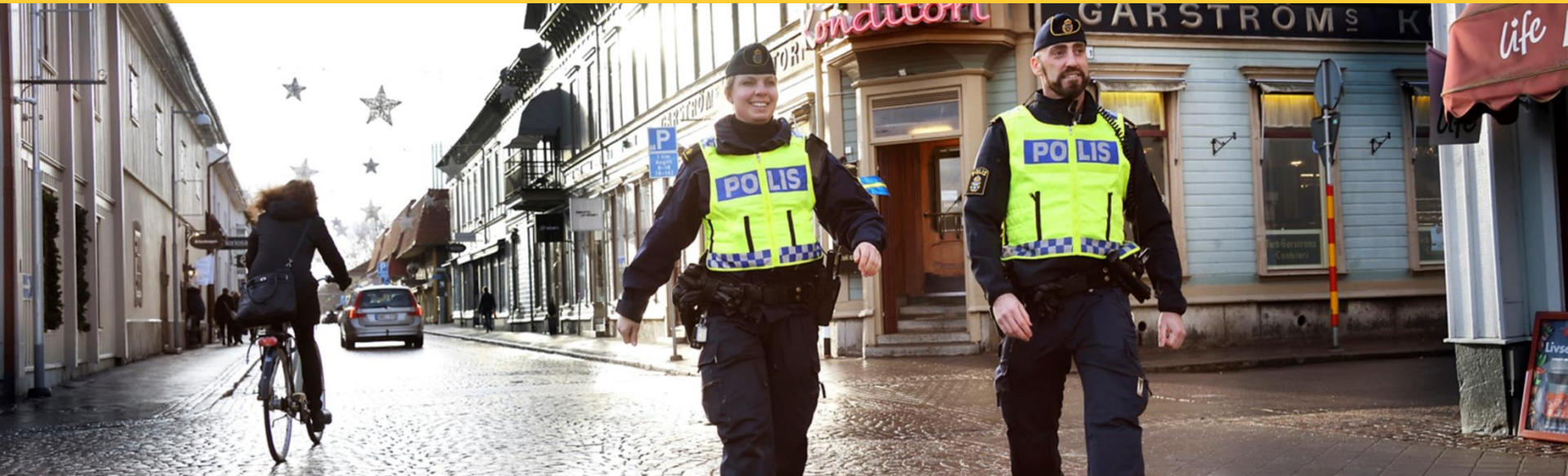




Polisen

# MySQL - testmiljöer på minuter

Thomas Johansson | IT-avdelningen



# Kort presentation!

- MySQL-DBA
- Unix-gubbe sedan 90-talet



# Testmiljöer för MySQL

- För att testa innan uppgradering
- För att testa uppgradering
- För att leta buggar



# Testmiljöer för MySQL

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- För att testa uppgradering
- För att leta buggar

...men tyvärr

- Tröttsamt med massor av maskiner med RPM-installationer
- Tröttsamt att hålla koll på alla miljöer



# Testmiljöer för MySQL

- För att testa innan uppgradering
  - För att testa uppgradering
  - För att leta buggar
- ...men tyvärr
- Tröttsamt med massor av maskiner med RPM-installationer
  - Tröttsamt att hålla koll på alla miljöer

Lyckligtvis har någon gjort det enkelt för oss!



# dbdeployer!

Tack Giuseppe Maxia!



**Polisen**

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# dbdeployer!

Tack Giuseppe Maxia!

