

What's New in PostgreSQL 8.4

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Export IsUnderPostmaster on win32.
Change the reloptions machinery to use a table-based parser, and provide
Fix string reloption handling, per KaiGai Kohei.
A couple further reloptions improvements, per KaiGai Kohei: add a validation
Simplify the writing of amoptions routines by introducing a convenience
Allow extracting and parsing of reloptions from a bare pg_class tuple, and
Allow reloption names to have qualifiers, initially supporting a TOAST
define HAVE_FSEEKO for MSVC
Document values for pg_constraint confdelttype, confdeltype and confmattype columns.
Provide for parallel restoration from a custom format archive. Each data and
allow alternative names for tcsh used on Windows
Update copyright for 2009.
Add comma so this copyright notice is picked up in 2010.
Make comma optional for copyright text change.
Mention src/interfaces/libpq/libpq.rc.in needs to be updated for
Be smarter --- accept missing comma, and force comma if missing.
Update Japanese FAQ.
Fix new timezone cross-compile rule to avoid a bug in gmake 3.78.1;
Suppress compiler warning.
Update SELECT version() to show whether it is a 32 or 64-bit backend binary.
Suppress compiler warning in a different way, per Alvaro.
Update pg_restore --help text to match the SGML documentation.
Make pg_dump and pg_dumpall --clean options match the SGML docs, for consistency.
Document that Cygwin does not support OpenSSL.
This makes all the \dX commands (most importantly to most: \df) work
Add documentation for new \d+S* patch, and clean up some of the docs.
Improve \z psql \? help display.
Add spaces around psql \d* columns, per idea from Joshua Drake.
Removeduplicate \dd psql help mention.
Update MinGW so it handles fseeko() similar to Unix.
Make the log output of 'xpid' between csvlog and stderr/syslog
Break out \distr into four separate lines in the psql documentation, for
Update comment associated with 'debug_query_string'.
Add comment that it is difficult to access the more accurate
Have current_query() use ActivePortal->sourceText rather than
Add comment about why BETWEEN uses operator strings and not opclasses.
Revert current_query() change to use debug_query_string again; add comment.
Document current_query() as being the _client_query.
Document that txid_visible_in_snapshot() cannot be used with
Fix memory leak for file name if expect file name contains a dot, per
Update release notes for 8.3.5, 8.2.11, and 8.1.15 to mention the need
Remove tabs from SGML docs.
Add file to explain SGML linking options, for use by SGML document
Add guidelines section.
Update link guidelines.
Modify libpq environment variable documentation to point to the relevant
Document how pglesslog can be used to reduce the storage requirements of PITR.
Renable threading build for Solaris 2.5, per report from Andrew Chernow
Check nsl library for gethostbyname_r() on all platforms (HP-UX uses it
Make 'find' syntax consistent; add .git exclusion to make_ctags.
Add documentation mention that full page writes have to be enabled for
Modify distdir rule to skip .git directory.
Document RELKIND_SPECIAL reference in psql, from <= 8.1.X.
Make psql \d and \dt consistent for system tables, i.e prevent \d from
Update \d+S documentation to be more accurate; system objects are added
Document that SELECT ... ORDER BY ... FOR UPDATE/SHARE might return
Fix embarrassing bug in recent smgr refactoring patch: WAL records should
Fix logic in lazy vacuum to decide if it's worth trying to truncate the heap.
Remove broken Assertions that failed if a statement executed in PL/pgSQL is
Change explanation of pg_switch_xlog()'s return value to match code.
Add vacuum_freeze_table_age GUC option, to control when VACUUM should
Add a new option to RestoreBkpBlocks() to indicate if a cleanup lock should
Add new SPI_OK_REWRITTEN return code to SPI_execute and friends, for the
Forgot to handle the new SPI_OK_REWRITTEN result code in a couple places.
Update comments to reflect that tgenabled is not a boolean anymore.

