[ZooKeeper-1382](https://www.google.com/url?q=https://issues.apache.org/jira/browse/ZOOKEEPER-1382&sa=D&source=editors&ust=1751358795453697&usg=AOvVaw0GNEsu0MoDVlxpdW16jid3)

Zookeeper server holds onto dead/expired session ids in the watch data structures

**(1)  Log information**

**(1.1) Roles in this case**

ZKClient connects to ZK server 223(follower)          ZK server 225 (leader)

ZKClient reconnects to ZK server 226 (follower)

**(1.2) Symptoms**

There are 4 servers in the zookeeper cluster - 223, 224, 225 (leader), 226 and ZkClient is used to connect to the cluster. When ZKClient connects to server 223, a GC happens on ZKClient and makes it pause, which also leads to the session timeout. Then ZKClient tries to connect to another server 226.

 “I've observed that zookeeper server holds onto expired session ids in the watcher data structures. The result is the wchp command reports session ids that cannot be found through cons/dump and those expired session ids sit there maybe until the server is restarted.”

**wchp**: List detailed information on watches for the server, by path. This outputs a list of paths (znodes) with associated sessions.   (1 session  à  >=1 watches)

**cons**: Provide detailed information on client connections.

Here are snippets from the client and the server logs that lead to this state, for one particular session id 0x134485fd7bcb26f.

From the application log: (ZKClient)

① application.log.2012-01-26-325.gz:2012/01/26 04:56:36.177 INFO [ClientCnxn] [main-SendThread(223.prod:12913)] [application Session establishment complete on server 223.prod/172.17.135.38:12913, sessionid = 0x134485fd7bcb26f, negotiated timeout = 6000

⑤ application.log.2012-01-27.gz:2012/01/27 09:52:37.714 INFO [ClientCnxn] [main-SendThread(223.prod:12913)] [application] Client session timed out, have not heard from server in 9827ms for sessionid 0x134485fd7bcb26f, closing socket connection and attempting reconnect

⑦ application.log.2012-01-27.gz:2012/01/27 09:52:38.191 INFO [ClientCnxn] [main-SendThread(226.prod:12913)] [application] Unable to reconnect to ZooKeeper service, session 0x134485fd7bcb26f has expired, closing socket connection

From the leader zk, 225:

③ zookeeper.log.2012-01-27-leader-225.gz:2012-01-27 09:52:34,010 - INFO [SessionTracker:ZooKeeperServer@314] - Expiring session 0x134485fd7bcb26f, timeout of 6000ms exceeded

③ zookeeper.log.2012-01-27-leader-225.gz:2012-01-27 09:52:34,010 - INFO [ProcessThread:-1:PrepRequestProcessor@391] - Processed session termination for sessionid: 0x134485fd7bcb26f

On the server 223, to which the client was initially connected to:

② zookeeper.log.2012-01-26-223.gz:2012-01-26 04:56:36,173 - INFO [CommitProcessor:1:NIOServerCnxn@1580] - Established session 0x134485fd7bcb26f with negotiated timeout 6000 for client /172.17.136.82:45020

④ zookeeper.log.2012-01-27-223.gz:2012-01-27 09:52:34,018 - INFO [CommitProcessor:1:NIOServerCnxn@1435] - Closed socket connection for client /172.17.136.82:45020 which had sessionid 0x134485fd7bcb26f

From the server 226, to which the client reconnected to:

⑥ 2012-01-27 09:52:38,190 - INFO [NIOServerCxn.Factory:0.0.0.0/0.0.0.0:12913:NIOServerCnxn@770] - Client attempting to renew session 0x134485fd7bcb26f at /172.17.136.82:49367

⑦ 2012-01-27 09:52:38,191 - INFO [QuorumPeer:/0.0.0.0:12913:NIOServerCnxn@1573] - Invalid session 0x134485fd7bcb26f for client /172.17.136.82:49367, probably expired

⑦ 2012-01-27 09:52:38,191 - INFO [NIOServerCxn.Factory:0.0.0.0/0.0.0.0:12913:NIOServerCnxn@1435] - Closed socket connection for client /172.17.136.82:49367 which had sessionid 0x134485fd7bcb26f

wchp output from 226, taken on 01/30 -

nnarkhed-ld:zk-cons-wchp-2012013000 nnarkhed$ grep 0x134485fd7bcb26f **226.\*wchp** | wc -l

3     (3 watches with expired session id)

wchp output from 223, taken on 01/30 -

nnarkhed-ld:zk-cons-wchp-2012013000 nnarkhed$ grep 0x134485fd7bcb26f **223**.\*wchp | wc -l

0

cons output from 223 and 226, taken on 01/30 -

nnarkhed-ld:zk-cons-wchp-2012013000 nnarkhed$ grep 0x134485fd7bcb26f **226**.\*cons | wc -l

0        (no sessions)

nnarkhed-ld:zk-cons-wchp-2012013000 nnarkhed$ grep 0x134485fd7bcb26f **223**.\*cons | wc -l

0

“So, what seems to have happened is that the ZKClient was able to re-register the watches on the new server (226), after it got disconnected from 223, inspite of having an expired session id.”