



链滴

# MySQL 之 wait\_timeout 和 interactive\_timeout 参数

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原文链接: <https://ld246.com/article/1534404861785>

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# 引言

在用mysql客户端对数据库进行操作时，打开终端窗口，如果一段时间没有操作，再次操作时，常常报如下错误：

```
ERROR 2013 (HY000): Lost connection to MySQL server during query
ERROR 2006 (HY000): MySQL server has gone away
No connection. Trying to reconnect...
```

这个报错信息就意味着当前的连接已经断开，需要重新建立连接。那么，连接的时长是多长？如何确认和配置？

## 相关参数

引言中连接时长和参数`interactive_timeout`和`wait_timeout`的设置有关。

### 1. `interactive_timeout`参数定义

The number of seconds the server waits for activity on an interactive connection before closing it. An interactive client is defined as a client that uses the `CLIENT_INTERACTIVE` option to `mysql_real_connect()`. See also `wait_timeout`.

`interactive_timeout`针对交互式连接，`wait_timeout`针对非交互式连接。所谓的交互式连接，即在`mysql_real_connect()`函数中使用了`CLIENT_INTERACTIVE`选项。说得直白一点，通过mysql客户端连接数据库是交互式连接，通过jdbc连接数据库是非交互式连接。

默认值:28800，单位秒，即8个小时

### 2. `wait_timeout`参数定义

The number of seconds the server waits for activity on a noninteractive connection before closing it.

On thread startup, the session `wait_timeout` value is initialized from the global `wait_timeout` value or from the global `interactive_timeout` value, depending on the type of client (as defined by the `CLIENT_INTERACTIVE` connect option to `mysql_real_connect()`). See also `interactive_timeout`.

服务器关闭非交互连接之前等待活动的秒数。在线程启动时，根据全局`wait_timeout`值或全局`interactive_timeout`值初始化会话`wait_timeout`值，取决于客户端类型(由`mysql_real_connect()`的连接选项`CLIENT_INTERACTIVE`定义)。

默认值:28800，单位秒，即8个小时

## 控制连接最大空闲时长的参数及验证

控制连接最大空闲时长的参数是: wait\_timeout

## 验证: 1. 只修改wait\_timeout参数

```
mysql> select variable_name,variable_value from information_schema.session_variables where  
variable_name in ('interactive_timeout','wait_timeout');
```

```
+-----+-----+  
| variable_name | variable_value |  
+-----+-----+  
| INTERACTIVE_TIMEOUT | 28800 |  
| WAIT_TIMEOUT | 28800 |  
+-----+-----+  
rows in set (0.03 sec)
```

```
mysql> set session WAIT_TIMEOUT=10;  
Query OK, 0 rows affected (0.00 sec)
```

-----等待10s后再执行

```
mysql> select variable_name,variable_value from information_schema.session_variables where  
variable_name in ('interactive_timeout','wait_timeout');  
ERROR 2013 (HY000): Lost connection to MySQL server during query
```

可以看到，等待10s后再执行操作，连接已经断开。

## 验证: 2. 只修改interactive\_timeout参数 \*\*

```
mysql> select variable_name,variable_value from information_schema.session_variables where  
variable_name in ('interactive_timeout','wait_timeout');
```

```
+-----+-----+  
| variable_name | variable_value |  
+-----+-----+  
| INTERACTIVE_TIMEOUT | 28800 |  
| WAIT_TIMEOUT | 28800 |  
+-----+-----+  
rows in set (0.06 sec)
```

```
mysql> set session INTERACTIVE_TIMEOUT=10;  
Query OK, 0 rows affected (0.00 sec)
```

-----等待10s后执行

```
mysql> select variable_name,variable_value from information_schema.session_variables where  
variable_name in ('interactive_timeout','wait_timeout');
```

```
+-----+-----+  
| variable_name | variable_value |  
+-----+-----+  
| INTERACTIVE_TIMEOUT | 10 |  
| WAIT_TIMEOUT | 28800 |  
+-----+-----+  
rows in set (0.06 sec)
```

