

TencentDB for MongoDB

Instance Connection

Product Documentation



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Connection Sample

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After initializing the instance, you can use either MongoDB shell or drivers in different languages to access the database to perform administrative operations. Using CVM, you can only access the database through the private network, instead of the public network.

Description

Client version

A driver with version 3.2 or above is required to connect to the TencentDB for MongoDB service. Please use the **latest version** of the client driver, including shell kit, java jar package, php expansion and nodejs module, to achieve the best compatibility. For more information, see [MongoDB Drivers](#).

Use mongo shell to connect to MongoDB

The mongo shell is an interactive JavaScript interface to MongoDB. You can use the mongo shell to query and update data as well as perform administrative operations. The mongo shell is a component of the MongoDB distributions. Once you have installed and have started MongoDB, connect the mongo shell to your running MongoDB instance. Download a MongoDB distribution here [link](#).

The example below describes how to start the mongo Shell and connect to MongoDB:

```
cd <mongodb installation dir>
./bin/mongo -umongouser -plxh2081* 172.16.0.56:27017/admin
```

In the above example, "-u" indicates the user name, "-p" indicates the password, "172.16.0.56" is the IP, and 27017 is the default port of the MongoDB instance.

Use connection String URI to connect to MongoDB

The MongoDB service can be connected by passing parameters, and most drivers can also be connected by using URI. Connection to the MongoDB service using URI is officially recommended by

MongoDB. You can specify URI to define the connections between most of the applications and MongoDB instances in the official MongoDB drivers. MongoDB recommends you use connection string URI.

Below are examples of URIs:

Example 1

```
mongodb://username:password@IP:27017/admin
```

Example 2

```
mongodb://username:password@IP:27017/somedb?authSource=admin
```

Example 3

```
mongodb://username:password@IP:27017/somedb?authSource=admin&readPreference=secondaryPreferred
```

The parameters in URI are described as follows:

Parameter	Description	Required
mongodb://	A specific string indicating MongoDB protocol	Yes
username	The user name used to log in to the MongoDB service	Yes. See "Default users" on this page.
password	The user password used to log in to the MongoDB service	Yes
IP:27017	IP and port of the MongoDB service	Yes
/admin	The database to be authenticated. TencentDB for MongoDB is always admin.	Yes. See "Authentication database" on this page.
authMechanism=MONGODB-CR	Authentication method	See "Authentication mechanism" on this page.

Parameter	Description	Required
authSource=admin	The database for authentication. TencentDB for MongoDB is always admin.	Yes. See "Authentication database" on this page.
readPreference=secondaryPreferred	You can decide whether the slave has higher read priority	No. See "Master/Slave Read Priority" on this page.
Only some of the parameters for the connection string URI are listed here. For more information, see MongoDB official reference documentation .		

Default users

The default users vary by the version of TencentDB for MongoDB. For the latest instances, The built-in default users are "rwuser" and "mongouser". For older instances, the default user is "rwuser" (we will upgrade these old instances, and contact you before the upgrade). You can also use TencentDB for MongoDB Console to manage account and permission to meet your business requirements.

Example of rwuser (MONGODB-CR authentication) URI

MONGODB-CR authentication is used by rwuser only.

```
mongodb://rwuser:password@10.66.100.186:27017/admin?authMechanism=MONGODB-CR
or
mongodb://rwuser:password@10.66.100.186:27017/somedb?authMechanism=MONGODB-CR&authSource=admin
```

Example of mongouser (SCRAM-SHA-1 authentication) URI

SCRAM-SHA-1 authentication is used by mongouser and users created in the console.

```
mongodb://mongouser:password@10.66.100.186:27017/admin
or
mongodb://mongouser:password@10.66.100.186:27017/somedb?authSource=admin
```

Authentication database

TencentDB for MongoDB uses "admin" database as the authentication database for login authentication, so the port in the URI must be followed by **"/admin"** to specify the authentication database. After authentication, you can read and write the specific business database. URI example:

```
mongodb://username:password@IP:27017/admin
```

You can also directly access the destination database by specifying a destination database for read and write operation and an additional authentication database parameter (authSource=admin). URI example:

```
mongodb://username:password@IP:27017/somedb?authSource=admin
```

You must use one of the above methods to add admin as an authentication database into the URI.

