MongoDB 安装

yum 安装

创建 yum 源文件：

```
cd /etc/yum.repos.d
vim mongodb-org-4.0.repo
```

添加以下内容：

```
[mngodb-org]
name=MongoDB Repository
baseurl=http://mirrors.aliyun.com/mongodb/yum/redhat/7Server/mongodb-org/4.0/x86_64/
gpgcheck=0
enabled=1
```

安装 MongoDB

安装命令：

```
yum -y install mongodb-org
```

安装完成后,查看 mongo 安装位置

```
whereis mongod
```

```
[root@master ~]# whereis mongod
mongod: /usr/bin/mongod /etc/mongod.conf /export/servers/mongodb-linux-x86_64-4.0.2/bin/mongod /usr/share/man/man1/mongod.1
```

```
systemctl start mongod.service
```

解压安装

MongoDB 官网 https://www.mongodb.com

```
cd /export/softwares/
wget https://fastdl.mongodb.org/linux/mongodb-linux-x86_64-4.0.2.tgz
```

```
tar zxvf mongodb-linux-x86_64-4.0.2.tgz -C ../servers/
```

```
vi /etc/profile
```

```
export MONGODB_HOME=/export/servers/mongodb-linux-x86_64-4.0.2
export PATH=:$MONGODB_HOME/bin:$PATH
```

```
cd /export/servers/mongodb-linux-x86_64-4.0.2
```

```
mkdir -p /export/servers/mongodb-linux-x86_64-4.0.2/db
```

开启 mongodb

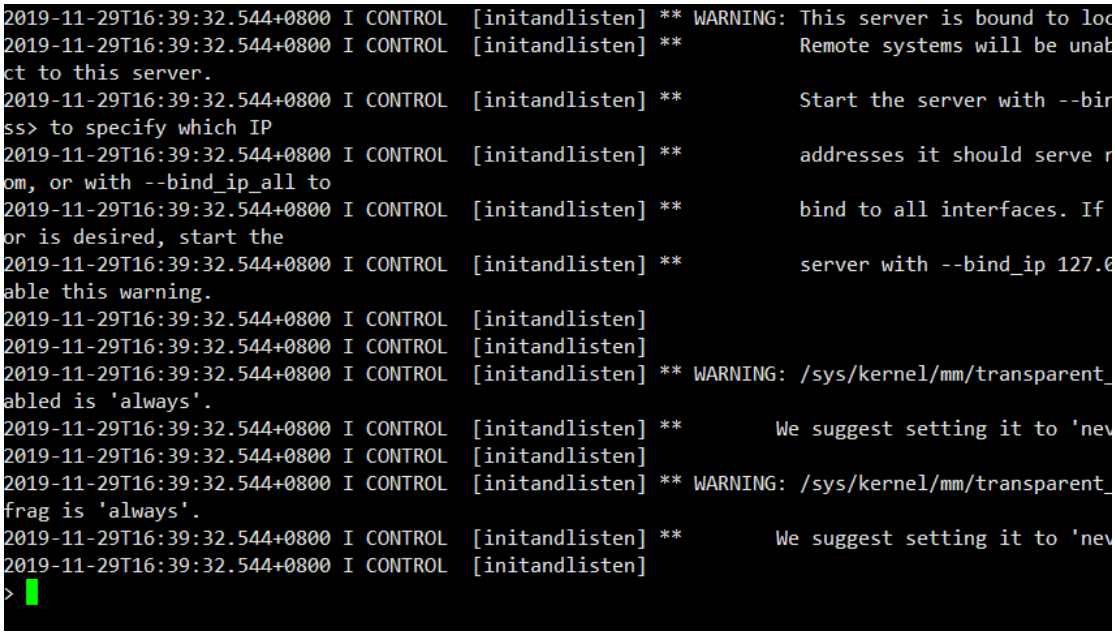
```
mongod --dbpath /export/servers/mongodb-linux-x86_64-4.0.2/db
```

关闭 mongodb

```
mongod -shutdown
```

进入 shell

```
mongo --host 127.0.0.1:27017
```



配置文件

```
vi /etc/mongod.conf
```

```
bindIp: 0.0.0.0
```

shell

```
mongo
```

数据库和集合操作

数据库操作

查看当前连接服务器

```
db.getMongo()
```

```
> db.getMongo()
connection to 127.0.0.1:27017
```

查看数据库列表

```
show dbs
```

```
> show dbs
admin   0.000GB
config  0.000GB
local   0.000GB
>
```

切换数据库

```
use test
```

```
> use test
switched to db test
>
```

查看数据库中所有集合

```
show collections
```

```
> show collections
mycol
>
```

json 显示集合名称

```
db.getCollectionNames()
```

```
> db.getCollectionNames()
[ "mycol" ]
```