可以看到，等待10s后再执行操作，连接没有断开。

## 会话变量wait\_timeout的继承问题

如果是交互式连接，则继承全局变量interactive\_timeout的值，如果是非交互式连接，则继承全局变量wait\_timeout的值。

## 验证1: 只修改全局变量interactive\_timeout的值

### 1. 交互式连接修改INTERACTIVE\_TIMEOUT值

- 打开一个Mysql客户端修改INTERACTIVE\_TIMEOUT值

```
mysql> select variable_name,variable_value from information_schema.global_variables where  
variable_name in ('interactive_timeout','wait_timeout');
```

```
+-----+-----+  
| variable_name | variable_value |  
+-----+-----+  
| INTERACTIVE_TIMEOUT | 28800 |  
| WAIT_TIMEOUT        | 28800 |  
+-----+-----+  
rows in set (0.13 sec)
```

```
mysql> set global INTERACTIVE_TIMEOUT=10;  
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> select variable_name,variable_value from information_schema.global_variables where  
variable_name in ('interactive_timeout','wait_timeout');
```

```
+-----+-----+  
| variable_name | variable_value |  
+-----+-----+  
| INTERACTIVE_TIMEOUT | 10 |  
| WAIT_TIMEOUT        | 28800 |  
+-----+-----+  
rows in set (0.00 sec)
```

- 开启另外一个mysql客户端，查看会话变量的值

```
mysql> select variable_name,variable_value from information_schema.session_variables where  
variable_name in ('interactive_timeout','wait_timeout');
```

```
+-----+-----+  
| variable_name | variable_value |  
+-----+-----+  
| INTERACTIVE_TIMEOUT | 10 |  
| WAIT_TIMEOUT        | 10 |  
+-----+-----+  
rows in set (0.00 sec)
```

WAIT\_TIMEOUT的值已经变为10，继承INTERACTIVE\_TIMEOUT的值。

### 2. 非交互式连接修改INTERACTIVE\_TIMEOUT值

```
public class Jdbc_test {  
    @SuppressWarnings("static-access")
```

```

public static void main(String\[] args) throws Exception {
    Connection conn = null;
    Statement stmt = null;
    ResultSet rs = null;
    String url = "jdbc:mysql://192.168.244.10:3306/test";
    String user = "root";
    String password = "123456";
    Class.forName("com.mysql.jdbc.Driver");
    conn = DriverManager.getConnection(url, user, password);
    stmt = conn.createStatement();
    String sql = "select variable\_name,variable\_value from information\_schema.session\_v
riables where variable\_name in ('interactive\_timeout','wait\_timeout')";
    rs = stmt.executeQuery(sql);
    while (rs.next()) {
        System.out
.println(rs.getString(1)+"": "+rs.getString(2));
    }
}
}

```

输出结果

```

INTERACTIVE_TIMEOUT: 10
WAIT_TIMEOUT: 28800

```

wait\_timeout的值依旧是28800，没有继承INTERACTIVE\_TIMEOUT的值

## 验证2: 只修改全局变量wait\_timeout的值

### 1. 交互式连接修改wait\_timeout值

- 打开一个Mysql客户端修改wait\_timeout值

```

mysql> select variable_name,variable_value from information_schema.global_variables where
variable_name in ('interactive_timeout','wait_timeout');+-----+
| variable_name      | variable_value |
+-----+-----+
| INTERACTIVE_TIMEOUT | 28800          |
| WAIT_TIMEOUT       | 28800          |
+-----+-----+
rows in set (0.17 sec)

```

```

mysql> set global WAIT_TIMEOUT=20;
Query OK, 0 rows affected (0.07 sec)

```

```

mysql> select variable_name,variable_value from information_schema.global_variables where
variable_name in ('interactive_timeout','wait_timeout');+-----+
| variable_name      | variable_value |
+-----+-----+

```

```
| INTERACTIVE_TIMEOUT | 28800 |
| WAIT_TIMEOUT        | 20      |
+-----+-----+
rows in set (0.00 sec)
```

- 开启另外一个mysql客户端，查看会话变量的值

```
mysql> select variable_name,variable_value from information_schema.session_variables where
variable_name in ('interactive_timeout','wait_timeout');
+-----+-----+
| variable_name | variable_value |
+-----+-----+
| INTERACTIVE_TIMEOUT | 28800 |
| WAIT_TIMEOUT        | 28800 |
+-----+-----+
rows in set (0.03 sec)
```

