

```
/tmp/repl:master +1 $ p█
```

```
2.0.0-p247
```

```
/tmp/repl:master +1 $ pry
```

```
/tmp/repl:master +1 $ pry  
[1] pry(main)> █
```

```
/tmp/repl:master +1 $ pry
[1] pry(main)> $mongo
=> <Moped::Session seeds=["localhost"] database=presentation>
[2] pry(main)> █
```

```
/tmp/repl:master +1 $ pry
[1] pry(main)> $mongo
=> <Moped::Session seeds=["localhost"] database=presentation>
[2] pry(main)> ? $mongo
```

From: /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gem
Class name: Moped::Session
Number of lines: 27

A session in moped is root for all interactions with a Mong replica set.

It can talk to a single default database, or dynamically sp databases.

example Single database (console-style)
session = Moped::Session.new(["127.0.0.1:27017"])
session.use :moped
session[:users].find.one # => { name: "John" }

example Multiple databases
session = Moped::Session.new(["127.0.0.1:27017"])
session.with(database: :admin) do |admin|
 admin.command ismaster: 1



```
From: /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gem  
Class name: Moped::Session  
Number of lines: 27
```

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example Single database (console-style)  
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```

```
example Multiple databases  
session = Moped::Session.new(["127.0.0.1:27017"])  
  
session.with(database: :admin) do |admin|  
  admin.command ismaster: 1  
[3] pry(main)> █
```

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From: /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gem  
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example Single database (console-style)  
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```
example Multiple databases  
session = Moped::Session.new(["127.0.0.1:27017"])  
  
session.with(database: :admin) do |admin|  
  admin.command ismaster: 1  
[3] pry(main)> $mongo[:users].find(name: "Conrad")■
```

```
session.with(database: :admin) do |admin|
  admin.command ismaster: 1
[3] pry(main)> $mongo[:users].find(name: "Conrad")
=> #<Moped::Query:0x007fa5b60488b0
@collection=
#<Moped::Collection:0x007fa5b6048a40
@database=
#<Moped::Database:0x007fa5b1c43c28
  @name="presentation",
  @session=<Moped::Session seeds=["localhost"] database=
presentation>>,
  @name="users">,
@operation=
#<Moped::Protocol::Query
@length=0
@request_id=0
@response_to=0
@op_code=2004
@flags=[]
@full_collection_name="presentation.users"
@skip=0
@limit=0
```

```
@collection=
#<Moped::Collection:0x007fa5b6048a40
@database=
#<Moped::Database:0x007fa5b1c43c28
  @name="presentation",
  @session=<Moped::Session seeds=["localhost"] database=
presentation>,
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@flags=[]
@full_collection_name="presentation.users"
@skip=0
@limit=0
@selector={:name=>"Conrad"}
@fields=nil>,
@selector={:name=>"Conrad"}>
[4] pry(main)> $mongo[:users].find(name: "Co█
```

```
@collection=
#<Moped::Collection:0x007fa5b6048a40
@database=
#<Moped::Database:0x007fa5b1c43c28
  @name="presentation",
  @session=<Moped::Session seeds=["localhost"] database=
presentation>>,
  @name="users">,
@operation=
#<Moped::Protocol::Query
@length=0
@request_id=0
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@full_collection_name="presentation.users"
@skip=0
@limit=0
@selector={:name=>"Conrad"}
@fields=nil>,
@selector={:name=>"Conrad"}>
[4] pry(main)> $Mongo[:users].find
```

```
@collection=
#<Moped::Collection:0x007fa5b6048a40
@database=
#<Moped::Database:0x007fa5b1c43c28
  @name="presentation",
  @session=<Moped::Session seeds=["localhost"] database=
presentation>>,
  @name="users">,
@operation=
#<Moped::Protocol::Query
@length=0
@request_id=0
@response_to=0
@op_code=2004
@flags=[]
@full_collection_name="presentation.users"
@skip=0
@limit=0
@selector={:name=>"Conrad"}
@fields=nil>,
@selector={:name=>"Conrad"}>
[4] pry(main)> show-source $mongo[:users].find
```

```
@request_id=0
@response_to=0
@op_code=2004
@flags=[]
@full_collection_name="presentation.users"
@skip=0
@limit=0
@selector={:name=>"Conrad"}
@fields=nil>,
@selector={:name=>"Conrad"}>
[4] pry(main)> show-source $mongo[:users].find
```

From: /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems/2.0.0/gems/moped-1.5.0/lib/moped/collection.rb @ line 57:
Owner: Moped::Collection
Visibility: public
Number of lines: 3

