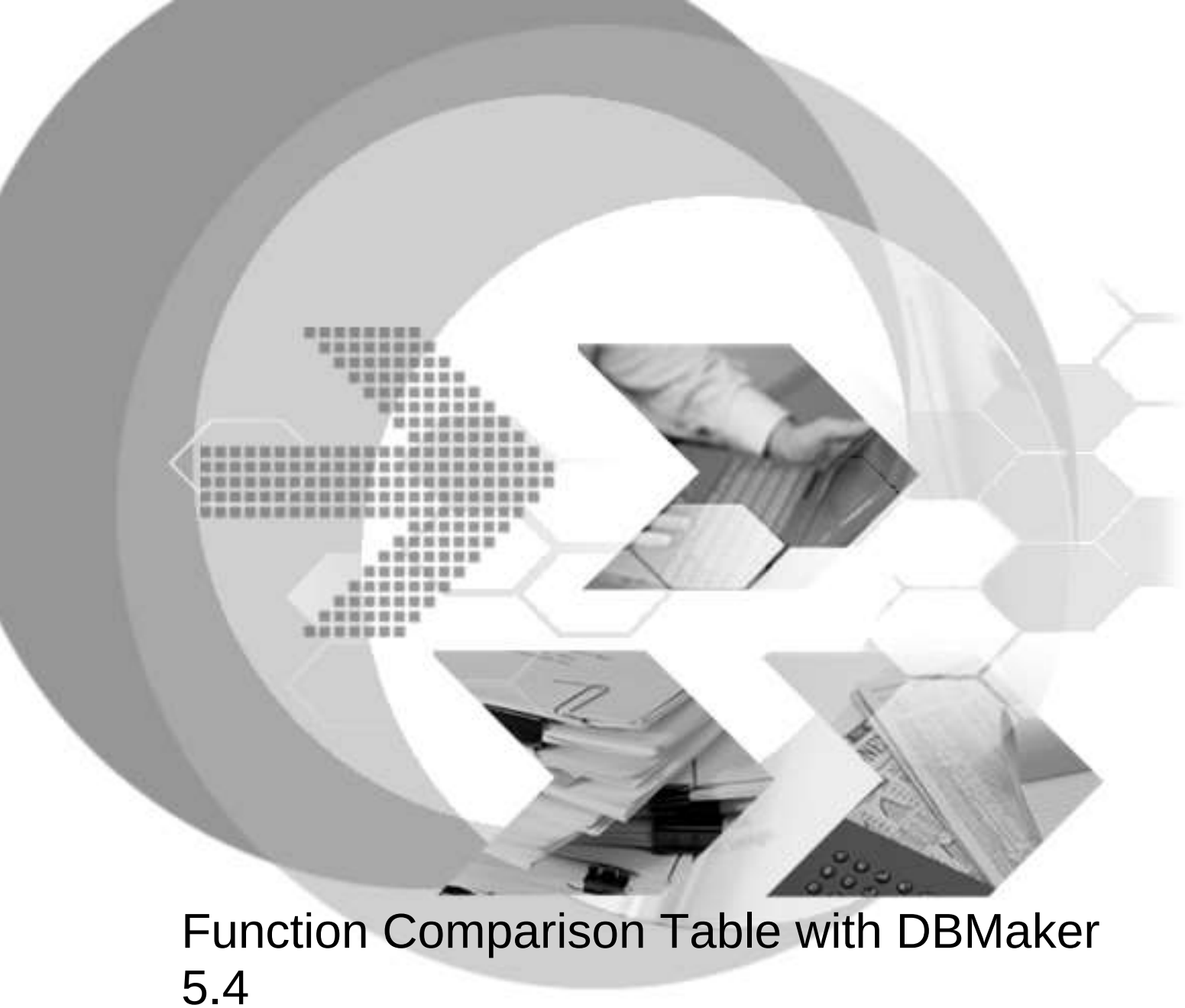

Function Comparison Table with DBMaker 5.4

Author: DBMaker Support Team

凌羣電腦
THE SYSCOM GROUP

1. Comparison Table with four Major RDBMS

Comparison Table of Four Major RDBMS:

