

go-mysql-elasticsearch

Ricky / Ark

同步流程

- 模擬成 mysql-slave
(different instance need different slave-id)
- 第一次同步使用 mysql dump 同步源表所有資料
- dump 結束後，使用 binlog file update的方式同步資料
- dump 過程中斷後，重新 dump
- binlog 同步過程中斷後，重啟會復原繼續上次任務

使用需求

- slave permission on mysql user
- turn on binlog mode: row
- 1 mysql table -> 1 elasticsearch index (es>=7 :no type)
- table primary key -> index _id field
- 支援 insert / update / delete

Test Env.

- mysql 5.7 :
2 core / 4G
- elasticsearch 7.5.1 :
3 nodes / 8 core / 45G
- dts server:
4 core / 16G

Test case 1

Single Table First dump

- 單表(ds_user_account_record)
筆數：20,636,613
- 耗時：1hr 27 mins (5229.4s)

```
[root@twidc-dts01 sync]# ./go-mysql-elasticsearch -config=./etc/dump.toml
[2020/01/15 09:11:11] [info] binlogsyncer.go:141 create BinlogSyncer with config {2 mysql 156.250.1.55 3306 dscp
    > false UTC false 0 0s 0s 0 false 0}
[2020/01/15 09:11:11] [info] dump.go:154 try dump MySQL and parse
[2020/01/15 09:11:11] [info] dump.go:203 exec mysqldump with [--host=156.250.1.55 --port=3306 --user=dscp --pass
MpgtCo= --master-data --single-transaction --skip-lock-tables --compact --skip-opt --quick --no-create-info --sk
ip-tz-utc --hex-blob --default-character-set=utf8 dscp ds_user_account_record]
mysqldump: [Warning] Using a password on the command line interface can be insecure.
[2020/01/15 10:38:21] [info] dump.go:169 dump MySQL and parse OK, use 5229.40 seconds, start binlog replication
9710450)
[2020/01/15 10:38:21] [info] binlogsyncer.go:502 begin to sync binlog from position (demo_bin.000010, 149710450)
[2020/01/15 10:38:21] [info] binlogsyncer.go:211 register slave for master server 156.250.1.55:3306
[2020/01/15 10:38:21] [info] sync.go:25 start sync binlog at binlog file (demo_bin.000016, 149710450)
[2020/01/15 10:38:21] [info] binlogsyncer.go:731 rotate to (demo_bin.000016, 149710450)
[2020/01/15 10:38:21] [info] sync.go:71 rotate binlog to (demo_bin.000016, 149710450)
[2020/01/15 10:38:22] [info] master.go:54 save position (demo_bin.000016, 149710450)
```

Test case 2

Single Table Single Insert

- 單表(ds_user_account_record)
筆數 : 21,114,226 -> 21,114,326 (100 rows)
- 耗時 : 307 ms

```
|---- Result ----
+ 10 rows/loop, 10 loops.
+ Start time: Thu Jan 16 16:45:58 CST 2020
+ End time: Thu Jan 16 16:46:01 CST 2020
+ second elapsed: 3
+ avg fetch elapsed: 307 ms
-----
```

Test case 3

Single Table Concurrent Insert

- 單表(ds_user_account_record)
筆數 : 21,114,326 -> 21,124,326 (10000 rows)
- 平均耗時 : 500 ms

----- Result -----

```
+ 100 rows/loop, 10 loops.  
+ Start time: Thu Jan 16 16:48:24 CST 2020  
+ End time: Thu Jan 16 16:48:34 CST 2020  
+ second elapsed: 10  
+ avg fetch elapsed: 493 ms
```

```
[root@demo-rds ~]# 
```

×

arkhuang@ArkMBP:~ (ssh)
---loop 10/10:(100 rows each loop),loop time cost 667 (ms)

----- Result -----

```
+ 100 rows/loop, 10 loops.  
+ Start time: Thu Jan 16 16:48:24 CST 2020  
+ End time: Thu Jan 16 16:48:34 CST 2020  
+ second elapsed: 10  
+ avg fetch elapsed: 559 ms
```

```
[root@demo-rds ~]# 
```

