DBSeeder - Release Notes

`build` `passing` `release` `v3.0.2` `release date` `last monday` `github` `repo or version not found`

Version 3.0.3

Release Date: 12.09.2021

System Requirements

- Operating system: any Java-enabled Linux, Mac or Windows variant
- Docker Desktop Community: 4.0.0 (e.g. from Docker for Windows release notes)
- Eclipse IDE: 2021.06 (e.g. from Eclipse Download Page)
- Gradle Build Tool: 7 (e.g. from here)
- Java Development Kit 16, (e.g. from here)
- an environment variable called `HOME_ECLIPSE` that points to the installation directory of Eclipse IDE, e.g.: `C:\Software\eclipse\java-2021-06\eclipse`

New Features

- Automatic creation of statistics files regarding improvement with and without constraints and total overview of all releases

Modified Features

- Updating and expanding the documentation

Open issues

- AgensGraph: (see here)
- CockroachDB: (see here)
- HSQLDB: (see here)
- IBM Db2 Database: (see here)
- OmnisciDB: (see here)
- trino: (see here)
- VoltDB: (see here)

Windows 10 Performance Snapshot

The finishing touch to the work on a new release is a test run with all databases under identical conditions on three different systems - Ubuntu 20.04 via VMware and WSL2, Windows 10. The measured time includes the total time required for the DDL effort (database, schema, user, 5 database tables) and the DML effort (insertion of 7011 rows). The hardware used includes an AMD Ryzen 9 5950X CPU with 128GB RAM. The tests run exclusively on the computer in each case. The detailed results can be found in the DBSeeder repository in the `resources/statistics` directory.

The following table shows the results of the Windows 10 run. If the database can run with both activated and deactivated constraints (foreign, primary and unique key), the table shows the better value and in the column `Improvement` the relative value to the worse run. For example, the MonetDB database is faster with inactive constraints by 9.2% compared to the run with activated constraints.

DBMS	Type	ms	Constraints	Improvement (%)
HSQLDB	embedded	2'864	active	
H2 Database Engine	embedded	2'976	active - no choice	
TimescaleDB	client	3'797	inactive	10.1
PostgreSQL	client	3'804	inactive	3.5
MariaDB Server	client	3'815	active	−73.7
AgensGraph	client	3'987	inactive	3.4
Exasol	client	4'195	active	−4.0
SQLite	embedded	4'426	active - no choice	
MS SQL Server	client	5'300	active	−3.2
CrateDB	client	5'342	active - no choice	
CockroachDB	client	5'630	active - no choice	
CUBRID	client	6'456	active	−5.0
Percona Server for MySQL	client	6'614	active	−200.4
MySQL Database	client	7'636	active	−147.4
H2 Database Engine	client	7'648	active - no choice	
MonetDB	client	8'844	inactive	7.1
Mimer SQL	client	9'286	active	−2.4
Oracle Database	client	12'808	active	−26.7
YugabyteDB	client	13'055	inactive	3.4
Apache Derby	client	15'405	active	−3.2
Apache Derby	embedded	16'202	active	−12.3
HSQLDB	client	17'952	active	−3.5
IBM Informix	client	19'946	active	−0.6
IBM Db2 Database	client	23'578	active	−3.1
OmniSciDB	client	37'538	active - no choice	
Firebird	client	76'446	inactive	18.4
PostgreSQL	trino	510'823	active - no choice	
MySQL Database	trino	1'035'999	active - no choice	
MS SQL Server	trino	1'049'892	active - no choice	
Oracle Database	trino	1'877'924	active - no choice	

- `DBMS` - official DBMS name
- `Type` - client version, embedded version or via trino
- `ms` - total time of DDL and DML operations in milliseconds
- `Constraints` - DML operations with active or inactive constraints (foreign, primary and unique key)
- `Improvment` - improvement of total time if constraints are inactive

Detailed Open Issues

AgensGraph

- Issue: Database tables not visible in DBeaver.

CockroachDB

- Issue: dropping and restoring the same index - SQL statement `DROP INDEX constraint_kxn_2 CASCADE` (see here).