```
def find(selector = {})
  Query.new(self, selector)
end
[5] pry(main)> █
```

```
ruby
Visibility: public
Number of lines: 3

def find(selector = {})
  Query.new(self, selector)
end

[5] pry(main)>
[6] pry(main)>
[7] pry(main)>
[8] pry(main)>
[9] pry(main)>
[10] pry(main)>
[11] pry(main)>
[12] pry(main)>
[13] pry(main)> ls ■

Default
Last login: Thu Nov  7 17:39:29 on ttym000
1.8.6-p247
```

```
[7] pry(main)>
[8] pry(main)>
[9] pry(main)>
[10] pry(main)>
[11] pry(main)>
[12] pry(main)>
[13] pry(main)> ls Moped::Query
Object.methods: yaml_tag
Moped::Query#methods:
  batch_size  each      max_scan    remove      sort
  collection  explain   modify      remove_all  tailable
  count       first     no_timeout one         select    update
  cursor      hint      operation  selector   update_all
  distinct    limit
[14] pry(main)> █
```

```
Default
Last login: Thu Nov  7 17:39:29 on ttys000
:~:~
```

```
[7] pry(main)>
[8] pry(main)>
[9] pry(main)>
[10] pry(main)>
[11] pry(main)>
[12] pry(main)>
[13] pry(main)> ls Moped::Query
Object.methods: yaml_tag
Moped::Query#methods:
batch_size  each      max_scan    remove     sort
collection  explain   modify      remove_all  tailable
count       first     no_timeout select     update
cursor      hint      one         selector   update_all
distinct    limit     operation  skip       upsert
[14] pry(main)> $mongo[:users].find(name: "Conrad")■
```

```
[Default]
Last login: Thu Nov  7 17:39:29 on ttys000
[1]
```

```
[7] pry(main)>
[8] pry(main)>
[9] pry(main)>
[10] pry(main)>
[11] pry(main)>
[12] pry(main)>
[13] pry(main)> ls Moped::Query
Object.methods: yaml_tag
Moped::Query#methods:
batch_size  each      max_scan    remove     sort
collection  explain   modify      remove_all  tailable
count       first     no_timeout select     update
cursor      hint      one         selector   update_all
distinct    limit     operation  skip       upsert
[14] pry(main)> $mongo[:users].find(name: "Conrad").one
```

```
Default
Last Login: Thu Nov 7 17:39:29 on ttys008
[[{"name": "Conrad"}]]
```

```
ruby
collection   explain   modify      remove_all  tailable
count        first     no_timeout select      update
cursor       hint      one         selector    update_all
distinct     limit     operation   skip       upsert
[14] pry(main)> $mongo[:users].find(name: "Conrad").one
=> {"_id"=>"5276d456fe2d91d4a52b5aa6",
 "email"=>"conrad@cirw.in",
 "name"=>"Conrad",
 "admin"=>false}
[15] pry(main)> $mongo[:users].find(name: "Conrad").to_a
=> [{"_id"=>"5276d456fe2d91d4a52b5aa6",
 "email"=>"conrad@cirw.in",
 "name"=>"Conrad",
 "admin"=>false}]
[16] pry(main)> █
```

Default

Last login: Thu Nov 7 17:39:29 on ttym008

1.8.6-p247

```
ruby
"name"=>"Conrad",
"admin"=>false}
[15] pry(main)> $mongo[:users].find(name: "Conrad").to_a
=> [{"_id"=>"5276d456fe2d91d4a52b5aa6",
      "email"=>"conrad@cirw.in",
      "name"=>"Conrad",
      "admin"=>false}]
[16] pry(main)> $mongo[:users].find(name: {$in: ["Conrad",
      "Conrad Irwin"]}).to_a
SyntaxError: unexpected ')', expecting end-of-input
$mongo[:users].find(name: {$in: ["Conrad", "Conrad Irwin"]})
).to_a
^
[16] pry(main)> ■
```

Default

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zsh 3.2.5-p247

```
ruby
$mongo[:users].find(name: {$in: ["Conrad", "Conrad Irwin"]})
).to_a

^
[16] pry(main)> $mongo[:users].find(name: {"$in" => ["Conrad", "Conrad Irwin"]}).to_a
=> [{"_id"=>"5276d46cfe2d91d4a52b5aa7",
      "email"=>"me@cirw.in",
      "name"=>"Conrad Irwin",
      "admin"=>true},
      {"_id"=>"5276d456fe2d91d4a52b5aa6",
      "email"=>"conrad@cirw.in",
      "name"=>"Conrad",
      "admin"=>false}]
[17] pry(main)>
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys0000
2.8.9-p247
```

DEMO

RECAP

- `ls` shows methods.
- `$ (show-source)` shows code.
- `? (show-doc)` shows documentation.

RECAP

- `ls` shows methods.
- `$ (show-source)` shows code.
- `? (show-doc)` shows documentation.

