



Spring Data MongoDB – Auto Sequence ID example

By mkyong (<http://www.mkyong.com/author/mkyong/>) | March 7, 2014 | Viewed : 63,792 times +182 pv/w

In this tutorial, we will show you how to generate an auto-incrementing sequence id in MongoDB + Spring Data environment.

Tools used in this project :

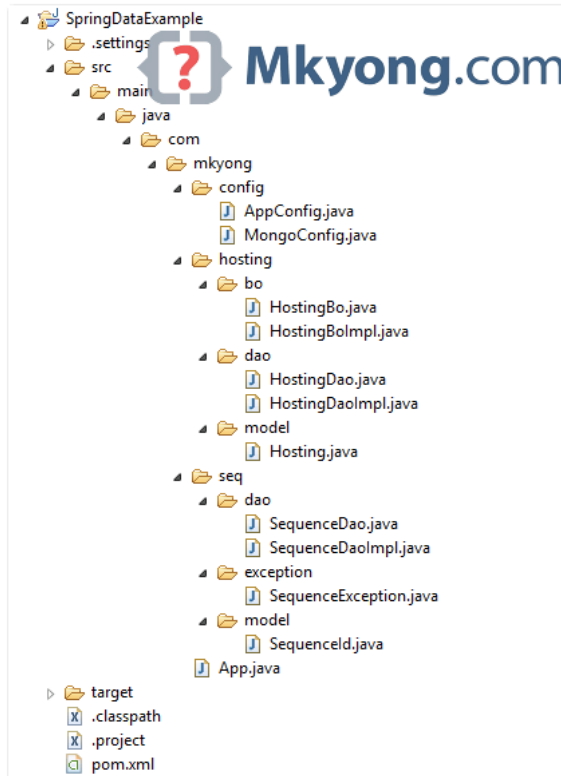
1. Spring Data MongoDB 1.2.1.RELEASE
2. MongoDB 2.4.5
3. Eclipse 4.2
4. Maven 3

At the end of this tutorial, if the collection name "hosting" is saved, a new auto-incrementing sequence id will be assigned. Below is the Java code snippet to generate the sequence id.

```
public long getNextSequenceId(String key) {  
  
    Query query = new Query(Criteria.where("_id").is(key));  
  
    Update update = new Update();  
    update.inc("seq", 1);  
  
    FindAndModifyOptions options = new FindAndModifyOptions();  
    options.returnNew(true);  
  
    SequenceId seqId =  
        mongoOperation.findAndModify(query, update, options, SequenceId.class);  
  
    return seqId.getSeq();  
}
```

1. Project Structure

Review the project directory structure, a standard Maven project.



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Ad Джино

Регистрация

2. Maven Pom

In case you are interested at the project dependencies.

pom.xml

```

<project ...>
  <properties>
    <jdk.version>1.6</jdk.version>
    <spring.version>3.2.2.RELEASE</spring.version>
    <mongojavadriverversion>2.11.1</mongojavadriverversion>
    <springdata.version>1.2.1.RELEASE</springdata.version>
  </properties>

  <dependencies>

    <!-- Spring Core -->
    <dependency>
      <groupId>org.springframework</groupId>
      <artifactId>spring-core</artifactId>
      <version>${spring.version}</version>
    </dependency>

    <!-- need this for @Configuration -->
    <dependency>
      <groupId>cglib</groupId>
      <artifactId>cglib</artifactId>
      <version>2.2.2</version>
    </dependency>

    <!-- Spring Data for MongoDB -->
    <dependency>
      <groupId>org.springframework.data</groupId>
      <artifactId>spring-data-mongodb</artifactId>
      <version>${springdata.version}</version>
    </dependency>

    <!-- Java MongoDB Driver -->
    <dependency>
      <groupId>org.mongodb</groupId>
      <artifactId>mongo-java-driver</artifactId>
      <version>${mongojavadriverversion}</version>
    </dependency>

  </dependencies>
  <build>
    <finalName>SpringData</finalName>
    <plugins>
      <plugin>
        <groupId>org.apache.maven.plugins</groupId>
        <artifactId>maven-compiler-plugin</artifactId>
        <version>2.3.2</version>
        <configuration>
          <source>${jdk.version}</source>
          <target>${jdk.version}</target>
        </configuration>
      </plugin>
    </plugins>
  </build>
</project>

```

Гонка Героев Зима 2018 - СПб 24 февраля. Стань Героем

5+км, 2+ часа. В этой гонке нет проигравших, участие уже победа. Вперёд, герой heroleague.ru/
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3. Sequence Collection

We create a collection name “sequence” to store the auto increase sequence id. Refer to the `SequenceDaoImpl.java` below, it shows you the code to generate the sequence id.