Authentication mechanism

MongoDB supports multiple authentication methods. SCRAM-SHA-1 is recommended.

TencentDB for MongoDB supports two authentication methods: "MONGODB-CR" and "SCRAM-SHA-1".

As mentioned above, there are two default users built in TencentDB for MongoDB: "rwuser" and "mongouser", and you can also create additional users in the Console of TencentDB for MongoDB.

These users are classified into two types based on the following authentication methods:

User Name	Authentication Mechanism	Required in URI
rwuser	MONGODB-CR	The parameter "authMechanism=MONGODB-CR" must be added.
mongouser and users created in the console	SCRAM-SHA-1 (recommended)	No parameter needs to be added.

Adjust priority for replica set member (Master/Slaves)

TencentDB for MongoDB provides a load balancer IP to access the entire replica set. If you need slave databases to have higher read priority, add the "readPreference" parameter in the URI.

Relevant values are described below:

Value	Description	Default
primary	Reads master node only	Yes
primaryPreferred	Reads master node first. If it is not available, read slave node.	
secondary	Reads slave node only. If it is not available, an error will occur.	
secondaryPreferred	Reads slave node first. If it is not available, read master node.	

To set up a priority to read slave node first, you can configure the URI as follows:

```
mongodb://username:password@IP:27017/admin?readPreference=secondaryPreferred
```

Examples for Languages

Shell

[Shell Connection Example](#)

PHP

[PHP Connection Example](#)

Node.js

[Node.js Connection Example](#)

[mongoose Example](#)

Java

[Java Connection Example](#)

Python

[Python Connection Example](#)

Reconnection mechanism

[Reconnection Mechanism](#)

Shell Connection Sample

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You can use the MongoDB shell client (please see the [installation documentation](#)) on a CVM instance to connect to TencentDB for MongoDB for data management. Be sure to use the latest version of MongoDB client suite.

Quick start

A typical connection command is as follows:

```
mongo 10.66.187.127:27017/admin -u mongouser -p thepasswordA1
```

Note :

To access TencentDB for MongoDB via a connection string, special characters in the password need to be converted to URL encoded characters so that they can be correctly identified. For example, "@" should be converted to "%40".

See the figure below:

```
#: ./mongo 10.66.187.127:27017/admin -u mongouser -p thepasswordA1
MongoDB shell version: 3.2.3
connecting to: 10.66.187.127:27017/admin
Server has startup warnings:
tencent cloud mongodb platform 2.0.4
mongos> show dbs
admin    0.031GB
local   3.030GB
testdb  0.031GB
mongos> use testdb
switched to db testdb
mongos> show collections
system.indexes
testcollection
mongos> db.testcollection.find().limit(2)
```

Connection in different authentication methods

As described in the [Connection Sample](#), TencentDB for MongoDB provides two usernames `rwuser` and `mongouser` by default to support the MONGODB-CR and SCRAM-SHA-1 authentication methods,

respectively.

For those two authentication methods, the shell parameters are not the same. See below for more information.

SCRAM-SHA-1 authentication (mongouser)

SCRAM-SHA-1 authentication is used for the default user `mongouser` and all new users created in the console. Shell connection parameters are the same as those described in [Quick Start](#) without additional parameters required. See the example below:

```
mongo 10.66.187.127:27017/admin -u mongouser -p thepasswordA1
```

If you want to enter a specific `db` directly such as "singer", after connecting to MongoDB, proceed as described below:

```
mongo 10.66.187.127:27017/singer -u mongouser -p thepasswordA1 --authenticationDatabase admin
```