wait\_timeout的值依旧是28800，没有继承刚才设置的WAIT\_TIMEOUT值

## 2. 非交互式连接修改wait\_timeout值

```
public class Jdbc_test {
    @SuppressWarnings("static-access")
    public static void main(String\[] args) throws Exception {
        Connection conn = null;
        Statement stmt = null;
        ResultSet rs = null;
        String url = "jdbc:mysql://192.168.244.10:3306/test";
        String user = "root";
        String password = "123456";
        Class.forName("com.mysql.jdbc.Driver");
        conn = DriverManager.getConnection(url, user, password);
        stmt = conn.createStatement();
        String sql = "select variable\_name,variable\_value from information\_schema.session\_v
riables where variable\_name in ('interactive\_timeout','wait_timeout')";
        rs = stmt.executeQuery(sql);
        while (rs.next()) {
            System.out
                .println(rs.getString(1)+" ": "+rs.getString(2));
        }
        Thread.currentThread().sleep(21000);
        sql = "select 1 from dual";
        rs = stmt.executeQuery(sql);
        while (rs.next()) {
            System.out
                .println(rs.getInt(1));
        }
    }
}
```

## 输出结果

```
INTERACTIVE_TIMEOUT: 28800  
WAIT_TIMEOUT: 20
```

同时，新增了一段程序，等待20s后，再次执行查询，报如下错误：

```
Exception in thread "main" com.mysql.jdbc.exceptions.jdbc4.CommunicationsException: Co  
mmunications link failure
```

Last packet sent to the server was 12 ms ago.

```
at sun.reflect.NativeConstructorAccessorImpl.newInstance0(Native Method)  
at sun.reflect.NativeConstructorAccessorImpl.newInstance(Unknown Source)  
at sun.reflect.DelegatingConstructorAccessorImpl.newInstance(Unknown Source)  
at java.lang.reflect.Constructor.newInstance(Unknown Source)  
at com.mysql.jdbc.Util.handleNewInstance(Util.java:406)  
at com.mysql.jdbc.SQLException.createCommunicationsException(SQLException.java:1074)  
at com.mysql.jdbc.MysqlIO.reuseAndReadPacket(MysqlIO.java:3009)  
at com.mysql.jdbc.MysqlIO.reuseAndReadPacket(MysqlIO.java:2895)  
at com.mysql.jdbc.MysqlIO.checkErrorPacket(MysqlIO.java:3438)  
at com.mysql.jdbc.MysqlIO.sendCommand(MysqlIO.java:1951)  
at com.mysql.jdbc.MysqlIO.sqlQueryDirect(MysqlIO.java:2101)  
at com.mysql.jdbc.ConnectionImpl.execSQL(ConnectionImpl.java:2548)  
at com.mysql.jdbc.ConnectionImpl.execSQL(ConnectionImpl.java:2477)  
at com.mysql.jdbc.StatementImpl.executeQuery(StatementImpl.java:1422)  
at com.victor_01.Jdbc_test.main(Jdbc_test.java:29)  
Caused by: java.net.SocketException: Software caused connection abort: recv failed  
at java.net.SocketInputStream.socketRead0(Native Method)  
at java.net.SocketInputStream.socketRead(Unknown Source)  
at java.net.SocketInputStream.read(Unknown Source)  
at java.net.SocketInputStream.read(Unknown Source)  
at com.mysql.jdbc.util.ReadAheadInputStream.fill(ReadAheadInputStream.java:113)  
at com.mysql.jdbc.util.ReadAheadInputStream.readFromUnderlyingStreamIfNecessary(Rea  
AheadInputStream.java:160)  
at com.mysql.jdbc.util.ReadAheadInputStream.read(ReadAheadInputStream.java:188)  
at com.mysql.jdbc.MysqlIO.readFully(MysqlIO.java:2452)  
at com.mysql.jdbc.MysqlIO.reuseAndReadPacket(MysqlIO.java:2906)  
... 8 more
```

wait\_timeout的变为20，继承刚才设置的WAIT\_IMEOUT值

## 总结

1. 控制连接最大空闲时长的wait\_timeout参数。
2. 对于非交互式连接，类似于jdbc连接，wait\_timeo  
t的值继承自服务器端全局变量wait\_timeout。对于交互式连接，  
似于mysql客户单连接，wait\_timeout的值继承自服务器端全局变量inte  
active\_timeout。
3. 判断一个连接的空闲时间，可通过show processlist输出中Sleep状态的时间

```
mysql> show processlist;
```

Id	User	Host	db	Command	Time	State	Info
2	root	localhost	NULL	Query	0	init	show processlist
6	repl	192.168.244.20:44641	NULL	Sleep	1154		NULL

```
rows in set (0.03 sec)
```

## 参考

- <https://www.cnblogs.com/ivictor/p/5979731.html>
- <http://www.cnblogs.com/Alight/p/4118515.html>
- <http://www.cnblogs.com/jiunadianshi/articles/2475475.html>

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