DBAplus 数据连接未来 | IT大咖说 知识分享平台

•Oracle—>MySQL

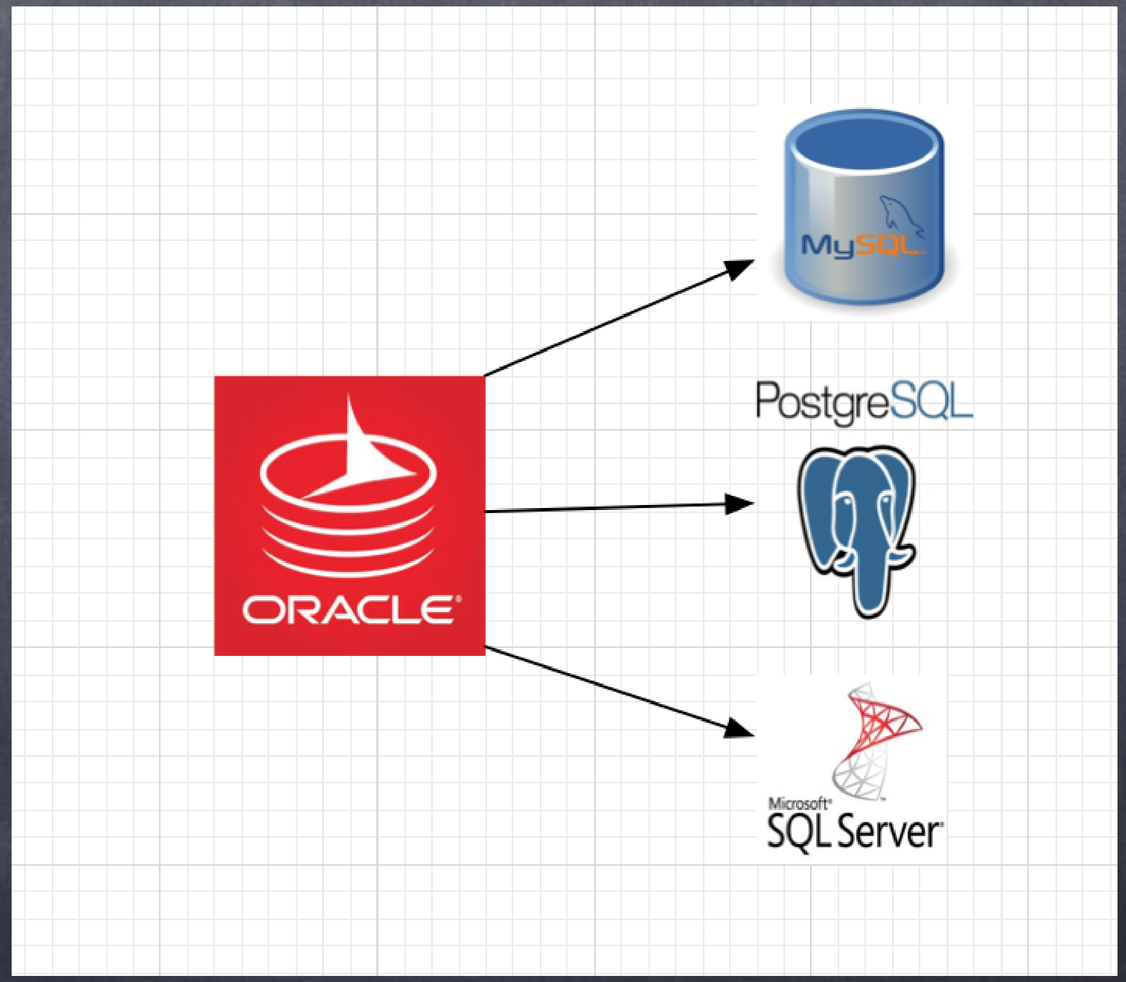
—冯帅

Before considering of migration data

- Appropriate alternative database
- Appropriate migration tool
- Don’t affect the source side
- Incremental data
- The data object is different
- The data type is different
- Data integrity check
- Performance optimization