```
ruby
instance_variable_defined?  to_enum
instance_variable_get        trust
instance_variable_set       untaint
instance_variables          untrust
is_a?                      untrusted?

PP::ObjectMixin#methods:
pretty_print      pretty_print_inspect
pretty_print_cycle pretty_print_instance_variables
Moped::BSON::Extensions::Object#methods: __safe_options__
Object#methods:
__binding__    psych_to_yaml  to_yaml
pry            self           to_yaml_properties
self.methods: inspect  to_s
locals:        dir_   _ex_   _file_  _in_   _out_  _pry_
[3] pry(main)> 
```



```
Default
Last login: Thu Nov  7 17:39:29 on ttys000
2.0.0-p247
```

```
ruby
instance_variable_defined?  to_enum
instance_variable_get        trust
instance_variable_set       untaint
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__binding__    psych_to_yaml  to_yaml
pry            self           to_yaml_properties
self.methods: inspect  to_s
locals:        dir_   ex_   file_  _in_  _out_  _pry_
[3] pry(main)> $ Kernel#puts
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys008
:0
2.8.0-p247
```

```
ruby
instance_variable_defined?    to_enum
instance_variable_get          trust
instance_variable_set          untaint
instance_variables            untrust
is_a?                          untrusted?

PP::ObjectMixin#methods:
pretty_print           pretty_print_inspect
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__binding__   psych_to_yaml  to_yaml
pry          self           to_yaml_properties
self.methods: inspect  to_s
locals:      _dir_  _ex_  file_  _in_  _out_  _pry_
[3] pry(main)> $ $mongo.find
```

```
Default
Last login: Thu Nov  7 17:39:29 on ttys000
[3] 0
```

```
ruby
is_a?                                untrusted?
PP::ObjectMixin#methods:
pretty_print      pretty_print_inspect
pretty_print_cycle pretty_print_instance_variables
Moped::BSON::Extensions::Object#methods: __safe_options__
Object#methods:
__binding__  psych_to_yaml  to_yaml
pry          self          to_yaml_properties
self.methods: inspect  to_s
locals: _dir_ _ex_ _file_ _in_ _out_ _pry_
[3] pry(main)> def repl
[3] pry(main)*   loop { puts eval $stdin.readline }
[3] pry(main)* end
=> nil
[4] pry(main)> █
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys009
[[ 0
2.8.0-p247
```

DOWNSIDES OF REPL

- Doesn't keep a record.
- You have to re-test lots.
- Hard to test large apps.

SOLUTION: TESTS

1. Find solution in REPL.
2. Record findings in tests.
3. Write code that works first time :).

TESTS HELP

- When code-base is large.
- With API design.
- Document assumptions.

DOWNSIDES OF TESTS?

- Slow to write.
- Slow to run.
- Go out of date.

PRY CAN HELP!

```
gem install pry-plus
```

```
require 'pry-rescue/minitest'  
require 'pry-rescue/rspec'
```

```
ruby
PP::ObjectMixin#methods:
  pretty_print      pretty_print_inspect
  pretty_print_cycle pretty_print_instance_variables
Moped::BSON::Extensions::Object#methods: __safe_options__
Object#methods:
  __binding__    psych_to_yaml  to_yaml
  pry            self          to_yaml_properties
self.methods: inspect  to_s
locals: _           _dir_   _ex_   _file_  _in_   _out_   _pry_
[3] pry(main)> def repl
[3] pry(main)*   loop { puts eval $stdin.readline }
[3] pry(main)* end
=> nil
[4] pry(main)>
/ttmp/repl:master +1 $ ruby ■ 2.0.0-p247

Default
Last login: Thu Nov 7 17:39:29 on ttys000
-13 0
```

```
ruby
PP::ObjectMixin#methods:
  pretty_print          pretty_print_inspect
  pretty_print_cycle   pretty_print_instance_variables
Moped::BSON::Extensions::Object#methods: __safe_options__
Object#methods:
  __binding__  psych_to_yaml  to_yaml
  pry          self          to_yaml_properties
self.methods: inspect  to_s
locals: _      _dir_  _ex_  _file_  _in_  _out_  _pry_
[3] pry(main)> def repl
[3] pry(main)*   loop { puts eval $stdin.readline }
[3] pry(main)* end
=> nil
[4] pry(main)>
/ttmp/repl:master +1 $ ruby test_mongo.rb ■ 2.0.0-p247
```

```
Default
Last login: Thu Nov  7 17:39:29 on ttys000
[1] 0
```

```
ruby
Frame type: method
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/test_mongo.rb @ line 8 TestMongo#test_user_can_be_found:
7: def test_user_can_be_found
=> 8:   assert_equal 2, find_user('Conrad', 'Irwin').size
9: end

