[HBase-4124](https://www.google.com/url?q=https://issues.apache.org/jira/browse/HBASE-4124&sa=D&source=editors&ust=1751359859260116&usg=AOvVaw01G-5S9MGfIfS49GVpNl42)

**ZK restarted while a region is being assigned, new active HM re-assigns it but the RS warns 'already online on this server'.**

**(1)  Log information**

**(1.1) Roles in this case**

HMaster  assigns region to  RegionServer              ZooKeeper

**(1.2) Symptoms**

While HMaster101 is assigning region to RegionServer105(RS105), ZK restars because of exception:

HMaster log: (HMaster101, the old active HMaster)

HMaster101 is assigning region ffe0f4ab26eaa1796d2f99565ff24012(call it 4012 for short) to RegionServer 158-1-91-105,20020,1311231874887 (RS105)

2011-07-21 07:05:44,712 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: master:20000-0x1314ac5addb003e Async create of unassigned node for ffe0f4ab26eaa1796d2f99565ff24012 with OFFLINE state

2011-07-21 07:05:46,661 DEBUG org.apache.hadoop.hbase.master.AssignmentManager$CreateUnassignedAsyncCallback: rs=test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. state=OFFLINE, ts=1311231944712, server=158-1-91-105,20020,1311231874887

2011-07-21 07:05:46,837 DEBUG org.apache.hadoop.hbase.master.AssignmentManager$ExistsUnassignedAsyncCallback: rs=test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. state=OFFLINE, ts=1311231944712

...

2011-07-21 07:05:55,734 INFO org.apache.zookeeper.ClientCnxn: Unable to read additional data from server sessionid 0x1314ac5addb003f, likely server has closed socket, closing socket connection and attempting reconnect

2011-07-21 07:05:55,835 FATAL org.apache.hadoop.hbase.master.HMaster: Error deleting OPENED node in ZK for transition ZK node (2c5d23581fc848c89e5be0555086cf30)

org.apache.zookeeper.KeeperException$ConnectionLossException: KeeperErrorCode = ConnectionLoss for /hbase/unassigned/2c5d23581fc848c89e5be0555086cf30

         at org.apache.zookeeper.KeeperException.create(KeeperException.java:90)

         at org.apache.zookeeper.KeeperException.create(KeeperException.java:42)

         at org.apache.zookeeper.ZooKeeper.delete(ZooKeeper.java:738)

         at org.apache.hadoop.hbase.zookeeper.ZKUtil.deleteNode(ZKUtil.java:962)

...

2011-07-21 07:07:00,902 INFO org.apache.hadoop.hbase.master.ServerManager: Registering server=158-1-91-105,20020,1311231874887, regionCount=971, userLoad=true

2011-07-21 07:07:01,569 INFO org.apache.hadoop.hbase.master.ServerManager: Registering server=158-1-91-101,20020,1311231878544, regionCount=951, userLoad=true

2011-07-21 07:07:36,903 INFO org.apache.hadoop.hbase.master.ServerManager: Registering server=158-1-91-103,20020,1311232056655, regionCount=0, userLoad=false

...

2011-07-21 07:08:03,239 INFO org.apache.hadoop.hbase.master.metrics.MasterMetrics: Initialized

2011-07-21 07:08:03,288 INFO org.apache.hadoop.hbase.master.ActiveMasterManager: Another master is the active master, 158-1-91-103:20000; waiting to become the next active master

The FATAL error makes the current HMaster101 abort. When ZK restarts, HMaster103 is elected as the new active HMaster.

HMaster log: (HMaster103, the new active HMaster)

Thu Jul 21 07:04:45 UTC 2011 Starting master on 158-1-91-103

ulimit -n 640000

2011-07-21 07:04:45,482 INFO org.apache.hadoop.hbase.ipc.HBaseRpcMetrics: Initializing RPC Metrics with hostName=HMaster, port=20000

... 

When the new HMaster initializes, it will process failover. It will restore state from ZK, i.e., process all regions that are in transition up in zookeeper.

2011-07-21 07:15:13,719 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: master:20000-0x1314ac5addb0042-0x1314ac5addb0042 Creating (or updating) unassigned node for ffe0f4ab26eaa1796d2f99565ff24012 with OFFLINE state

HMaster103 is processing region4012’s state in ZK(M\_ZK\_REGION\_OFFLINE)

2011-07-21 07:30:26,526 INFO org.apache.hadoop.hbase.master.AssignmentManager: Processing region test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. in state M\_ZK\_REGION\_OFFLINE

Since the state is M\_ZK\_REGION\_OFFLINE, the region is offline, it will be inserted into RIT(RegionInTransition) and handled like closed. Hence, the thread ClosedRegionHandler is created to handle it.