Alternative Database

- MySQL VS PG
- MySQL branch
- MySQL version
- Mongodb、Redis
- MySQL architecture



Migration Tool

- MySQL Migration Toolkit
- SQL LOAD
- Python
- OGG
- KETTLE

SQL LOAD

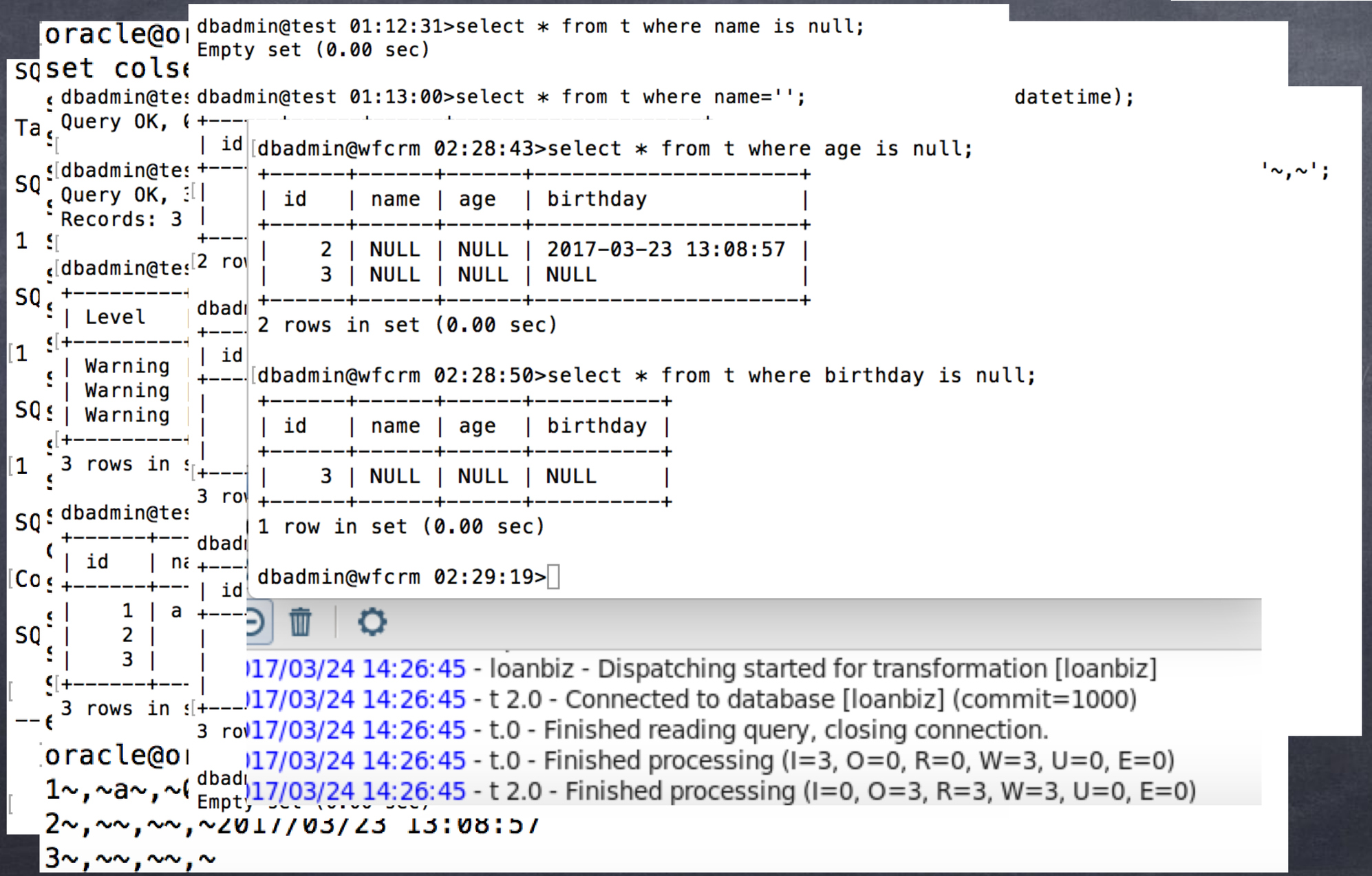
- Step 1.Export csv/sql from Oracle
- Step 2.Load csv/Source sql into MySQL

