

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 confupdtype, confdeltype and confmatchtype columns.

Provide for parallel restoration from a custom format archive. Each data and

allow alternative names for tclsh 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/libpg/libpg.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:

Supress 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 'vxid' between csvlog and stderr/syslog

Break out \disty 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 guery() 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 libpg environment variable documentation to point to the relevant

Document how palesslog 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 togenabled 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, IOW, 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 strftime usage on Win32 when trying to fetch the locale-aware

Code review of strftime 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 cyersion>.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 ecpolib

Remove unneeded GETTEXT TRIGGERS.

Cleanup pass over PL/Python NLS. Add translation support to PLy elog and

Remove period from primary error message.

Wordsmithing

plpython error.out is for Python 2.4, plpython 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



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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 se 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 se 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



Variadic function parameters

```
CREATE OR REPLACE FUNCTION
 adder(VARIADIC v int[]) RETURNS int AS $$
 DECLARE s int; i int;
 BEGIN
  s:=0;
   FOR i IN SELECT generate_subscripts(v,1)
    L<sub>00</sub>P
    s := s + i;
    END LOOP;
   RETURN s;
 END
 $$ 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

- SQL/Developer
- Administration
- 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 Heikki Linnakangas! 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?