



# SQL Manager for PostgreSQL User's Manual

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## SQL Manager for PostgreSQL User's Manual

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## 1 Welcome to SQL Manager for PostgreSQL!

**EMS SQL Manager for PostgreSQL** is a high performance tool for PostgreSQL server administration and development. SQL Manager for PostgreSQL works with all PostgreSQL versions up to 17 and supports all of the latest PostgreSQL features including the FILLFACTOR parameter in tables and indexes, building indexes concurrently, ENUM data types, TSVECTOR, TSQUERY, XML and UUID types, arrays of composite types, operator classes in index keys, and others. It offers plenty of powerful tools for experienced users such as Database Designer, Visual Design Query and powerful BLOB viewer/editor to satisfy all their needs. SQL Manager has a new state-of-the-art graphical user interface with well-described wizard system, so clear in use that even a newbie will not be confused with it.

Visit our web-site for details: https://www.sqlmanager.net/

#### **Key features**

- Full support of all PostgreSQL versions up to 17
- Support of Unicode data
- Support of collations
- Support of database extensions
- Support of view triggers
- Support of unlogged tables
- Rapid database management and navigation
- Easy management of all PostgreSQL objects
- Advanced data manipulation tools
- Effective security management
- Excellent visual and text tools for query building
- Impressive data export and import capabilities
- Database Designer to handle database structure in a few clicks
- Easy-to-use wizards performing PostgreSQL server administrative tasks
- Powerful tools to make your work with PostgreSQL as easy as it can be
- Report designer with clear in use report construction wizard
- Tools providing version control

#### **Product information**

Homepage:	https://www.sqlmanager.net/products/postgresql/manager
Support Ticket	https://www.sqlmanager.net/support
System:	
Register on-line:	https://www.sqlmanager.net/products/postgresql/manager/buy
- 3	

## 1.1 What's new?

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Version

#### Release date

SQL Manager for PostgreSQL 6.6.1

December 11, 2024

#### What's new in SQL Manager for PostgreSQL?

- The Types created by server are not displayed in autocompletion list now.
- The error occurred on calling Debugger with extension for functions. Fixed now.
- Sorting and filtering for JSON and JSONB types improved.
- In case of using large COPY statements the script is parsed correctly.
- Some visual issues with displaying editors have been fixed.
- SSL settings were discarded in some cases in the DB Registration info. Fixed now.

## **1.2** System requirements

#### System requirements for SQL Manager for PostgreSQL

- Microsoft Windows XP, Microsoft Windows Server 2003, Microsoft Windows Server 2008, Microsoft Windows Server 2008 R2, Microsoft Windows Server 2012, Microsoft Windows Server 2012 R2, Microsoft Windows Server 2016, Microsoft Windows Server 2019, Microsoft Windows Vista, Microsoft Windows 7, Microsoft Windows 8/8.1, Microsoft Windows 10, Microsoft Windows 11, Microsoft Windows 11 ARM
- 512 Mb of RAM or more; 1024 Mb or more recommended
- 200 Mb of available HD space for program installation
- Possibility to connect to any local or remote PostgreSQL server
- Supported PostgreSQL server versions: from 7.3 up to 17

## **1.3 Feature Matrix**

The **FREE** Lite version of SQL Manager for PostgreSQL does not include all features of the *Full version* and has some limitations concerning the number of the databases that can be registered and the set of data manipulation and server maintenance tools. The detailed feature matrix is given below.

Note that when using the **FREE** Lite version of SQL Manager for PostgreSQL you can activate[374] a 30-day period of fully-functional usage. After the period expires, you will be able to continue using the **Lite** version.

For more information on activating the **Full** version features see <u>Full Mode activation</u> [874].

## 1.4 Installation

If you are installing SQL Manager for PostgreSQL for the first time on your PC:

- download the SQL Manager for PostgreSQL distribution package from the <u>download</u> page available at our site;
- unzip the downloaded file to any local directory, e.g. C:\unzipped;
- run *PgManagerFull.exe* (**Full** version) or *PgManagerLite.exe* (**Lite** version) from the local directory and follow the instructions of the installation wizard;
- after the installation process is complete, find the SQL Manager shortcut in the corresponding group of Windows Start menu.

If you want to **update an installed copy of SQL Manager for PostgreSQL** you need to use <u>SQL Direct</u> [95].

Also you can use the full distribution package to upgrade your current version of SQL Manager for PostgreSQL. In this case, you should repeat the steps you have made for the first-time installation.