Merits and Demerits:

- Fastest
- Simple

- It’s difficult to automate
- Data may be a problem

Demo


dbadmin@test 01:12:31>select * from t where name is null;
Empty set (0.00 sec)
dbadmin@test 01:13:00>select * from t where name='';
dbadmin@wfcrm 02:28:43>select * from t where age is null;
id	name	age	birthday
2	NULL	NULL	2017-03-23 13:08:57
3	NULL	NULL	NULL
2 rows in set (0.00 sec)
dbadmin@wfcrm 02:28:50>select * from t where birthday is null;
id	name	age	birthday
3	NULL	NULL	NULL
1 row in set (0.00 sec)
dbadmin@wfcrm 02:29:19>
17/03/24 14:26:45 - loanbiz - Dispatching started for transformation [loanbiz]
17/03/24 14:26:45 - t 2.0 - Connected to database [loanbiz] (commit=1000)
17/03/24 14:26:45 - t.0 - Finished reading query, closing connection.
17/03/24 14:26:45 - t.0 - Finished processing (I=3, O=0, R=0, W=3, U=0, E=0)
17/03/24 14:26:45 - t 2.0 - Finished processing (I=0, O=3, R=3, W=3, U=0, E=0)

Python

- Step 1.Create Mapping table
- Step 2.Code、Code、Code
- Step 3.Run procedure

Merits and Demerits:

- Agility
- Logic control

- Exception
- Slow

Python Code

```
def export_data(tab1,pk0,tab2):
    global cnt_err
2017-02-14 17:40:01  Start ...
/python/o2m/o2m_replace_subclos.py:158: Warning: Incorrect string value: '\xF0\xAF\xA0\xA5' for column 'FNAME' at row 1
  mysor.execute(sql2)
/python/o2m/o2m_replace_subclos.py:158: Warning: Incorrect string value: '\xF0\xA4\xA4\xB4' for column 'FNAME' at row 1
  mysor.execute(sql2)
/python/o2m/o2m_replace_subclos.py:158: Warning: Incorrect string value: '\xF0\xA5\x96\x84' for column 'FNAME' at row 1
  mysor.execute(sql2)
/python/o2m/o2m_replace_subclos.py:158: Warning: Incorrect string value: '\xF0\x9F\x86\x95' for column 'FNAME' at row 1
  mysor.execute(sql2)
/python/o2m/o2m_replace_subclos.py:158: Warning: Incorrect string value: '\xF0\xAF\xA3\x8D\xE5\x8D...' for column 'FNAME
' at row 1
  mysor.execute(sql2)
Error 1064: You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the
 right syntax to use near '><x>")' at line 1
Error happens on the row: PK(col0)=11949613 ,ignore and continue...
/python/o2m/o2m_replace_subclos.py:158: Warning: Incorrect string value: '\xF0\xA3\x87\x88\xE6\x98...' for column 'FNAME
' at row 1
  mysor.execute(sql2)
/python/o2m/o2m_replace_subclos.py:158: Warning: Incorrect string value: '\xF0\xAF\xA0\xA5\xE6\xAF...' for column 'FNAME
' at row 1
  mysor.execute(sql2)
/python/o2m/o2m_replace_subclos.py:158: Warning: Incorrect string value: '\xF0\xA3\x87\x88\xE4\xB8...' for column 'FNAME
' at row 1
  mysor.execute(sql2)
/python/o2m/o2m_replace_subclos.py:158: Warning: Incorrect string value: '\xF0\x9F\x8D\xAC' for column 'FNAME' at row 1
  mysor.execute(sql2)
/python/o2m/o2m_replace_subclos.py:158: Warning: Incorrect string value: '\xF0\x9F\x88\xBA\xEF\xB8...' for column 'FNAME
' at row 1
  mysor.execute(sql2)
Error 1064: You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the
 right syntax to use near '"郭成群\")' at line 1
Error happens on the row: PK(col0)=15936184 ,ignore and continue...
2017-02-14 17:44:37  Thread 1 commit last 61963 record.
2017-02-14 17:44:48  Counter of err-row is 2 .Finished ...
        print "User Exit ..."
        exit(1)
    finally:
        mysor.close()
```

