

Mariadb数据库复制系列(四): 复制过滤器的实现

实验四: 复制过滤器的实现

复制过滤器的作用是让从节点仅复制主节点的指定的库, 或指定数据库的指定表, 而不是全部复制。其配置方式有两种, 一种是在主节点上配置, 通过定义主节点只记录部分库或表产生的二进制日志时间来实现; 一种是通过从节点上配置, 当复制了主节点的所有的二进制日志数据后, 在SQL线程执行时, 只执行指定的库或表相关的二进制日志时间; 一般采取在从节点上的配置来实现

1、实验环境说明

- 主节点为node72(10.1.32.72), 从节点为node73(10.1.32.73)
- 在从节点上实现复制过滤, 限制从节点, 只执行testdb库和testdb1库的复制操作, 其他库不予复制

2、确保两节点时间同步

```
[root@node72 ~]# date;ssh 10.1.32.73 'date'
```

2016年 11月 20日 星期日 09:28:29 CST

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```
[root@node72 ~]#
```

确保两个节点之间的时间同步

3、在两个节点上安装mariadb-server服务程序包

```

[root@node72 ~]# yum install -y mariadb-server
已加载插件: fastestmirror, langpacks
Repodata is over 2 weeks old. Install yum-cron? Or run: yum makecache fast
BASE | 3.6 kB 00:00:00
EPEL | 4.3 kB 00:00:00
Determining fastest mirrors
正在解决依赖关系
--> 正在检查事务
---> 软件包 mariadb-server.x86_64.1.5.5.44-2.el7.centos 将被 安装
--> 正在处理依赖关系 mariadb(x86-64) = 1:5.5.44-2.el7.centos, 它被软件包 1:mariadb-server-5.5.44-2.el7.centos.x86_64 需要
--> 正在处理依赖关系 perl-DBI, 它被软件包 1:mariadb-server-5.5.44-2.el7.centos.x86_64 需要
--> 正在处理依赖关系 perl-DBD-MySQL, 它被软件包 1:mariadb-server-5.5.44-2.el7.centos.x86_64 需要
--> 正在处理依赖关系 perl(Data::Dumper), 它被软件包 1:mariadb-server-5.5.44-2.el7.centos.x86_64 需要
--> 正在处理依赖关系 perl(DBI), 它被软件包 1:mariadb-server-5.5.44-2.el7.centos.x86_64 需要
--> 正在检查事务
---> 软件包 mariadb.x86_64.1.5.5.44-2.el7.centos 将被 安装
---> 软件包 perl-DBD-MySQL.x86_64.0.4.023-5.el7 将被 安装
[root@node73 ~]# yum install -y mariadb-server
Loaded plugins: fastestmirror
BASE | 3.6 kB 00:00:00
EPEL | 4.3 kB 00:00:00
Loading mirror speeds from cached hostfile
Resolving Dependencies
--> Running transaction check
---> Package mariadb-server.x86_64 1:5.5.44-2.el7.centos will be installed
--> Processing Dependency: mariadb(x86-64) = 1:5.5.44-2.el7.centos for package: 1:mariadb-server-5.5.44-2.el7.centos.x86_64
--> Processing Dependency: perl-DBI for package: 1:mariadb-server-5.5.44-2.el7.centos.x86_64
--> Processing Dependency: perl-DBD-MySQL for package: 1:mariadb-server-5.5.44-2.el7.centos.x86_64
--> Processing Dependency: perl(Data::Dumper) for package: 1:mariadb-server-5.5.44-2.el7.centos.x86_64
--> Processing Dependency: perl(DBI) for package: 1:mariadb-server-5.5.44-2.el7.centos.x86_64
--> Processing Dependency: libaio.so.1(LIBAIO_0.4)(64bit) for package: 1:mariadb-server-5.5.44-2.el7.centos.x86_64

```

4、配置两个节点之间的主从关系

```
[root@node72 ~]# vim /etc/my.cnf
```

编辑node72的服务配置文件，让其满足主从结构中主节点的配置要求

```
[mysqld]
datadir=/var/lib/mysql
socket=/var/lib/mysql/mysql.sock
# Disabling symbolic-links is recommended to prevent assorted security risks
symbolic-links=0
# Settings user and group are ignored when systemd is used.
# If you need to run mysqld under a different user or group,
# customize your systemd unit file for mariadb according to the
# instructions in http://fedoraproject.org/wiki/Systemd
skip_name_resolve=ON 禁用名称解析
innodb_file_per_table=ON innodb存储引擎的表，每表一个单独的表空间
server_id=1 设定该节点的全局唯一serverid
log_bin=node72binlog 启用主节点的二进制日志功能
```

```
[mysqld_safe]
log-error=/var/log/mariadb/mariadb.log
pid-file=/var/run/mariadb/mariadb.pid
```

