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## GC overhead limit exceeded with Spring Data Neo4j



stackoverflowcareers



**Problem:** I am trying to import the DBLP database (from the publicly available XML file) into a Neo4j instance with a Spring application but after the application had imported about 39 000 publications into the Neo4j database I got a "GC overhead limit exceeded" message.



**Note:** I have thoroughly looked for answers at stackoverflow.com but I have not been able to solve the problem even though there are many good answers here.

Here is the entry point Application.java:

asked 4 months ago
viewed 99 times
active 9 days ago

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```
*
  * Inspiration: http://spring.io/guides/gs/accessing-data-neo4j/
  *
  */
@SpringBootApplication
public class Application implements CommandLineRunner {
```

Here is the SAX handler that Application.java makes use of:

```
package hello;
import java.util.Stack;
import org.springframework.beans.factory.annotation.Autowired;
import org.xml.sax.Attributes;
import org.xml.sax.SAXException;
import org.xml.sax.helpers.DefaultHandler;
public class SaxHandler extends DefaultHandler {
    private Stack<String> elementStack = new Stack<String>();
    private Stack<Publication> objectStack = new Stack<Publication>();
    private String publicationType = null;
    private PublicationRepository publicationRepository = null;
    private Publication publication = null;
   private Author author = null;
   private String currentElement = null;
   private String value = null;
   private static int counter = 0;
   @Autowired
   public SaxHandler(PublicationRepository publicationRepository) {
        this.publicationRepository = publicationRepository;
    public void startElement(String uri, String localName, String qName, Attribute
        elementStack.push(qName);
        publication = new Publication();
        if ("article".equals(qName)) {
            publication.setType("article");
        } else if ("inproceedings".equals(qName)) {
            publication.setType("inproceedings");
```

Here is PublicationRepository.java:

```
package hello;
import org.springframework.data.repository.CrudRepository;
public interface PublicationRepository extends CrudRepository<Publication, String> {
    Publication findByTitle(String title);
}
```

Here is Author.java, one of the domain models:

- Password strength of random words and brainflayer
- Shut down list of servers given in a
- How do I remove Candy Crush Saga from Windows 10?
- How to show pagination "go to page" text box?
- Could an autotrophic civilisation develop, or will evolving life forms always eat each other?
- What does OWA stand for?
- Name for a device purposefully put together from faulty parts
- How do I know when my sauce is reduced enough?
- What are some techniques to avoid touching a wet tent wall?
- Draw horizontal lines like open and close brackets
- Is it 'Batmen' or 'Batmans'?
- & Noun form of "extant"?
- Why don't decoupling/bypass capacitors need resistors to perform their function, like regular filters?
- Legacy application unreachable
- How to use Piano pedals without using the foot?
- Is it modest to compliment a woman on her modesty?

```
package hello;
import org.springframework.data.neo4j.annotation.GraphId;
import org.springframework.data.neo4j.annotation.NodeEntity;
public class Author {
    @GraphId
    private Long id;
    private String name;
    public Author() {
    }
    public Author(String name) {
    @Override
    public boolean equals(Object obj) {
         if (this == obj)
              return true;
         if (obj == null)
    return false;
         if (this.getClass() != obj.getClass())
              return false;
         Author other = (Author) obj;
         if (this.id != null && this.name != null && other.id != null && other.name
   if (this.id.equals(other.id) && this.name.equals(other.name))
                  return true;
```

Here is Publication.java, the second domain model:

```
package hello;
import java.io.Serializable;
import java.util.HashSet;
import org.neo4j.graphdb.Direction;
import org.springframework.data.neo4j.annotation.GraphId;
import org.springframework.data.neo4j.annotation.NodeEntity;
import org.springframework.data.neo4j.annotation.RelatedTo;

@NodeEntity
public class Publication implements Serializable {

    private static final long serialVersionUID = -6393545300391560520L;

    @GraphId
    Long nodeId;

    private String type = "";
    private String key = "";
    private String mdate = "";
    private String publtype = "";
    private String reviewid = "";
    private String reviewid = "";
    private String rating = "";
    private String
```

```
@RelatedTo(type = "WROTE", direction = Direction.INCOMING)
private Set<Author> authors = new HashSet<Author>();
private String editor = "";
private String title = "";
private String booktitle = "";
private String pages = "";
private String year = "";
private String address = "";
private String journal = "";
private String volume = "";
private String number = "";
private String month = "";
```

The application uses Maven as build automation tool and here is pom.xml:

```
<?xml version="1.0" encoding="UTF-8"?>
           xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
ct
            xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apa
    <modelVersion>4.0.0</modelVersion>
    <groupId>com.dblp</groupId>
    <artifactId>graphdbcreator</artifactId>
    <version>0.1.0
    <parent>
        <groupId>org.springframework.boot
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>1.2.2.RELEASE
    </parent>
    <dependencies>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter</artifactId>
        </dependency>
        <dependency>
            <groupId>org.springframework</groupId>
            <artifactId>spring-context</artifactId>
        </dependency>
        <dependency>
            <groupId>org.springframework</groupId>
            <artifactId>spring-tx</artifactId>
        </dependency>
            <groupId>org.springframework.data
            <artifactId>spring-data-neo4j</artifactId>
        </dependency>
        <dependency>
            <groupId>org.hibernate
            <artifactId>hibernate-validator</artifactId>
```

Here is the central part of the error message:

