



Why pgAdmin 4?

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pgAdmin 4

- Introduction
- Basic Architecture
- Features

INTRODUCTION

What is pgAdmin 4?

- Web based Open Source GUI management tool for PostgreSQL
- Fourth generation; replacing pgAdmin III written in C++
- Supports all the features of pgAdmin III except a few which are known to be largely unused
- Supports PostgreSQL 9.2 and above and its derivatives such as EDB Postgres Advanced Server
- Easily Extendable (Modular Architecture)

Technologies

- Python
 - ▶ Server side scripting
 - ▶ Supported versions: 2.7.x & 3.0 to 3.4
- Flask, micro-framework
 - ▶ Python application framework
- Javascript/JQuery/Backbone
 - ▶ Client side scripting
- Bootstrap
 - ▶ HTML layouts

BASIC ARCHITECTURE

Deployable

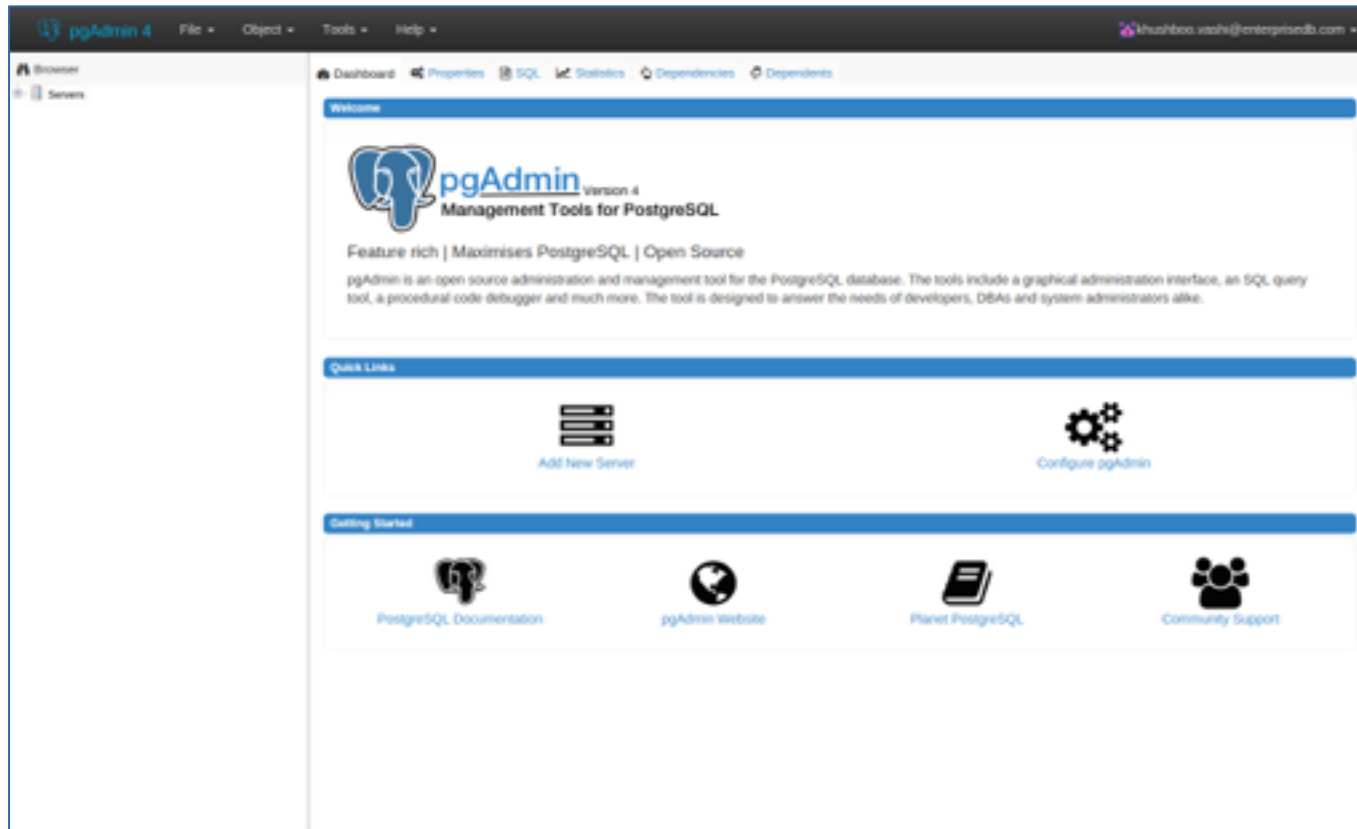
- In a desktop runtime, in a single user mode
- In a web server using WSGI, in a multi user mode

Framework

The application provides a framework for extensibility

- Tree view nodes are all plugins
- Individual tools are plugins
- Database drivers are plugins, to allow support for postgres derivatives
- The module wise test-cases are plugins

Demo



The screenshot shows the pgAdmin 4 web interface. The browser address bar displays "pgAdmin 4" and the user email "vishu@enterprisedb.com". The interface includes a navigation menu with "Dashboard", "Properties", "SQL", "Statistics", "Dependencies", and "Dependents". The main content area features a "Welcome" section with the pgAdmin logo and version 4, followed by a description: "Feature rich | Maximises PostgreSQL | Open Source". Below this is a "Quick Links" section with "Add New Server" and "Configure pgAdmin" buttons. A "Getting Started" section provides links to "PostgreSQL Documentation", "pgAdmin website", "Planet PostgreSQL", and "Community support".

