

# GETTING STARTED WITH MONGODB FOR CFML DEVELOPERS

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# Why you're here

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- Hear about what MongoDB is
- See how easy it is to install for development
- Learn how to start putting data in and getting data out with Adobe ColdFusion and Railo CFML engines
- Hopefully not expecting to know everything there is to know about MongoDB when you leave here today
  - Session is designed to “whet your appetite”



# Obligatory “About Me” slide

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- Began experimenting with HTML in 1997 after the birth of our twins while on active duty with the U.S. Air Force
- Staff developer for a company headquartered in San Jose, CA for 8 1/2 years
- Began with Allaire ColdFusion 4.5 in 2000 as part of a Spectra 1.0 project
- Have developed on every Allaire/Macromedia/Adobe ColdFusion version since then \*
- Have done several projects of varying sizes with Railo
- Independent consultant since 2006 working with clients of all sizes across the U.S. building applications on multiple CFML engines and versions
- Contributing partner and build master for the Model-Glue MVC framework for CFML
- Also enjoy shooting, coaching basketball, amateur (HAM) radio and video games

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# What is MongoDB?

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# Long, boring definition

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[1] MongoDB is an open-source document database, and the leading NoSQL database. Written in C++, MongoDB features document-oriented storage, full index support, replication and high availability...

*ZZZZZZZZZZZZZZ...*

# Usable definition

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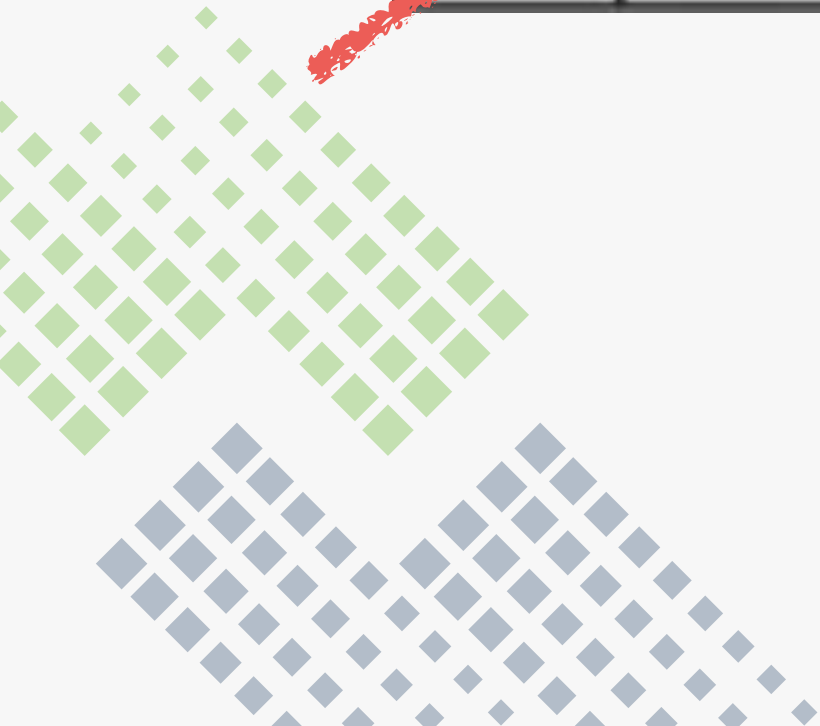
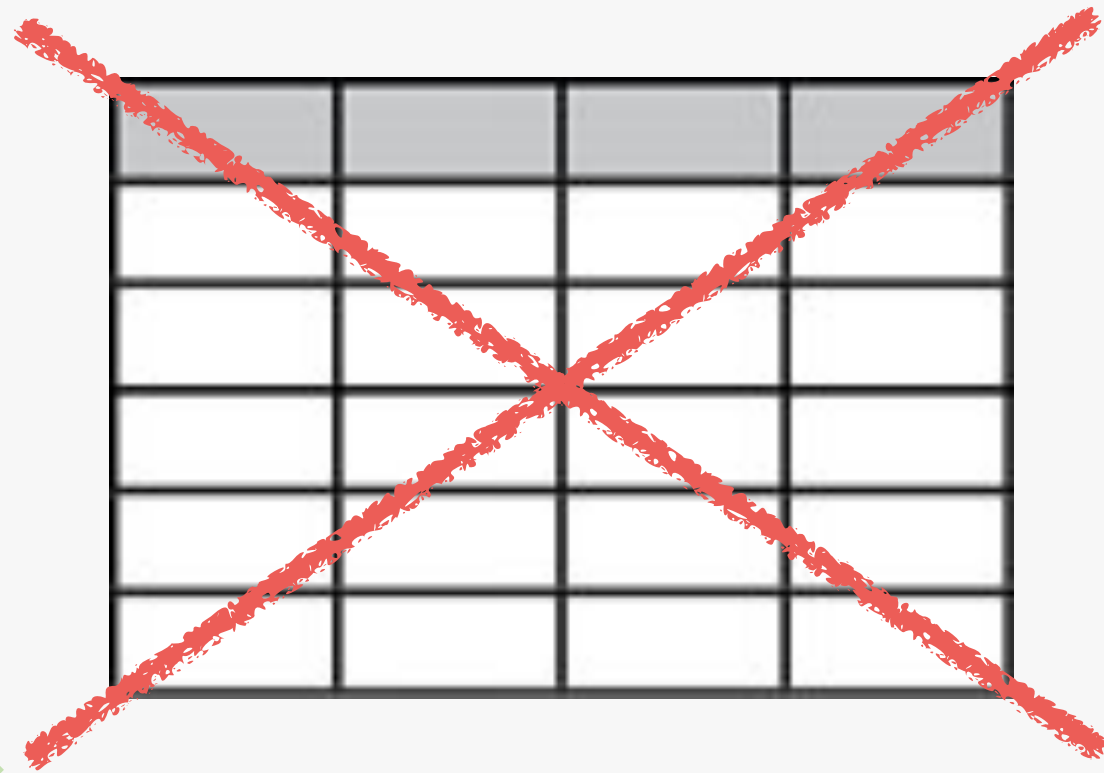
MongoDB is a different way of storing data than what we've been used to with relational databases.

