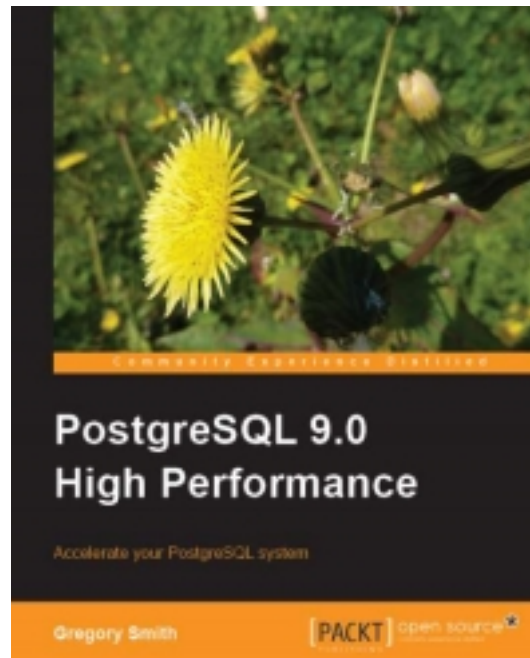




Database schema management

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dCache User Workshop 2013





What do we need?

REQUIREMENTS



Requirements

- Should track and apply schema changes
- Should not require permissions beyond the DB
- Hands-on and hands-off mode
- Rollbacks



```
$ dcache database ls
```

DOMAIN	CELL	DATABASE	HOST	USER	MANAGEABLE	AUTO
dCacheDomain	PnfsManager	chimera	localhost	chimera	Yes	Yes
dCacheDomain	replicaManager	replicas	localhost	srmdcache	Yes	No
dCacheDomain	billing	billing	localhost	srmdcache	Yes	Yes
dCacheDomain	SrmSpaceManager	spacemanager	localhost	srmdcache	No	Yes
dCacheDomain	PinManager	pinmanager	localhost	srmdcache	Yes	Yes
dCacheDomain	cleaner	chimera	localhost	chimera	No	No
dCacheDomain	RemoteTransferManager	transfermanagers	localhost	srmdcache	No	Yes
dCacheDomain	SRM-Gerds-MacBook-Pro	srm	localhost	srmdcache	No	Yes



```
# ---- Whether to manage database schemas automatically
#
# When true, database schemas will be automatically updated when
# needed. Not all services support this setting. This settings
# applies to a complete domain and must not be defined at the
# service level.
#
(one-of?true|false)db.schema.auto=true
```




```
$ dcache database update PnfsManager@dCacheDomain
PnfsManager@dCacheDomain:
INFO  - Successfully acquired change log lock
INFO  - Reading from DATABASECHANGELOG
INFO  - Reading from DATABASECHANGELOG
INFO  - Successfully released change log lock
INFO  - Database closed
Liquibase Update Successful
```




```
$ dcache database listLocks PnfsManager@dCacheDomain
PnfsManager@dCacheDomain: INFO - checkpointClose start
INFO - checkpointClose end
Database change log locks for chimera@jdbc:hsqldb:file:\
/Users/behrmann/thinkpad/dCache/dcache-git/packages/\
system-test/target/dcache/var/db/chimera;shutdown=true
- laptop (192.168.56.1) at 28-05-2013 10:12:56
INFO - Database closed
Liquibase 'listLocks' Successful
```



```
$ dcache database releaseLocks PnfsManager@dCacheDomain
PnfsManager@dCacheDomain: INFO
- Successfully released change log lock
Successfully released all database change log locks for \
chimera@jdbc:hsqldb:file:/Users/behrmann/thinkpad/dCache/\
dcache-git/packages/system-test/target/dcache/var/db/\
chimera;shutdown=true
INFO - Database closed
Liquibase 'releaseLocks' Successful
```



database tag TAG [CELL@DOMAIN]...

Tags the current database schema. See **rollback** command for details.

database rollback TAG [CELL@DOMAIN]...

Rolls back the database schema to a tagged revision. Note that only the schema is rolled back. Any changes to the content of the databases cannot be rolled back. There is no guarantee that all data can be preserved when rolling back – this depends on the exact changes that were made. Please consult the release notes for details.

database rollbacktoDate DATE/TIME [CELL@DOMAIN]...

Rolls back the database schema to the state it was in at the given date/time. Note that only the schema is rolled back. Any changes to the content of the databases cannot be rolled back. There is no guarantee that all data can be preserved when rolling back – this depends on the exact changes that were made. Please consult the release notes for details.





database doc and more

DEMO



Summary

- Eventually all databases will be defined in liquibase
- You create an empty database
 - liquibase creates the schema
- Automatic and manual mode
- Command line tools for update, lock release, tagging and rollback, schema documentation export
- All changes tracked in `databasechangelog` table
- Take care during backup, restore or when moving databases!