Connect via `mongosh`

```
mongosh # connects to mongodb://127.0.0.1:27017 by default
mongosh --host <host> --port <port> --authenticationDatabase admin -u <user> -p <pwd> # omit the password if you want a prompt
mongosh "mongodb://<user>:<password>@192.168.1.1:27017"
mongosh "mongodb://192.168.1.1:27017"
mongosh "mongodb+srv://cluster-name.abcde.mongodb.net/<dbname>" --apiVersion 1 --username <username> # MongoDB Atlas
```

Helpers

Show Databases

```
show dbs
db // prints the current database
```

Switch Database

```
use <database_name>
```

Show Collections

```
show collections
```

Run JavaScript File

```
load("myScript.js")
```

CRUD

Create

```
db.coll.insertOne({name: "Max"})
db.coll.insertMany([{name: "Max"}, {name:"Alex"}]) // ordered bulk insert
db.coll.insertMany([{name: "Max"}, {name:"Alex"}], {ordered: false}) // unordered bulk insert
db.coll.insertOne({date: ISODate()})
db.coll.insertOne({name: "Max"}, {"writeConcern": {"w": "majority", "wtimeout": 5000}})
```

Read

```
db.coll.findOne() // returns a single document
db.coll.find()    // returns a cursor - show 20 results - "it" to display more
db.coll.find().pretty()
db.coll.find({name: "Max", age: 32}) // implicit logical "AND".
db.coll.find({date: ISODate("2020-09-25T13:57:17.180Z")})
db.coll.find({name: "Max", age: 32}).explain("executionStats") // or "queryPlanner" or "allPlansExecution"
db.coll.distinct("name")

// Count
db.coll.countDocuments({age: 32}) // alias for an aggregation pipeline - accurate count
db.coll.estimatedDocumentCount()  // estimation based on collection metadata

// Comparison
db.coll.find({"year": {$gt: 1970}})
db.coll.find({"year": {$gte: 1970}})
db.coll.find({"year": {$lt: 1970}})
db.coll.find({"year": {$lte: 1970}})
db.coll.find({"year": {$ne: 1970}})
db.coll.find({"year": {$in: [1958, 1959]}})
db.coll.find({"year": {$nin: [1958, 1959]}})

```

```
// Logical
db.coll.find({name:{$not: {$eq: "Max"}}})
db.coll.find({$or: [{"year" : 1958}, {"year" : 1959}]})
db.coll.find({$nor: [{price: 1.99}, {sale: true}]})
db.coll.find({
  $and: [
    {$or: [{qty: {$lt :10}}, {qty :{$gt: 50}}]},
    {$or: [{sale: true}, {price: {$lt: 5 }}]}
  ]
})

// Element
db.coll.find({name: {$exists: true}})
db.coll.find({"zipCode": {$type: 2 }})
db.coll.find({"zipCode": {$type: "string"}})

// Aggregation Pipeline
db.coll.aggregate([
  {$match: {status: "A"}},
  {$group: {_id: "$cust_id", total: {$sum: "$amount"}}},
  {$sort: {total: -1}}
])

// Text search with a "text" index
db.coll.find({$text: {$search: "cake"}}, {score: {$meta: "textScore"}}).sort({score: {$meta: "textScore"}})

// Regex
db.coll.find({name: /^Max/})   // regex: starts by letter "M"
db.coll.find({name: /^Max$/i}) // regex case insensitive

// Array
db.coll.find({tags: {$all: ["Realm", "Charts"]}})
db.coll.find({field: {$size: 2}}) // impossible to index - prefer storing the size of the array & update it
db.coll.find({results: {$elemMatch: {product: "xyz", score: {$gte: 8}}}})

// Projections
db.coll.find({"x": 1}, {"actors": 1})               // actors + _id
db.coll.find({"x": 1}, {"actors": 1, "_id": 0})     // actors
db.coll.find({"x": 1}, {"actors": 0, "summary": 0}) // all but "actors" and "summary"

// Sort, skip, limit
db.coll.find({}).sort({"year": 1, "rating": -1}).skip(10).limit(3)

// Read Concern
db.coll.find().readConcern("majority")
```

