

# PSQL v13

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## *What's New in PSQL v13 SP1*

**An Overview of New Features and Changed Behavior**



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**What's New in PSQL  
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# Contents

<b>About This Document</b> . . . . .	<b>vii</b>
<b>1 What's New in PSQL v13 SP1</b> . . . . .	<b>1</b>
<i>An Overview of New and Changed Features</i>	
Support for New Platforms . . . . .	1
Domain Security with Active Directory . . . . .	1
Distributed Tuning Guide (DTI) Support for Domain Authentication . . . . .	2
LIKE Operator in Btrieve Extended Operations . . . . .	2
Table Schema Export and Import in PCC. . . . .	2
ISR and ICU in SQL COLLATE Clauses . . . . .	2
JDBC 4 . . . . .	2
ADO.NET SDK . . . . .	3
Managing the Page Cache for Files. . . . .	3
Deprecated Features . . . . .	3
<b>A What Was New in PSQL v13</b> . . . . .	<b>1</b>
<i>An Overview of New and Changed Features</i>	
Client Reporting Engine. . . . .	2
Reporting Engine Configuration . . . . .	2
New and Revised Performance Counters. . . . .	2
New Btrieve API . . . . .	2
Beta Release for New Platforms . . . . .	2
New Schema Export and Import in PCC . . . . .	3
Cache Management . . . . .	3
SDK Access Methods . . . . .	3
ADO.NET . . . . .	3
DTI . . . . .	4
SQL Syntax Enhancements . . . . .	4
Deprecated Features . . . . .	4





# *About This Document*

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This document contains information about the features and enhancements in this release of PSQL. It does not provide comprehensive usage instructions for the software. Its purpose is to summarize what is new and different from the previous release.

The PSQL v13 family of products includes three editions of the database engine:

- PSQL Server
- PSQL Vx Server
- PSQL Workgroup

Throughout the PSQL documentation, all content covers all three editions unless differences are explicitly called out. For example, you will occasionally encounter topics that apply only to PSQL Workgroup. Unless stated otherwise, anything that applies to PSQL Server also applies to PSQL Vx Server.

In addition to the three database engines, PSQL has two client editions that provide application access to remote engines:

- PSQL Client
- PSQL Client Reporting Engine

Throughout the PSQL documentation, all content concerning access methods applies to both client and engine editions unless differences are explicitly called out

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# What's New in PSQL v13 SP1

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## *An Overview of New and Changed Features*

The General Availability release of PSQL v13 SP1, version 13.10, includes new features and changes covered in the following topics:

- [Support for New Platforms](#)
- [Domain Security with Active Directory](#)
- [Distributed Tuning Guide \(DTI\) Support for Domain Authentication](#)
- [LIKE Operator in Btrieve Extended Operations](#)
- [Table Schema Export and Import in PCC](#)
- [ISR and ICU in SQL COLLATE Clauses](#)
- [JDBC 4](#)
- [ADO.NET SDK](#)
- [Managing the Page Cache for Files](#)
- [Deprecated Features](#)

This document may be updated after the release. Download the latest version at the [Actian website](#).

### **Support for New Platforms**

PSQL v13 SP1 runs on the following new platforms:

- Windows Nano Server on x86-64 – PSQL Server, Client, Client Reporting Engine
- Linux on ARM64 – PSQL Server, Vx Server, Client (32-bit Client Access not supported)
- Linux on x86-64
- OS X 10.10 and 10.11, Mac OS 10.12 (not supported in PSQL 13.00)

In this release, support for these platforms has the following limitations:

- Installation on Nano Server uses a .zip archive and a script.
- On Windows Nano Server, PSQL supports only CLI utilities, and local access methods are Btrieve, ODBC by direct link (without driver manager), and DTI.

PSQL v13 SP1 installation has been tested successfully with Docker for Windows.

We recommend updating all operating systems to their latest service packs.

### **Domain Security with Active Directory**

PSQL v13 SP1 users can use Microsoft Active Directory (AD) authentication to validate access to a secure PSQL database. The new AD-based feature in PSQL is called Windows domain authentication, while the original PSQL database security feature has been renamed local database authentication.

To use domain authentication, a network administrator creates AD rights groups with names matching those of groups created in PSQL for the secure database. The network administrator then assigns group members who need access to the PSQL database. Permissions are configured within PSQL at the group level. When PSQL uses domain authentication, it queries AD to approve logins based on network user name and password and matches the user's AD group to a PSQL group to determine access rights.

When you enable domain authentication for a particular database, any PSQL users previously created for that database are disabled and the Users folder is hidden because user-level permission settings are no longer active. The use of domain authentication is specific to each database, but AD rights groups can be used by more than one database.