Put back fast-path for the case that there's no backup blocks in
Check that connection limit is within valid range. LOW, not < -1.
Make it possible to change Kerberos/GSSAPI parameters without restarting
Remove comments that say restart is required for changing of Kerberos
Fix cut/paste error that caused all errors from REQUIRE_AUTH_OPTION to say
Today is find-typo-in-old-patches day. Fix wrong cut/paste in ident
Make the MSVC build output "32-bit" at the end of the version string, the
Don't require pqGetHomeDirectory to succeed if the user has specified
Add appropriate text for SIGHUP parameters instead of just removing it
Allow krb_realm (krb5, gssapi and sspi) and krb_server_hostname (krb5 only)
Add hba parameter include_realm to krb5, gss and sspi authentication, used
Make krb_realm and krb_server_hostname be pg_hba options only, and remove
Fix strptime usage on Win32 when trying to fetch the locale-aware
Code review of strptime patch, per comments from Tom:
Remove special-handling of usernames with Kerberos authentication. We will
Throw an error when using -C and -1 at the same time in pg_restore.
Use the new text domain names ("postgres-8.4" instead of "postgres")
Install .mo files for NLS as <program>-<version>.mo when building with MSVC
Make some strings translatable again that were accidentally removed in
Make win32 builds always do SetEnvironmentVariable() when doing putenv().
Remove stray ' character at end of line.
Explicitly bind gettext to the correct encoding on Windows.
Silence compiler warnings in new win32 locale code
Silence compiler warning on win32.
Support running as a service on Windows 7, by not specifying
Go over all OpenSSL return values and make sure we compare them
New way to silence warning
Change warning-silencing code not to cast the pointer type, instead
Fixed bug in %s handling.
Fixed auto allocation for binary data types.
Set memory segment to '0', just to be sure.
When changing a regression test file one should also change the expected output file.
Fixed copy&paste mistake that made library use uninitialized variable.
Argh, wrong line copied again.
Fix typo.
Fix an ungrammatical statement.
Split the ecpg translation support into a separate catalog for the ecpg
Initialize .pot files with some useful default values.
Allow configure to deal with Python 3.0. Changes were:
Allow out-of-tree builds on mingw and cygwin
Fix for cross-compilation between mingw32 and something else. The choice
When cross-compiling, allow and require an external zic program to be used
Produce a full version string for Sun Studio.
Add note that not all SQL commands support ONLY in the same way.
Rewrite update-po target, so that it works less like a shell script and more
More portable use of "find".
Change chapter titles thus:
Remove fairly useless mixed-case identifier test that causes locale
Make tests pass with or without locale.
Add ONLY support to LOCK and TRUNCATE. By default, these commands are now
Use qualified_name instead of relation_expr for commands that have no
Add some minimal documentation that the SQL standard requires parentheses
Remove useless (and insecure) temp file handling.
misc.o depends on pg_config_paths.h when --enable-nls is used.
Make error messages match backend style.
Make the columns is_insertable_into and is_updatable behave uniformly
Avoid version-control system directories when creating TAGS. Besides
Make .pot files depend on the makefiles, so that they are updated when the
Build needed things in src/test/regress/first. And some build rules
NLS cleanup in ecpglib
Remove unneeded GETTEXT_TRIGGERS.
Cleanup pass over PL/Python NLS. Add translation support to PLy_elog and
Remove period from primary error message.
Wordsmithing
pypython_error.out is for Python 2.4, pypython_error_3.out is for Python 2.5.
Manual attempt to update this file.
Message wordsmithing
Alter the regression test cases that rely on the sort order of "ch" between

What's new in PostgreSQL 8.4

- **SQL/Developer**
- Administration
- Security

WITH [RECURSIVE]

- SQL 2008 Common Table Expressions
- Both inline and recursive
- Dealing with tree structures!