MiniTest::Assertion: Expected: 2
  Actual: 1
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `assert'
[1] pry(<TestMongo>)> █
```

```
Default
Last login: Thu Nov  7 17:39:29 on ttys000
[1] 0
```

```
ruby
Frame type: method
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/test_mongo.rb @ line 8 TestMongo#test_user_can_be_found:
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from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `assert'
[1] pry(#<TestMongo>)> break find_user
```

```
ruby
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
[1] pry(<TestMongo>) > break find_user
Breakpoint 1: /Volumes/Shared/0/Dropbox/Slides/repl-driven/
mongo.rb @ line 3 (Enabled) :

  1: require './initializer'
  2: require 'pry'
=> 3: def find_user(first, last)
  4:   names = [first, last]
  5:   names << first + last
  6:   $mongo[:users].where(name: {"$in" => names}).to_a

[2] pry(<TestMongo>) > ■
```

```
Default
Last login: Thu Nov  7 17:39:29 on ttys008
$ 0
$ 1.8.0-p247
```

```
ruby
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
[1] pry(<TestMongo>) > break find_user
Breakpoint 1: /Volumes/Shared/0/Dropbox/Slides/repl-driven/
mongo.rb @ line 3 (Enabled) :

  1: require './initializer'
  2: require 'pry'
=> 3: def find_user(first, last)
  4:   names = [first, last]
  5:   names << first + last
  6:   $mongo[:users].where(name: {"$in" => names}).to_a

[2] pry(<TestMongo>) > █
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttym000
$ █
```

```
ruby
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
[1] pry(<TestMongo>) > break find_user
Breakpoint 1: /Volumes/Shared/0/Dropbox/Slides/repl-driven/
mongo.rb @ line 3 (Enabled) :

  1: require './initializer'
  2: require 'pry'
=> 3: def find_user(first, last)
  4:   names = [first, last]
  5:   names << first + last
  6:   $mongo[:users].where(name: {"$in" => names}).to_a

[2] pry(<TestMongo>) > try-again
```

```
Default
test login: Thu Nov  7 17:39:29 on ttys000
$
```

```
ruby
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb
@ line 3 Object#find_user:

=> 3: def find_user(first, last)
  4:   names = [first, last]
  5:   names << first + last
  6:   $mongo[:users].where(name: {"$in" => names}).to_a
  7: end
```

```
MiniTest::Assertion: Expected: 2
```

```
Actual: 1
```

```
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
```

```
[3] pry(#<TestMongo>) > ■
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys000
[3] 0
2.0.0-p247
```

```
ruby
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb
@ line 6 Object#find_user:

  3: def find_user(first, last)
  4:   names = [first, last]
  5:   names << first + last
=> 6:   $mongo[:users].where(name: {"$in" => names}).to_a
  7: end
```

MiniTest::Assertion: Expected: 2

Actual: 1

```
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
```

```
[6] pry(#<TestMongo>) > ■
```



```
ruby
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb
@ line 6 Object#find_user:

  3: def find_user(first, last)
  4:   names = [first, last]
  5:   names << first + last
=> 6:   $mongo[:users].where(name: {"$in" => names}).to_a
  7: end
```

MiniTest::Assertion: Expected: 2

Actual: 1

```
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
```

```
[6] pry(#<TestMongo>) > play -l 6
```



```
ruby
  5:   names << first + last
=> 6:   $mongo[:users].where(name: {"$in" => names}).to_a
  7: end

MiniTest::Assertion: Expected: 2
  Actual: 1
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
[6] pry(#<TestMongo>) > play -l 6
=> [{"_id"=>"5276d456fe2d91d4a52b5aa6",
  "email"=>"conrad@cirw.in",
  "name"=>"Conrad",
  "admin"=>false}]
[7] pry(#<TestMongo>) >
```

```
Default
Last login: Thu Nov  7 17:39:29 on ttys008
:0
```

```
[1] ruby
=> ["Conrad", "Irwin", "ConradIrwin"]
[8] pry(<#<TestMongo>>) > $
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb
@ line 3:
Owner: Object
Visibility: private
Number of lines: 5

def find_user(first, last)
  names = [first, last]
  names << first + last
  $mongo[:users].where(name: {"$in" => names}).to_a
end
[9] pry(<#<TestMongo>>) >
```