#### See also: SQL Manager FAQ 28

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## 1.5 Registration

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All purchases are provided by **PayPro Global** registration service. The **PayPro Global** order process is protected via a secure connection and makes on-line ordering by credit/ debit card quick and safe.

**PayPro Global** is a global e-commerce provider for software and shareware sales via the Internet. It accepts payments in US Dollars, Euros, Pounds Sterling, Japanese Yen, Australian Dollars, Canadian Dollars or Swiss Franks by Credit Card (Visa, MasterCard/EuroCard, American Express, Diners Club), Bank/Wire Transfer.

If you want to review your order information, or you have questions about ordering or payments please visit our <u>PayPro Global Shopper Support</u>, provided by **PayPro Global**.

Please note that all of our products are delivered via ESD (Electronic Software Delivery) only. After purchase you will be able to immediately download the registration keys. Also you will receive a copy of registration keys by email. Please make sure to enter a valid email address in your order. If you have not received the keys within 2 hours, please, contact us at sales@sqlmanager.net.

Product distribution	PayPro Global
SQL Manager for PostgreSQL (Business license) + 1-Year Maintenance*	<u>Register Now!</u>
SQL Manager for PostgreSQL (Business license) + 2-Year Maintenance*	
SQL Manager for PostgreSQL (Business license) + 3-Year Maintenance*	
SQL Manager for PostgreSQL (Non-commercial license) + 1-Year Maintenance*	
SQL Manager for PostgreSQL (Non-commercial license) + 2-Year Maintenance*	
SQL Manager for PostgreSQL (Non-commercial license) + 3-Year Maintenance*	
SQL Manager for PostgreSQL (Trial version)	Download Now!
SQL Manager for PostgreSQL Freeware	Download Now!

\*EMS Maintenance Program provides the following benefits:

- Free software bug fixes, enhancements, updates and upgrades during the maintenance period
- Free unlimited communications with technical staff for the purpose of reporting Software failures
- Free reasonable number of communications for the purpose of consultation on operational aspects of the software

After your maintenance expires you will not be able to update your software or get technical support. To protect your investments and have your software up-to-date, you need to renew your maintenance.

You can easily reinitiate/renew your maintenance with our on-line, speed-through Maintenance Reinstatement/Renewal Interface. After reinitiating/renewal you will receive a confirmation e-mail with all the necessary information.

## See also:

How to register SQL Manager 26

## 1.6 How to register SQL Manager

26

If you have not registered your copy of SQL Manager for PostgreSQL yet, you can do it by pressing the **Register Now** button and entering your registration information in the **Register SQL Manager for PostgreSQL** dialog.

About SQL Man	ager for PostgreSQL	×
	SQL Manager for PostgreSQL 6.0.0 (build 53081) © 1999-2019 EMS Software Development. All rights reserved.	
	Developers: Alexander Zhiltsov, Alexey Butalov, Dmitry Goldobin, Dmitry Schastlivtsev, Nicolay Sezganov, Alexey Karpovich	
	Company Home Page: <u>http://www.sqlmanager.net/</u>	
	Product Home Page: <u>http://www.pqsqlmanager.com/</u>	
	Registered to : EMS (Business license)	
	Software Maintenance Period Valid Till 06/10/2020.	
	Read the License Agreement	
Warning: This p treaties. Unauth and criminal per possible under	rogram is protected by copyright law and international <u>OK</u> orized reproduction or distribution may result in severe civil halties, and will be prosecuted to the maximum extent the law. <u>Register Now</u>	

To register your newly purchased copy of EMS SQL Manager for PostgreSQL, perform the following steps:

- receive the notification letter from **Digital River** with the registration info;
- enter the **Registration Name** and the **Registration Key** from this letter;
- make sure that the registration process has been completed successfully check the registration information in the About SQL Manager for PostgreSQL dialog (use the Help | About menu item to open this dialog).

Register SQL Manager for PostgreSQL	×
Please enter the registration information you received when purchasing SQL Manager for PostgreSQL.	
Registration <u>N</u> ame	
EMS	
Registration Key	
<u>R</u> egister <u>L</u> ater <u>H</u> elp	

### See also: Registration 24

## 1.7 EMS SQL Manager FAQ

Please read this page attentively if you have questions about EMS SQL Manager for PostgreSQL.