- MySQL-sandbox har funnits i många år
- Skrivits om ifrån perl till Go och blev dbdeployer

<https://github.com/datacharmer/dbdeployer>



# Tok-enkelt

- Slanga hem dbdeployer

<https://github.com/datacharmer/dbdeployer/releases/download/1.14.0/dbdeployer-1.14.0.linux.tar.gz>





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- Slanga hem MySQL

[https://dev.mysql.com/get/Downloads/MySQL-8.0/mysql-8.0.13-linux-glibc2.12-x86\\_64.tar.xz](https://dev.mysql.com/get/Downloads/MySQL-8.0/mysql-8.0.13-linux-glibc2.12-x86_64.tar.xz)



# Tok-enkelt

- Slanga hem dbdeployer

<https://github.com/datacharmer/dbdeployer/releases/download/1.14.0/dbdeployer-1.14.0.linux.tar.gz>

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[https://dev.mysql.com/get/Downloads/MySQL-8.0/mysql-8.0.13-linux-glibc2.12-x86\\_64.tar.xz](https://dev.mysql.com/get/Downloads/MySQL-8.0/mysql-8.0.13-linux-glibc2.12-x86_64.tar.xz)

- ”Installera”

```
tar xzf dbdeployer-1.14.0.linux.tar.gz && mv dbdeployer-1.14.0.linux ~/bin/dbdeployer
```



# Tok-enkelt

- Slanga hem dbdeployer

<https://github.com/datacharmer/dbdeployer/releases/download/1.14.0/dbdeployer-1.14.0.linux.tar.gz>

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[https://dev.mysql.com/get/Downloads/MySQL-8.0/mysql-8.0.13-linux-glibc2.12-x86\\_64.tar.xz](https://dev.mysql.com/get/Downloads/MySQL-8.0/mysql-8.0.13-linux-glibc2.12-x86_64.tar.xz)

- "Installera"

```
tar xzf dbdeployer-1.14.0.linux.tar.gz && mv dbdeployer-1.14.0.linux ~/bin/dbdeployer
```

- Deploy

```
dbdeployer unpack mysql-8.0.12-linux-glibc2.12-x86_64.tar.xz
```

```
dbdeployer unpack mysql-8.0.13-linux-glibc2.12-x86_64.tar.xz
```

```
dbdeployer deploy single 8.0.12
```

```
dbdeployer deploy --topology=group replication 8.0.13
```



# Använda sandlådorna

- Kolla replikeringen

```
[thomas@wintermute ~]> sandboxes/group_msb_8_0_12/check_nodes  
# Node 1 # select * from performance_schema.replication_group_members
```

CHANNEL_NAME	MEMBER_ID	MEMBER_HOST	MEMBER_PORT	MEMBER_STATE	MEMBER_ROLE	MEMBER_VERSION
group_replication_applier	00021213-1111-1111-1111-111111111111	127.0.0.1	21213	ONLINE	PRIMARY	8.0.12
group_replication_applier	00021214-2222-2222-2222-222222222222	127.0.0.1	21214	ONLINE	PRIMARY	8.0.12
group_replication_applier	00021215-3333-3333-3333-333333333333	127.0.0.1	21215	ONLINE	PRIMARY	8.0.12

```
# Node 2 # select * from performance_schema.replication_group_members
```

CHANNEL_NAME	MEMBER_ID	MEMBER_HOST	MEMBER_PORT	MEMBER_STATE	MEMBER_ROLE	MEMBER_VERSION
group_replication_applier	00021213-1111-1111-1111-111111111111	127.0.0.1	21213	ONLINE	PRIMARY	8.0.12
group_replication_applier	00021214-2222-2222-2222-222222222222	127.0.0.1	21214	ONLINE	PRIMARY	8.0.12
group_replication_applier	00021215-3333-3333-3333-333333333333	127.0.0.1	21215	ONLINE	PRIMARY	8.0.12

```
# Node 3 # select * from performance_schema.replication_group_members
```

CHANNEL_NAME	MEMBER_ID	MEMBER_HOST	MEMBER_PORT	MEMBER_STATE	MEMBER_ROLE	MEMBER_VERSION
group_replication_applier	00021213-1111-1111-1111-111111111111	127.0.0.1	21213	ONLINE	PRIMARY	8.0.12
group_replication_applier	00021214-2222-2222-2222-222222222222	127.0.0.1	21214	ONLINE	PRIMARY	8.0.12
group_replication_applier	00021215-3333-3333-3333-333333333333	127.0.0.1	21215	ONLINE	PRIMARY	8.0.12



