

CN REST - Bug #6746

SSL Connection Errors across processing components

2015-01-07 21:57 - Skye Roseboom

Status:	Closed	Start date:	
Priority:	High	Due date:	
Assignee:		% Done:	100%
Category:	d1_synchronization	Estimated time:	0.00 hour
Target version:	CCI-1.5.1		
Story Points:			

Description

Discovered Jan 6 that synchronization and replication (and log aggregation?) were throwing SSL Handshake Exceptions (caused by java.io.EOFException: SSL peer shut down incorrectly).

Prevents synchronization from harvesting new objects. Prevents replication from requesting replicas. Caused replication auditing to falsely identify invalid replicas.

It is unknown what the source of the issue was/is. Odd that the same error started manifesting across multiple components within one JVM/daemon process.

It seems that each use of D1Node (CNode, MNode) create new D1RestClients - so uses of CNode and MNode should not be effected by errors in other threads.

D1Node.getSystemMetadata (used in replication) and listObject (used in sync) create a new D1RestClient

D1RestClient creates new RestClient and SSLSocketFactory

RestClient creates new DefaultHttpClient

CertificateManager.getSSLSocketFactory uses static SSLContext.getInstance

TrustManager

Possible source of common error in CertificateManager or TrustManager since it is a singleton and its use/methods are static.

History

#1 - 2015-01-07 21:58 - Skye Roseboom

- Assignee deleted (Robert Waltz)

#2 - 2015-01-07 22:39 - Skye Roseboom

- File firstSSLException added

#3 - 2015-01-07 22:44 - Skye Roseboom

First occurrence of replica audit task cancellation:

[ERROR] 2015-01-05 22:17:02,429 (AbstractReplicationAuditor:handleFuture:214) Replica audit task cancelled.

First occurrence of SSL handshake exception:

[ERROR] 2015-01-06 16:23:04,227 (TransferObjectTask:retrieveSystemMetadata:282) Task-urn:node:LTER-doi:10.6073/AA/knb-lter-arc.1371.1 <?xml version="1.0" encoding="UTF-8"?>

class javax.net.ssl.SSLHandshakeException: Remote host closed connection during handshake

First occurrence of SSL handshake exception in replication:

[ERROR] 2015-01-06 16:28:02,175 (MemberNodeReplicaAuditingStrategy:auditMemberNodeReplica:188) Unable to get checksum from mn: urn:node:mnUNM1.

org.dataone.service.exceptions.ServiceFailure: class javax.net.ssl.SSLHandshakeException: Remote host closed connection during handshake

at sun.security.ssl.SSLSocketImpl.readRecord(SSLSocketImpl.java:946)

at sun.security.ssl.SSLSocketImpl.performInitialHandshake(SSLSocketImpl.java:1312)

at sun.security.ssl.SSLSocketImpl.startHandshake(SSLSocketImpl.java:1339)

at java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1145)

at java.util.concurrent.ThreadPoolExecutor\$Worker.run(ThreadPoolExecutor.java:615)

at java.lang.Thread.run(Thread.java:745)

Caused by: javax.net.ssl.SSLHandshakeException: Remote host closed connection during handshake

... 31 more

Caused by: java.io.EOFException: SSL peer shut down incorrectly

at sun.security.ssl.InputRecord.read(InputRecord.java:482)

So looks like sync started reporting the SSL Handshake Exception against LTER at 16:23 on 1-6, then replication at 16:28 on 1-6.

#4 - 2015-01-07 22:50 - Skye Roseboom

- Category changed from *d1_common_java* to *d1_libclient_java*

#5 - 2015-01-07 22:51 - Skye Roseboom

- Description updated

#6 - 2015-01-08 04:00 - Rob Nahf

a quick google search turned up this posting from a couple years ago.

<http://www.coderanch.com/t/563766/java/java/SSLHandshake-Error-connection-remote-server>

The presumed cause of the error was network problems. If these errors were only coming from one CN, a local network disconnect from the outside world would explain why all three processes (trying to communicate with off-site servers) would show the same errors at the same time.

It would be interesting to also know if these errors go away by themselves without manual intervention.

#7 - 2015-01-19 22:24 - Dave Vieglais

- Priority changed from *Normal* to *High*

- Project changed from *Infrastructure* to *Java Client*

- Category deleted (*d1_libclient_java*)

#8 - 2015-02-11 18:59 - Rob Nahf

- Category set to *d1_libclient_java*

Clarifying that this happened on production (v1) machines, so working with a v1 libclient. Need to check the HttpClient version being used - it probably has moved forward to v4.2.x from v4.1.3.

Either way, there is no shared state as a result of a shared connection manager between processes, so it's difficult to imagine any misconfiguration being stuck.

The suggestion in the bug description was possible problems with CertificateManager since it's a singleton, and has shared state. Each request creates a new connection socketfactory from scratch (reloads certificate material) so no shared state there. The trustStore is cached, but this would only mean that trusted CAs added during the lifetime of the application would not be picked up.

I think a network partition is more likely the cause, and the SSLhandshakes exceptions logged are a result of the connection being broken from the middle, rather than from either end.

see 3rd answer down, by dave_thompson_085:

<http://stackoverflow.com/questions/21245796/javax-net-ssl-sslhandshakeexception-remote-host-closed-connection-during-handsh>

see also TLS 1.2 problems referenced here:

<http://stackoverflow.com/questions/26604828/javax-net-ssl-sslhandshakeexception-remote-host-closed-connection-during-handsh>

it's less likely because for us it's an intermittent problem, but worth mentioning

#9 - 2015-02-11 18:59 - Rob Nahf

- Target version set to CCI-2.0.0
- Category changed from *d1_libclient_java* to *d1_synchronization*
- Project changed from *Java Client* to *CN REST*

#10 - 2015-02-11 19:24 - Rob Nahf

- Target version changed from CCI-2.0.0 to CCI-1.5.1

#11 - 2015-03-03 19:06 - Rob Nahf

- % Done changed from 0 to 100
- Status changed from *New* to *Closed*

Based on the exception, this seems to be due to network partitioning, not internal problems with libclient.

Closing.

Files

syncSSLerrors	2.88 KB	2015-01-07	Skye Roseboom
replicationSSLErrors	110 KB	2015-01-07	Skye Roseboom
firstSSLException	86.4 KB	2015-01-07	Skye Roseboom