Note

Create the “sequence” collection in your MongoDB first!

```
db.sequence.insert({_id: "hosting", seq: 0})
```

SequenceId.java

```
package com.mkyong.seq.model;

import org.springframework.data.annotation.Id;
import org.springframework.data.mongodb.core.mapping.Document;

@Document(collection = "sequence")
public class SequenceId {

    @Id
    private String id;

    private long seq;

    //get, set, toString...
}
```

SequenceDao.java

```
package com.mkyong.seq.dao;

import com.mkyong.seq.exception.SequenceException;

public interface SequenceDao {

    long getNextSequenceId(String key) throws SequenceException;

}
```

SequenceDaoImpl.java

```

package com.mkyong.seq.dao;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.data.mongodb.core.FindAndModifyOptions;
import org.springframework.data.mongodb.core.MongoOperations;
import org.springframework.data.mongodb.core.query.Criteria;
import org.springframework.data.mongodb.core.query.Query;
import org.springframework.data.mongodb.core.query.Update;
import org.springframework.stereotype.Repository;

import com.mkyong.seq.exception.SequenceException;
import com.mkyong.seq.model.SequenceId;

@Repository
public class SequenceDaoImpl implements SequenceDao {

    @Autowired
    private MongoOperations mongoOperation;

    @Override
    public long getNextSequenceId(String key) throws SequenceException {

        //get sequence id
        Query query = new Query(Criteria.where("_id").is(key));

        //increase sequence id by 1
        Update update = new Update();
        update.inc("seq", 1);

        //return new increased id
        FindAndModifyOptions options = new FindAndModifyOptions();
        options.returnNew(true);

        //this is the magic happened.
        SequenceId seqId =
            mongoOperation.findAndModify(query, update, options, SequenceId.class);

        //if no id, throws SequenceException
        //optional, just a way to tell user when the sequence id is failed to generate.
        if (seqId == null) {
            throw new SequenceException("Unable to get sequence id for key : " + key);
        }

        return seqId.getSeq();
    }
}

```

SequenceException.java

```

package com.mkyong.seq.exception;

public class SequenceException extends RuntimeException {

    private static final long serialVersionUID = 1L;

    private String errCode;
    private String errMsg;

    //get, set...
    public SequenceException(String errMsg) {
        this.errMsg = errMsg;
    }
}

```

4. Get the Sequence ID

To get the sequence id, uses `sequenceDao.getNextSequenceId("key")`

HostingBo.java

```
package com.mkyong.hosting.bo;

import com.mkyong.seq.exception.SequenceException;

public interface HostingBo {

    void save(String name) throws SequenceException;

}
```

HostingBoImpl.java

```
package com.mkyong.hosting.bo;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;

import com.mkyong.hosting.dao.HostingDao;
import com.mkyong.hosting.model.Hosting;
import com.mkyong.seq.dao.SequenceDao;
import com.mkyong.seq.exception.SequenceException;

@Service
public class HostingBoImpl implements HostingBo {

    private static final String HOSTING_SEQ_KEY = "hosting";

    @Autowired
    private SequenceDao sequenceDao;

    @Autowired
    private HostingDao hostingDao;

    @Override
    public void save(String name) throws SequenceException {

        Hosting hosting = new Hosting();

        hosting.setId(sequenceDao.getNextSequenceId(HOSTING_SEQ_KEY));
        hosting.setName(name);
        hostingDao.save(hosting);

        System.out.println(hosting);

    }

}
```

5. Testing

Run a simple test.

```
package com.mkyong;

import org.springframework.context.ApplicationContext;
import org.springframework.context.annotation.AnnotationConfigApplicationContext;

import com.mkyong.config.AppConfig;
import com.mkyong.hosting.bo.HostingBo;
import com.mkyong.seq.exception.SequenceException;

public class App {

    public static void main(String[] args) {

        ApplicationContext ctx =
            new AnnotationConfigApplicationContext(AppConfig.class);
        HostingBo hostingBo = (HostingBo) ctx.getBean("hostingBoImpl");

        try {

            hostingBo.save("cloud.google.com");
            hostingBo.save("heroku.com");
            hostingBo.save("cloudbees.com");

        } catch (SequenceException e) {
            System.out.println(e.getErrMsg());
        }

    }
}
```

