

Extending Database Systems

- Complex Type Extension

INFO-H417: Lab Session 3
2023 - 2024

Extension Package

1. Makefile

```
EXTENSION    = complex
MODULES      = complex
DATA         = complex--1.0.sql complex.control

PG_CONFIG ?= pg_config
PGXS = $(shell $(PG_CONFIG) --pgxs)
include $(PGXS)
```

3. complex--1.0.sql

2. complex.control

```
# complex extension
comment = 'Complex - input/output
          functions for complex type'
default_version = '1.0'
module_pathname = '$libdir/complex'
relocatable = true
```

4. complex.c

Make and install the extension

```
>> PATH=/usr/local/pgsql/bin:$PATH
```

```
>> cd "path_to_complex_directory"/complex/ (or ../complex-template/)
```

```
>> ls
```

```
complex-1.0.sql      complex.c      complex.control  Makefile
```

```
>> make
```

```
>> sudo make install
```

Create and use extension

```
>> createdb complex
```

```
>> psql complex
```

```
Psql (13.4)
```

```
complex=# CREATE EXTENSION complex;
```

```
CREATE EXTENSION
```

```
complex=# \dx
```

List of installed extensions

Name	Version	Schema	Description
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complex	1.0	public	Complex - input/output functions for complex type
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plpgsql	1.0	pg_catalog	PL/pgSQL procedural language
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```
(2 rows)
```

Queries

```
/* Create a table with a complex attribute */
```

```
CREATE TABLE t (id integer, z complex);
```

```
/* Fill the table with example data */
```

```
INSERT INTO t VALUES
```

```
(1, '(1, 0)'),
```

```
(2, '(0, 1)'),
```

```
(3, '(-1, 0)'),
```

```
(4, '(0, -1)');
```

```
/* Query the table */
```

```
SELECT * FROM t;
```