

Indexes

Create additional collections:

Open windows cmd prompt and connect to mongos

```
mongo --port 27200
```

```
mongos> use mongoMart
```

```
mongos> db.restaurants.getIndexes()
```

```
mongos> db.restaurants.createIndex({name : 1})
```

```
mongos> db.restaurants.createIndex({cuisine : 1, name : 1})
```

```
mongos> db.restaurants.getIndexes()
```

```
mongos> db.restaurants.find({cuisine: "Sushi", name: /^Sushi/})
```

```
mongos> db.restaurants.find({cuisine: "Sushi", name: /^Sushi/}).count()
```

```
mongos> db.restaurants.dropIndex({name : 1})
```

```
mongos> db.restaurants.getIndexes()
```

```
mongos> db.restaurants.createIndex({name : 1}, {background:1})
```

```
mongos> use cars
```

```
mongos> db.list2.find()
```

```
mongos> db.list.getIndexes()
```

```
mongos> db.list.createIndex({mileage:1,year:-1},{})
```

```
mongos> db.list.find({mileage:{$gte:100}}).explain()
```

```
mongos> db.list.find({year:2000}).explain()
```

```
mongos> db.list.find({year:2000}).hint('mileage_1_year_-1').explain()
```

```
mongos> db.list.createIndex({brand:'hashed'})

mongos> db.list.getIndexes()

mongos> db.list.find({brand:'Toyota'}).explain()

mongos> db.list.find({brand:{$in:['Toyota', 'Nissan']}}).explain()

mongos> db.list.dropIndex('brand_hashed')

mongos> db.arr.find()

mongos> db.arr.createIndex({cities:1})

mongos> db.arr.find({cities:{$size:2}})

mongos> db.arr.find({cities:{$size:2}}).explain()

mongos> db.arr.find({cities:{$all:['London']}})

mongos> db.arr.find({cities:{$all:['London']}}).explain()

mongos> db.arr.find({cities:{$elemMatch:{$eq: 'London'}}})

mongos> db.arr.find({cities:{$elemMatch:{$eq: 'London'}}}).explain()

mongos> db.nested.findOne()

mongos> db.nested.createIndex({'models.engine':1})

mongos> db.nested.find({models:{$elemMatch:{engine:'Petrol'}}})

mongos> db.nested.find({models:{$elemMatch:{engine:'Petrol'}}}).explain()

mongos> db.nested.find({models:{$exists:true}})

mongos> db.nested.find({models:{$exists:true}}).explain()

mongos> db.nested.createIndex({models:1})

mongos> db.nested.find({models:{$exists:1}})

mongos> db.nested.find({models:{$exists:1}}).explain()
```

```
mongos> db.list.find({}, {mileage:1})
{ "_id" : ObjectId("60ad5cfec19cbcf173c7519e") }
{ "_id" : ObjectId("60ad5cfec19cbcf173c7519f"), "mileage" : 120000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a0") }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a1"), "mileage" : 5000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a2"), "mileage" : NumberLong(200000) }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a3"), "mileage" : NumberLong(65000) }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a4"), "mileage" : 7000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a5"), "mileage" : 15000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a6"), "mileage" : 27000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a7"), "mileage" : 35000 }
```

```
mongos> db.list.getIndexes()
mongos> db.list.dropIndex('mileage_1_year_-1')
```

```
mongos> db.list.createIndex({mileage:1},{name:'mileage_1_non_sparse'})
```

```
mongos> db.list.createIndex({mileage:1},{sparse:true,name:'mileage_1_sparse'})
```

```
mongos> db.list.createIndex({mileage:-1},{sparse:true,name:'mileage_-1_sparse'})
```

```
mongos> db.list.getIndexes()
[
  {
    "v" : 2,
    "key" : {
      "_id" : 1
    },
    "name" : "_id_"
  },
  {
    "v" : 2,
    "key" : {
      "mileage" : 1
    },
    "name" : "mileage_1_non_sparse"
  },
  {
    "v" : 2,
    "key" : {
      "mileage" : -1
    },
    "name" : "mileage_-1_sparse",
```

```
    "sparse" : true
  }
]
```

```
mongos> db.list.find({mileage:{$ne:0}},{mileage:1})
{ "_id" : ObjectId("60ad5cfec19cbcf173c7519e") }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a0") }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a1"), "mileage" : 5000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a4"), "mileage" : 7000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a5"), "mileage" : 15000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a6"), "mileage" : 27000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a7"), "mileage" : 35000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a3"), "mileage" : NumberLong(65000) }
{ "_id" : ObjectId("60ad5cfec19cbcf173c7519f"), "mileage" : 120000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a2"), "mileage" : NumberLong(200000) }
```

```
mongos> db.list.find({mileage:{$ne:0}},{mileage:1}).explain()
```

```
mongos> db.list.find({mileage:{$ne:0}},{mileage:1}).hint('mileage_-1_sparse')
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a2"), "mileage" : NumberLong(200000) }
{ "_id" : ObjectId("60ad5cfec19cbcf173c7519f"), "mileage" : 120000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a3"), "mileage" : NumberLong(65000) }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a7"), "mileage" : 35000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a6"), "mileage" : 27000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a5"), "mileage" : 15000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a4"), "mileage" : 7000 }
{ "_id" : ObjectId("60ad5cfec19cbcf173c751a1"), "mileage" : 5000 }
```

```
mongos> db.ttl.insert({msg:'hi',clock: new Date()})
WriteResult({ "nInserted" : 1 })
mongos> db.ttl.insert({msg:'no clock field'})
WriteResult({ "nInserted" : 1 })
mongos> db.ttl.insert({msg:'illegal clock val',clock: 'now'})
WriteResult({ "nInserted" : 1 })
```

```
mongos> db.ttl.find()
{ "_id" : ObjectId("60aff1d5712a9c7703ff61af"), "msg" : "hi", "clock" : ISODate("2021-05-27T19:24:05.281Z") }
{ "_id" : ObjectId("60aff218712a9c7703ff61b0"), "msg" : "no clock field" }
{ "_id" : ObjectId("60aff257712a9c7703ff61b1"), "msg" : "illegal clock val", "clock" : "now" }
```

```

mongos> db.ttl.createIndex({clock:1},{expireAfterSeconds:5})
{
  "raw" : {
    "shard3rs/localhost:2007,localhost:2008,localhost:2009" : {
      "createdCollectionAutomatically" : false,
      "numIndexesBefore" : 1,
      "numIndexesAfter" : 2,
      "commitQuorum" : "votingMembers",
      "ok" : 1
    }
  },
  "ok" : 1,
  "operationTime" : Timestamp(1622143714, 7),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1622143714, 7),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
mongos> db.ttl.find()
{ "_id" : ObjectId("60aff1d5712a9c7703ff61af"), "msg" : "hi", "clock" : ISODate("2021-05-27T19:24:05.281Z") }
{ "_id" : ObjectId("60aff218712a9c7703ff61b0"), "msg" : "no clock field" }
{ "_id" : ObjectId("60aff257712a9c7703ff61b1"), "msg" : "illegal clock val", "clock" : "now" }
mongos> db.ttl.find()
{ "_id" : ObjectId("60aff218712a9c7703ff61b0"), "msg" : "no clock field" }
{ "_id" : ObjectId("60aff257712a9c7703ff61b1"), "msg" : "illegal clock val", "clock" : "now" }

```