

PostgreSQL Intro



Overview

- PostgreSQL Key Feature Overview
- Replication / HA
- Backup & Recovery
- License
 - (and PostgreSQL derivatives)
- Additional sources of support



PostgreSQL Key Features

- Backend -

- Add Primary/Unique Keys via ALTER TABLE
- Advisory Locks
- COPY (select,CSV)
- Change data types with ALTER TABLE
- Column Level Permissions
- Common Table Expressions
(and Writeable CTE)
- Foreign Data Wrappers
- PITR



PostgreSQL Key Features


- Backend -

- SQL Standard information schema
- Savepoints
- Synchronous replication
- Streaming replication
- Temporary VIEWS
- Two phase commit
- Materialized views
- Windowing functions
- Updateable cursors




PostgreSQL Key Features

- Performance -

- Asynchronous commit
 - Background writer
 - Distributed checkpointing
 - Query hashing support
 - HOT tuples
 - In-memory bitmap indexes
 - IS NULL index support
 - Non blocking CREATE INDEX (and Concurrent)
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PostgreSQL Key Features

- Performance -

- Parallel restore
 - Shared row level locking
 - Synchronized sequential scans
 - Table partitioning
 - Tablespace support
 - Unlogged tables
 - WAL Buffer auto-tuning
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PostgreSQL Key Features

- Security & Network -

- Large Object access controls
- Native LDAP authentication
- Per user database connection limits
- ROLES
- Full SSL support
- Various authentication methods
- Ipv6 support
- Network address data types



PostgreSQL Key Features

- Internationalisation -

- Column level collation support
- Database level collation support
- Multibyte encoding
- Multiple language support



PostgreSQL Key Features


- Data Types -

- Array support
- Arrays of compound types
- ENUM data types
- GUID/UUID data types
- XML data types
- Network address data types




PostgreSQL Key Features

- Functions & Triggers -

- Enable/Disable triggers via ALTER TABLE
 - Column level triggers
 - Returns TABLE functions
 - Statement level triggers
 - Triggers on VIEWS
 - COALESCE
 - NULLIF
 - GREATEST and LEAST
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PostgreSQL Key Features

- Functions & Triggers -

- Various built in functions:
 - Date/time functions (age, now, extract, date_trunc, etc)
 - String functions (char_length, lower/upper, substring, trim, etc)
 - Data type functions (to_char, to_date, to_number, to_timestamp)
 - ENUM functions
 - Geometric functions
 - Network address functions
 - Text search functions
 - XML functions
 - Windowing (Recursive & pivot) functions
 - Row & array functions
 - Etc..
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PostgreSQL Key Features

- Procedural Languages (PL/pgSQL) -

- CASE
- CONTINUE
- DO
- Exception support
- FOREACH IN ARRAY
- Named parameters
- RETURNS Query functions



PostgreSQL Key Features

- Procedural Languages (other languages) -

- PL/perl
- PL/python
- PL/tcl
- Contrib additions
 - PL/Java
 - PL/PHP
 - PL/R
 - PL/Ruby
 - PL/SH



PostgreSQL Key Features

- Contrib Modules -

- Dblink
- Earthdistance
- Fuzzymatch
- Intarray
- Pageinspect
- Pgbench
- pg_stat_tuple
- pg_upgrade
- Tsearch2
- xml2



PostgreSQL Key Features

- External Tools -

- Availability of external tools
 - Replication tools
 - Parallel query tools
 - Oracle to PostgreSQL migration tools
 - GUI management tools
 - GIS tools (postGIS)
 - Reporting tools
 - Monitoring tools



Replication / HA

- HOT Standby
- WARM Standby
- SLONY
- Bucardo
- Postgres-XC
- PostgreSQL-XL
- BDR




Backup & Recovery

- pg_dump
- pg_dumpall
- pg_restore
- pg_restore list files
- PITR



License

(and PostgreSQL derivatives)

- PostgreSQL = BSD
 - Free-BSD License
 - Free to Download
 - Excellent Documentation
 - ANSI Compliant
 - Not a significant learning curve
 - EnterpriseDB = Limited Use License
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Community support

- Community Support
 - Strong, active community
 - 13 active mailing lists
 - postgresql-general has > 15,000 posts annually
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 - At least 16 annual PostgreSQL related conferences worldwide