See the figure below:

```
#: ./mongo 10.66.187.127:27017/singer -u mongouser -p thepasswordA1 --authenticationDatabase admin
MongoDB shell version: 3.2.3
connecting to: 10.66.187.127:27017/singer
Server has startup warnings:
tencent cloud mongodb platform 2.0.4
mongos> db
singer
mongos> █
```

MONGODB-CR authentication (rwuser)

Please note that MONGODB-CR authentication is used only for the default user `rwuser`, and the authentication method of MONGODB-CR should be expressly specified in the shell connection parameters. See the example below:

```
mongo 10.66.187.127:27017/admin -u rwuser -p thepasswordA1 --authenticationMechanism=MONGODB-CR
```

See the figure below:

```
#: ./mongo 10.66.187.127:27017/admin -u rwuser -p thepasswordA1 --authenticationMechanism=MONGODB-CR
MongoDB shell version: 3.2.3
connecting to: 10.66.187.127:27017/admin
Server has startup warnings:
tencent cloud mongodb platform 2.0.4
mongos> show dbs
admin    0.031GB
local   3.030GB
testdb  0.031GB
mongos> █
```

If you want to enter a specific `db` directly such as "singer", after connecting to MongoDB, proceed as described below:

```
mongo 10.66.187.127:27017/singer -u rwuser -p thepasswordA1 --authenticationMechanism=MONGODB-CR
--authenticationDatabase admin
```

See the figure below:

```
#: ./mongo 10.66.187.127:27017/singer -u rwuser -p thepasswordA1 --authenticationMechanism=MONGODB-CR --
authenticationDatabase admin
MongoDB shell version: 3.2.3
connecting to: 10.66.187.127:27017/singer
Server has startup warnings:
tencent cloud mongodb platform 2.0.4
mongos> db
singer
mongos> █
```

Using shell to import and export data

For both authentication methods, you can use the shell to import and export data. For more information, please see [Export and Import](#).

PHP Connection Sample

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Notes

TencentDB for MongoDB provides two usernames `rwuser` and `mongouser` by default to support the MONGODB-CR and SCRAM-SHA-1 authentication methods, respectively. The connecting URIs for the two authentication methods are formed differently. For more information, please see [Connecting to TencentDB for MongoDB Instance](#).

For PHP, there is a driver that can be used to connect to and manipulate a MongoDB database, namely, [MongoDB driver](#). The MongoDB driver is officially recommended by MongoDB, but it requires PHP 5.4 or above.

The following shows you how to connect to TencentDB for MongoDB and read/write data by using the aforementioned driver.

Using MongoDB driver

For more information on how to install the MongoDB driver, please see [Installation](#).

The MongoDB driver can use both the MONGODB-CR and SCRAM-SHA-1 authentication methods. For more information, please see [Connection Sample](#).

Sample code:

```
<?php
// Splice the connection URI
$uri = 'mongodb://mongouser:thepasswordA1@10.66.187.127:27017/admin';
$manager = new MongoDB\Driver\Manager($uri);
// Prepare to write data
$document1 = [
'username' => 'lily',
'age' => 34,
'email' => 'lily@qq.com'
];
// Preprocess the data with the driver. Here, you can see that `_id` of MongoDB is generated by the driver
$bulk = new MongoDB\Driver\BulkWrite;
$_id1 = $bulk->insert($document1);
$result = $manager->executeBulkWrite('tsdb.table1', $bulk);
// You can also use the following code as needed to ensure that data is written to a majority of nodes
// $writeConcern = new MongoDB\Driver\WriteConcern(MongoDB\Driver\WriteConcern::MAJORITY, 1000);
// $result = $manager->executeBulkWrite('testdb.testcollection', $bulk, $writeConcern);
// Query
```

```

$filter = ['_id' => $_id1];
$query = new MongoDB\Driver\Query($filter);
$rows = $manager->executeQuery('tsdb.table1', $query); // You can also select to read a secondary
database first
foreach($rows as $r){
print_r($r);
}

```

Output:

```

stdClass Object
(
    [_id] => MongoDB\BSON\ObjectID Object
    (
        [oid] => 582c001618c90a16363abc31
    )
    [username] => lily
    [age] => 34
    [email] => lily@qq.com
)

```

Using PHPLIB library (encapsulated based on MongoDB driver)

We recommend you use [PHPLIB](#) with the MongoDB driver. For more information, please see [CRUD Operations](#).