```
[1] Default
Last login: Thu Nov 7 17:39:29 on ttym000
[1] 0
```

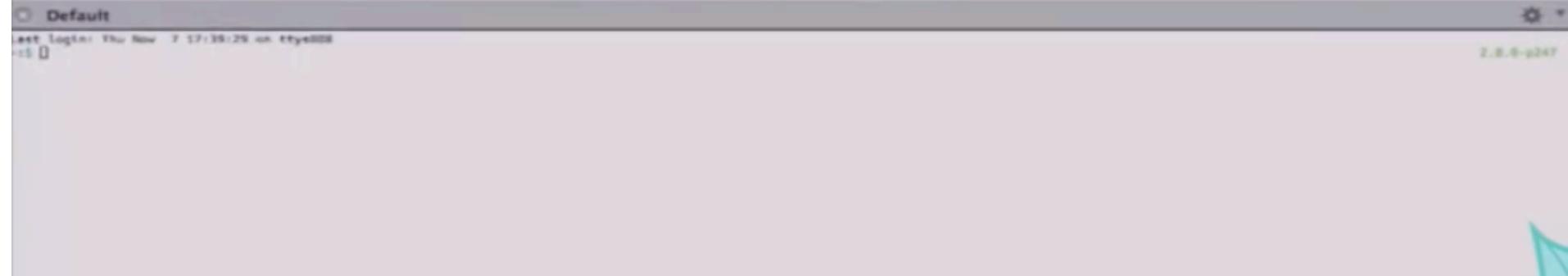
```
ruby
=> ["Conrad", "Irwin", "ConradIrwin"]
[8] pry(<#<TestMongo>>) > $
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb
@ line 3:
Owner: Object
Visibility: private
Number of lines: 5

def find_user(first, last)
  names = [first, last]
  names << first + last
  $mongo[:users].where(name: {"$in" => names}).to_a
end
[9] pry(<#<TestMongo>>) > edit -m
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys008
:0
2.8.0-p247
```

```
ruby
require './initializer'
require 'pry'
def find_user(first, last)
  names = [first, last]
  names << first + last
  $mongo[:users].where(name: {"$in" => names}).to_a
end
```

mongo.rb 5,1 All
</Dropbox/Slides/repl-driven/mongo.rb" 7L, 169C



```
[8] pry(#<TestMongo>) > $  
  
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb  
 @ line 3:  
Owner: Object  
Visibility: private  
Number of lines: 5  
  
def find_user(first, last)  
  names = [first, last]  
  names << first + last  
  $mongo[:users].where(name: {"$in" => names}).to_a  
end  
[9] pry(#<TestMongo>) > edit -m  
[10] pry(#<TestMongo>) > █
```

```
Default  
Last login: Thu Nov 7 17:39:29 on ttys008  
[[ 0 2.8.0-p247
```

```
ruby

def find_user(first, last)
  names = [first, last]
  names << first + last
  $mongo[:users].where(name: {"$in" => names}).to_a
end
[9] pry(<TestMongo>) > edit -m
[10] pry(<TestMongo>) > break -d 1

# Enabled At
-----
1 No      /Volumes/Shared/0/Dropbox/Slides/repl-driven/mo
ngo.rb:3

[11] pry(<TestMongo>) > █

Default
Last login: Thu Nov  7 17:39:29 on ttym000
[1] 0
```

```
ruby
Frame type: method
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/test_mongo.rb @ line 8 TestMongo#test_user_can_be_found:
7: def test_user_can_be_found
=> 8:   assert_equal 2, find_user('Conrad', 'Irwin').size
9: end

MiniTest::Assertion: Expected: 2
  Actual: 1
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `assert'
[1] pry(#<TestMongo>)> try-again
```

```
ruby
9: end

MiniTest::Assertion: Expected: 2
  Actual: 1
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
[1] pry(#<TestMongo>)> try-again
.

Finished tests in 216.228241s, 0.0046 tests/s, 0.0139 asser
tions/s.

1 tests, 3 assertions, 0 failures, 0 errors, 0 skips
/tmp/repl:master +1 $ █ 2.0.0-p247

Default
Last login: Thu Nov 7 17:39:29 on ttys008
:~
```

```
ruby
9: end

MiniTest::Assertion: Expected: 2
  Actual: 1
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
[1] pry(#<TestMongo>)> try-again
.

Finished tests in 216.228241s, 0.0046 tests/s, 0.0139 asser
tions/s.

1 tests, 3 assertions, 0 failures, 0 errors, 0 skips
/tmp/repl:master +1 $ █ 2.0.0-p247

Default
Last login: Thu Nov  7 17:39:29 on ttys000
[[[
```

RECAP

- try-again
- break
- step / next
- play
- edit

EVEN WITH TESTING

- Bugs slip through.
- Become harder to catch.
- Require longer to debug.

bugsnag

- Catches exceptions in production.
- Captures data to help you debug.
- Notifies you intelligently.

FIXING BUGS

- Reproduce locally.
- Find problem.
- Fix it.