2011-07-21 07:30:26,562 DEBUG org.apache.hadoop.hbase.master.handler.ClosedRegionHandler: Handling CLOSED event for ffe0f4ab26eaa1796d2f99565ff24012

ClosedRegionHandler will offline this region, and reassign it.

2011-07-21 07:30:26,562 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: Forcing OFFLINE; was=test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. state=OFFLINE, ts=1311232513720

2011-07-21 07:30:26,562 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: master:20000-0x1314ac5addb0042-0x1314ac5addb0042 Creating (or updating) unassigned node for ffe0f4ab26eaa1796d2f99565ff24012 with OFFLINE state

2011-07-21 07:30:26,577 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: No previous transition plan was found (or we are ignoring an existing plan) for test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. so generated a random one; hri=test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012., src=, dest=158-1-91-105,20020,1311231874887; 3 (online=3, exclude=null) available servers

A random region server RS105 is chosen to assign region4012, but the assignment fails due to timeout.

2011-07-21 07:30:26,577 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: Assigning region test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. to 158-1-91-**105**,20020,1311231874887

2011-07-21 07:30:26,603 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: Handling transition=M\_ZK\_REGION\_OFFLINE, server=158-1-91-103:20000, region=ffe0f4ab26eaa1796d2f99565ff24012

This timeout is detected by the TimeoutMonitor thread, since the region state has been PENDING\_OPEN for too long. This suggests that RS105 fails to open the region, so there is no state update. TimeoutMonitor will reassign region4012.

2011-07-21 07:42:08,737 INFO org.apache.hadoop.hbase.master.AssignmentManager: Regions in transition timed out:  test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. state=PENDING\_OPEN, ts=1311233942949

2011-07-21 07:42:08,737 INFO org.apache.hadoop.hbase.master.AssignmentManager: Region has been PENDING\_OPEN for too long, reassigning region=test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.

2011-07-21 07:42:49,043 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: Forcing OFFLINE; was=test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. state=PENDING\_OPEN, ts=1311234169040

Attempt to assign for the second time: random strategy, RS105 is chosen (there are 3 RSs in total, so it is very likely to choose the same RS), still fail, the same reason as the first time.

2011-07-21 07:42:49,043 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: No previous transition plan was found (or we are ignoring an existing plan) for test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. so generated a random one; hri=test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012., src=, dest=158-1-91-105,20020,1311231874887; 3 (online=3, exclude=null) available servers

2011-07-21 07:42:49,043 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: Assigning region test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. to 158-1-91-**105**,20020,1311231874887

2011-07-21 07:46:25,809 INFO org.apache.hadoop.hbase.master.AssignmentManager: Regions in transition timed out:  test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. state=PENDING\_OPEN, ts=1311234201519

2011-07-21 07:46:25,809 INFO org.apache.hadoop.hbase.master.AssignmentManager: Region has been PENDING\_OPEN for too long, reassigning region=test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.

2011-07-21 07:46:31,872 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: Forcing OFFLINE; was=test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. state=PENDING\_OPEN, ts=1311234391597

Attempt to assign for the third time: random strategy, RS103 is chosen, succeed.

2011-07-21 07:46:31,874 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: No previous transition plan was found (or we are ignoring an existing plan) for test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. so generated a random one; hri=test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012., src=, dest=158-1-91-103,20020,1311232056655; 3 (online=3, exclude=null) available servers

2011-07-21 07:46:31,874 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: Assigning region test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. to 158-1-91-**103**,20020,1311232056655

2011-07-21 07:46:32,061 DEBUG org.apache.hadoop.hbase.master.AssignmentManager: Handling transition=RS\_ZK\_REGION\_OPENED, server=158-1-91-**103**,20020,1311232056655, region=ffe0f4ab26eaa1796d2f99565ff24012

2011-07-21 07:46:32,493 DEBUG org.apache.hadoop.hbase.master.handler.OpenedRegionHandler: Handling OPENED event for ffe0f4ab26eaa1796d2f99565ff24012; deleting unassigned node

2011-07-21 07:46:32,493 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: master:20000-0x1314ac5addb0042-0x1314ac5addb0042 Deleting existing unassigned node for ffe0f4ab26eaa1796d2f99565ff24012 that is in expected state RS\_ZK\_REGION\_OPENED

2011-07-21 07:46:32,693 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: master:20000-0x1314ac5addb0042-0x1314ac5addb0042 Successfully deleted unassigned node for region ffe0f4ab26eaa1796d2f99565ff24012 in expected state RS\_ZK\_REGION\_OPENED

2011-07-21 07:46:32,717 DEBUG org.apache.hadoop.hbase.master.handler.OpenedRegionHandler: Opened region test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. on 158-1-91-103,20020,1311232056655

Region Server log: (RS105: before ZK restarts, the old master HMaster101 assigns region4012 to RS105; the new master HMaster103 assigns region4012 twice)

This assignment request is from the old master HMaster101.