```
java.lang.OutOfMemoryError: GC overhead limit exceeded
                                       at org.neo4j.collection.primitive.PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIterator(PrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntCollections.toPrimitiveIntColl
                                       at \ org.neo4j. kernel.impl.api. State Handling Statement Operations. node Get Labels (Statement Operations) and Get Labels (Get Labels) and Get
                                       at org.neo4j.kernel.impl.api.ConstraintEnforcingEntityOperations.nodeSetProperty
                                       at org.neo4j.kernel.impl.api.LockingStatementOperations.nodeSetProperty(LockingS
                                       at org.neo4j.kernel.impl.api.OperationsFacade.nodeSetProperty(OperationsFacade.j
                                       at org.neo4j.kernel.impl.core.NodeProxy.setProperty(NodeProxy.java:254)
                                       at \ org. spring framework. data.neo 4j. field access. Property Field Accessor Factory \$ Property Field Accessor Factor Facto
                                       at org.springframework.data.neo4j.fieldaccess.DefaultEntityState.setValue(Defaul
                                       at \ org. spring framework. data.neo 4 j. support.mapping. Source State Transmitter.set Entimely the state of the state 
                                       at org.springframework.data.neo4j.support.mapping.SourceStateTransmitter.access$
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                                       \hbox{at org.springframework.data.neo4j.support.mapping.} Source State Transmitter \$3.doW it the state of the s
                                       at org.springframework.data.mapping.model.BasicPersistentEntity.doWithProperties
                                       \hbox{at org.springframework.data.neo4j.support.mapping.} Source \hbox{StateTransmitter.copy} Property of the proper
                                       at \ org. springframework. data.neo4j. support.mapping. Neo4jEntityConverterImpl.write and org. springframework and org
                                       at org.springframework.data.neo4j.support.mapping.Neo4jEntityPersister$CachedCon
                                       at org.springframework.data.neo4j.support.mapping.Neo4jEntityPersister.persist(N
                                       at \ org. spring framework. data.neo 4 j. support. mapping. Neo 4 j Entity Persister. persist (No. 1) and the support of the
                                      at org.springframework.data.neo4j.support.Neo4jTemplate.save(Neo4jTemplate.java: at org.springframework.data.neo4j.support.Neo4jTemplate.save(Neo4jTemplate.java:
                                       at org.springframework.data.neo4j.repository.AbstractGraphRepository.save(Abstra
                                      at sun.reflect.GeneratedMethodAccessor28.invoke(Unknown Source) at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.
                                       at java.lang.reflect.Method.invoke(Method.java:497)
                                       at org.springframework.data.repository.core.support.RepositoryFactorySupport$Que
                                       \hbox{at org.springframework.data.repository.core.support.} Repository Factory Support \$ Question Factor Support § Question Factor Factory Support § Question Factor Factor
                                    at org.springframework.data.repository.core.support.RepositoryFactorySupportSQue at org.springframework.aop.framework.ReflectiveMethodInvocation.proceed(Reflecti
                                       at org.springframework.data.repository.core.support.RepositoryFactorySupport$Def
                                       \hbox{at org.springframework.aop.framework.Reflective Method Invocation.proceed (Reflective Method Invocation.proceed).}
                                       at org.springframework.transaction.interceptor.TransactionInterceptor$1.proceedW
                                      at org.springframework.transaction.interceptor.TransactionAspectSupport.invokeWi
java maven neo4j garbage-collection spring-data-neo4j
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     asked Mar 31 at 12:28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCOverhead
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3 0 2
                 we had same problem, there is something wrong with neo when adding new nodes and relations, try to
                 import using .csv file <-- that made us cry to create but eventually solved the problem - nafas Mar 31 at
 add a comment
```

1 Answer

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Your transaction is too large.



Try to create a service which only imports e.g. a batch of one thousand publications and annotated it with @Transactional (our use manual transactions within that method). Then call that method from your main class (get the service injected for spring-tx-handling) with batches of 1000 publications.



Alternatively, use this in your loop code

```
tx = db.beginTx();
while () {

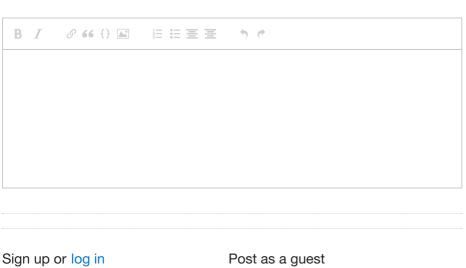
// do stuff

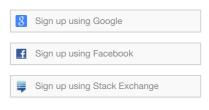
if (++counter % 1000 == 0) {
    tx.success(); tx.close();
    tx = db.beginTx();
}
}
tx.success(); tx.close();
```

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