For more information on how to install PHPLIB, please see [Install the MongoDB PHP Library](#). Please note that PHPLIB depends on the MongoDB driver.

Sample code:

```

<?php
require_once __DIR__ . "/vendor/autoload.php";
// Initialize
$client = new MongoClient('mongodb://mongouser:thepasswordA1@10.66.187.127:27017/admin');
// Use the `users` collection under the `demo` library
$collection = $client->demo->users;
// Write a data entry
$insertOneResult = $collection->insertOne(['name' => 'gomez']);
printf("Inserted %d document(s)\n", $insertOneResult->getInsertedCount());
var_dump($insertOneResult->getInsertedId());
// Query data
$document = $collection->findOne(['name' => 'gomez']);
var_dump($document);

```

Output:

```
Inserted 1 document(s)
object(MongoDB%BSON%ObjectID)#11 (1) {
  ["oid"]=>
  string(24) "57e3bf20bf605714a53e69c1"
}
object(MongoDB%Model%BSONDocument)#16 (1) {
  ["storage":"ArrayObject":private]=>
  array(2) {
    ["_id"]=>
    object(MongoDB%BSON%ObjectID)#14 (1) {
      ["oid"]=>
      string(24) "57e3bf20bf605714a53e69c1"
    }
    ["name"]=>
    string(5) "gomez"
  }
}
```

Node.js Connection Sample

Last updated : 2020-04-16 16:22:47

Notes

TencentDB for MongoDB provides two usernames `rwuser` and `mongouser` by default to support the MONGODB-CR and SCRAM-SHA-1 authentication methods, respectively. The connecting URIs for the two authentication methods are formed differently. For more information, please see [Connection Sample](#).

[Documentation of MongoDB Node.js Driver](#)

Quick Start

Native Node.js sample code

Install the driver package through shell:

```
npm install mongodb --save
(If the installation failed, you can try another source, such as `npm config set registry http://registry.cnpmjs.org`)
npm init
```

Program code:

```
'use strict';

var MongoClient = require('mongodb').MongoClient,
    assert = require('assert');

// Form the URI
var url = 'mongodb://mongouser:thepasswordA1@10.66.161.177:27017/admin';

mongoClient.connect(url, function(err, db) {
    assert.equal(null, err);
    var db = db.db('testdb'); // Select a database
    var col = db.collection('demoCol'); // Select a collection (table)
    // Insert data
    col.insertOne(
    {
    a: 1,
```

```
something: "yy"
},
// Optional parameters
//{
// w: 'majority' // Enable the "Majority" mode to ensure that data are written to the Secondary nodes
//},
function(err, r) {
  console.info("err:", err);
  assert.equal(null, err);
  // Assertion is written successfully
  assert.equal(1, r.insertedCount);
  // Query data
  col.find().toArray(function(err, docs) {
    assert.equal(null, err);
    console.info("docs:", docs);
    db.close();
  });
}
);
});
```

Output:

```
[root@VM_2_167_centos node]# node index.js
docs: [ { _id: 567a1bf26773935b3ff0b42a, a: 1, something: 'yy' } ]
```

Sample Code for Connecting to Node.js mongoose

```
var dbUri = "mongodb://" + user + ":" + password + "@" + host + ":" + port + "/" + dbName;
var opts = {
  auth: {
    authMechanism: 'MONGODB-CR', // This parameter is not required if SCRAM-SHA-1 authentication is used
    authSource: 'admin'
  }
};
var connection = mongoose.createConnection(dbUri, opts);
```


Java Connection Sample

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Notes

TencentDB for MongoDB provides two usernames `rwuser` and `mongouser` by default to support the MONGODB-CR and SCRAM-SHA-1 authentication methods, respectively. The connecting URIs for the two authentication methods are formed differently. For more information, see [Instance Connection](#).