```
ruby
9: end

MiniTest::Assertion: Expected: 2
  Actual: 1
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
[1] pry(#<TestMongo>)> try-again
.

Finished tests in 216.228241s, 0.0046 tests/s, 0.0139 asser
tions/s.

1 tests, 3 assertions, 0 failures, 0 errors, 0 skips
/tmp/repl:master +1 $ █ 2.0.0-p247

Default
Last login: Thu Nov  7 17:39:29 on ttys009
$ █
```

```
ruby

MiniTest::Assertion: Expected: 2
  Actual: 1
from /Users/conrad/.rbenv/versions/2.0.0-p247/lib/ruby/gems
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `ass
ert'
[1] pry(#<TestMongo>)> try-again
.

Finished tests in 216.228241s, 0.0046 tests/s, 0.0139 asser
tions/s.

1 tests, 3 assertions, 0 failures, 0 errors, 0 skips
/tmp/repl:master +1 $ ruby run.rb
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys008
$ ruby run.rb
```

```
ruby  
/2.0.0/gems/minitest-4.7.5/lib/minitest/unit.rb:195:in `assert'  
[1] pry(#<TestMongo>) > try-again  
. .  
Finished tests in 216.228241s, 0.0046 tests/s, 0.0139 assertions/s.  
  
1 tests, 3 assertions, 0 failures, 0 errors, 0 skips  
/tmp/repl:master +1 $ ruby run.rb  
/Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb:5:in  
`find_user': undefined method `+' for nil:NilClass (NoMethodError)  
    from run.rb:5:in `<main>'  
/tmp/repl:master +1 $ █ 1  
  
Default  
last login: Thu Nov 7 17:39:29 on ttys000  
0:0
```

```
ruby
require './initializer'
require 'pry'
def find_user(first, last)
  names = [first, last]
  names << first + " " + last
  $mongo[:users].where(name: {"$in" => names}).to_a
end
```

mongo.rb 4,1 All
"mongo.rb" 7L, 175C

Default
Last login: Thu Nov 7 17:39:29 on ttys008
[[0 2.6.0-p247

```
ruby
require './initializer'
require 'pry'
def find_user(first, last)
  names = [first, last]
  binding.pry
  names << first + " " + last
  $mongo[:users].where(name: {"$in" => names}).to_a
end
```

~
~
~
~
~
~
mongo.rb [+]

6,13

All

Default
Last login: Thu Nov 7 17:39:29 on ttys000
[[

2.8.0-p247

```
ruby
/tmp/repl:master +1 $ ruby run.rb

Frame number: 0/1

From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb
@ line 5 Object#find_user:

3: def find_user(first, last)
4:   names = [first, last]
=> 5: binding.pry
6:   names << first + " " + last
7:   $mongo[:users].where(name: {"$in" => names}).to_a
8: end

[1] pry(main)> ■
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys009
:~
```

```
ruby

From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb
@ line 5 Object#find_user:

3: def find_user(first, last)
4:   names = [first, last]
=> 5:   binding.pry
6:   names << first + " " + last
7:   $mongo[:users].where(name: {"$in" => names}).to_a
8: end

[1] pry(main)> play -l 6
NoMethodError: undefined method `+' for nil:NilClass
from (pry):1:in `find_user'
[2] pry(main)> ■

Default
Last login: Thu Nov 7 17:39:29 on ttys000
2.8.0-p247
```

```
ruby
@ line 5 Object#find_user:

  3: def find_user(first, last)
  4:   names = [first, last]
=> 5:   binding.pry
  6:   names << first + " " + last
  7:   $mongo[:users].where(name: {"$in" => names}).to_a
  8: end

[1] pry(main)> play -l 6
NoMethodError: undefined method `+' for nil:NilClass
from (pry):1:in `find_user'
[2] pry(main)> first
=> nil
[3] pry(main)> ■
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttym000
:~
```

```
ruby
@ line 5 Object#find_user:

 3: def find_user(first, last)
 4:   names = [first, last]
=> 5:   binding.pry
 6:   names << first + " " + last
 7:   $mongo[:users].where(name: {"$in" => names}).to_a
 8: end

[1] pry(main)> play -l 6
NoMethodError: undefined method `+' for nil:NilClass
from (pry):1:in `find_user'
[2] pry(main)> first
=> nil
[3] pry(main)> up █
```

Default

Last Login: Thu Nov 7 17:39:29 on ttym000

2.8.6-g247

```
ruby
Frame number: 1/1
Frame type: main

From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/run.rb @
line 5 :

1: require './request'
2: require './mongo'
3:
4: request = Request.new File.read "request.json"
=> 5: users = find_user(request.first_name, request.last_n
ame)
6: puts users.map{ |user| user['email'] }

[4] pry(main)> ■
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys000
zsh 3.2.48-p247
```