Classic Btrieve-level security is not affected by the new domain security capability.

### ***Distributed Tuning Guide (DTI) Support for Domain Authentication***

Use of the new Active Directory security feature is supported in the PSQL Distributed Tuning Interface (DTI) by the new function `PvSecureDatabase2()` and an updated function `PvIsDatabaseSecured()`.

Note that you must be connecting to a Windows server. Calls to Linux, OS X, and Mac OS servers return a general failure (status code 7004), since Active Directory is Windows only.

### ***LIKE Operator in Btrieve Extended Operations***

PSQL v13 SP1 adds the ability for Btrieve queries to use the LIKE operator in extended operations to pattern-match data. The new feature operates on case-insensitive alphanumeric characters, consisting of the numbers 0 to 9 and letters A to Z. The following Btrieve operations now support LIKE:

- Get Next Extended (36)
- Get Previous Extended (37)
- Step Next Extended (38)
- Step Previous Extended (39)

Use of the LIKE operator in PSQL SQL scripts is unchanged.

### ***Table Schema Export and Import in PCC***

PSQL v13 SP1 extends schema management capabilities by adding table-level exporting of all metadata to a SQL script. Importing this script into a new database allows you to do several useful things:

- Recreate one or more tables.
- Identify and troubleshoot metadata issues in the original tables.

### ***ISR and ICU in SQL COLLATE Clauses***

PSQL v13 SP1 supports the use of International Sort Rules (ISR) in SQL COLLATE clauses, including International Components for Unicode (ICU) collations. Previously, only Alternate Collating Sequence (ACS) collations were supported in SQL COLLATE clauses.

### ***JDBC 4***

PSQL v13 SP1 adds support for JDBC 4. Applications that use JDBC 2 drivers remain compatible. The names of .jar files remain unchanged.

## **ADO.NET SDK**

PSQL v13 SP1 updates the PSQL ADO.NET SDK with support for Visual Studio 2017 in ADO.NET Entity Framework Provider 4.3.



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**Note** PSQL v13 SP1 ADO.NET Entity Framework Provider 4.2.0.6 supports Microsoft Entity Framework 6.0, 6.0.1, and 6.0.2. PSQL v13 SP1 ADO.NET Entity Framework Provider 4.3.0.6 supports Microsoft Entity Framework versions 6.0, 6.0.1, 6.0.2, 6.1, 6.1.1, and 6.1.2

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### ***Managing the Page Cache for Files***

To improve performance, the butil utility allows you to manage page caching for a file using cache and purge commands. When butil -cache and -purge commands are executed from a client cache or reporting engine, their actions apply only to the file in the local cache. Previously, these operations were passed through to the engine that owned the file.

In order for a file to remain in the client cache, one of two things must be true:

- No other machines must try to write to the file while it is closed.
- At least one application must keep the file open on the client machine.

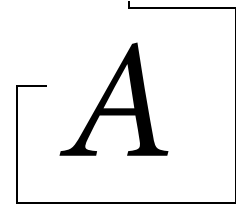
When the client cache engine is installed as an application, it shuts down and empties the cache shortly after the client closes all files. This is not an issue for the client cache engine installed as a service or for the reporting engine.

### ***Deprecated Features***

PSQL v13 SP1 does not support upgrading of systems with previous versions of Backup Agent, AuditMaster, or DataExchange. These products must be uninstalled before upgrading to PSQL v13. We recommend that you back up your data and save configuration settings from these three products before removing them.



# *What Was New in PSQL v13*



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## *An Overview of New and Changed Features*

The General Release of PSQL v13, version 13.00, included new features and changes covered in the following topics:

- [Client Reporting Engine](#)
  - [Reporting Engine Configuration](#)
  - [New and Revised Performance Counters](#)
- [New Btrieve API](#)
- [Beta Release for New Platforms](#)
- [New Schema Export and Import in PCC](#)
- [Cache Management](#)
- [SDK Access Methods](#)
  - [ADO.NET](#)
- [SQL Syntax Enhancements](#)
- [Deprecated Features](#)

These release notes may be updated after the product release. You can download the latest version from the [Actian website](#).

## Client Reporting Engine

Big report queries can impose a large load on PSQL Server, competing for resources with the normal stream of smaller transactions. To reduce the load on PSQL Server for report execution, you can set up PSQL Client Reporting Engine as a proxy server. This specialized 64-bit engine combines features of PSQL Relational Engine and PSQL Client Cache Engine to enable offloading of SQL reporting jobs to lessen their impact on server activity. When big report queries run on the reporting engine instead of on the server, server performance for normal production operations can improve.