[Documentation of the MongoDB Java Driver](#)

Download the [JAR package](#) and select a version above 3.2.

Getting Started

Native Java sample code

```
package mongodbdemo;
import org.bson.*;
import com.mongodb.*;
import com.mongodb.client.*;
public class Mongodbdemo {
public static void main(String[] args) {
String mongoUri = "mongodb://mongouser:thepasswordA1@10.66.187.127:27017/admin"; // For multi-IP
instance URIs, refer to the following format: mongodb://mongouser:*****@172.xx.xx.124:27017,172.
xx.xx.27:27017,172.xx.xx.136:27017/test?authSource=admin&replicaSet=cmgo-fsstfgob_0
MongoClientURI connStr = new MongoClientURI(mongoUri);
MongoClient mongoClient = new MongoClient(connStr);
try {
// Use the database `someonedb`
MongoDatabase database = mongoClient.getDatabase("someonedb");
// Get the handle of the collection/table `someonetable`
MongoCollection<Document> collection = database.getCollection("someonetable");
// Prepare to write data
Document doc = new Document();
doc.append("key", "value");
doc.append("username", "jack");
doc.append("age", 31);
// Write data
collection.insertOne(doc);
System.out.println("insert document: " + doc);
// Read data
```

```
BsonDocument filter = new BsonDocument();
filter.append("username", new BsonString("jack"));
MongoCursor<Document> cursor = collection.find(filter).iterator();
while (cursor.hasNext()) {
    System.out.println("find document: " + cursor.next());
}
} finally {
    // Close the connection
    mongoClient.close();
}
}
```

Output:

```
INFO: Opened connection [connectionId{localValue:2, serverValue:67621}] to 10.66.122.28:27017
insert document: Document{{key=value, username=jack, age=31, _id=56a6ebb565b33b771f9826dd}}
find document: Document{{_id=56a3189565b33b2e7ca150ba, key=value, username=jack, age=31}}
Jan 26, 2016 11:44:53 AM com.mongodb.diagnostics.logging.JULLogger log
INFO: Closed connection [connectionId{localValue:2, serverValue:67621}] to 10.66.122.28:27017 because the pool has been closed.
```

Configuration sample for Spring Data MongoDB

This sample demonstrates how to configure the [authentication database admin](#), which depends on the versions of Spring and Spring Data MongoDB you use.

```
<bean id="mongoTemplate" class="org.springframework.data.mongodb.core.MongoTemplate">
<constructor-arg name="mongoDbFactory" ref="mongoDbFactory" />
</bean>
<bean id="mongoDbFactory" class="org.springframework.data.mongodb.core.SimpleMongoDbFactory">
<constructor-arg name="mongo" ref="mongo" />
<constructor-arg name="databaseName" value="your target database" />
<constructor-arg name="credentials" ref="userCredentials" />
<constructor-arg name="authenticationDatabaseName" value="admin" />
</bean>
<bean id="userCredentials" class="org.springframework.data.authentication.UserCredentials">
<constructor-arg name="username" value="username" />
<constructor-arg name="password" value="password" />
</bean>
```

Python Connection Sample

Last updated : 2020-04-16 16:22:47

Notes

TencentDB for MongoDB provides two usernames `rwuser` and `mongouser` by default to support the MONGODB-CR and SCRAM-SHA-1 authentication methods, respectively. The connecting URIs for the two authentication methods are formed differently. For more information, please see [Connection Sample](#).

Download the Python driver [here](#).