**DIFFERENT HOW!?!?**



# TABLE/ROW vs DOCUMENT

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# Document-Oriented Storage

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```
{  
  "city" : "MINNEAPOLIS",  
  "latitude": 44.967345,  
  "longitude": -93.282841,  
  "pop" : 14098,  
  "state" : "MN",  
  "_id" : "55403"  
}
```





# OTHER DIFFERENCES

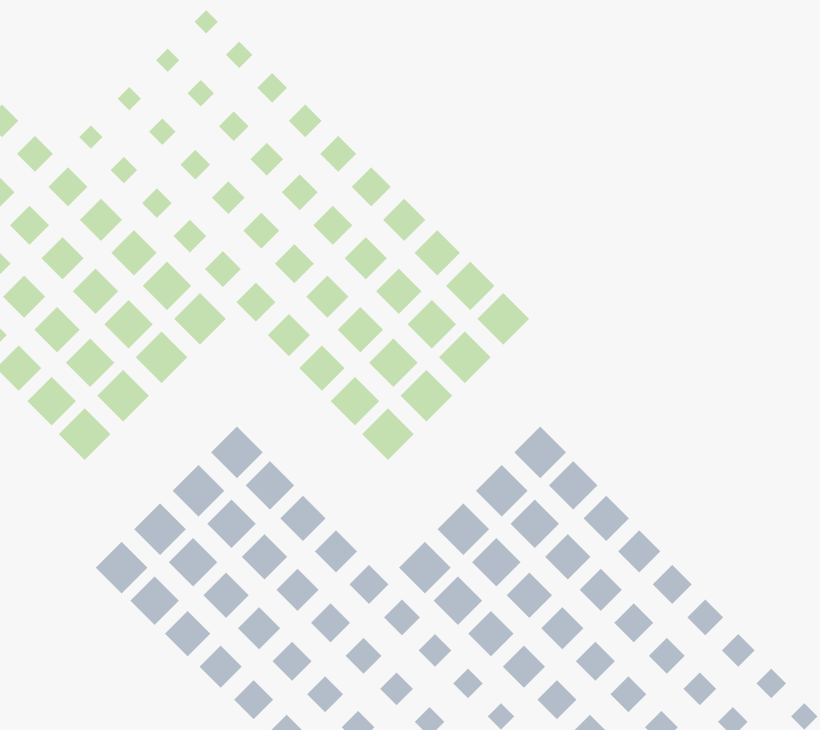
---

## “Schema-less”\*

MongoDB doesn't care if not all documents in a collection have the same fields

## Embed Data vs Foreign Key Linkage

MongoDB preference is to embed related data as a nested document



# Document-Oriented Storage

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```
{  
  "city" : "MINNEAPOLIS",  
  "loc" : [  
    -93.282841,  
    44.967345  
  ],  
  "postoffice": {  
    "address1": "100 S 1ST ST",  
    "phone": "612-349-4713",  
    "tty": "877-889-2457"  
  },  
  "pop" : 14098,  
  "state" : "MN",  
  "_id" : "55403"  
}
```

# OTHER DIFFERENCES

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## “Schema-less”\*

MongoDB doesn't care if not all documents in a collection have the same fields

## Embed Data vs Foreign Key Linkage

MongoDB preference is to embed related data as a nested document

## Easily Replicated

Easily replicate data across 3+ MongoDB instances for fault tolerance and performance improvements

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# WHY MONGODB?