HSQLDB

- Issue: `java.sql.SQLSyntaxErrorException: user lacks privilege or object not found: SYS_IDX_KXN_26_10100` (see here).

```
    2021-09-06 12:03:53,676 [DatabaseSeeder.java] INFO
tickerSymbolAnyCase='hsqldb_emb'
    2021-09-06 12:03:53,676 [DatabaseSeeder.java] INFO  Start HSQLDB [embedded]
    2021-09-06 12:03:53,680 [AbstractDbmsSeeder.java] INFO  tickerSymbolIntern
=hsqldb
    2021-09-06 12:03:53,688 [AbstractJdbcSeeder.java] INFO  tickerSymbolExtern
=hsqldb_emb
    java.sql.SQLSyntaxErrorException: user lacks privilege or object not found:
SYS_IDX_KXN_26_10100
        at org.hsqldb.jdbc.JDBCUtil.sqlException(Unknown Source)
        at org.hsqldb.jdbc.JDBCUtil.sqlException(Unknown Source)
        at org.hsqldb.jdbc.JDBCStatement.fetchResult(Unknown Source)
        at org.hsqldb.jdbc.JDBCStatement.execute(Unknown Source)
        at
ch.konnexions.db_seeder.jdbc.AbstractJdbcSeeder.executeSQLStmnts(AbstractJdbcSeede
r.java:1351)
        at
ch.konnexions.db_seeder.jdbc.AbstractJdbcSeeder.dropTableConstraints(AbstractJdbcS
eeder.java:1220)
        at
ch.konnexions.db_seeder.jdbc.AbstractJdbcSeeder.createData(AbstractJdbcSeeder.java
:420)
        at ch.konnexions.db_seeder.DatabaseSeeder.main(DatabaseSeeder.java:168)
        Caused by: org.hsqldb.HsqlException: user lacks privilege or object not
found: SYS_IDX_KXN_26_10100
        at org.hsqldb.error.Error.error(Unknown Source)
        at org.hsqldb.error.Error.error(Unknown Source)
        at org.hsqldb.SchemaManager.getSchemaObject(Unknown Source)
        at org.hsqldb.ParserDQL.readSchemaObjectName(Unknown Source)
        at org.hsqldb.ParserDDL.compileAlterTableDropConstraint(Unknown Source)
        at org.hsqldb.ParserDDL.compileAlterTable(Unknown Source)
        at org.hsqldb.ParserDDL.compileAlter(Unknown Source)
        at org.hsqldb.ParserCommand.compilePart(Unknown Source)
        at org.hsqldb.ParserCommand.compileStatements(Unknown Source)
        at org.hsqldb.Session.executeDirectStatement(Unknown Source)
        at org.hsqldb.Session.execute(Unknown Source)
        ... 6 more`
```

IBM Db2 Database

- Issue: Docker image from `docker pull ibmcom/db2:11.5.6.0` (see here).

OmniSciDB

- Issue: connection problem with existing OmnisciDB (see here).

trino

- Issue: all connectors: absolutely unsatisfactory performance (see here).

- Issue: Oracle connector: Oracle session not disconnected (see here).

- Issue: Oracle connector: Support Oracle's NUMBER data type (see here).

VoltDB

- Issue: Java 16 not yet supported: `java.lang.NullPointerException: Cannot invoke "io.netty_voltpatches.NinjaKeySet.size()" because "this.m_ninjaSelectedKeys" is null`

```
    2021-09-02 03:39:41,112 [DatabaseSeeder.java] INFO
tickerSymbolAnyCase='voltdb'
    2021-09-02 03:39:41,112 [DatabaseSeeder.java] INFO  Start VoltDB
    2021-09-02 03:39:41,117 [AbstractDbmsSeeder.java] INFO  tickerSymbolIntern
=voltdb
    2021-09-02 03:39:41,127 [AbstractJdbcSeeder.java] INFO  tickerSymbolExtern
=voltdb
    java.lang.NullPointerException: Cannot invoke
"io.netty_voltpatches.NinjaKeySet.size()" because "this.m_ninjaSelectedKeys" is
null
        at
org.voltcore.network.VoltNetwork.optimizedInvokeCallbacks(VoltNetwork.java:478)
        at org.voltcore.network.VoltNetwork.run(VoltNetwork.java:329)
        at java.base/java.lang.Thread.run(Thread.java:831)
    Sept. 02, 2021 3:39:41 AM org.voltcore.logging.VoltUtilLoggingLogger log
    SEVERE: NULL : Throwable: java.lang.NullPointerException: Cannot invoke
"io.netty_voltpatches.NinjaKeySet.size()" because "this.m_ninjaSelectedKeys" is
null
    java.lang.NullPointerException: Cannot invoke
"io.netty_voltpatches.NinjaKeySet.size()" because "this.m_ninjaSelectedKeys" is
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    SEVERE: NULL : Throwable: java.lang.NullPointerException: Cannot invoke
"io.netty_voltpatches.NinjaKeySet.size()" because "this.m_ninjaSelectedKeys" is
null
```