FEATURES

Usability

- Use of one or more servers simultaneously
- Slick and pretty web based Interface
- Responsive layout
- No full-page loading, used AJAX for partial loading
- Dock-able panels
- No sub-dialogues when working with any Postgres object

Demo

The screenshot displays the pgAdmin 4 web interface. The top navigation bar includes 'File', 'Object', 'Tools', and 'Help'. The left sidebar shows a tree view of servers, with 'PostgreSQL 9.1' selected. The main content area is divided into two sections: 'General' and 'Connection'. The 'General' section contains fields for ID (4), Name (PostgreSQL 9.1), Server Type (PostgreSQL), Version (PostgreSQL 9.1.19 on i686-pc-linux-gnu, compiled by gcc (GCC) 4.1.2 20080704 (Red Hat 4.1.2-52), 32-bit), and Comments (PostgreSQL 9.1). The 'Connection' section includes a 'Connected' checkbox (checked), and fields for Host Name/Address (localhost), Port (5434), Maintenance Database (postgres), User Name (postgres), Role, and SSL Mode (Prefer).

General	
ID	4
Name	PostgreSQL 9.1
Server Type	PostgreSQL
Version	PostgreSQL 9.1.19 on i686-pc-linux-gnu, compiled by gcc (GCC) 4.1.2 20080704 (Red Hat 4.1.2-52), 32-bit
Comments	PostgreSQL 9.1

Connection	
Connected	<input checked="" type="checkbox"/>
Host Name/Address	localhost
Port	5434
Maintenance Database	postgres
User Name	postgres
Role	
SSL Mode	Prefer

Functional Features

- Supports all the PostgreSQL database object types
- Query tool
- Debugger for procedural languages
- Dashboards for simple real time monitoring
- Grant wizard
- Backup, Restore, Vacuum and Analyze on demand
- Manage pgAgent
- Automated unit testing

Functional Features

PostgreSQL Database objects

- All the PostgreSQL database objects like servers, databases, table-spaces, roles, extensions, schemas, tables, indexes, constraints, triggers, functions etc. are supported.
- CRUD operations for all the PostgreSQL database objects
- Separate panels for:
 - ▶ Reverse engineered SQL
 - ▶ Statistics
 - ▶ Dependents

Functional Features

Query Tool

- Execute arbitrary SQL commands
- Export Data to a csv file
- Graphical explain plan
- View Analytical information about a SQL statement
- Auto complete
- Import SQL script through File Manager

View Data

- View / Modify data, limited by tables with primary keys
- Filter the result set
- Export Data as csv file

Functional Features

Procedural language debugger

- Support for plpgsql and edbspl languages
- All the basic needs of the debugging are supported:
 - ▶ Set/Clear break point
 - ▶ Play/pause
 - ▶ Step over/Into

Demo

The screenshot displays the pgAdmin 4 interface. On the left, a tree view shows the database structure, including schemas and functions. The main window shows a SQL script with the following content:

```
1
2
3 DECLARE
4   total_servers RECORD;
5   total_errors integer;
6   error_count integer;
7
8 BEGIN
9   total_errors := 0;
10  error_count := 0;
11
12  -- Find one agent is binding to how many servers and depending on that total count will be calculated
13  FOR total_servers IN SELECT DISTINCT server_id FROM pem.agent_server_binding WHERE agent_id = $1 ORDER BY server_id ASC
14
15     error_count := 0;
16
17  -- If user requested for ERROR count only then below condition will be executed
18  IF $3 = 1 THEN
19     SELECT COUNT(log_time) INTO error_count FROM pemdata.audit_logs WHERE error_severity = 'ERROR' AND server_id = t
20  END IF;
21
22  -- If user requested for WARNING count only then below condition will be executed
23  IF $3 = 2 THEN
24     SELECT COUNT(log_time) INTO error_count FROM pemdata.audit_logs WHERE error_severity = 'WARNING' AND server_id =
25  END IF;
```

Below the script, the 'Parameters' tab is active, showing the following table:

Name	Type	Value
\$1	integer	1
\$2	integer	2
\$3	integer	3

Functional Features

Automated test framework

- Each individual module having its own test-case set
- Can run module wise test-cases
- Application level test-cases can also be executed