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# THE GOOD, THE BAD, THE...

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- It's **F**AST
- It's **F**LEXIBLE
- It's **F**ORGIVING
- **N**o transactions
- **N**o JOINS
- **N**o data write guarantee \*
- **N**o documents over 16MB
- **N**o direct cross-over from SQL language most of us are used to



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# Installation

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# MAC / \*NIX INSTALLATIONS

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## Using A Package Manager

```
brew install mongodb  
  
yum install mongo-10gen mongo-10gen-server  
  
apt-get install mongodb-10gen
```

## Download & Unzip



<http://www.mongodb.org/downloads>

# WINDOWS INSTALLATIONS

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## Download & Unzip



<http://www.mongodb.org/downloads>

## Using Chocolatey Package Manager

```
cinst mongodb
```

## Install as a Windows Service

```
C:\mongodb\bin\mongod.exe  
--config C:\mongodb\mongod.cfg --install
```



# OK, NOW WHAT?

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Hint: Run It!

Mac / \*nix

```
mongod
```

Windows

```
c:\mongodb\bin\mongod.exe
```

SUCCESS! Or, wait a minute....



# Whoops

```
Macintosh HD — bash — 120x28
Dans-Macbook-Pro:/ dskaggs$ mongod
mongod --help for help and startup options
Sun Apr  6 19:46:02.059 [initandlisten] MongoDB starting : pid=23449 port=27017 dbpath=/data/db/ 64-bit host=Dans-Macbook-Pro.local
Sun Apr  6 19:46:02.060 [initandlisten] db version v2.4.9
Sun Apr  6 19:46:02.060 [initandlisten] git version: 52fe0d21959e32a5bdbecdc62057db386e4e029c
Sun Apr  6 19:46:02.060 [initandlisten] build info: Darwin bs-osx-106-x86-64-2.10gen.cc 10.8.0 Darwin Kernel Version 10.8.0: Tue Jun  7 16:32:41 PDT 2011; root:xnu-1504.15.3~1/RELEASE_X86_64 x86_64 BOOST_LIB_VERSION=1_49
Sun Apr  6 19:46:02.060 [initandlisten] allocator: system
Sun Apr  6 19:46:02.060 [initandlisten] options: {}
Sun Apr  6 19:46:02.060 [initandlisten] exception in initAndlisten: 10296
*****
ERROR: dbpath (/data/db/) does not exist.
Create this directory or give existing directory in --dbpath.
See http://dochub.mongodb.org/core/startingandstoppingmongo
*****
, terminating
Sun Apr  6 19:46:02.060 dbexit:
Sun Apr  6 19:46:02.060 [initandlisten] shutdown: going to close listening sockets...
Sun Apr  6 19:46:02.060 [initandlisten] shutdown: going to flush diaglog...
Sun Apr  6 19:46:02.060 [initandlisten] shutdown: going to close sockets...
Sun Apr  6 19:46:02.060 [initandlisten] shutdown: waiting for fs preallocator...
Sun Apr  6 19:46:02.060 [initandlisten] shutdown: lock for final commit...
Sun Apr  6 19:46:02.060 [initandlisten] shutdown: final commit...
Sun Apr  6 19:46:02.060 [initandlisten] shutdown: closing all files...
Sun Apr  6 19:46:02.060 [initandlisten] closeAllFiles() finished
Sun Apr  6 19:46:02.060 dbexit: really exiting now
Dans-Macbook-Pro:/ dskaggs$
```

# DATA DIRECTORIES

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MongoDB does not auto create your data directories