集合详细信息

```
db.getCollectionInfos()
```

```
> db.getCollectionInfos()
[
        {
                "name" : "mycol",
                "type" : "collection",
                "options" : {

                },
                "info" : {
                        "readOnly" : false,
                        "uuid" : UUID("8edc1f82-437c-449c-9a27-fb73e418dcb2")
                },
                "idIndex" : {
                        "v" : 2,
                        "key" : {
                                "_id" : 1
                        },
                        "name" : "_id_",
                        "ns" : "test.mycol"
                }
        }
]
>
```

显示当前数据库名

```
db
```

```
> db
test
>
```

删除数据库

```
db.dropDatabase()
```

集合操作

新建集合

```
db.createCollection("mycol")
```

```
> db.createCollection("mycol")
{ "ok" : 1 }
```

删除集合

```
db.myCol.drop()
```

基本增删改查操作

文档插入

```
db.mycol.insert({
item1:'111111',
item2:'22222222',
```

```
3:'333333333333333333333',
4:44444444444444,
5:[1,2,'3']
})
```

```
> db.mycol.insert({
... item1:'111111',
... item2:'22222222',
... 3:'333333333333333333333',
... 4:44444444444444,
... 5:[1,2,'3']
... })
WriteResult({ "nInserted" : 1 })
```

查看文档

```
db.mycol.find()
```

```
> db.mycol.find()
{ "_id" : ObjectId("5de0eaf2df7e1b7abfa303ae") }
{ "_id" : ObjectId("5de0eb50df7e1b7abfa303af"), "3" : "333333333333333333333", "4" : 44444444444444, "5"
 : [ 1, 2, "3" ], "item1" : "111111", "item2" : "22222222" }
>
```

```
db.mycol.find().pretty()
```

```
> db.mycol.find().pretty()
{ "_id" : ObjectId("5de0eaf2df7e1b7abfa303ae") }
{
        "_id" : ObjectId("5de0eb50df7e1b7abfa303af"),
        "3" : "333333333333333333333",
        "4" : 44444444444444,
        "5" : [
                1,
                2,
                "3"
        ],
        "item1" : "111111",
        "item2" : "22222222"
}
>
```

文档更新

```
db.mycol.update({'4':{$gt:0}},{$set:{'item2':'OK'}});
```

```
> db.mycol.update({'4':{$gt:0}},{$set:{'item2':'OK'}});
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.mycol.find().pretty()
{ "_id" : ObjectId("5de0eaf2df7e1b7abfa303ae") }
{
        "_id" : ObjectId("5de0eb50df7e1b7abfa303af"),
        "3" : "333333333333333333333",
        "4" : 44444444444444,
        "5" : [
                1,
                2,
                "3"
        ],
        "item1" : "111111",
        "item2" : "OK"
}
>
```

文档删除

```
db.mycol.remove({'4':{$gt:0}},true)
```

```
> db.mycol.remove({'4':{$gt:0}},true)
WriteResult({ "nRemoved" : 1 })
>
```

```
db.mycol.remove({})
```

聚合和管道

```
db.mycol.aggregate({$group:{_id:"item1",num:{$sum:1}}})
```

```
> db.mycol.aggregate({$group:{_id:"item1",num:{$sum:1}}})
{ "_id" : "item1", "num" : 1 }
>
```

```
db.mycol.aggregate({$project:{item1:1, item2:1, item3:1}})
```

```
> db.mycol.aggregate({$project:{item1:1, item2:1, item3:1}})
{ "_id" : ObjectId("5de0eaf2df7e1b7abfa303ae") }
```

```
db.mycol.aggregate({$match:{"item3":{$gt:1,$gt:15}}})

db.mycol.aggregate({$sort:{"item2":1}})
```

```
> db.mycol.aggregate({$sort:{"item2":1}})
{ "_id" : ObjectId("5de0f0f77190fd288caa07c6"), "item1" : "111111", "item2" : "22222222", "item3" : 1, "it
em4" : [ 1, 2, 3, 4, 5 ] }
>
```

```
db.mycol.aggregate({$unwind:'$item4'})
```

```
> db.mycol.aggregate({$unwind:'$item4'})
{ "_id" : ObjectId("5de0f0f77190fd288caa07c6"), "item1" : "111111", "item2" : "22222222", "item3" : 1, "it
em4" : 1 }
{ "_id" : ObjectId("5de0f0f77190fd288caa07c6"), "item1" : "111111", "item2" : "22222222", "item3" : 1, "it
em4" : 2 }
{ "_id" : ObjectId("5de0f0f77190fd288caa07c6"), "item1" : "111111", "item2" : "22222222", "item3" : 1, "it
em4" : 3 }
{ "_id" : ObjectId("5de0f0f77190fd288caa07c6"), "item1" : "111111", "item2" : "22222222", "item3" : 1, "it
em4" : 4 }
{ "_id" : ObjectId("5de0f0f77190fd288caa07c6"), "item1" : "111111", "item2" : "22222222", "item3" : 1, "it
em4" : 5 }
>
```