Output – Java console

```
Hosting [id=1, name=cloud.google.com]
Hosting [id=2, name=heroku.com]
Hosting [id=3, name=cloudbees.com]
```

MongoDB console.

```
>mongo

> db.sequence.find()
{ "_id" : "hosting", "seq" : 3 }

> db.hosting.find()
{ "_id" : NumberLong(1), "_class" : "com.mkyong.hosting.model.Hosting", "name" : "cloud.google.com" }
{ "_id" : NumberLong(2), "_class" : "com.mkyong.hosting.model.Hosting", "name" : "heroku.com" }
{ "_id" : NumberLong(3), "_class" : "com.mkyong.hosting.model.Hosting", "name" : "cloudbees.com" }
>
```

6. FAQs

Q. SequenceException – Unable to get sequence id for key : hosting ?

A. Remember to create the “sequence” collection!

```
db.sequence.insert({_id: "hosting",seq: 0})
```

Download Source Code

Download – SpringData-Auto-Sequence-Example.zip (<http://www.mkyong.com/wp-content/uploads/2014/03/SpringData-Auto-Sequence-Example.zip>) (24 KB)

References

1. MongoDB – Create an Auto-Incrementing Sequence Field (<http://docs.mongodb.org/manual/tutorial/create-an-auto-incrementing-field/>)

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mkyong

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Christophe

Is this solution threadsafe? Could it be possible that two threads obtain the same sequence from getNextSequence() if called simultaneously?

 1 

 REPLY

2 years 8 months ago



Guest

Martin Becker

Hi, thanks for sharing this tutorial! I am not sure if this will work for concurrent access from one or more threads or sites. Is your approach intended for such a scenario?



2 years 11 months ago



Guest

Tomáš Hampl

if you want to auto create sequence use `options.upsert(true);`



1 year 3 months ago



Guest

Prasanna Ganesh

Mainly we have to update Spring version and Spring Data version

1.8
4.3.0.RELEASE
2.11.1
1.8.2.RELEASE



1 year 4 months ago



Guest

salman farisi

`hosting.setId(sequenceDao.getNextSequenceId(HOSTING_SEQ_KEY));` why is not errors when required String but you gave int ?



1 year 10 months ago



Guest

Jeremie

thank you for all your tutorials that are easy to use, simply efficient and cover so many topics. I's really amazing how I come so often onto your website after looking for something on Google! Thumb up!



2 years 8 months ago



Guest

Gaurav Ashara

Hey very nice post .. I am stuck at once place, Where actually i wanted to store data in gridfs collections and to set "_id" field with auto generated sequence id in spring data.

Its provide facility to insert data like

```
GridFSFile file=gridOperation.store(new  
FileInputStream(data.getMyDoc()),data.getMyDocFileName(),data.getMyDocFileName(),metaData);
```

Actually i checked that spring mongodb API for gridfs didn't provide us facility to insert with Bean(Collection Bean)
So how can i set auto generated id with Spring data mongodb API.



3 years 7 months ago



Guest

DJ

This is very helpful. Thanks.

In the result, I am getting "_class" : "com.mkyong.hosting.model.Hosting". Is there any way we can get rid of this.



3 years 8 months ago



Guest

Roma

The link does not meet the content . Please fix it. Thanks!)



3 years 9 months ago



mkyong

May I know which link?

Guest



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REPLY

3 years 7 months ago



Carlos Henrique Latanza

"Spring Data MongoDB hello world example"

Guest



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REPLY

1 year 9 months ago



Misael

Great post! Thanks so much for sharing.

Guest



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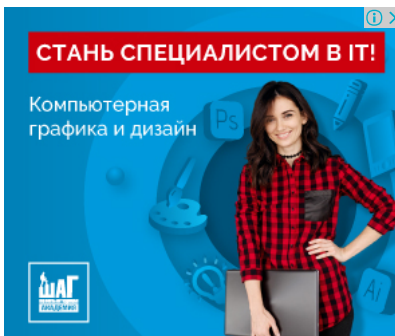
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