Mac / \*nix

```
/data/db
```

Windows

```
c:\data\db
```

Use a Custom Data Directory

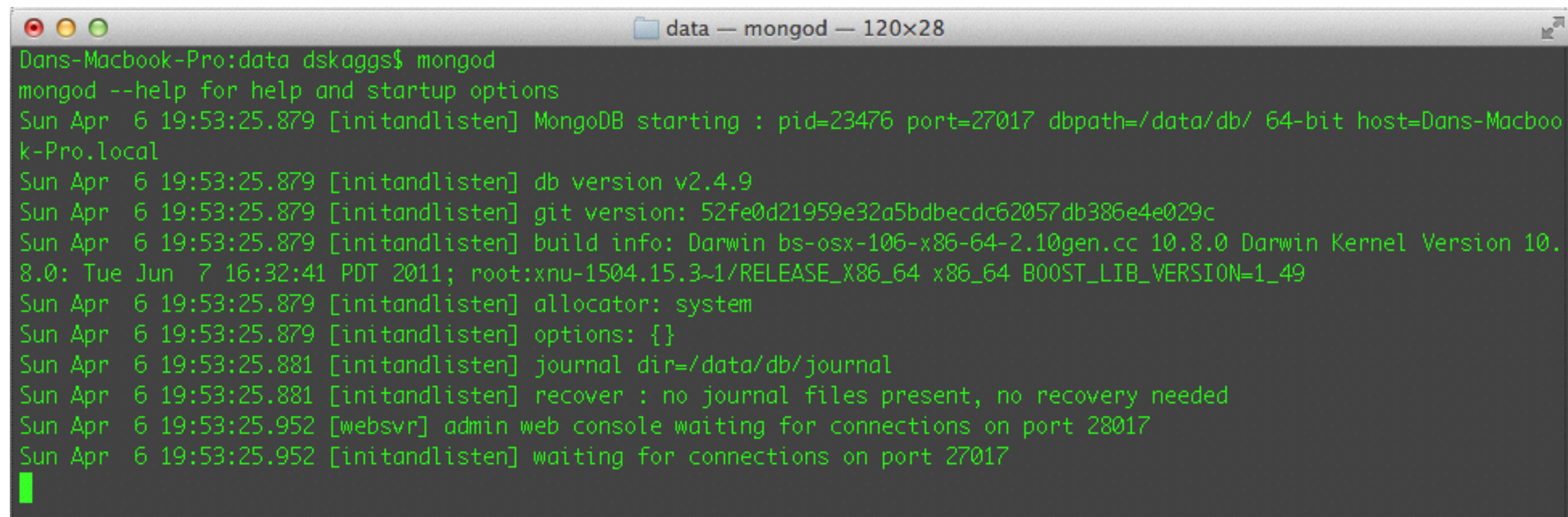
```
mongod --dbpath /path/to/my/folder  
mongod.exe --dbpath "d:\path\to\my\folder"
```

Maybe this time.....



# SUCCESS!

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A screenshot of a macOS terminal window titled "data — mongod — 120x28". The terminal shows the output of the "mongod" command. The logs indicate that MongoDB is starting successfully on a Macbook-Pro. The logs include the pid (23476), port (27017), dbpath (/data/db/), and host (Dans-Macbook-Pro.local). It also shows the db version (v2.4.9), git version (52fe0d21959e32a5bdbecdc62057db386e4e029c), build info (Darwin bs-osx-106-x86-64-2.10gen.cc 10.8.0 Darwin Kernel Version 10.8.0: Tue Jun 7 16:32:41 PDT 2011; root:xnu-1504.15.3~1/RELEASE\_X86\_64 x86\_64 B00ST\_LIB\_VERSION=1\_49), allocator (system), options ({}), journal dir (/data/db/journal), and recovery status (no journal files present, no recovery needed). Finally, it shows the admin web console waiting for connections on port 28017 and the mongod process waiting for connections on port 27017.

```
Dans-Macbook-Pro:data dskaggs$ mongod
mongod --help for help and startup options
Sun Apr  6 19:53:25.879 [initandlisten] MongoDB starting : pid=23476 port=27017 dbpath=/data/db/ 64-bit host=Dans-Macbook-Pro.local
Sun Apr  6 19:53:25.879 [initandlisten] db version v2.4.9
Sun Apr  6 19:53:25.879 [initandlisten] git version: 52fe0d21959e32a5bdbecdc62057db386e4e029c
Sun Apr  6 19:53:25.879 [initandlisten] build info: Darwin bs-osx-106-x86-64-2.10gen.cc 10.8.0 Darwin Kernel Version 10.8.0: Tue Jun 7 16:32:41 PDT 2011; root:xnu-1504.15.3~1/RELEASE_X86_64 x86_64 B00ST_LIB_VERSION=1_49
Sun Apr  6 19:53:25.879 [initandlisten] allocator: system
Sun Apr  6 19:53:25.879 [initandlisten] options: {}
Sun Apr  6 19:53:25.881 [initandlisten] journal dir=/data/db/journal
Sun Apr  6 19:53:25.881 [initandlisten] recover : no journal files present, no recovery needed
Sun Apr  6 19:53:25.952 [websvr] admin web console waiting for connections on port 28017
Sun Apr  6 19:53:25.952 [initandlisten] waiting for connections on port 27017
```

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# TO THE DATA!

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# ABOUT THE DATA

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MongoDB dataset of US zip codes includes

City

State

Population

Longitude / Latitude

29,467 zip codes

25,815 city/state combinations



# MONGO COMMAND LINE

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```
> db.zipcodes.find({
  'state': 'MN',
  'city': 'MINNEAPOLIS'
}).skip(2).limit(1).pretty();

{
  "city" : "MINNEAPOLIS",
  "loc" : [
    -93.282841,
    44.967345
  ],
  "pop" : 14098,
  "state" : "MN",
  "_id" : "55403"
}
```

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# DEMO TIME

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# Resources

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- [MongoDB.org](https://mongodb.org)
- MongoDB University
- CFMongoDB GitHub Repo



# Questions?

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