map[i].name); |  |
| 0-lock | 0-lock |

[Description](https://bz.apache.org/bugzilla/show_bug.cgi?id=40170#c0)James Courtney 2006-08-02 18:00:29 UTC

I'm pretty regularly seeing the following error in my embedded Tomcat (5.0.28) connector. It appears to occur as a result of one thread entering the ResourceCache.lookup(String name) method and getting the index of an element in the cache using the find method. Before this thread can access the element at that index the cache array is modified by a second thread and the index is now outside the bounds of the array. A basic race condition.

2005-11-28 15:09:01: ERROR An exception or error occurred in the container during the request processing java.lang.ArrayIndexOutOfBoundsException: 4868 at org.apache.naming.resources.ResourceCache.lookup(ResourceCache.java:288) at org.apache.naming.resources.ProxyDirContext.cacheLookup(ProxyDirContext. java:1393) at org.apache.naming.resources.ProxyDirContext.lookup(ProxyDirContext.java: 279) at org.apache.tomcat.util.http.mapper.Mapper.internalMapWrapper(Mapper.java :775) at org.apache.tomcat.util.http.mapper.Mapper.internalMap(Mapper.java:621) at org.apache.tomcat.util.http.mapper.Mapper.map(Mapper.java:511) at org.apache.coyote.tomcat5.CoyoteAdapter.postParseRequest(CoyoteAdapter.j ava:279) at org.apache.coyote.tomcat5.CoyoteAdapter.service(CoyoteAdapter.java:158) at org.apache.coyote.http11.Http11Processor.process(Http11Processor.java:79 9) at org.apache.coyote.http11.Http11Protocol$Http11ConnectionHandler.processC onnection(Http11Protocol.java:705) at org.apache.tomcat.util.net.TcpWorkerThread.runIt(PoolTcpEndpoint.java:57 7) at org.apache.tomcat.util.threads.ThreadPool$ControlRunnable.run(ThreadPool .java:683) at java.lang.Thread.run(Thread.java:534