索引操作

```
db.mycol.createIndex({"item1":1})
```

```
> db.mycol.createIndex({"item1":1})
{
        "createdCollectionAutomatically" : false,
        "numIndexesBefore" : 1,
        "numIndexesAfter" : 2,
        "ok" : 1
}
>
```

查看索引

```
db.mycol.getIndexes()
```

```
> db.mycol.getIndexes()
[
        {
                "v" : 2,
                "key" : {
                        "_id" : 1
                },
                "name" : "_id_",
                "ns" : "test.mycol"
        },
        {
                "v" : 2,
                "key" : {
                        "item1" : 1
                },
                "name" : "item1_1",
                "ns" : "test.mycol"
        }
]
>
```

删除索引

```
db.mycol.dropIndex("myindex")
```

```
> db.mycol.dropIndex("myindex")
{ "nIndexesWas" : 3, "ok" : 1 }
>
```

```
db.mycol.dropIndexes()
```

全文索引

```
db.mycol.createIndex({"item1":"text"})
```

```
> db.mycol.createIndex({"item1":"text"})
{
        "createdCollectionAutomatically" : false,
        "numIndexesBefore" : 2,
        "numIndexesAfter" : 3,
        "ok" : 1
}
>
```

python 访问 MongoDB

安装

```
pip install pymongo
```

导包

```
from pymongo import MongoClient
```

建立连接

```
client=MongoClient("192.168.52.129:27017")
```

切换数据库

```
db=client.get_database("testdb")
db=client.testdb
```

切换集合

```
col=db.testcol
```

定义 JSON 文档

```
item={
    "name":"fruits",
```

```
    "count_of":3,
    "varieties":['banana',"cherry","orange"]
}
item1={
    "name":"fruits",
    "count_of":4,
    "varieties":['banana',"cherry","orange"]
}
item2={
    "name":"fruits",
    "count_of":5,
    "varieties":['banana',"cherry","orange"]
}
```

插入记录

```
col.insert_one(item)
col.insert_one(item1)
col.insert_one(item2)
```

查看数据

```
print(col.find_one())
```

```
{'_id': ObjectId('5de10e2e33b628133501c150'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange']}

Process finished with exit code 0
```

更新数据

```
col.update_many({"name":"fruits"},{"$push":{"varieties":"lemen"}})
print(col.find_one())
```

```
{'_id': ObjectId('5de10e5531eba9306ae55a95'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange']}
{'_id': ObjectId('5de10e5531eba9306ae55a95'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange', 'lemen']}
```

$push $each 插入多个元素

```
col.update_many({"name":"fruits"},{"$push":{"varieties":{"$each":["1",
'2','3']}}})
print(col.find_one())
```

```
{'_id': ObjectId('5de10e6fd7c603fdc75becca'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange']}
{'_id': ObjectId('5de10e6fd7c603fdc75becca'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange', 'lemen']}
{'_id': ObjectId('5de10e6fd7c603fdc75becca'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange', 'lemen', '1', '2', '3']}

Process finished with exit code 0
```

累加方式更新数字类型元素

```
col.update_many({"name":"fruits"},{"$inc":{"count_of":1}})
print(col.find_one())
```

```
{'_id': ObjectId('5de10e84b1a96b9e546c6de9'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange']}
{'_id': ObjectId('5de10e84b1a96b9e546c6de9'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange', 'lemen']}
{'_id': ObjectId('5de10e84b1a96b9e546c6de9'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange', 'lemen', '1', '2', '3']}
{'_id': ObjectId('5de10e84b1a96b9e546c6de9'), 'name': 'fruits', 'count_of': 4, 'varieties': ['banana', 'cherry', 'orange', 'lemen', '1', '2', '3']}

Process finished with exit code 0
```

$pop 删除数据

```
col.update_many({"name":"fruits"},{"$pop":{"varieties":-1}})
print(col.find_one())
```

```
{'_id': ObjectId('5de10e9834302bbec48df59f'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange']}
{'_id': ObjectId('5de10e9834302bbec48df59f'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange', 'lemen']}
{'_id': ObjectId('5de10e9834302bbec48df59f'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange', 'lemen', '1', '2', '3']}
{'_id': ObjectId('5de10e9834302bbec48df59f'), 'name': 'fruits', 'count_of': 4, 'varieties': ['banana', 'cherry', 'orange', 'lemen', '1', '2', '3']}
{'_id': ObjectId('5de10e9834302bbec48df59f'), 'name': 'fruits', 'count_of': 4, 'varieties': ['cherry', 'orange', 'lemen', '1', '2', '3']}

Process finished with exit code 0
```