OGG

- Step 1.Configure Oracle OGG
- Step 2.Configure MySQL OGG
- Step 3.Run

Merits and Demerits:

- real-time
- Support Data type
- Complex
- Only Support Innodb

OGG notes

- Goldengate to mysql support innodb engine only
- Does not support DDL
- 5.6 Must OGG 12.1.2 to support
- Must configure defgen
- Binlog_format must be set to the value of ROW（two-way）

MySQL Migration Toolkit

- Step 1.Load odbc.jar
- Step 2.Configure And Mapping
- Step 3.Run

Merits and Demerits:

- Create table
- Type conversion
- Date type weak support
- Only Windows

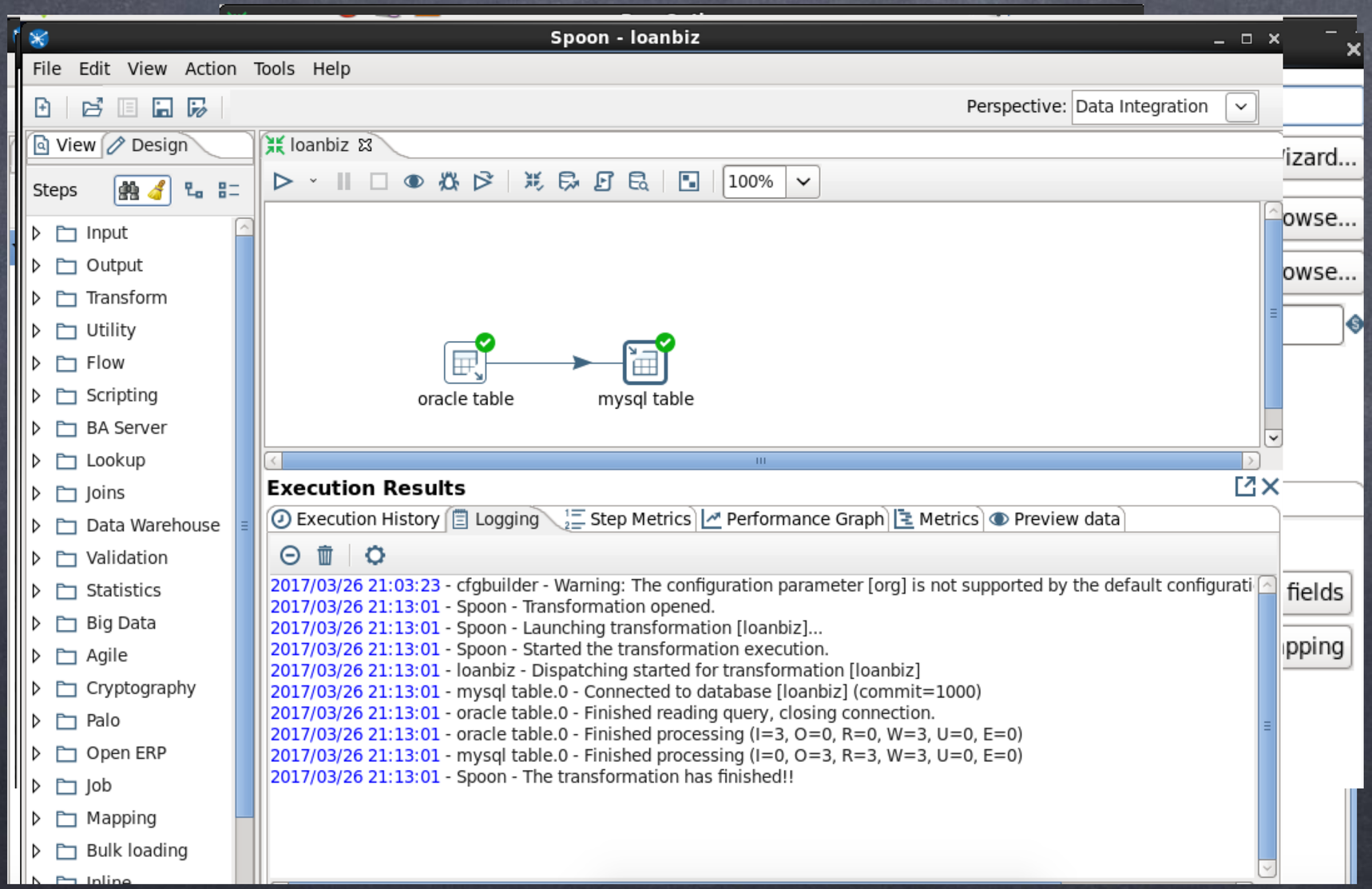
KETTLE

- Step 1.Load mysql.jar
- Step 2.Configure And Mapping
- Step 3.Run

Merits and Demerits:

- Fast
- Type conversion
- Auto Mapping
- Learning cost

KETTLE DEMO


Spoon - loanbiz
File Edit View Action Tools Help
Perspective: Data Integration
View Design
Steps
Input
Output
Transform
Utility
Flow
Scripting
BA Server
Lookup
Joins
Data Warehouse
Validation
Statistics
Big Data
Agile
Cryptography
Palo
Open ERP
Job
Mapping
Bulk loading
loanbiz
100%
oracle table
mysql table
Execution Results
Execution History
Logging
Step Metrics
Performance Graph
Metrics
Preview data
2017/03/26 21:03:23 - cfgbuilder - Warning: The configuration parameter [org] is not supported by the default configurati
2017/03/26 21:13:01 - Spoon - Transformation opened.
2017/03/26 21:13:01 - Spoon - Launching transformation [loanbiz]...
2017/03/26 21:13:01 - Spoon - Started the transformation execution.
2017/03/26 21:13:01 - loanbiz - Dispatching started for transformation [loanbiz]