WITH [RECURSIVE]

- SQL 2008 Common Table Expressions

Go see Greg Stark!
Sunday 14:00

Window Aggregates

- SQL 2008 Window Functions
- Aggregate over part of data
- Look at part of data
- row_number(), rank()
- Lead(), lag()

Window Aggregates

- SQL 2008 Window Functions
- Aggregate over part of data

Go see David Fetter!
Saturday 16:00

Per database locale

- Sort order, upper/lower
- No longer per-cluster

```
CREATE DATABASE mydb  
COLLATE 'sv_se.UTF-8'  
CTYPE 'sv_se.UTF-8'  
TEMPLATE template0
```

Default function parameters

```
CREATE OR REPLACE FUNCTION
```

```
  adder(a int default 40,  
        b int default 2)
```

```
  returns int language 'sql'  
  as 'select $1 + $2';
```

```
SELECT adder(), adder(1), adder(1,2)
```

Variadic function parameters

```
CREATE OR REPLACE FUNCTION
  adder(VARIADIC v int[]) RETURNS int AS $$
  DECLARE s int; i int;
  BEGIN
    s:=0;
    FOR i IN SELECT generate_subscripts(v,1)
      LOOP
        s := s + i;
      END LOOP;
    RETURN s;
  END
  $$ language 'plpgsql';

select  adder(1), adder(1,2,3), adder(40,2);
```


Append columns to view

- CREATE OR REPLACE VIEW
- Add columns at the end
- Still can't rename or modify

GIN enhancements

- Multi-column GIN indexes
- GIN partial match
 - With support for full text search

```
SELECT * FROM pages WHERE ft @@  
to_tsquery('public.english',  
          'foo:*');
```

psql enhancements

- \df lists user functions
 - \dfS for system functions
- \ef edits a function
- A whole lot more
- Plus a new version of pgAdmin3

What's new in PostgreSQL 8.4

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- Security

Free Space Map

- I know you loved max_fsm_pages and max_fsm_relations
- But they're **gone**
- Dynamic sizing as required using relation forks

Free Space Map

- I know you loved max_fsm_pages and max_fsm_relations

Go see
Heikki Linnakangas!
Sunday 11:00

Visibility Map

- Bitmap with table status
- Partial VACUUMs
- Hopefully in the future – index only scans

Visibility Map

- Bitmap with table status
- Partial VACUUMs

Go see
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Sunday 11:00

Parallel restore

- Multithreaded pg_restore
- Multiple connections to db
- Use multicore both on client and server
- Still one table/index per core

pgstat temp file

- Could create significant I/O load with many tables/databases
- Now only written when needed
- Location can be changed
 - Put on RAM-drive, or at least avoid main database fs

pg_stat_user_functions

- Count calls to functions
- Also tracks time spent

pg_stat_statements

- View of the most used statements
- How much time spent
- And how many rows returned
- Contrib module, need separate install

auto_explain

- Automatically log query plan for slow queries
- Control by runtime of query
- Contrib module, need separate install

What's new in PostgreSQL 8.4

- SQL/Developer
- Administration
- **Security**

Column level permissions

- SQL 2008
- Set permissions on individual columns

SSL code rewritten

- Proper certificate verification
 - Choose level, full verification is default
- Control over all key and certificate files

Authentication methods

- SSL certificate authentication
 - Trusted root certificate
 - Map «cn» value of certificate
- Crypt authentication removed
 - MD5 has been the default for ages
 - Client <7.2 no longer works

pg_hba changes

- «ident sameuser» => «ident»
- New format for options
 - name=value for *all* options
- usermaps for all external methods
 - With regexp support
- Parsed on reload

What's new in PostgreSQL 8.4

- SQL/Developer
- Administration
- Security
- **Dept. of vaporware**

Hot Standby

- Warm Standby
 - With higher temperature
- Open for reading!
- *May* make it into 8.4

Hot Standby

- Warm Standby
 - With higher temperature

Go see
Simon Riggs!
Saturday 14:00

SE-PostgreSQL

- Integrate PostgreSQL with SE-Linux
- Row level security
- (advanced stuff!)
- Unsure which parts will go into 8.4, if any

PostgreSQL 8.4

Questions?