### Reporting Engine Configuration

A Client Reporting Engine is configured with the name of a PSQL Server as its “storage engine,” where the master copy of all data continues to reside. Once configured, the reporting engine presents to SQL clients all of the same databases as the server, and all SQL queries can then be submitted to the reporting engine. Use of reporting engine requires you to make changes in your design so that queries and other supporting requests are sent to this client instead of to the server.

For more information, see [Installing the Client Reporting Engine for Windows](#) and [Setting Up a Client Reporting Engine](#) in *Getting Started with PSQL*.

### New and Revised Performance Counters

PSQL Client Reporting Engine has Windows performance counters to track cache usage. PSQL Server and Vx Server now have Windows performance counters that distinguish between direct application use and use by remote cache engines, such as the reporting engine. In addition, the counter for cache-hit-ratio has been changed to reflect recent activity instead of cumulative.



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**Note** Although most database operations could successfully execute on this specialized engine, it is designed for read-mostly reporting jobs. The Reporting Engine may be used by Btrieve applications as an always-on Client Cache Engine.

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### New Btrieve API

PSQL v13 provides a new and simplified C/C++ API for Btrieve. The Windows DLLs needed for this API are automatically installed with PSQL.

The SDK for this new Btrieve API also includes SWIG files for use with scripting languages such as Python, perl, and PHP to enable the API to serve as native objects in those environments.

To learn more, see the PSQL Data Access Methods documentation at [docs.actian.com](http://docs.actian.com).

### Beta Release for New Platforms

PSQL v13 runs on the following new platforms:

- Windows IoT Core on x86 and 32-bit ARM
- Windows Nano Server
- Raspbian (32-bit ARM)

In this release, support for these platforms is beta and has the following limitations:

- Available only for Server and Client editions.
- Installation on Windows uses a .zip archive and a script.
- Installation on Raspbian is a .tar file and a script. Installation steps are the same as for PSQL on Linux.
- Licensing uses license keys instead of product keys.
- On Windows IoT Core, PSQL supports only CLI utilities, and local access methods are Btrieve, ODBC by direct link (without driver manager), and DTI.
- On Windows Nano Server, PSQL supports only CLI utilities, and local access methods are Btrieve, ODBC by direct link (without driver manager), and DTI.
- On Raspbian, PSQL does not support PCC or DDF Builder.
- The new PSQL Client Reporting Engine is supported on Windows Nano Server.

PSQL installation has also been tested successfully with Docker for Windows.

### ***New Schema Export and Import in PCC***

PSQL v13 extends schema management capabilities by adding database-level exporting of all metadata to a SQL script. Importing this script into a new database allows you to do several useful things:

- Recreate an entire database.
- Migrate from V1 to V2 format.
- Identify and troubleshoot metadata issues in the original database.

### ***Cache Management***

PSQL v13 provides the butil utility with two new command options:

- -cache, which preloads pages for a file into cache, returning when either the file is fully cached or the cache is full.
- -purge, which flushes all unneeded cached pages for a file. It returns immediately if the file has open handles.

These two commands are complementary. Their actions apply only to the server engine cache rather than to the cache of any client or reporting engine.

### ***SDK Access Methods***

The following access method has been updated in this release.

#### **ADO.NET**

PSQL v13 has updated the PSQL ADO.NET SDK with ADO.NET Entity Framework Provider 4.3, adding support for Microsoft Entity Framework 6.1 and skip() syntax.



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**Note** ADO.NET Entity Framework Provider 4.0 is no longer supported in this release.

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## **DTI**

To address a conflict with the Microsoft Windows header file security.h, the file by this name in the PSQL v13 DTI SDK has been renamed dtisecurity.h. Its behavior is unchanged.

## **SQL Syntax Enhancements**

PSQL v13 extends its support for SQL with the following new features:

- As an alternative to TOP, LIMIT... OFFSET... syntax is now supported to extract a set of rows from a query result.
- DROP IF EXISTS syntax is now supported for all database objects, such as views and procedures.
- ORDER BY is now supported in expression subqueries in addition to table subqueries.

## **Deprecated Features**

PSQL v13 no longer supports the following items:

- Windows Vista and Windows Server 2008. Support continues for Windows Server 2008 R2
- ADO.NET Entity Framework Provider 4.0
- PSQL v13 does not currently support upgrading of systems with previous versions of Backup Agent, AuditMaster, or DataExchange. These products must be uninstalled before upgrading to PSQL v13. We recommend that you back up your data and save configuration settings from these three products before removing them.