更新数据

```
col.update_many({"name":"fruits"},{"$set":{"count_of":10}})
print(col.find_one())
```

```
{'_id': ObjectId('5de10eafbbb5826a9c3272d6'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange']}
{'_id': ObjectId('5de10eafbbb5826a9c3272d6'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange', 'lemen']}
{'_id': ObjectId('5de10eafbbb5826a9c3272d6'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange', 'lemen', '1', '2', '3']}
{'_id': ObjectId('5de10eafbbb5826a9c3272d6'), 'name': 'fruits', 'count_of': 4, 'varieties': ['banana', 'cherry', 'orange', 'lemen', '1', '2', '3']}
{'_id': ObjectId('5de10eafbbb5826a9c3272d6'), 'name': 'fruits', 'count_of': 4, 'varieties': ['cherry', 'orange', 'lemen', '1', '2', '3']}
{'_id': ObjectId('5de10eafbbb5826a9c3272d6'), 'name': 'fruits', 'count_of': 10, 'varieties': ['cherry', 'orange', 'lemen', '1', '2', '3']}

Process finished with exit code 0
```

查看数据

```
print(col.find_one({"name":"fruits"}))
```

排序 限制 跳过

```
for r in col.find({"name":"fruits"}).sort("count_of").limit(3).skip(2):
    print(r)
```

```
D:\ProgramData\Anaconda3\envs\nosql\python.exe E:/PycharmWorkspaces/NoSql/MongoDB.py
{'_id': ObjectId('5de10ef3e43c8711512164a9'), 'name': 'fruits', 'count_of': 5, 'varieties': ['banana', 'cherry', 'orange']}

Process finished with exit code 0
```

控制显示的列

```
for r in col.find({"name":"fruits"},projection={'count_of':False}):
    print(r)
```

```
{'_id': ObjectId('5de10f0afd44728751973e5e'), 'name': 'fruits', 'varieties': ['banana', 'cherry', 'orange']}
{'_id': ObjectId('5de10f0afd44728751973e5f'), 'name': 'fruits', 'varieties': ['banana', 'cherry', 'orange']}
{'_id': ObjectId('5de10f0afd44728751973e60'), 'name': 'fruits', 'varieties': ['banana', 'cherry', 'orange']}

Process finished with exit code 0
```

聚合查询

```
print(col.find({"name":"fruits"}).count())
print(col.count_documents({"name":"fruits"}))
```

```
D:\ProgramData\Anaconda3\envs\nosql\python.exe E:/PycharmWorkspaces/NoSql/MongoDB.p
3

Process finished with exit code 0
```

比较运算符

```
for r in col.find({"count_of":{"$lt":4}}):
    print(r)
```

```
D:\ProgramData\Anaconda3\envs\nosql\python.exe E:/PycharmWorkspaces/NoSql/MongoDB.py
{'_id': ObjectId('5de10f3720eb6a69fff616f4'), 'name': 'fruits', 'count_of': 3, 'varieties': ['banana', 'cherry', 'orange']}

Process finished with exit code 0
```

地理索引查询

```
from pymongo import GEO2D
db.places.create_index([("loc",GEO2D)])
#插入经纬度信息
result = db.places.insert_many([{"loc": [2, 5]},{"loc":[30, 5]},{"loc":
[1, 2]},{"loc": [4, 4]}])
```

```
# $near   查询
for doc in db.places.find({"loc": {"$near": [3, 6]}}).limit(3):
        print(doc)
```

```
D:\ProgramData\Anaconda3\envs\nosql\python.exe E:/PycharmWorkspaces/NoSql/MongoDB.py
{'_id': ObjectId('5de10f579147d80cf7197b0d'), 'loc': [2, 5]}
{'_id': ObjectId('5de10f579147d80cf7197b10'), 'loc': [4, 4]}
{'_id': ObjectId('5de10f579147d80cf7197b0f'), 'loc': [1, 2]}

Process finished with exit code 0
```

Gridfs 操作

```
import gridfs
fs=gridfs.GridFS(db)
fileid=fs.put(b"hello word",filename="testfile")
print(fs.exists({'filename':'testfile'}))
print(fs.list())
for doc in fs.find({"filename":"testfile"}):
      print(doc._id)
      print(doc.filename)
      print(doc.read())
      #删除
     fs.delete(doc._id)
```

```
D:\ProgramData\Anaconda3\envs\nosql\python.exe E:/PycharmWorkspaces/NoSql/MongoDB.py
True
['testfile']
5de10f705e0eaa1382012d4e
testfile
b'hello word'

Process finished with exit code 0
```

删除数据

```
col.delete_one({"name":"fruits"})
print(col.find_one())
```

删除集合

```
db.places.delete_many({})
db.drop_collection("testcol")
```