-DBMaker 5.4

-Oracle 11g

-SQL Server 2008

-DB2 9.5

Item	Vendors and Functions			
Model	**DBMaker 5.4**	**Oracle 11g**	**SQL Server 2008**	**DB2 9.5**
Domain	Yes	No	Yes	No
XML	Yes	Yes XML DB	Yes XML Data Type	Yes pureXML in native XML
Reference integrity violation option	Restrict, cascade	Restrict, Cascade delete	Restrict, Cascade delete(update), Set null or set default delete(update)	Restrict, Cascade delete
Updating view	Yes	Yes	Yes	Yes
Database objects	**DBMaker 5.4**	**Oracle 11g**	**SQL Server 2008**	**DB2 9.5**
User-Defined type	Yes (domain)	Yes (object type, REF data type, varrays, nested table type)	Yes	Yes

Binary large object (BLOB)	Yes (data including graphics, audio, video, animation, and text; a maximum of 8TB)	Yes	Yes (text, ntext,image data type)	Yes (a maximum of 2GB)
Other types	File, Media Types, XML types	Any types, XML types, Spatial types, Media types	cursor, sql_variant,Hierarchyld,UniqueIdentifier,xml	DECFLOAT(monetary data), XML types
Table structure	Heap-organized	Ordinary(heap-organized) table, clustered table, index-organized table, partitioned table	a heap or a clustered table, partitioned table	Base, regular, append mode, result, summary, typed, (declared) global temporary, multidimensional clustering (MDC), range-clustered (RCT) , partitioned tables
Index structure	B-tree, Signature text index, IVF text index	B-tree, b-tree cluster, hash cluster, global and local, reverse key, bitmap, function-based, Partitioned indexes, Text indexes, domain indexes Reverse index Partial index	B-Tree (Clustered and Nonclustered Index), Text indexes Reverse index Partial index	B-Tree indexes, Bitmap indexes, Partitioned indexes, block indexes, dimension block indexes Reverse index
Function tuning	Fill factor, No cache, Frame size, lock mode	Allocation of Table and index, disabling constraints, NOLOGGING, table compression, parallelizing table creation	Fill factor, ONLINE, Partitioned Tables and Indexes, CLUSTERED and NONCLUSTERED, STATISTICS_NORECOMPUTE on/off	Fill factor, partitioned tables and indexes，Space compression for tables, materialized query tables, Clustered and nonclustered
Triggers	**DBMaker 5.4**	**Oracle 11g**	**SQL Server 2008**	**DB2 9.5**
Level	Row-based, Statement-based	Row-based, Statement-based	a server or database	Row-based, Statement-based

Action	An INSERT, UPDATE, DELETE, or EXECUTE PROCEDURE statement, only include DML trigger	Contain SQL, PL/SQL, or java statements; define PL/SQL language constructs; define java language constructs; call stored procedures, Support DML, DDL, or logon trigger	Includes three types of triggers: DML triggers, DDL triggers and logon triggers	Include INSERT, searched UPDATE, searched DELETE, full-selects, SET transition-variable, and SIGNAL SQLSTATE
Timing	BEFORE or AFTER trigger	BEFORE ,AFTER,INSTEAD OF,FOR trigger	AFTER or INSTEAD OF triggers	BEFORE, AFTER, or INSTEAD OF
Event	an Insert, Update, or Delete statement that operates on the trigger table	DML (An insert, update, or delete), DDL statements(create,alter, drop), Database event (system event such as startup, shutdown. user events such as logon and logoff)	an insert, update, delete statement(for DML); create, alter, drop, and other DDL statements (for DDL); LOGON event	An insert, update, or delete statement
Trigger Table	Base tables	Tables(for DML action); The database or a schema(for DDL action), not on particular tables; views(for instead of triggers)	Tables and View(for DML action),Database(for DDL action)	Base tables or typed tables
Nesting	Yes	Yes	Yes	Yes
Multiple Triggers	Yes	Yes	Yes	Yes
Stored procedure	**DBMaker 5.2**	**Oracle 11g**	**SQL Server 2008**	**DB2 9.5**
Language	ESQL/C, JAVA or SQL SP	.NET CLR Integration/Java, PL/SQL	Transact-SQL or CLR	SQL, Java
Nested Calling	Yes	Yes	Yes	Yes
Event	No	Yes	No	Yes
Query	**DBMaker 5.4**	**Oracle 11g**	**SQL Server 2008**	**DB2 9.5**

