Chapter 2: Authorization and Encryption

Homework 2.5 : Update replica set nodes to enable encrypted storage engine

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This homework exercise takes a interesting twist on a seemingly easy task to perform. While enabling storage encryption is as simple as passing two options to a `mongod` this exercise goes two steps further and not only requires you to enable the encrypted storage engine on a replica set, but we ask you to do so in a rolling fashion.

Here are the details on how to perform this exercise:

- Create a keyfile to use as the external master key.

```
$ cd ~/M310-HW-2.5
$ openssl rand -base64 32 > master_key
$ chmod 600 master_key
```

- Safely shutdown a secondary of the replica set and delete the old database files.

```
$ mongo admin --port 31251 --eval "db.shutdownServer()"
$ rm -rf ~/M310-HW-2.5/r1/*
```

- Restart the server with storage encryption enabled.

```
$ mongod --dbpath ~/M310-HW-2.5/r1 --logpath ~/M310-HW-2.5/r1/mongo.log \
         --port 31251 --replSet UNENCRYPTED --fork --enableEncryption \
         --encryptionKeyFile ~/M310-HW-2.5/master_key
```

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- Repeat steps 2 and 3 for the other secondary.

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```
$ mongo admin --port 31252 --eval "db.shutdownServer()"
$ rm -rf ~/M310-HW-2.5/r2/*
$ mongod --dbpath ~/M310-HW-2.5/r2 --logpath ~/M310-HW-2.5/r2/mongo.log \
         --port 31252 --replSet UNENCRYPTED --fork --enableEncryption \
         --encryptionKeyFile ~/M310-HW-2.5/master_key
```

- Step down the primary and repeat steps 2 and 3 on the primary.

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```
$ mongo admin --port 31250 --eval "rs.stepDown()"
$ mongo admin --port 31250 --eval "db.shutdownServer()"
$ rm -rf ~/M310-HW-2.5/r0/*
$ mongod --dbpath ~/M310-HW-2.5/r0 --logpath ~/M310-HW-2.5/r0/mongo.log \
         --port 31250 --replSet UNENCRYPTED --fork --enableEncryption \
         --encryptionKeyFile ~/M310-HW-2.5/master_key
```

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