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arkhuang@ArkMBP:~ (ssh)
----- Result -----
+ 100 rows/loop, 10 loops.
+ Start time: Thu Jan 16 16:48:24 CST 2020
+ End time: Thu Jan 16 16:48:34 CST 2020
+ second elapsed: 10
+ avg fetch elapsed: 574 ms

```
[root@demo-rds ~]# 
```

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arkhuang@ArkMBP:~ (ssh)
----- Result -----
+ 100 rows/loop, 10 loops.
+ Start time: Thu Jan 16 16:48:24 CST 2020
+ End time: Thu Jan 16 16:48:34 CST 2020
+ second elapsed: 10
+ avg fetch elapsed: 481 ms

```
[root@demo-rds ~]# 
```

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arkhuang@ArkMBP:~ (ssh)
----- Result -----
+ 100 rows/loop, 10 loops.
+ Start time: Thu Jan 16 16:48:24 CST 2020
+ End time: Thu Jan 16 16:48:34 CST 2020
+ second elapsed: 10
+ avg fetch elapsed: 542 ms

----- Result -----

```
+ 100 rows/loop, 10 loops.  
+ Start time: Thu Jan 16 16:48:24 CST 2020  
+ End time: Thu Jan 16 16:48:34 CST 2020  
+ second elapsed: 10  
+ avg fetch elapsed: 435 ms
```

```
[root@demo-rds ~]# 
```

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arkhuang@ArkMBP:~ (ssh)
---loop 10/10:(100 rows each loop),loop time cost 127 (ms)

----- Result -----

```
+ 100 rows/loop, 10 loops.  
+ Start time: Thu Jan 16 16:48:24 CST 2020  
+ End time: Thu Jan 16 16:48:34 CST 2020  
+ second elapsed: 10  
+ avg fetch elapsed: 507 ms
```

```
[root@demo-rds ~]# 
```

×

arkhuang@ArkMBP:~ (ssh)
----- Result -----
+ 100 rows/loop, 10 loops.
+ Start time: Thu Jan 16 16:48:24 CST 2020
+ End time: Thu Jan 16 16:48:34 CST 2020
+ second elapsed: 10
+ avg fetch elapsed: 415 ms

```
[root@demo-rds ~]# 
```

×

arkhuang@ArkMBP:~ (ssh)
----- Result -----
+ 100 rows/loop, 10 loops.
+ Start time: Thu Jan 16 16:48:24 CST 2020
+ End time: Thu Jan 16 16:48:34 CST 2020
+ second elapsed: 10
+ avg fetch elapsed: 491 ms

```
[root@demo-rds ~]# 
```

×

arkhuang@ArkMBP:~ (ssh)
----- Result -----
+ 100 rows/loop, 10 loops.
+ Start time: Thu Jan 16 16:48:24 CST 2020
+ End time: Thu Jan 16 16:48:34 CST 2020
+ second elapsed: 10
+ avg fetch elapsed: 513 ms