Lock level	Table, Page, Row	Row, table multi-version read consistency model allows read and writes to be done independently	Rid, key, page, extent, hobt, Table, row, file, application, Metadata, allocation_unit, Database	Row, page, table
Cursor	Forward, backward, first, last relative, absolute	Forward, backward, first, last relative, absolute	Forward-only, static, Dynamic, Keyset-driven	Forward, backward, first, last relative, absolute
Outer union	Yes	Yes	Yes	Yes
ANSI SQL	Entry-level ANSI-92	Enhance ANSI SQL 92	Entry-Level SQL 92	ANSI SQL 92
Database Management	**DBMaker 5.2**	**Oracle 11g**	**SQL Server 2008**	**DB2 9.5**
Part backup and recovery	Yes (db schema, tables, index, project, module, procedures)	Yes (tablespace)	Yes (Contains all the data in the primary filegroup, every read/write filegroup, and any optionally-specified read-only files)	Yes (tablespace)
Tablespace autoextend	Yes	Yes	Yes (filegroups)	Yes
Only for reading	Yes (read-only tablespace)	Yes	Yes (Read-only filegroups)	No
Website	**DBMaker 5.4**	**Oracle 11g**	**SQL Server 2008**	**DB2 9.5**
Web supporting	CGI,JSP, PHP,IIS,Ruby Python Perl,DCI,Hibernate, Nhibernate,Ole DB,JDBC/ODBC,Apache	CGI,JSP, PHP, Ruby Ole DB Hibernate, hibernate JDBC/ODBC Web Server	ASP,JSP,PHP,IIS, Ruby Ole DB Hibernate, Nhibernate Ole DB JDBC/ODBC	CGI, PHP,Ruby WebServer
N-Tier	Yes	Yes	Yes	Yes
Distribution	**DBMaker 5.4**	**Oracle 11g**	**SQL Server 2008**	**DB2 9.5**
Distributed database	Yes	Yes	Yes	Yes

2PC protocol	Yes	Yes	Yes	Yes
Special Distribution	Through ODBC	Through gateway or generic connectivity	Through OLE DB	Through gateway
Optimization	Yes (not include network cost)	Yes	Yes	Yes
Replication	**DBMaker 5.4**	**Oracle 11g**	**SQL Server 2008**	**DB2 9.5**
Hot standby	Yes	Yes	Yes	Yes
Owner ship	Yes	Yes	Yes	Yes
Peer to peer	Yes	Yes	Yes	Yes
Level to level	Yes	Yes	Yes	Yes
Fragment	Yes	Yes	Yes	Yes
Mapping	Yes	Yes	Yes	Yes
Connection to other DBMS	Through ODBC	Through gateway	Through OLE DB	Through gateway
Architecture	Client-Server	Client-Server	Client-Server	Client-Server
Platform	**DBMaker 5.4**	**Oracle 11g**	**SQL Server 2008**	**DB2 9.5**
Server OSs supported	Win32 Win64 (Windows 2000/XP/2003/Vista/2008/7/8/10) , Linux (with glibc 2.3) Linux(PPC64)	Windows 2000/XP/2003/Vista/2008(32-bit and 64-bit), Linux(x86 and x86-64), AIX(PPC64), HP-UX Itanium HP-UX PA-RISC(64bit), OpenVMS Itanium, Solaris (SPARC 64bit)	Windows 2000/ XP/2003/Vista/7/2008(32-bit and x64)	Windows 2000/ XP/2003/Vista/7/2008(32-bit and x64) AIX, HP-UX, Linux, Solaris