Demo

```
khushboo@ubuntu: ~/Projects/pgadmin4/web
x khushboo@ubuntu: ~/Projects/pgadmin4/web/regression
Please check output in file: /home/khushboo/Projects/pgadmin4/web/regression/regression.log
khushboo@ubuntu:~/Projects/pgadmin4/web/regression$ python runtests.py
runTest (pgadmin.browser.server_groups.servers.databases.tests.test_db_put.DatabasesUpdateTestCase)
This function will update the comments field of database. (Check Databases Node) ... ok
runTest (pgadmin.browser.tests.test_reset_password.ResetPasswordTestCase)
This function checks reset password functionality. (TestCase For Validating Empty Email) ... FAIL
runTest (pgadmin.browser.tests.test_reset_password.ResetPasswordTestCase)
This function checks reset password functionality. (TestCase For Validating Invalid Email) ... FAIL
runTest (pgadmin.browser.tests.test_reset_password.ResetPasswordTestCase)
This function checks reset password functionality. (TestCase For Validating Valid Email) ... FAIL
runTest (pgadmin.browser.server_groups.servers.tests.test_server_put.ServerUpdateTestCase)
This function will update the server's comment field. (Default Server Node url) ... ok
runTest (pgadmin.browser.server_groups.servers.tests.test_server_get.ServersGetTestCase)
This function will fetch the added servers to object browser. (Default Server Node url) ... ok
runTest (pgadmin.browser.server_groups.tests.test_sg_get.SgNodeTestCase)
This function will check available server groups. (Check Server Group Node) ... ok
runTest (pgadmin.browser.tests.test_login.LoginTestCase)
This function checks login functionality. (TestCase for checking Invalid Password) ... FAIL
runTest (pgadmin.browser.tests.test_login.LoginTestCase)
This function checks login functionality. (Empty Password) ... FAIL
runTest (pgadmin.browser.tests.test_login.LoginTestCase)
This function checks login functionality. (Empty Email) ... FAIL
runTest (pgadmin.browser.tests.test_login.LoginTestCase)
This function checks login functionality. (Empty Credentials) ... FAIL
runTest (pgadmin.browser.tests.test_login.LoginTestCase)
This function checks login functionality. (Invalid Email) ... FAIL
runTest (pgadmin.browser.tests.test_login.LoginTestCase)
This function checks login functionality. (Invalid Credentials) ... FAIL
runTest (pgadmin.browser.tests.test_login.LoginTestCase)
This function checks login functionality. (Valid Credentials) ... FAIL
runTest (pgadmin.browser.tests.test_logout.LogoutTest)
This function checks the logout functionality. (Logging Out) ... ok
runTest (pgadmin.browser.server_groups.servers.tests.test_server_delete.ServerDeleteTestCase)
This function will get all available servers under object browser (Default Server Node url) ... ok
runTest (pgadmin.browser.server_groups.servers.databases.tests.test_db_delete.DatabaseDeleteTestCase)
This function will delete the database. (Check Databases Node URL) ... ok
runTest (pgadmin.browser.server_groups.servers.databases.tests.test_db_get.DatabasesGetTestCase)
This function will fetch added database. (Check Databases Node URL) ... ok
runTest (pgadmin.browser.server_groups.servers.databases.tests.test_db_add.DatabaseAddTestCase)
This function will add database under 1st server of tree node. (Check Databases Node URL) ... ok
runTest (pgadmin.browser.tests.test_change_password.ChangePasswordTestCase)
This function will check change password functionality. (TestCase for Validating Incorrect New Password) ... FAIL
runTest (pgadmin.browser.tests.test_change_password.ChangePasswordTestCase)
This function will check change password functionality. (TestCase for Validating New Password Less Than Min Length) ... FAIL
runTest (pgadmin.browser.tests.test_change_password.ChangePasswordTestCase)
This function will check change password functionality. (TestCase for Validating Empty New Password) ... FAIL
runTest (pgadmin.browser.tests.test_change_password.ChangePasswordTestCase)
This function will check change password functionality. (TestCase For Validating Incorrect Current Password) ...
```

Bug Report

Where to report?

- pgadmin-support@postgresql.org
- Log issue at <https://redmine.postgresql.org/> under pgAdmin4 project

What to report?

- Issue Details
- Describe the issue properly
- Steps to reproduce the issue
- Mention desktop/web server mode
- Mention OS details (name, version etc)
- Logs (Web Server, and pgAdmin 4)

More Info

- Website
 - <https://www.pgadmin.org>
- Source code
 - <https://git.postgresql.org/gitweb/p=pgadmin4.git>
- Mailing list
 - pgadmin-support@postgresql.org
 - pgadmin-hackers@postgresql.org