Quick Start

Python sample code 1

```
#!/usr/bin/python
import pymongo
import random

mongodbUri = 'mongodb://mongouser:thepasswordA1@10.66.187.127:27017/admin'

client = pymongo.MongoClient(mongodbUri)
db = client.somedb
db.user.drop()
element_num=10
for id in range(element_num):
    name = random.choice(['R9', 'cat', 'owen', 'lee', 'J'])
    sex = random.choice(['male', 'female'])
    db.user.insert_one({'id':id, 'name':name, 'sex':sex})

content = db.user.find()
for i in content:
    print i
```

Python sample code 2

```
#!/usr/bin/python
import pymongo
mongodbUri = 'mongodb://mongouser:thepasswordA1@10.66.187.127:27017/admin'
```

```
client = pymongo.MongoClient(mongodbUri)
db = client.someonedb

inserted_id = db.somecoll.insert_one({"somekey": "yiqihapi"}).inserted_id
print inserted_id

for doc in db.somecoll.find(dict(_id=inserted_id)):
    print doc

for doc in db.somecoll.find({"somekey": "yiqihapi"}):
    print doc
```

Output:

```
5734431e101e2f6d699b37ef
{'u'somekey': u'yiqihapi', u'_id': ObjectId('5734431e101e2f6d699b37ef')}
{'u'somekey': u'yiqihapi', u'_id': ObjectId('5734431e101e2f6d699b37ef')}
```

Go Connection Sample

Last updated : 2021-04-19 18:07:56

Notes

TencentDB for MongoDB provides two usernames `rwuser` and `mongouser` by default to support the MONGODB-CR and SCRAM-SHA-1 authentication methods, respectively. The connecting URIs for the two authentication methods are formed differently. For more information, please see [Connecting to TencentDB for MongoDB Instance](#).

Download [mgo driver](#) and [MongoDB Go driver](#).

Sample Code for mgo

```
func GetMgoURL(ip, user, password string, port int) string {
    urlString := ""
    if user == "" && password == "" {
        urlString = fmt.Sprintf("mongodb://%s:%d/admin", ip, port)
    } else {
        urlString = fmt.Sprintf("mongodb://%s:%s@%s:%d/admin", url.QueryEscape(user), url.QueryEscape(password), ip, port)
    }

    return urlString
}

url := service.GetMgoURL(reqPara.Ip, reqPara.User, reqPara.Password, reqPara.Port)
session, err := mgo.Dial(url)
```

Sample Code for MongoDB Go

Please see [MongoDB's official document](#).

PHP Reconnection Sample

Last updated : 2022-04-12 09:50:01

Notes

Instead of simply allowing you to access mongod, the TencentDB for MongoDB database service provides a load balancer IP for access. You can use this IP to connect to a range of route access layers similar to mongos.

The client driver establishes a persistent connection with an access server through the load balancer IP. If the connection is active for a long period of time, no intervention will be imposed on this status. However, if the persistent connection is inactive for more than one day (this period will be adjusted with version optimization), the route access layer will terminate the connection.

Generally, the client driver will implement an automatic reconnection process. However, this process cannot be implemented by certain language drivers. For such language drivers, if you attempt to communicate with the TencentDB for MongoDB service through a terminated connection, an error message such as "Remote server has closed the connection" will be returned, and manual reconnection will be required. The document provides a demo for PHP reconnection.

Reconnection Based on PHP Mongo Driver

```
<?php
function getConnection() {
    $connection = false;
    $uri = 'mongodb://rwuser:1234567a@10.66.148.142:27017/admin?authMechanism=MONGODB-CR';
    $maxRetries = 5;
    for( $counts = 1; $counts <= $maxRetries; $counts++ ) {
        try {
            $connection = new MongoClient($uri);
        } catch( Exception $e ) {
            // Or use the `catch` code line below as required. Please note that "¥" is needed when some frame
            works use namespace.
            // } catch( ¥Exception $e ) {
        }
        continue;
    }
    break;
}
return $connection;
}
$connection = getConnection();
```

```
if($connection) {  
  $db = $connection->testdb;  
  $collection = $db->testcollection;  
  $one = $collection->findOne();  
  var_dump($one);  
}
```