2. Comparison table with two Open Source RDBMS

-DBMaker 5.4

-Mysql 6.0

-PostgreSQL 9.0

Item	DBMaker 5.4	Mysql 6.0	PostgreSQL 9.0
Supporting XML	Yes	Yes (getting XML into and out of MySQL, and support XPath functionality)	Yes
ANSI SQL standard	SQL-99	SQL-92	SQL-99
Storage Limitation	Table and data file no limit DB < 256PB files Number < 32767 Tablespace Number < 32767 tables number no limit Row in a table<32640(depends on the page size) Number of indices on a table no limit	No (depend on Operating System File-size Limit)	DB no limitations table size < 32 Tb entry size <1,6 Tb field size < 1 Gb number of entries in a table no limitations number of fields in a table 250Ч±600, relating to field types number of indexes in a table no limitations
Transaction management	Yes	Yes (include statement transaction and normal transaction)	Yes
Integrity management	Support primary key, foreign key, Not-Null, Unique and check constraint	Support primary key, Foreign keys, Not-Null and Unique, silently ignores the check constraint	Support primary key, Foreign keys, Not-Null, Unique (deferrable unique constraints)and check constraints
Crash recovery	Yes	Yes	Yes

Backup	Support automatic backup, online and offline backup, full backup differential backup and incremental backup	Logical versus physical backups; Online versus offline backups; Local versus remote backups; Snapshot backups; Full versus incremental backups; Point-in-time recovery ; Backup scheduling, compression, and encryption; Table maintenance	SQL dump, file system level backup, continuous archiving At all times, PostgreSQL maintains a write ahead log (WAL) in the pg_xlog/ subdirectory of the cluster's data directory. Support online and offline backup, crash recovery, Point-In-Time Recovery and transaction recovery. Have the capability of Warm Standby.
Large object	Support CLOB/BLOB/FILE data type. File object can be stored in inside/outside of database	Support various BLOB and TEXT data types	PostgreSQL does not directly support large object type, but provides client interface libraries to create and manipulate large objects
Index	Max 32 columns per index	Max 16 columns per index	Max 32 columns per index Support Partial, Reverse, Partial index
Text index	Support Boolean, fuzzy, near logic full-text search	Yes	Yes
Stored procedure	Yes	Yes	Yes
View	Support read-only and updatable view	As Oracle,MySQL also support UDATETABLE view, but some restrictions exist	Postgres also support view and UPDATETABLE view. More detailed information as shown in section: complex SQL.
Distributed Database	Including distributed databases, the distributed architecture, distributed data access, distributed database object management, and distributed transaction management.	XA support distributed transaction, FEDERATED Storage Engine,MySQL cluster	No

Replication	Support mirror function, Synchronous and Asynchronous replication, table and database replication	Support asynchronous replication; three core types of replication format: Statement Based Replication (SBR), and Row Based Replication (RBR), Mixed Based Replication (MBR) which is the default mode	Shared Disk Failover, file system (Block-Device)replication, Warm Standby using Point-In-Time recovery(PITR), master-slave replication, Statement-Based Replication Middleware, Asynchronous Multimaster Replication, Synchronous Multimaster Replication， Commercial Solutions, Data Partitioning , Multiple-Server Parallel Query Execution
Embedded SQL	Yes (ESQL/C)	No	Yes (ECPG - Embedded SQL in C)
Management tools	Support JServer manager, JDBA, and other GUI tools. Be used in multiple platforms	Support MySQL Administrator, MySQL Query Browser, MySQL Migration Toolkit, MySQL Workbench GUI tools. Run on windows, Linux, and Mac OS X	Support pgAdmin III, PGAccess, phpPgAdmin, Mergeant, and so on. Be used in different platforms
API Suppoted	ODBC, JDBC, OleDB, DCI, Python, Perl, PHP	C,PHP,Perl,C++,Python,Tcl,JDBC,ADO,DAO,RDO, MyODBC	ODBC，JDBC，OleDB Python, Perl, Tcl, C/C++，ESQL
Instance	Multi instances dmserver can be started in a server and a instances can handle only one database	multi mysqld instances (Database) can be run in a server	Multi instances can be started in a server and a instances can handle multi database
Data buffer	DB_NBufs specifies data page buffers (DCCA =DB_NBUFS+DB_NJNLB +DB_SCASZ)	innodb_buffer_pool_size (should be less than total memory* 80%)	**Shared_buffers** (configure in postgresql.conf**)**
Identity authentication	Password authentication	Password authentication	Credit, password, Kerberos, Ident, LDAP, PAM authentication