Update

```
db.coll.updateOne({"_id": 1}, {$set: {"year": 2016, name: "Max"}})
db.coll.updateOne({"_id": 1}, {$unset: {"year": 1}})
db.coll.updateOne({"_id": 1}, {$rename: {"year": "date"} })
db.coll.updateOne({"_id": 1}, {$inc: {"year": 5}})
db.coll.updateOne({"_id": 1}, {$mul: {price: NumberDecimal("1.25"), qty: 2}})
db.coll.updateOne({"_id": 1}, {$min: {"imdb": 5}})
db.coll.updateOne({"_id": 1}, {$max: {"imdb": 8}})
db.coll.updateOne({"_id": 1}, {$currentDate: {"lastModified": true}})
db.coll.updateOne({"_id": 1}, {$currentDate: {"lastModified": {$type: "timestamp"}}})

// Array
db.coll.updateOne({"_id": 1}, {$push :{"array": 1}})
db.coll.updateOne({"_id": 1}, {$pull :{"array": 1}})
db.coll.updateOne({"_id": 1}, {$addToSet :{"array": 2}})
db.coll.updateOne({"_id": 1}, {$pop: {"array": 1}})  // last element
db.coll.updateOne({"_id": 1}, {$pop: {"array": -1}}) // first element
db.coll.updateOne({"_id": 1}, {$pullAll: {"array" :[3, 4, 5]}})
db.coll.updateOne({"_id": 1}, {$push: {"scores": {$each: [90, 92]}}})
db.coll.updateOne({"_id": 2}, {$push: {"scores": {$each: [40, 60], $sort: 1}}}) // array sorted
db.coll.updateOne({"_id": 1, "grades": 80}, {$set: {"grades.$": 82}})
db.coll.updateMany({}, {$inc: {"grades.$[]": 10}})
db.coll.updateMany({}, {$set: {"grades.$[element]": 100}}, {multi: true, arrayFilters: [{"element": {$gte: 100}}]})

// FindOneAndUpdate
db.coll.findOneAndUpdate({"name": "Max"}, {$inc: {"points": 5}}, {returnNewDocument: true})

// Upsert
db.coll.updateOne({"_id": 1}, {$set: {item: "apple"}, $setOnInsert: {defaultQty: 100}}, {upsert: true})

// Replace
db.coll.replaceOne({"name": "Max"}, {"firstname": "Maxime", "surname": "Beugnet"})

// Write concern
db.coll.updateMany({}, {$set: {"x": 1}}, {"writeConcern": {"w": "majority", "wtimeout": 5000}})
```

Delete

```
db.coll.deleteOne({name: "Max"})
db.coll.deleteMany({name: "Max"}, {"writeConcern": {"w": "majority", "wtimeout": 5000}})
db.coll.deleteMany({}) // WARNING! Deletes all the docs but not the collection itself and its index definitions
db.coll.findOneAndDelete({"name": "Max"})
```

Databases and Collections

Drop

```
db.coll.drop()    // removes the collection and its index definitions
db.dropDatabase() // double check that you are *NOT* on the PROD cluster... :-)
```

Create Collection

```
// Create collection with a $jsonschema
db.createCollection("contacts", {
   validator: {$jsonSchema: {
      bsonType: "object",
      required: ["phone"],
      properties: {
         phone: {
            bsonType: "string",
            description: "must be a string and is required"
         },
         email: {
            bsonType: "string",
            pattern: "@mongodb\.com$",
            description: "must be a string and match the regular expression pattern"
         },
         status: {
            enum: [ "Unknown", "Incomplete" ],
            description: "can only be one of the enum values"
         }
      }
   }}
})
```

Other Collection Functions

```
db.coll.stats()
db.coll.storageSize()
db.coll.totalIndexSize()
db.coll.totalSize()
db.coll.validate({full: true})
db.coll.renameCollection("new_coll", true) // 2nd parameter to drop the target collection if exists
```