```
#
# include all files from the config directory
```

```
[root@node73 ~]# vim /etc/my.cnf
```

配置node73的mysql服务配置文件，让其满足从节点的配置要求

```
[mysqld]
datadir=/var/lib/mysql
socket=/var/lib/mysql/mysql.sock
# Disabling symbolic-links is recommended to prevent assorted security risks
symbolic-links=0
# Settings user and group are ignored when systemd is used.
# If you need to run mysqld under a different user or group,
# customize your systemd unit file for mariadb according to the
# instructions in http://fedoraproject.org/wiki/Systemd
skip_name_resolve=ON
innodb_file_per_table=ON
server_id=2 设定全局唯一server id
relay_log=node73relaylog 启动中继日志功能
read_only=ON 限定从服务器只读属性
```

```
[mysqld_safe]
log-error=/var/log/mariadb/mariadb.log
pid-file=/var/run/mariadb/mariadb.pid
```

```
[root@node72 ~]# systemctl start mariadb
```

node72主节点上启动mariadb服务

```
[root@node72 ~]# ss -tnl
```

State	Recv-Q	Send-Q	Local Address:Port	Peer Address:Port
LISTEN	0	50	*:3306	*:*
LISTEN	0	128	*:22	*:*
LISTEN	0	100	127.0.0.1:25	*:*
LISTEN	0	128	:::22	:::*
LISTEN	0	100	:::1:25	:::*

```
[root@node72 ~]# mysql
```

```
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 2
Server version: 5.5.44-MariaDB-log MariaDB Server
```

Copyright (c) 2000, 2015, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

```
MariaDB [(none)]> GRANT REPLICATION SLAVE, REPLICATION CLIENT ON *.* TO 'node72user'@'10.1.32.73' IDENTIFIED BY '111111';
```

```
Query OK, 0 rows affected (0.00 sec)
```

连接到mysql，授权一个具有复制权限的用户，只允许该用户在10.1.32.73也就是从节点上连接

```

MariaDB [(none)]> FLUSH PRIVILEGES; 点上登录
Query OK, 0 rows affected (0.01 sec)

MariaDB [(none)]> █
MariaDB [(none)]> SHOW BINARY LOGS;
+-----+-----+
| Log_name          | File_size |
+-----+-----+
| node72binlog.000001 | 30358 |
| node72binlog.000002 | 1038814 |
| node72binlog.000003 | 496 |
+-----+-----+
3 rows in set (0.00 sec)

MariaDB [(none)]> SHOW MASTER STATUS; 查看主节点上二进制日志当前所处的位置
+-----+-----+-----+-----+
| File              | Position | Binlog_Do_DB | Binlog_Ignore_DB |
+-----+-----+-----+-----+
| node72binlog.000003 | 496 | | |
+-----+-----+-----+-----+
1 row in set (0.00 sec)

MariaDB [(none)]> █
[root@node73 ~]# systemctl start mariadb 启动从节点的服务
[root@node73 ~]# ss -tnl
State      Recv-Q Send-Q   Local Address:Port      Peer Address:Port
LISTEN     0      50      *:3306                  *:
LISTEN     0     128      *:22                    *:
LISTEN     0     100    127.0.0.1:25            *:
LISTEN     0     128      :::22                   :::*
LISTEN     0     100      :::1:25                  :::*
[root@node73 ~]# mysql
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 2
Server version: 5.5.44-MariaDB MariaDB Server

Copyright (c) 2000, 2015, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> CHANGE MASTER TO MASTER_HOST='10.1.32.72',MASTER_USER='node72user',MASTER_PASSWORD='111111',MASTER_LOG_FILE='node72binlog.000003',MASTER_LOG_POS=496;
Query OK, 0 rows affected (0.02 sec)

```

设定从节点从主节点复制时的属性信息
暂时不执行START SLAVE操作，也就是不启动复制线程

5、配置从节点实现复制过滤

```
MariaDB [(none)]> SHOW GLOBAL VARIABLES LIKE '%replicate%';
```

查看从节点上关于复制相关的服务器变量，可通过先关变量来定义复制过滤器的功能

Variable_name	Value
replicate_annotate_row_events	OFF
replicate_do_db	表示只执行那部分数据库的二进制日志的事件
replicate_do_table	表示只执行那部分表的二进制日志的事件
replicate_events_marked_for_skip	replicate
replicate_ignore_db	表示只不执行那部分数据库的二进制日志的事件
replicate_ignore_table	表示只不执行那部分表的二进制日志的事件
replicate_wild_do_table	以通配符设定只执行哪些表的二进制日志的事件，凡是被通配符匹配到的表的事件都执行
replicate_wild_ignore_table	以通配符设定只不执行哪些表的二进制日志的事件，凡是被通配符匹配到的表的事件都不执行

8 rows in set (0.02 sec)

```
MariaDB [(none)]> SET GLOBAL replicate_do_db='testdb,testdb1';
```

设定从服务器只复制testdb库和testdb1库的信息