# Använda sandlådorna

- Finns script i varje nod eller grupp som skapats

```
~/sandboxes/group_msb_8_0_12/n1 - nod 1 i gruppen
```

```
~/sandboxes/group_msb_8_0_12/n2 - nod 2 i gruppen
```

```
node1 [localhost:21213] {msandbox} ((none)) > create schema thomas default character set utf8mb4;
```

```
node1 [localhost:21213] {msandbox} ((none)) > use thomas;
```

```
node1 [localhost:21213] {msandbox} (thomas) > create table junk (stuff varchar(255));
```

```
node1 [localhost:21213] {msandbox} (thomas) > insert into junk(stuff) values('Hehe!');
```

```
ERROR 3098 (HY000): The table does not comply with the requirements by an external plugin.
```

```
node2 [localhost:21214] {msandbox} (thomas) > alter table junk add column id int primary key;
```

```
node1 [localhost:21213] {msandbox} (thomas) > insert into junk(id, stuff) values(1, 'Hehe!');
```

```
node3 [localhost:21215] {msandbox} (thomas) > select * from junk;
```

```
+-----+-----+
```

```
| stuff | id |
```

```
+-----+-----+
```

```
| Hehe! | 1 |
```

```
+-----+-----+
```

```
1 row in set (0.00 sec)
```



# Prova uppgraderingar

- Installera en 8.0.12

```
[thomas@wintermute ~]> dbdeployer deploy single 8.0.12
Database installed in $HOME/sandboxes/msb_8_0_12
run 'dbdeployer usage single' for basic instructions'
... sandbox server started
```

# Prova uppgraderingar

- Installera en 8.0.12

```
[thomas@wintermute ~]> dbdeployer deploy single 8.0.12
Database installed in $HOME/sandboxes/msb_8_0_12
run 'dbdeployer usage single' for basic instructions'
... sandbox server started
```

- Installera en 8.0.13

```
[thomas@wintermute ~]> dbdeployer deploy single 8.0.13
Database installed in $HOME/sandboxes/msb_8_0_13
run 'dbdeployer usage single' for basic instructions'
.... sandbox server started
```

# Prova uppgraderingar

- Installera en 8.0.12

```
[thomas@wintermute ~]> dbdeployer deploy single 8.0.12
Database installed in $HOME/sandboxes/msb_8_0_12
run 'dbdeployer usage single' for basic instructions'
... sandbox server started
```

- Installera en 8.0.13

```
[thomas@wintermute ~]> dbdeployer deploy single 8.0.13
Database installed in $HOME/sandboxes/msb_8_0_13
run 'dbdeployer usage single' for basic instructions'
.... sandbox server started
```

- Kör uppgraderingen

```
[thomas@wintermute ~]> dbdeployer admin upgrade msb_8_0_12 msb_8_0_13
... [ -- 8< snip! 8< --] ...
msb_8_0_12 is not operational and can be deleted
```





# Prova uppgraderingar

- Installera en 8.0.12

```
[thomas@wintermute ~]> dbdeployer deploy single 8.0.12
Database installed in $HOME/sandboxes/msb_8_0_12
run 'dbdeployer usage single' for basic instructions'
... sandbox server started
```

- Installera en 8.0.13

```
[thomas@wintermute ~]> dbdeployer deploy single 8.0.13
Database installed in $HOME/sandboxes/msb_8_0_13
run 'dbdeployer usage single' for basic instructions'
.... sandbox server started
```

- Kör uppgraderingen

```
[thomas@wintermute ~]> dbdeployer admin upgrade msb_8_0_12 msb_8_0_13
... [ -- 8< snip! 8< --] ...
msb_8_0_12 is not operational and can be deleted
```

- Kolla loggen i den uppgraderade instansen!

```
[thomas@wintermute ~]> sandboxes/msb_8_0_13/show_log
```