Test case 4

Multi Table Concurrent Insert

- 多表 (20000 rows for each)
ds_user_account_record: 21,124,426 -> 21,144,426
ds_user_withdraw_record: 1,001,437 -> 1,021,437
ds_sports_orders: 1,005,017 -> 1,025,017
ds_user_login_log: 2,060,559 -> 2,080,559
ds_lottery_order: 3,045,537 -> 3,065,537
- 平均耗時： 9 s

```
arkhuang@ArkMBP:~ (ssh)
```

```
insert time:13105ms
---loop 6/10:(1000 rows each loop),loop time cost 9098 (ms)
insert time:12934ms
---loop 7/10:(1000 rows each loop),loop time cost 9148 (ms)
insert time:13218ms
---loop 8/10:(1000 rows each loop),loop time cost 4298 (ms)
insert time:14143ms
---loop 9/10:(1000 rows each loop),loop time cost 5185 (ms)
insert time:13725ms
---loop 10/10:(1000 rows each loop),loop time cost 4388 (ms)
```

```
----- Result -----
```

```
+ 1000 rows/loop, 10 loops.
+ Start time: Thu Jan 16 17:10:38 CST 2020
+ End time: Thu Jan 16 17:12:46 CST 2020
+ second elapsed: 128
+ avg fetch elapsed: 7417 ms
```

```
[root@demo-rds ~]# 
```

```
arkhuang@ArkMBP:~ (ssh)
```

```
insert time:13332ms
---loop 5/10:(1000 rows each loop),loop time cost 10189 (ms)
insert time:13687ms
---loop 6/10:(1000 rows each loop),loop time cost 9165 (ms)
insert time:12900ms
---loop 7/10:(1000 rows each loop),loop time cost 8740 (ms)
insert time:13629ms
---loop 8/10:(1000 rows each loop),loop time cost 9241 (ms)
insert time:14132ms
---loop 9/10:(1000 rows each loop),loop time cost 9596 (ms)
insert time:11565ms
---loop 10/10:(1000 rows each loop),loop time cost 8654 (ms)
```

```
----- Result -----
```

```
+ 1000 rows/loop, 10 loops.
+ Start time: Thu Jan 16 17:10:38 CST 2020
+ End time: Thu Jan 16 17:12:47 CST 2020
+ second elapsed: 129
+ avg fetch elapsed: 9332 ms
```

```
[root@demo-rds ~]# 
```

```
arkhuang@ArkMBP:~ (ssh)
```

```
insert time:13179ms
---loop 6/10:(1000 rows each loop),loop time cost 9045 (ms)
insert time:12842ms
---loop 7/10:(1000 rows each loop),loop time cost 8970 (ms)
insert time:13343ms
---loop 8/10:(1000 rows each loop),loop time cost 4181 (ms)
insert time:14153ms
---loop 9/10:(1000 rows each loop),loop time cost 5109 (ms)
insert time:13692ms
---loop 10/10:(1000 rows each loop),loop time cost 8001 (ms)
```

```
----- Result -----
```

```
+ 1000 rows/loop, 10 loops.
+ Start time: Thu Jan 16 17:10:38 CST 2020
+ End time: Thu Jan 16 17:12:46 CST 2020
+ second elapsed: 128
+ avg fetch elapsed: 7634 ms
```

```
[root@demo-rds ~]# 
```

```
arkhuang@ArkMBP:~ (ssh)
```

```
insert time:13095ms
---loop 5/10:(1000 rows each loop),loop time cost 9686 (ms)
insert time:13466ms
---loop 6/10:(1000 rows each loop),loop time cost 9762 (ms)
insert time:12913ms
---loop 7/10:(1000 rows each loop),loop time cost 8511 (ms)
insert time:13538ms
---loop 8/10:(1000 rows each loop),loop time cost 8958 (ms)
insert time:14416ms
---loop 9/10:(1000 rows each loop),loop time cost 9507 (ms)
insert time:12121ms
