connectedTo matcher and b2bua

Posted by Russell Roy - 2009/03/18 20:57

In a basic two-way call connected thru a b2bua these assertions pass:

assertThat(alice, is (connected()));
assertThat(bob, is (connected()));

but these fail:

assertThat(alice, is (connectedTo(bob)));
assertThat(bob, is (connectedTo(alice)));

Is this to be expected given that a b2bua is involved ...or a bug?

```
8798  ERROR KitCAT.Tester  - Test failed!!
  java.lang.AssertionError:
  Expected: is agent 8389004002 is connected with agent 8389004001
       got: <Agent 8389004001
  ================Current state = CallEstablished
  Idle:MsgSent - REGISTER sip:kitcat.bigcableco.com SIP/2.0(CSeq:1 REGISTER)
  Idle:MsgRecvd - SIP/2.0 200 OK(CSeq:1 REGISTER)
  Idle:MsgSent - INVITE sip:8389004002@102.0.5.251:23456 SIP/2.0(CSeq:1 INVITE)
  Inviting:MsgRecvd - SIP/2.0 100 Trying(CSeq:1 INVITE)
  Inviting:MsgRecvd - SIP/2.0 180 Ringing(CSeq:1 INVITE)
  Inviting:MsgRecvd - SIP/2.0 200 OK(CSeq:1 INVITE)
  Inviting:MsgSent - ACK sip:8389004002@10.99.38.252:5060;transport=udp;user=phone SIP/2.0(CSeq:1 ACK)
  >

      at org.junit.Assert.assertThat(Assert.java:502)
      at org.junit.Assert.assertThat(Assert.java:492)
      at mytest.MyTest.simpletest(MyTest.java:132)
      at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
      at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
      at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
      at java.lang.reflect.Method.invoke(Method.java:597)
      at org.junit.internal.runners.TestMethod.invoke(TestMethod.java:59)
      at org.junit.internal.runners.MethodRoadie.runTestMethod(MethodRoadie.java:98)
      at org.junit.internal.runners.MethodRoadie$2.run(MethodRoadie.java:79)
      at org.junit.internal.runners.MethodRoadie.runBeforesThenTestThenAfters(MethodRoadie.java:87)
      at org.junit.internal.runners.MethodRoadie.runTest(MethodRoadie.java:77)
      at org.junit.internal.runners.MethodRoadie.run(MethodRoadie.java:42)
      at org.junit.internal.runners.JUnit4ClassRunner.invokeTestMethod(JUnit4ClassRunner.java:88)
      at org.junit.internal.runners.JUnit4ClassRunner.runMethods(JUnit4ClassRunner.java:51)
      at org.junit.internal.runners.JUnit4ClassRunner$1.run(JUnit4ClassRunner.java:44)
      at org.junit.internal.runners.ClassRoadie.runUnprotected(ClassRoadie.java:27)
      at org.junit.internal.runners.ClassRoadie.runProtected(ClassRoadie.java:37)
      at org.junit.internal.runners.JUnit4ClassRunner.run(JUnit4ClassRunner.java:42)
      at junit.framework.JUnit4TestAdapter.run(JUnit4TestAdapter.java:36)
      at org.apache.tools.ant.taskdefs.optional.junit.JUnitTestRunner.run(JUnitTestRunner.java:421)
      at org.apache.tools.ant.taskdefs.optional.junit.JUnitTestRunner.launch(JUnitTestRunner.java:912)
      at org.apache.tools.ant.taskdefs.optional.junit.JUnitTestRunner.main(JUnitTestRunner.java:766)
```

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Re:connectedTo matcher and b2bua

Posted by Venkita Subramonian - 2009/03/18 22:21

Hi,

it is expected since a b2bua is involved.

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Re:connectedTo matcher and b2bua

Posted by Tom Smith - 2009/03/18 22:59

Venkita, I think you mean that the assertions are expected to work, even though there is a B2BUA involved, right?

Russell,

An assertion like:

assertThat(alice, is(connectedTo(bob)));

checks the following conditions:

(1) alice is in a connected state
(2) bob is in a connected state
(3) alice and bob have exchanged SDPs (i.e., the IP/port that alice said she would send on are the ones that bob received in his SDP, and vice-versa).

If you know from other assertions that (1) and (2) are satisfied, then the issue may be (3). Can you inspect the SDPs to see if they look OK?

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Re:connectedTo matcher and b2bua

Posted by Russell Roy - 2009/03/18 23:20

Tom,

The b2bua test passes w/ these assertions:

assertThat(alice, is(connected()));
assertThat(bob, is(connected()));
processSIPAndCheckMedia(alice, bob); <-- asserts incomingMedia is ok both directions

but fails w/ these:

assertThat(alice, is (connectedTo(bob)));
assertThat(bob, is (connectedTo(alice)));

Russell

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Re:connectedTo matcher and b2bua

Posted by Tom Smith - 2009/03/18 23:27

Interesting - the agents are connected and actually exchanging RTP packets, but the connectedTo() matcher is failing.

I wonder if there are some issues arising from Venkita's latest changes, particularly with respect to the IP address tests.

I'll poke around to see if I have any ideas, basically kill time until Venkita checks in. ;)

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Re:connectedTo matcher and b2bua

Posted by Tom Smith - 2009/03/18 23:33

Russell,

If you want to send me the output from the test, I can see if I can figure out what is going on. You can send it to my gmail.com address, which is yotommy.

Thanks,
Tom.

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Re:connectedTo matcher and b2bua

Posted by Tom Smith - 2009/03/19 00:04

Russell,

Thanks for the log. The interesting thing is that the INVITE sent by alice contains an SDP that refers to one IP address, but the INVITE received by bob contains an SDP that refers to a different IP address. Evidently the B2BUA is re-writing alice's SDP before sending it to bob, causing the connectedTo() matcher to fail.

I guess you have some requirements on RTP routing in your environment (like the use of a session border controller). In such environments, the connectedTo() matcher, as written, is not appropriate. It only applies when SDPs are passed through untouched.

Venkita may have some ideas about this. At the very least, we should make sure it is clear that the documentation of the matcher describes what conditions are being checked.

In your case, using the connected() matcher on each agent and verifying media flow should be sufficient, and you should not use the connectedTo() matcher at this time.

Hope this helps,
Tom.

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Re:connectedTo matcher and b2bua

Posted by Venkita Subramonian - 2009/03/19 00:09

Tom,

the connectedTo assertions are expected to work provided the media is
going straight between alice and bob.

Russell,

processSIPAndCheckMedia (atleast the version in TwoWay.java) does not
do the connectedTo check. can you clarify
whether the media is going straight between alice and bob? only if the
media is going straight between alice and bob, connectedTo passes.
connectedTo asserts that the SDP received by alice has bob's rtp IP
and vice-versa. hope this helps.

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Re:connectedTo matcher and b2bua

Posted by Russell Roy - 2009/03/19 03:15

Thanks all.

Yeah... I forgot... rtp traffic is being backhauled (for CALEA purposes.)

Asserting connect and media bidirectionaly as you suggest is quite sufficient.

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