# Alternativa installationer

- Deploy multiple

```
[thomas@wintermute ~]> dbdeployer deploy multiple -n 4 8.0
# 8.0 => 8.0.13
Installing and starting node 1
... sandbox server started
Installing and starting node 2
... sandbox server started
Installing and starting node 3
... sandbox server started
Installing and starting node 4
... sandbox server started
multiple directory installed in $HOME/sandboxes/multi_msb_8_0_13
run 'dbdeployer usage multiple' for basic instructions'
```

# Alternativa installationer

- Deploy multiple

```
[thomas@wintermute ~]> dbdeployer deploy multiple -n 4 8.0
# 8.0 => 8.0.13
Installing and starting node 1
... sandbox server started
Installing and starting node 2
... sandbox server started
Installing and starting node 3
... sandbox server started
Installing and starting node 4
... sandbox server started
multiple directory installed in $HOME/sandboxes/multi_msb_8_0_13
run 'dbdeployer usage multiple' for basic instructions'
```

- Deploy med särskilda config options

```
[thomas@wintermute ~]> dbdeployer deploy single 8.0 --my-cnf-options="binlog_format=STATEMENT"
# 8.0 => 8.0.13
Database installed in $HOME/sandboxes/msb_8_0_13
run 'dbdeployer usage single' for basic instructions'
... sandbox server started
[thomas@wintermute ~]> dbdeployer deploy multiple -n 2 8.0 --my-cnf-options="binlog_format=STATEMENT"
...
[thomas@wintermute ~]> dbdeployer deploy -help
...
--post-grants-sql strings      SQL queries to run after loading grants
--post-grants-sql-file string  SQL file to run after loading grants
--pre-grants-sql strings       SQL queries to run before loading grants
--pre-grants-sql-file string   SQL file to run before loading grants
--remote-access string         defines the database access (default "127.%")
```



# Underhåll sandlådorna

- `~/dbdeployer/sandboxes.json & ~/sandboxes/<sandbox>/node1/sbdescription.json`

All information om sandlådorna inklusive hur dom skapats!

```
"node_num": 1,  
"dbdeployer-version": "1.14.0",  
"command-line": "dbdeployer deploy multiple -n 4 8.0"
```

# Underhåll sandlådorna

- `~/dbdeployer/sandboxes.json & ~/sandboxes/<sandbox>/node1/sbdescription.json`

All information om sandlådorna inklusive hur dom skapats!

```
"node_num": 1,  
"dbdeployer-version": "1.14.0",  
"command-line": "dbdeployer deploy multiple -n 4 8.0"
```

- Status på sandlådan

```
[thomas@wintermute ~]> sandboxes/multi_msb_8_0_13/status_all  
MULTIPLE /home/thomas/sandboxes/multi_msb_8_0_13  
node1 : node1 on - port      25314 (25314)  
node2 : node2 on - port      25315 (25315)  
node3 : node3 on - port      25316 (25316)  
node4 : node4 on - port      25317 (25317)
```



# Underhåll sandlådorna

- `~/dbdeployer/sandboxes.json & ~/sandboxes/<sandbox>/node1/sbdescription.json`

All information om sandlådorna inklusive hur dom skapats!

```
"node_num": 1,  
"dbdeployer-version": "1.14.0",  
"command-line": "dbdeployer deploy multiple -n 4 8.0"
```

- Status på sandlådan

```
[thomas@wintermute ~]> $HOME/sandboxes/multi_msb_8_0_13/status_all  
MULTIPLE /home/u0023102/sandboxes/multi_msb_8_0_13  
node1 : node1 on - port 25314 (25314)  
node2 : node2 on - port 25315 (25315)  
node3 : node3 on - port 25316 (25316)  
node4 : node4 on - port 25317 (25317)
```

- Dags att rensa

```
[thomas@wintermute ~]> dbdeployer delete msb_8_0_13  
[thomas@wintermute ~]> dbdeployer delete ALL
```



# Det var allt!

Allt jag pratat om finns på

<https://github.com/datacharmer/dbdeployer>

Fler script, förslag och exempel

<https://github.com/datacharmer/dbdeployer/tree/master/cookbook>

