# Firebird 2.1 language reference update

*Everything new in Firebird SQL since InterBase 6* **Paul Vinkenoog et al.** 9 December 2010, document version 1.0 — covers Firebird 2.1–2.1.4

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**Introduction**

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**Reserved words and keywords**

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**Miscellaneous language elements**

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**Data types and subtypes**

Data types and subtypes

**DDL statements**

- COLLATION
  - CREATE COLLATION
  - drop-collation
- COMMENT
- DATABASE
  - create-database
  - ALTER DATABASE
- DOMAIN
  - CREATE DOMAIN
  - ALTER DOMAIN
- EXCEPTION
  - CREATE EXCEPTION
  - CREATE OR ALTER EXCEPTION
  - RECREATE EXCEPTION
- EXTERNAL FUNCTION
  - DECLARE EXTERNAL FUNCTION
  - ALTER EXTERNAL FUNCTION
- FILTER

    - DECLARE FILTER
- INDEX
    - create-index
- PRIVILEGES: GRANT AND REVOKE
    - Privileges: GRANT and REVOKE, REVOKE ADMIN OPTION
- PROCEDURE
    - CREATE PROCEDURE
    - ALTER PROCEDURE
    - CREATE OR ALTER PROCEDURE
    - DROP PROCEDURE
    - RECREATE PROCEDURE
- SEQUENCE OR GENERATOR
    - CREATE SEQUENCE
    - CREATE GENERATOR
    - ALTER SEQUENCE
    - SET GENERATOR
    - DROP SEQUENCE
    - DROP GENERATOR
- TABLE
    - CREATE TABLE
    - ALTER TABLE
    - RECREATE TABLE
- TRIGGER
    - CREATE TRIGGER
    - ALTER TRIGGER
    - CREATE OR ALTER TRIGGER
    - DROP TRIGGER
    - RECREATE TRIGGER
- VIEW
    - CREATE VIEW
    - RECREATE VIEW

### DML statements

- DELETE
- EXECUTE BLOCK
- EXECUTE PROCEDURE
- INSERT
- MERGE
- SELECT
- UPDATE
- UPDATE OR INSERT

### Transaction control statements

- RELEASE SAVEPOINT
- ROLLBACK
- SAVEPOINT

- SET TRANSACTION

### PSQL statements

- BEGIN ... BLOCKS may be empty
- BREAK
- CLOSE cursor
- DECLARE
- EXCEPTION
- EXECUTE PROCEDURE
- EXECUTE STATEMENT
- EXIT
- FETCH cursor
- FOR EXECUTE STATEMENT ... DO
- FOR SELECT INTO ... DO
- LEAVE
- OPEN cursor
- PLAN allowed in trigger code
- UDFs callable as void functions
- WHERE CURRENT OF valid again for view cursors

### Context variables

- CURRENT_CONNECTION
- CURRENT_ROLE
- CURRENT_TIME
- CURRENT_TIMESTAMP
- CURRENT_TRANSACTION
- CURRENT_USER
- DELETING
- GDSCODE
- INSERTING
- NEW
- 'NOW'
- OLD
- ROW_COUNT
- SQLCODE
- UPDATING

### Operators and predicates

- NULL literals allowed as operands
- || (string concatenator)
- ALL
- ANY / SOME
- IN
- IS [NOT] DISTINCT FROM
- NEXT VALUE FOR

- SOME

### Aggregate functions

- LIST()
- MAX()
- MIN()

### Internal functions

- ABS()
- ACOS()
- ASCII_CHAR()
- ASCII_VAL()
- ASIN()
- ATAN()
- ATAN2()
- BIN_AND()
- BIN_OR()
- BIN_SHL()
- BIN_SHR()
- BIN_XOR()
- BIT_LENGTH()
- CAST()
- CEIL(), CEILING()
- CHAR_LENGTH(), CHARACTER_LENGTH()
- COALESCE()
- COS()
- COSH()
- COT()
- DATEADD()
- DATEDIFF()
- DECODE()
- EXP()
- EXTRACT()
- FLOOR()
- GEN_ID()
- GEN_UUID()
- HASH()
- IIF()
- LEFT()
- LN()
- LOG()
- LOG10()
- LOWER()
- LPAD()
- MAXVALUE()
- MINVALUE()

- MOD()
- NULLIF()
- OCTET_LENGTH()
- OVERLAY()
- PI()
- POSITION()
- POWER()
- RAND()
- RDB$GET_CONTEXT()
- RDB$SET_CONTEXT()
- REPLACE()
- REVERSE()
- RIGHT()
- ROUND()
- RPAD()
- SIGN()
- SIN()
- SINH()
- SQRT()
- SUBSTRING()
- TAN()
- TANH()
- TRIM()
- TRUNC()
- UPPER()

### External functions

- abs
- acos
- addDay
- addHour
- addMilliSecond
- addMinute
- addMonth
- addSecond
- addWeek
- addYear
- ascii_char
- ascii_char
- asin
- atan
- atan2
- bin_and
- bin_or
- bin_xor
- ceiling
- cos
- cosh
- cot

- dow
- dpower
- floor
- getExactTimestamp
- i64round
- i64truncate
- ln
- log
- log10
- lower
- lpad
- ltrim
- mod
- *nullif
- *nvl
- pi
- rand
- right
- round, i64round
- rpad
- rtrim
- sdow
- sign
- sin
- sinh
- sqrt
- srand
- sright
- string2blob
- strlen
- substr
- substrlen
- tan
- tanh
- truncate, i64truncate

### Appendix A: Notes

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### Appendix B: Document history

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### Appendix C: License notice

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