Encryption	Network encryption (combination of DES and RSA)	Encrypt data by assign password in table level AES_ENCRYPT() and AES_DECRYPT() allow encryption and decryption of data using the official AES (Advanced Encryption Standard) algorithm MySQL supports secure (encrypted) connections between MySQL clients and the server using the Secure Sockets Layer (SSL) protocol. use SSL connections to realize network encryption	PostgreSQL offers encryption at several levels: Password Storage Encryption.Encryption For Specific Columns (The contrib function library pgcrypto allows certain fields to be stored encrypted).Data Partition Encryption. Encrypting Passwords Across A Network Encrypting Data Across A Network(SSL connections encrypt all data sent across the network) SSL Host Authentication Client-Side Encryption
Stored procedure and user defined function	Support CREATE PROCEDURE and CREATE FUNCTION syntax. Stored procedure include ESQL/C stored procedure compiled by VC in windows and GCC in Linux, Java stored procedure and SQL SP. DBMaster use C language as the carrier to create UDF function.	Support CREATE PROCEDURE and CREATE FUNCTION syntax. The stored procedure develops by SQL or C++ and The UDF can use SQL, C, and C++ code.	PostureSQL hasn't especial stored procedure instead of function to realize. We can use following list procedural languages to write functions: PL/pgSQL, PL/Tcl, PL/Perl, and PL/Python,SQL and C.
Trigger	DBMaster offers Row triggers and statement triggers. Triggers are also classified as before triggers and after triggers. DBMaster support BEFORE…FOR EACH STATEMENT","BEFORE…FOR EACH ROW","AFTER…FOR EACH STATEMENT" ,"AFTER…FOR EACH ROW" trigger and use SQL language to write.	MySQL triggers are activated by SQL statements only. Support before triggers and after triggers. Trigger functions can be written by procedural language multiple statements.	PostgreSQL offers per-row triggers and per-statement triggers. Triggers are also classified as before triggers and after triggers. Trigger functions can be written in most of the available procedural languages, including PL/pgSQL,PL/Tcl,PL/Perl,PL/Python.It is also possible to write a trigger function in C. It is not currently possible to write a trigger function in the plain SQL function language.
Configuration file	dmconfig.ini	my.conf	Postgresql.conf

Data access and server maintained	**Checkpoint Events**——DBMaker will automatically take a checkpoint when the journal files are full to try to reclaim some journal blocks to reuse. **update statistics**——The UPDATE STATISTICS command should be used to update statistical values and find real time statistics to enhance the efficiency of a query. **Query Optimizer**——Optimizer chooses a query execution plan with the cost function and statistics automatically. **dmSQL**——Command line tool **JServer Managera**—— **A** cross-platform graphical user interface (GUI). **JDBA Tool**—— is a cross-platform user-friendly graphical user interface (GUI) **JSQL (Java Version Query Tool)** ——a graphical user interface (GUI)	**OPTIMIZE TABLE** ——Use OPTIMIZE TABLE to reclaim the unused space and to defragment the data file. **myisamchk -analyze** ——Storage engines collect statistics about tables for use by the optimizer (MyISAM storage engine) **mysql**——command line tool **MySQL Administrator**——Client GUI Tool	**Vacuum** ——garbage-collect and optionally analyze a database **Analyze** ——collect statistics about a database, the query planner uses these statistics to help determine the most efficient execution plans for queries. **psql**——command line tool **pgAdmin** ——lient GUI Tool