Indexes

List Indexes

```
db.coll.getIndexes()
db.coll.getIndexKeys()
```

Create Indexes

```
// Index Types
db.coll.createIndex({"name": 1})                // single field index
db.coll.createIndex({"name": 1, "date": 1})     // compound index
db.coll.createIndex({foo: "text", bar: "text"}) // text index
db.coll.createIndex({"$**": "text"})            // wildcard text index
db.coll.createIndex({"userMetadata.$**": 1})    // wildcard index
db.coll.createIndex({"loc": "2d"})              // 2d index
db.coll.createIndex({"loc": "2dsphere"})        // 2dsphere index
db.coll.createIndex({"_id": "hashed"})          // hashed index

// Index Options
db.coll.createIndex({"lastModifiedDate": 1}, {expireAfterSeconds: 3600})      // TTL index
db.coll.createIndex({"name": 1}, {unique: true})
db.coll.createIndex({"name": 1}, {partialFilterExpression: {age: {$gt: 18}}}) // partial index
db.coll.createIndex({"name": 1}, {collation: {locale: 'en', strength: 1}})    // case insensitive index with strength = 1 or 2
db.coll.createIndex({"name": 1 }, {sparse: true})
```

Drop Indexes

```
db.coll.dropIndex("name_1")
```

Hide/Unhide Indexes

```
db.coll.hideIndex("name_1")
db.coll.unhideIndex("name_1")
```

Handy commands

```
use admin
db.createUser({"user": "root", "pwd": passwordPrompt(), "roles": ["root"]})
db.dropUser("root")
db.auth( "user", passwordPrompt() )

use test
db.getSiblingDB("dbname")
db.currentOp()
db.killOp(123) // opid

db.fsyncLock()
db.fsyncUnlock()

db.getCollectionNames()
db.getCollectionInfos()
db.printCollectionStats()
db.stats()

db.getReplicationInfo()
db.printReplicationInfo()
db.hello()
db.hostInfo()

db.shutdownServer()
db.serverStatus()

db.getProfilingStatus()
db.setProfilingLevel(1, 200) // 0 == OFF, 1 == ON with slowms, 2 == ON

db.enableFreeMonitoring()
db.disableFreeMonitoring()
db.getFreeMonitoringStatus()

db.createView("viewName", "sourceColl", [{$project:{department: 1}}])
```

Change Streams

```
watchCursor = db.coll.watch( [ { $match : {"operationType" : "insert" } } ] )

while (!watchCursor.isExhausted()){
   if (watchCursor.hasNext()){
      print(tojson(watchCursor.next()));
   }
}
```

Replica Set

```
rs.status()
rs.initiate({"_id": "RS1",
  members: [
    { _id: 0, host: "mongodb1.net:27017" },
    { _id: 1, host: "mongodb2.net:27017" },
    { _id: 2, host: "mongodb3.net:27017" }]
})
rs.add("mongodb4.net:27017")
rs.addArb("mongodb5.net:27017")
rs.remove("mongodb1.net:27017")
rs.conf()
rs.hello()
rs.printReplicationInfo()
rs.printSecondaryReplicationInfo()
rs.reconfig(config)
rs.reconfigForPSASet(memberIndex, config, { options } )
db.getMongo().setReadPref('secondaryPreferred')
rs.stepDown(20, 5) // (stepDownSecs, secondaryCatchUpPeriodSecs)
```

Sharded Cluster

```
db.printShardingStatus()

sh.status()
sh.addShard("rs1/mongodb1.example.net:27017")
sh.shardCollection("mydb.coll", {zipcode: 1})

sh.moveChunk("mydb.coll", { zipcode: "53187" }, "shard0019")
sh.splitAt("mydb.coll", {x: 70})
sh.splitFind("mydb.coll", {x: 70})

sh.startBalancer()
sh.stopBalancer()
sh.disableBalancing("mydb.coll")
sh.enableBalancing("mydb.coll")
sh.getBalancerState()
sh.setBalancerState(true/false)
sh.isBalancerRunning()

sh.startAutoMerger()
sh.stopAutoMerger()
sh.enableAutoMerger()
sh.disableAutoMerger()

sh.updateZoneKeyRange("mydb.coll", {state: "NY", zip: MinKey }, { state: "NY", zip: MaxKey }, "NY")
sh.removeRangeFromZone("mydb.coll", {state: "NY", zip: MinKey }, { state: "NY", zip: MaxKey })
sh.addShardToZone("shard0000", "NYC")
sh.removeShardFromZone("shard0000", "NYC")
```