Hiccups

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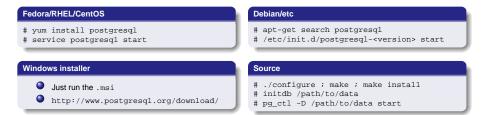
Outline

- **SELECT 'Hello World'**

- Some boring stuff

Installing PostgreSQL and start

Just do it through your package manager!



It's that simple!



SELECT 'Hello World'

Example

```
$ psql postgres
Welcome to psgl 8.2.1, the PostgreSOL interactive terminal.
Type: \copyright for distribution terms
      \h for help with SQL commands
      \? for help with psql commands
       \q or terminate with semicolon to execute guery
       \a to quit
postgres=# \d
No relations found.
postgres=# create table foo (i int, t text);
CREATE TABLE
postgres=# insert into foo values(1, 'Hello World');
INSERT 0 1
postgres=# select * from foo;
 i l
1 | Hello World
(1 row)
```

- **SELECT 'Hello World'**
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FATAL...?

SELECT 'Hello World'

What's this?

psql: FATAL: IDENT authentication failed for user "gavin"

- Some packages tighten up default security
- What to do:

```
su - postgres
createuser gavin
```

 Alternatively, you could relax the authentication – but I wont tell you how!



Useful stuff

SELECT 'Hello World'

```
Example
```

```
# select version();
                 version
 PostgreSOL 8.2.1 ...
# select table catalog, table name, table type from
   information_schema.tables where
   table schema = 'public';
 table catalog | table name | table type
postgres
                 foo
                               BASE TABLE
(3 rows)
```

More exploring

Example

SELECT 'Hello World'

```
# select column name, data type from
   information schema.columns
  where table schema='public' and
   table name = 'foo';
 column name | data type
               integer
               text
  rows)
```

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- Say you want to develop a blog "everyone's doing it"
- You want to:
 - Store articles
 - Relate articles to blog users
 - Keep statistics on blog posts



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blogdb - version 1

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CREATE TABLE users (usrid int, username text, email text);
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insert into users values(1, 'Gavin',
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CREATE TABLE articles (artid int, title text, body text,
        dt timestamp, usrid int);
```



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-- add a post
insert into articles values(1, 'First post', 'Yav',
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        current timestamp, 1);
-- get article count
SELECT count(*) FROM articles;
```



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- No permissions
- users is a common table name what about other applications with a users table?



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Data integrity

- There are levels of integrity
- Referential integrity
 - Enforce a relationship
- Guard against duplication
 - Each row must have a key
- Some data must look a certain way like dates and times
- Some data cannot be 'undefined' or NULL



blogdb - version 2

```
SQL
```

```
CREATE TABLE users (usrid serial primary key,
        username text NOT NULL,
        email text NOT NULL,
        unique(username));
```

blogdb - version 2

```
SQL
```

```
CREATE TABLE users (usrid serial primary key,
        username text NOT NULL,
        email text NOT NULL,
        unique(username));
INSERT INTO users (username, email) values(1, 'Gavin',
        'qavin@alcove.com.au');
```

blogdb - version 2

```
SQL
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CREATE TABLE users (usrid serial primary key,
        username text NOT NULL,
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        unique(username));
INSERT INTO users (username, email) values(1, 'Gavin',
        'qavin@alcove.com.au');
CREATE TABLE articles (artid serial primary key,
        title text NOT NULL,
        body text NOT NULL,
        dt timestamp default current timestamp,
        usrid int references users(usrid));
```

Permissions and privileges

• We speak of CREATE ROLE and GRANT

SQL

SELECT 'Hello World'

```
CREATE ROLE blogread LOGIN;
CREATE ROLE blogwrite LOGIN;
...
GRANT SELECT ON articles, users
TO blogread;
GRANT ALL ON articles, users
TO blobwrite;
```



Name space issues

This is why SQL supports "schemas"

```
SQL
```

```
CREATE SCHEMA blog;

SET search_path = blog;

CREATE ...

SELECT count(*) FROM blog.articles;
```

Hiccups Lets do something Some boring stuff Useful stuff

Further exercises

SELECT 'Hello World'

- Data integrity for email addresses See CREATE DOMAIN
- Speed up count(*) in the presence of a large articles table see the advanced lecture today



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More on PostgreSQL

SELECT 'Hello World'

- What's with the name? → Post (in) gres, with SQL support
 - Hey, it used to be named POSTQUEL
 - Then again, it used to have a hell of a lot of Lisp in it
- Academic project in the 80s, one of Michael Stonebraker's projects at Berkeley
- BSD license do what you want with the source (don't sue us!)
- Now developed by a group of enthusiasts





Useful stuff

- Views, Indexes, Schemas, Foreign keys
- Partitioning
- Two phase commit
- Functions/stored procedures in SQL, Java, Ruby, Python, and
- Online backups



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Some boring stuff

Who uses PostgreSQL?

- Businesses, big and small
- Hobbyists and developers
- Big operators like
 - Fujitsu
 - Sun
 - HP
 - Apple
 - Cisco
 - AC Neilson
 - Skype
 - Just about every Australian government department
 - Safeway (North America)
 - .org, .info, .in, . . .
 - Sony
- But it's even more popular with small businesses



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Some boring stuff

- Report writing: Jasper, Crystal, . . .
- Wiki, CMS backend
- All the other OSS jazz forums, photo galleries, ...
- Bugzilla backend
- LDAP backend
- J2EE backend
- Ruby on rails, out of the box
- GIS 100% standards compliant!
- Statistical analysis full integration of 'R'
- Data warehousing



- **SELECT 'Hello World'**

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- **Useful stuff**

Resources for learning more

- The PostgreSQL manual http://www.postgresgl.org/docs
- Books (some free) http://www.postgresgl.org/docs/books/
- GUI console http://www.pgadmin.org
- Mailing lists http://www.postgresql.org/
- IRC irc.freenode.net, #postgresgl
 - My nick is swm
- SydPUG http://pugs.postgresql.org/sydpug/

SELECT 'Hello World'

Lets do something

Some boring stuff

Stuff for the boss

Case studies:

http://www.postgresql.org/about/casestudies/

Featured users:

http://www.postgresgl.org/about/users/

A glossy brochure:

http://alcove.com.au/postgresql.pdf