2017/03/26 21:13:01 - mysql table.0 - Connected to database [loanbiz] (commit=1000)
2017/03/26 21:13:01 - oracle table.0 - Finished reading query, closing connection.
2017/03/26 21:13:01 - oracle table.0 - Finished processing (I=3, O=0, R=0, W=3, U=0, E=0)
2017/03/26 21:13:01 - mysql table.0 - Finished processing (I=0, O=3, R=3, W=3, U=0, E=0)
2017/03/26 21:13:01 - Spoon - The transformation has finished!!

VIEW

```
dbadmin@test 03:15:24>create view v_test as select * from (select * from test)
;
ERROR 1349 (HY000): View's SELECT contains a subquery in the FROM clause
dbadmin@test 03:15:30>
dbadmin@test 03:15:37>create view v_sub_test as select * from test;
Query OK, 0 rows affected (0.00 sec)

dbadmin@test 03:15:39>create view v_test as select * from v_sub_test;
Query OK, 0 rows affected (0.00 sec)
```

Materialized Views

refresh

event

trigger

performance

Procedure、Function、Trigger

- Trigger OR
- %type
- Elseif、For
- Cursor
- PACKAGE
- Predefined
- :=、||
- Annotation
- LEVEL
- Exception

Other Difference

- Page
- Join
- Group By
- Bitmap
- Partitioned table
- Role
- emoji
- Sequence

Complete Check

- Log And Warning
- Count(*)
- Sampling
- APP
- Congos

SQL_MODE

- TRADITIONAL
- ONLY_FULL_GROUP_BY

Without Regard to any trailing spaces

Explicit_defauls_for_timestamp

Performance Parameters

max_allowed_packet

innodb_flush_log_at_trx_commit

innodb_log_file_size

innodb_log_buffer_size

innodb_buffer_pool_size

AIO

innodb_buffer_pool_instances

Conclusion

- Appropriate migration tool
- Data integrity check is very important
- Repeat operation is normal

“Thanks for your time.”

—UcJmh