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Operating Systems - DM510

Assignment 3: Kernel Module

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Contents

1 Installing MongoDB

Below you'll find the installation instructions on the following platforms.

- WSL(Windows Subsystem for Linux)
- Ubuntu 16.04, 17.04(not tested), 18.04
- Ubuntu 14.04

1.1 WSL(Windows Subsystem for Linux)

Because services are not yet supported in WSL, we must instead install mongodb version 2.6.10 `mongodb`. All we have to do is call:

```
$ sudo apt-get install mongodb
```

Alternatively an included bash script that contains exactly the above is also included:

```
$ sudo bash install-Mongodb-on-WLS.sh
```

The drawback here is that we are not using the official package provided by the MongoDB organization: `mongodb-org`.

1.2 Ubuntu 16.04, 17.04(not tested), 18.04

The following was taken from here:
https://docs.mongodb.com/manual/tutorial/install-mongodb-on-ubuntu/

First we need to add the RSA public key to our package manager:

```
$ sudo apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --recv 2930
    ADAE8CAF5059EE73BB4B58712A2291FA4AD5
```

Then we need to add to our package manager; the location of where to find the MongoDB binaries.

```
$ echo "deb [ arch=amd64,arm64 ] https://repo.mongodb.org/apt/ubuntu xenial/mongodb
    -org/3.6 multiverse" | sudo tee /etc/apt/sources.list.d/mongodb-org-3.6.list
```

We then need to reload our package manager.

```
$ sudo apt-get update
```

Then we install `mongodb-org`.

```
$ sudo apt-get install -y mongodb-org
```

Alternatively the following shell script contains all the above:

```
$ sudo bash install-Mongodb-on-16.04-and-above.sh
```

1.3 Ubuntu 14.04

The following was taken from here:
https://docs.mongodb.com/manual/tutorial/install-mongodb-on-ubuntu/

First we need to add the RSA public key to our package manager:

```
$ sudo apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --recv 2930
    ADAE8CAF5059EE73BB4B58712A2291FA4AD5
```

Then we need to add to our package manager; the location of where to find the MongoDB binaries.

```
$ echo "deb [ arch=amd64 ] https://repo.mongodb.org/apt/ubuntu trusty/mongodb-org
    /3.6 multiverse" | sudo tee /etc/apt/sources.list.d/mongodb-org-3.6.list
```

We then need to reload our package manager.

```
$ sudo apt-get update
```

Then we install `mongodb-org`.

```
$ sudo apt-get install -y mongodb-org
```

Alternatively the following shell script contains all the above:

```
$ sudo bash install-Mongodb-on-14.04.sh
```

2 Running MongoDB

MongoDB requires a database path. For this we use the local relative path `data/db/` to our project' root directory.

The MongoDB server is ran in the following way:

```
$ mongod --dbpath data/db/ --logpath data/db-log/mongodb.log &
```

or by using the provided script `startMongoDB.sh`, Which contains exactly the above code.

```
$ sudo bash startMongoDB.sh
```

We'll start a new MongoDB server in the background and the server will be directed to 127.0.0.1 or localhost on the default port of 27017. `--port 12345` can be given to specify a custom port. Lastly the logpath is defined because we wanted to see what was going on.

3 Introduction

4 Design

5 Implementation

When you Insert a document, the driver checks to see if the Id member has been assigned a value and, if not, generates a new unique value for it. Since the Id member can be of any type, the driver requires the help of an IIdGenerator to check whether the Id has a value assigned to it and to generate a new value if necessary. The driver has the following Id generators built-in:

6 Conclusion

7 Appendix

8 Testing