2011-07-21 07:05:48,091 INFO org.apache.hadoop.hbase.regionserver.HRegionServer: Received request to open region: test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.

2011-07-21 07:08:44,043 DEBUG org.apache.hadoop.hbase.regionserver.handler.OpenRegionHandler: Processing open of test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.

2011-07-21 07:08:44,043 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: regionserver:20020-0x2314ac6763f0027 Attempting to transition node ffe0f4ab26eaa1796d2f99565ff24012 from M\_ZK\_REGION\_OFFLINE to RS\_ZK\_REGION\_OPENING

2011-07-21 07:08:44,106 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: regionserver:20020-0x2314ac6763f0027 Successfully transitioned node ffe0f4ab26eaa1796d2f99565ff24012 from M\_ZK\_REGION\_OFFLINE to RS\_ZK\_REGION\_OPENING

2011-07-21 07:08:44,106 DEBUG org.apache.hadoop.hbase.regionserver.HRegion: Opening region: REGION => {NAME => 'test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.', STARTKEY => '282139', ENDKEY => '282142', ENCODED => ffe0f4ab26eaa1796d2f99565ff24012, TABLE => {{NAME => 'test1', FAMILIES => [{NAME => 'value', BLOOMFILTER => 'NONE', REPLICATION\_SCOPE => '0', VERSIONS => '3', COMPRESSION => 'GZ', TTL => '2592000', BLOCKSIZE => '65536', IN\_MEMORY => 'false', BLOCKCACHE => 'true'}]}}

2011-07-21 07:08:44,106 DEBUG org.apache.hadoop.hbase.regionserver.HRegion: Instantiated test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.

2011-07-21 07:08:44,144 INFO org.apache.hadoop.hbase.regionserver.HRegion: Onlined test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.; next sequenceid=1

2011-07-21 07:08:44,144 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: regionserver:20020-0x2314ac6763f0027 Attempting to transition node ffe0f4ab26eaa1796d2f99565ff24012 from RS\_ZK\_REGION\_OPENING to RS\_ZK\_REGION\_OPENING

2011-07-21 07:08:44,202 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: regionserver:20020-0x2314ac6763f0027 Successfully transitioned node ffe0f4ab26eaa1796d2f99565ff24012 from RS\_ZK\_REGION\_OPENING to RS\_ZK\_REGION\_OPENING

2011-07-21 07:08:44,232 INFO org.apache.hadoop.hbase.catalog.MetaEditor: Updated row test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. in region .META.,,1 with server=158-1-91-105:20020, startcode=1311231874887

2011-07-21 07:08:44,232 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: regionserver:20020-0x2314ac6763f0027 Attempting to transition node ffe0f4ab26eaa1796d2f99565ff24012 from RS\_ZK\_REGION\_OPENING to RS\_ZK\_REGION\_OPENED

2011-07-21 07:08:44,291 DEBUG org.apache.hadoop.hbase.zookeeper.ZKAssign: regionserver:20020-0x2314ac6763f0027 Successfully transitioned node ffe0f4ab26eaa1796d2f99565ff24012 from RS\_ZK\_REGION\_OPENING to RS\_ZK\_REGION\_OPENED

2011-07-21 07:08:44,291 DEBUG org.apache.hadoop.hbase.regionserver.handler.OpenRegionHandler: Opened test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.  It shows that RS105 open the region4012 successfully.

This assignment request is from the new master HMaster103(first attempt). RS105 finds that region4012 is already online on this server.

2011-07-21 07:30:26,579 INFO org.apache.hadoop.hbase.regionserver.HRegionServer: Received request to open region: test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.

2011-07-21 07:30:26,579 DEBUG org.apache.hadoop.hbase.regionserver.handler.OpenRegionHandler: Processing open of test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.

2011-07-21 07:30:26,579 WARN org.apache.hadoop.hbase.regionserver.handler.OpenRegionHandler: Attempted open of test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. but already online on this server         This suggests that the assignment from HM101 is successful in RS105 (since region4012 is in RS105’s onlineRegion list), although the state in zk for this assignment is offline.

This assignment request is from the new master HMaster103(second attempt). still fail

2011-07-21 07:42:49,046 INFO org.apache.hadoop.hbase.regionserver.HRegionServer: Received request to open region: test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.

2011-07-21 07:42:49,046 DEBUG org.apache.hadoop.hbase.regionserver.handler.OpenRegionHandler: Processing open of test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012.

2011-07-21 07:42:49,046 WARN org.apache.hadoop.hbase.regionserver.handler.OpenRegionHandler: Attempted open of test1,282139,1311216321932.ffe0f4ab26eaa1796d2f99565ff24012. but already online on this server