---loop 10/10:(1000 rows each loop),loop time cost 8270 (ms)
```

```
----- Result -----
```

```
+ 1000 rows/loop, 10 loops.
+ Start time: Thu Jan 16 17:10:38 CST 2020
+ End time: Thu Jan 16 17:12:47 CST 2020
+ second elapsed: 129
+ avg fetch elapsed: 9234 ms
```

```
[root@demo-rds ~]# 
```

```
arkhuang@ArkMBP:~ (ssh)
insert time:13518ms
---loop 6/10:(1000 rows each loop),loop time cost 9709 (ms)
insert time:13160ms
---loop 7/10:(1000 rows each loop),loop time cost 8446 (ms)
insert time:13848ms
---loop 8/10:(1000 rows each loop),loop time cost 8523 (ms)
insert time:14591ms
---loop 9/10:(1000 rows each loop),loop time cost 9685 (ms)
insert time:10557ms
---loop 10/10:(1000 rows each loop),loop time cost 8350 (ms)

----- Result -----
+ 1000 rows/loop, 10 loops.
+ Start time: Thu Jan 16 17:10:38 CST 2020
+ End time: Thu Jan 16 17:12:47 CST 2020
+ second elapsed: 129
+ avg fetch elapsed: 9308 ms
-----
[root@demo-rds ~]# 
```

```
arkhuang@ArkMBP:~ (ssh)
insert time:13471ms
---loop 6/10:(1000 rows each loop),loop time cost 9389 (ms)
insert time:13086ms
---loop 7/10:(1000 rows each loop),loop time cost 9114 (ms)
insert time:14048ms
---loop 8/10:(1000 rows each loop),loop time cost 9209 (ms)
insert time:14315ms
---loop 9/10:(1000 rows each loop),loop time cost 9367 (ms)
insert time:10407ms
---loop 10/10:(1000 rows each loop),loop time cost 8994 (ms)

----- Result -----
+ 1000 rows/loop, 10 loops.
+ Start time: Thu Jan 16 17:10:38 CST 2020
+ End time: Thu Jan 16 17:12:47 CST 2020
+ second elapsed: 129
+ avg fetch elapsed: 9265 ms
-----
[root@demo-rds ~]# 
```

```
arkhuang@ArkMBP:~ (ssh)
insert time:13300ms
---loop 6/10:(1000 rows each loop),loop time cost 9165 (ms)
insert time:13023ms
---loop 7/10:(1000 rows each loop),loop time cost 9120 (ms)
insert time:14103ms
---loop 8/10:(1000 rows each loop),loop time cost 8280 (ms)
insert time:14512ms
---loop 9/10:(1000 rows each loop),loop time cost 9215 (ms)
insert time:10198ms
---loop 10/10:(1000 rows each loop),loop time cost 8933 (ms)

----- Result -----
+ 1000 rows/loop, 10 loops.
+ Start time: Thu Jan 16 17:10:38 CST 2020
+ End time: Thu Jan 16 17:12:47 CST 2020
+ second elapsed: 129
+ avg fetch elapsed: 9231 ms
-----
[root@demo-rds ~]# 
```

```
arkhuang@ArkMBP:~ (ssh)
insert time:13751ms
---loop 6/10:(1000 rows each loop),loop time cost 9717 (ms)
insert time:13244ms
---loop 7/10:(1000 rows each loop),loop time cost 8194 (ms)
insert time:13910ms
---loop 8/10:(1000 rows each loop),loop time cost 9127 (ms)
insert time:14281ms
---loop 9/10:(1000 rows each loop),loop time cost 8470 (ms)
insert time:10475ms
---loop 10/10:(1000 rows each loop),loop time cost 8106 (ms)

----- Result -----
+ 1000 rows/loop, 10 loops.
+ Start time: Thu Jan 16 17:10:38 CST 2020
+ End time: Thu Jan 16 17:12:47 CST 2020
+ second elapsed: 129
+ avg fetch elapsed: 9058 ms
-----
[root@demo-rds ~]# 
```