```
Query OK, 0 rows affected (0.00 sec)
```

```
MariaDB [(none)]> SHOW GLOBAL VARIABLES LIKE '%replicate%';
```

Variable_name	Value
replicate_annotate_row_events	OFF
replicate_do_db	testdb,testdb1
replicate_do_table	
replicate_events_marked_for_skip	replicate
replicate_ignore_db	
replicate_ignore_table	
replicate_wild_do_table	
replicate_wild_ignore_table	

查看复制相关的变量，发现已经有对应的值

8 rows in set (0.00 sec)

```
MariaDB [(none)]> show slave status\G
```

查看从节点的状态信息

```
***** 1. row *****
Slave_IO_State: Waiting for master to send event
Master_Host: 10.1.32.72
Master_User: node72user
Master_Port: 3306
Connect_Retry: 60
Master_Log_File: node72binlog.000003
Read_Master_Log_Pos: 16275
Relay_Log_File: node73relaylog.000004
Relay_Log_Pos: 532
Relay_Master_Log_File: node72binlog.000003
Slave_IO_Running: Yes
Slave_SQL_Running: Yes
Replicate_Do_DB: testdb,testdb1
Replicate_Ignore_DB:
Replicate_Do_Table:
Replicate_Ignore_Table:
Replicate_Wild_Do_Table:
Replicate_Wild_Ignore_Table:
Last_Errno: 0
Last_Error:
Skip_Counter: 0
Exec_Master_Log_Pos: 16275
Relay_Log_Space: 9041
Until_Condition: None
Until_Log_File:
```

发现此处也已经有值

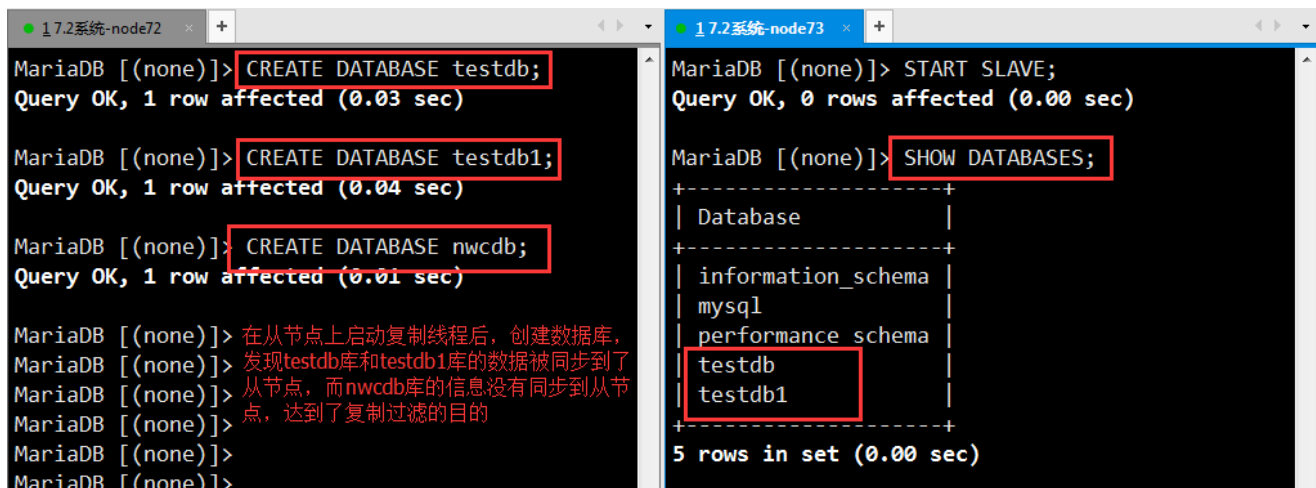
```
MariaDB [(none)]> START SLAVE;
```

启动从节点的复制线程

```
Query OK, 0 rows affected (0.00 sec)
```

```
MariaDB [(none)]>
```

6、验证复制过滤器的功能是否正常



```
MariaDB [(none)]> CREATE DATABASE testdb;
Query OK, 1 row affected (0.03 sec)

MariaDB [(none)]> CREATE DATABASE testdb1;
Query OK, 1 row affected (0.04 sec)

MariaDB [(none)]> CREATE DATABASE nwddb;
Query OK, 1 row affected (0.01 sec)

MariaDB [(none)]> 在从节点上启动复制线程后，创建数据库，
MariaDB [(none)]> 发现testdb库和testdb1库的数据被同步到了
MariaDB [(none)]> 从节点，而nwddb库的信息没有同步到从节
MariaDB [(none)]> 点，达到了复制过滤的目的
MariaDB [(none)]>
MariaDB [(none)]>
```

```
MariaDB [(none)]> START SLAVE;
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| testdb |
| testdb1 |
+-----+
5 rows in set (0.00 sec)
```