```
ruby
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/run.rb @
line 5 :

1: require './request'
2: require './mongo'
3:
4: request = Request.new File.read "request.json"
=> 5: users = find_user(request.first_name, request.last_n
ame)
6: puts users.map{ |user| user['email'] }

[4] pry(main)> request.first_name
=> nil
[5] pry(main)> ■
```

Default

last login: Thu Nov 7 17:39:29 on ttys000

2.8.0-p247

```
ruby
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/run.rb @
line 5 :

1: require './request'
2: require './mongo'
3:
4: request = Request.new File.read "request.json"
=> 5: users = find_user(request.first_name, request.last_n
ame)
6: puts users.map{ |user| user['email'] }

[4] pry(main)> request.first_name
=> nil
[5] pry(main)> cd request
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys008
2.8.0-p247
```

```
ruby
 3:
 4: request = Request.new File.read "request.json"
=> 5: users = find_user(request.first_name, request.last_n
ame)
 6: puts users.map{ |user| user['email'] }

[4] pry(main)> request.first_name
=> nil
[5] pry(main)> cd request
[6] pry(#<Request>):1> ls
Request#methods: first_name last_name
self.methods: __pry__
instance variables: @data
locals: _dir_ _ex_ _file_ _in_ _out_ __pry__
[7] pry(#<Request>):1> █
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys000
[[[1]]]
```

```
ruby
require 'json'

class Request
  def initialize(json)
    @data = JSON.parse(json)
  end

  def first_name; @data["first_name"] end
  def last_name; @data[:last_name] end
end
```

```
request.rb [+] 9,24 All
<opbox/Slides/repl-driven/request.rb" 10L, 173C ^[
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys000
:0
```

```
ruby
=> nil
[14] pry(#<Request>):1> $ first_name
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/request.rb @ line 8:
Owner: Request
Visibility: public
Number of lines: 1
```

```
def first_name; @data[:first_name] end
[15] pry(#<Request>):1> @data
=> {"action"=>"send_welcome_email", "first_name"=>"Conrad",
     "last_name"=>"Irwin"}
[16] pry(#<Request>):1> edit first_name
[17] pry(#<Request>):1> █
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttym000
zsh █
```

```
ruby
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/request.
rb @ line 8:
Owner: Request
Visibility: public
Number of lines: 1

def first_name; @data[:first_name] end
[15] pry(#<Request>):1> @data
=> {"action"=>"send_welcome_email", "first_name"=>"Conrad",
"last_name"=>"Irwin"}
[16] pry(#<Request>):1> edit first_name
[17] pry(#<Request>):1> first_name
=> "Conrad"
[18] pry(#<Request>):1> ■

Default
Last login: Thu Nov 7 17:39:29 on ttys000
v3: [ ] 2.8.0-p247
```

From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/request.
rb @ line 8:
Owner: Request
Visibility: public
Number of lines: 1

```
def first_name; @data[:first_name] end
[15] pry(#<Request>):1> @data
=> {"action"=>"send_welcome_email", "first_name"=>"Conrad",
 "last_name"=>"Irwin"}
[16] pry(#<Request>):1> edit first_name
[17] pry(#<Request>):1> first_name
=> "Conrad"
[18] pry(#<Request>):1> cd ..
[19] pry(main)> whereami
```

Default

test Login: Thu Nov 7 17:39:29 on ttym000

1.8.6-p247

```
ruby
Frame number: 1/1
Frame type: main

From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/run.rb @
line 5 :

1: require './request'
2: require './mongo'
3:
4: request = Request.new File.read "request.json"
=> 5: users = find_user(request.first_name, request.last_n
ame)
6: puts users.map{ |user| user['email'] }

