

PostgreSQL Functions By Example

Joe Conway
joe.conway@credativ.com

credativ Group

January 20, 2012

What are Functions?

- Full fledged SQL objects
- Many other database objects are implemented with them
- Fundamental part of PostgreSQL's system architecture
- Created with CREATE FUNCTION
- Executed through normal SQL
 - target-list:
`SELECT myfunc(f1) FROM foo;`
 - FROM clause:
`SELECT * FROM myfunc();`
 - WHERE clause:
`SELECT * FROM foo WHERE myfunc(f1) = 42;`



How are they Used?

- Functions
- Operators
- Data types
- Index methods
- Casts
- Triggers
- Aggregates

What Forms Can They Take?

- PostgreSQL provides four kinds of functions:
 - SQL
 - Procedural Languages
 - Internal
 - C-language
- Arguments
 - Base, composite, or combinations
 - Scalar or array
 - Pseudo or polymorphic
 - VARIADIC
 - IN/OUT/INOUT
- Return
 - Singleton or set (SETOF)
 - Base or composite type
 - Pseudo or polymorphic

SQL Functions

- Behavior
 - Executes an arbitrary list of SQL statements separated by semicolons
 - Last statement may be INSERT, UPDATE, or DELETE with RETURNING clause
- Arguments
 - Referenced by function body using \$n: \$1 is first arg, etc. . .
 - If composite type, then dot notation \$1.name used to access
 - Only used as data values, not as identifiers
- Return
 - If singleton, first row of last query result returned, NULL on no result
 - If SETOF, all rows of last query result returned, empty set on no result

[Click here to download full PDF material](#)