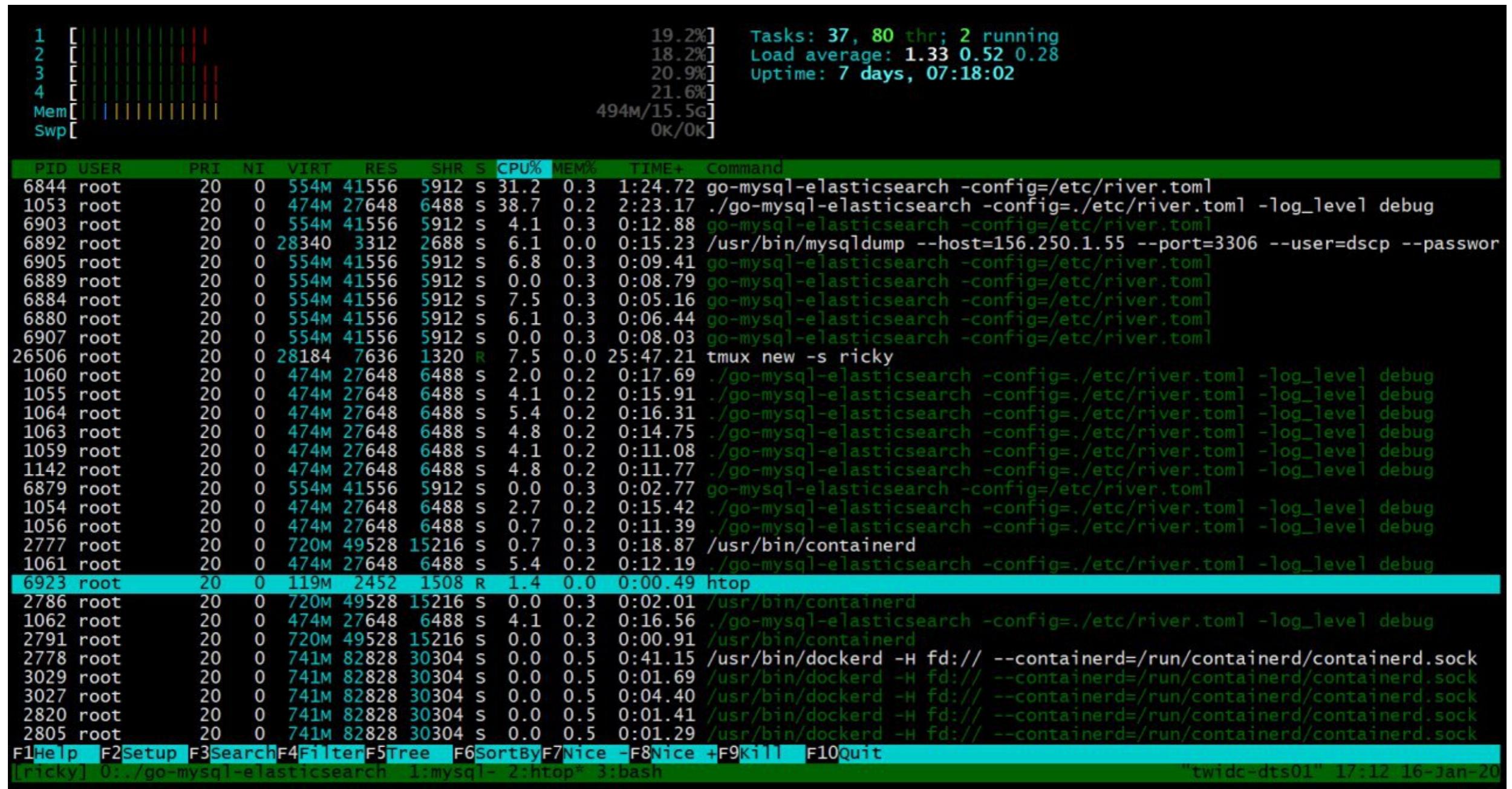
```
arkhuang@ArkMBP:~ (ssh)
insert time:13040ms
---loop 6/10:(1000 rows each loop),loop time cost 8883 (ms)
insert time:12917ms
---loop 7/10:(1000 rows each loop),loop time cost 8931 (ms)
insert time:13220ms
---loop 8/10:(1000 rows each loop),loop time cost 4098 (ms)
insert time:14125ms
---loop 9/10:(1000 rows each loop),loop time cost 9193 (ms)
insert time:13736ms
---loop 10/10:(1000 rows each loop),loop time cost 5039 (ms)

----- Result -----
+ 1000 rows/loop, 10 loops.
+ Start time: Thu Jan 16 17:10:38 CST 2020
+ End time: Thu Jan 16 17:12:46 CST 2020
+ second elapsed: 128
+ avg fetch elapsed: 7709 ms
-----
[root@demo-rds ~]# 
```

```
arkhuang@ArkMBP:~ (ssh)
insert time:13152ms
---loop 6/10:(1000 rows each loop),loop time cost 9169 (ms)
insert time:12924ms
---loop 7/10:(1000 rows each loop),loop time cost 4151 (ms)
insert time:13302ms
---loop 8/10:(1000 rows each loop),loop time cost 4218 (ms)
insert time:14195ms
---loop 9/10:(1000 rows each loop),loop time cost 9177 (ms)
insert time:13737ms
---loop 10/10:(1000 rows each loop),loop time cost 5048 (ms)

----- Result -----
+ 1000 rows/loop, 10 loops.
+ Start time: Thu Jan 16 17:10:38 CST 2020
+ End time: Thu Jan 16 17:12:46 CST 2020
+ second elapsed: 128
+ avg fetch elapsed: 7286 ms
-----
[root@demo-rds ~]# 
```

Resource Usage



後記

- elasticsearch index refresh time $\geq 1\text{s}$
會影響資料同步後讀取的 delay time