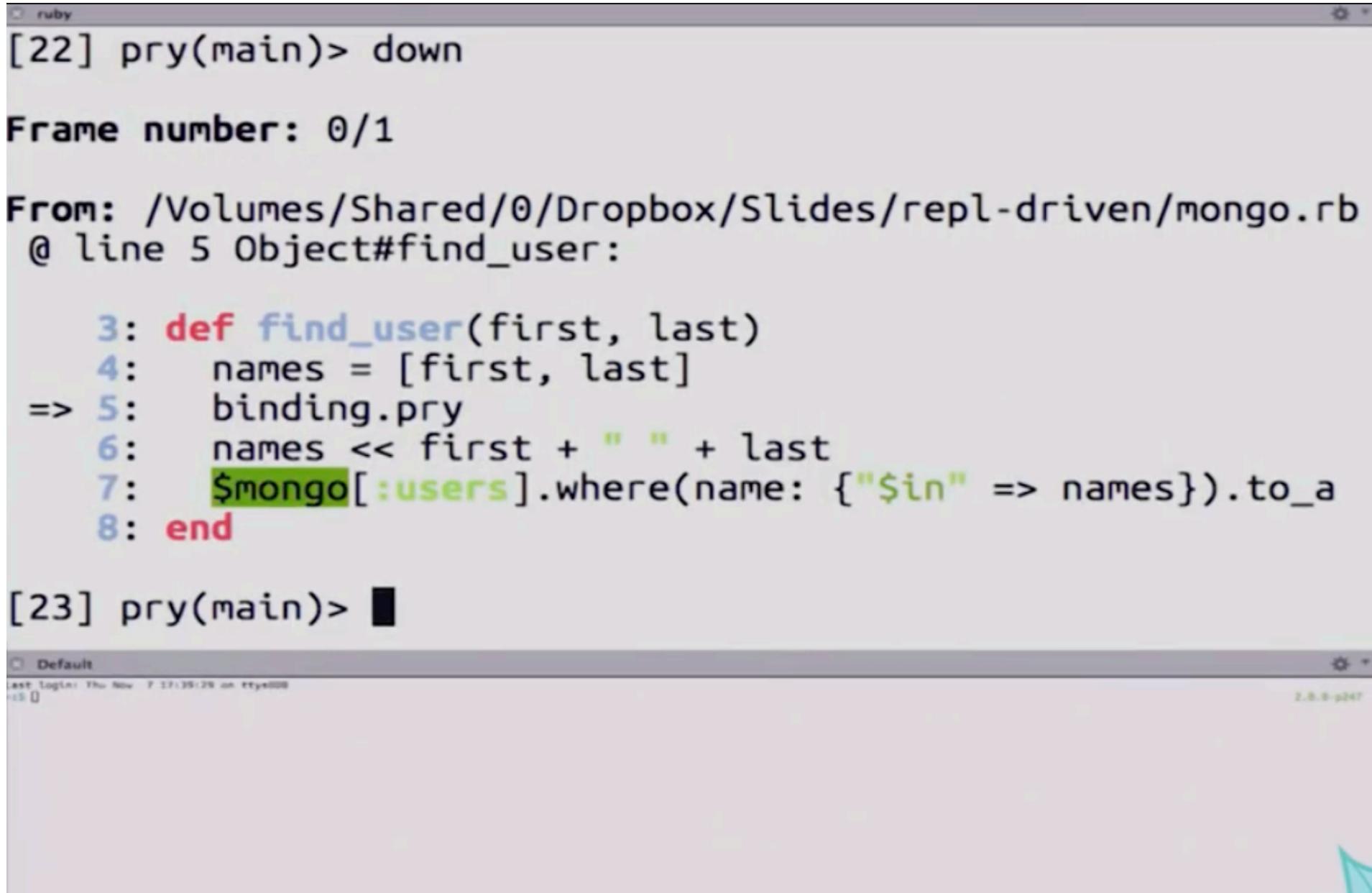
[20] pry(main)> ■
```

```
Default
Last login: Thu Nov 7 17:39:29 on ttys000
[20]
```

```
[22] pry(main)> down
Frame number: 0/1
From: /Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb
@ line 5 Object#find_user:

3: def find_user(first, last)
4:   names = [first, last]
=> 5: binding.pry
6:   names << first + " " + last
7:   $mongo[:users].where(name: {"$in" => names}).to_a
8: end

[23] pry(main)> ■
```



```
ruby
require './initializer'
require 'pry'
def find_user(first, last)
  names = [first, last]
  names << first + " " + last
  $mongo[:users].where(name: {"$in" => names}).to_a
end
```

mongo.rb [+]

5,3

All

^[

Default

test login: Thu Nov 7 17:39:29 on ttym000

2.8.0-p247

```
ruby
=> 5:   binding.pry
      6:   names << first + " " + last
      7:   $mongo[:users].where(name: {"$in" => names}).to_a
      8: end

[23] pry(main)> edit -c
[24] pry(main)>
/Volumes/Shared/0/Dropbox/Slides/repl-driven/mongo.rb:6:in
`find_user': undefined method `+' for nil:NilClass (NoMethodError)
    from run.rb:5:in `<main>'
/tmp/repl:master +1 $ ruby run.rb
me@cirw.in
conrad@cirw.in
/tmp/repl:master +1 $ █ 2.0.0-p247

Default
Last login: Thu Nov 7 17:39:29 on ttys008
$ █ 2.0.0-p247
```

DEMO

RECAP

- binding.pry
- cd
- up / down
- whereami
- help

USE A REPL

- Saves time
- Improves quality
- More fun!

USE PRY!

- Featureful
- Robust
- Friendly



— GET TO THE CODE —

@ConradIrwin