#### **Table of contents**

#### **Product questions**

- What is EMS SQL Manager for PostgreSQL? [28]
- What is the difference between Full/Lite editions of EMS SQL Manager for PostgreSQL?
  [29]
- What do I need to start working with EMS SQL Manager for PostgreSQL? [29]
- What is the difference between the Export/Import functions in SQL Manager and the Data Export/Import utilities?<sup>[29]</sup>
- What is the difference between the Design Query module in SQL Manager and the SQL Query for PostgreSQL utility?<sup>[29]</sup>
- What is the difference between the Extract Database function in SQL Manager for PostgreSQL and the DB Extract for PostgreSQL standalone utility?
   29

#### **Common questions**

- I've registered the DB, but on attempt to open it the "dynamic library libpq.dll not found" message appears. [29]
- I can't modify DDL. Why? [29]
- How can I customize data formats in grid? 30
- I need to perform some changes in database objects of my test database and then make the same changes on master database. Are there any tools for this purpose in SQL Manager for PostgreSQL?
- When I create database objects, their names are always converted to lower case. How I can prevent it?
- I am trying to create a report in Report Designer, but I can't get access to the table data: 'Band data source' list is empty.
- How can I speed up my work with large tables? 301
- I have a table with appr. 1000 records only, and a large number of columns. Opening this table on the 'Data' tab takes too much time. 30
- I get error 'Timeout expired' when I try to execute a query in Query Data or when I perform some operations with database objects.

#### **Export/Import questions**

- I'm trying to export data from a table, but TEXT columns are not exported.
- What is the difference between the "Extract Database" and "Export as SQL Script" functions? [31]
- How can I change the default directory where exported data are saved? [31]

#### **Question/answer list**

#### **Product questions**

- Q: What is EMS SQL Manager for PostgreSQL?
- A: EMS SQL Manager for PostgreSQL is a powerful tool for PostgreSQL database server administration and development. SQL Manager for PostgreSQL works with any PostgreSQL versions up to 17 and supports all of the latest PostgreSQL features. It offers plenty of powerful tools for experienced users to satisfy all their needs. SQL

Manager for PostgreSQL has a new state-of-the-art graphical user interface with welldescribed wizard system, so clear in use that even a newbie will not be confused with it.

- Q: What is the difference between Full/Lite editions of EMS SQL Manager for PostgreSQL?
- A: These editions of SQL Manager for PostgreSQL differ in price and features. To register SQL Manager for PostgreSQL, see the <u>Purchase page</u>, and to learn about the difference in features please go to our <u>Feature Matrix page</u> [22].
- Q: What do I need to start working with EMS SQL Manager for PostgreSQL?
- A: First of all you must have a possibility to connect to some local or remote PostgreSQL server to work with SQL Manager for PostgreSQL. You can download PostgreSQL server from <a href="https://www.postgresql.org/downloads">https://www.postgresql.org/downloads</a> (download is free). Besides, you need your workstation to satisfy the <a href="system requirements">system requirements</a> [21] of SQL Manager for PostgreSQL.
- *Q:* What is the difference between the Export/Import functions in SQL Manager and the Data Export/Import utilities?
- A: The Data Export/Import for PostgreSQL utilities include some additional features which are not available in SQL Manager, such as:
  - export/import data from/to several tables simultaneously;
  - export/import data from/to tables selected from different databases on one host;
  - a command-line utility to export/import data using the configuration file with all the export/import options.
- Q: What is the difference between the Design Query module in SQL Manager and the SQL Query for PostgreSQL utility?
- A: First of all, SQL Query for PostgreSQL works faster as it is a much lighter product. Besides, it provides additional features for query building, e.g.:
  - keeping query history which allows you to rollback to any edited query;
  - various interface improvements for more productive and easier work.
- Q: What is the difference between the Extract Database function in SQL Manager for PostgreSQL and the DB Extract for PostgreSQL standalone utility?
- A: The DB Extract for PostgreSQL utility includes some additional features which are not available in SQL Manager, such as:
  - extracting metadata and/or data from several databases on one host;
  - a console application for performing extract in one-touch;
  - faster extraction speed.

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#### **Common questions**

- Q: I've registered the DB, but on attempt to open it the "dynamic library libpq.dll not found" message appears.
- A: Please make sure that the libpq.dll file exists in the SQL Manager for PostgreSQL directory. Reinstallation of the application can solve the problem.
- Q: I can't modify DDL. Why?
- A: The DDL tab of the SQL Manager editors is read-only. It displays object structure as SQL text and reflects the operations you perform over the object under other editor tabs. To modify an object, you can copy the text to the clipboard and edit it using <u>SQL Script Editor</u> 646. For more details refer to <u>Viewing object DDL structure</u> 665.

- Q: How can I customize data formats in grid?
- A: You can customize all display formats: integer, float, date, time and datetime using the <u>Color & Formats</u> page of the <u>Environment Options</u> of dialog.
- Q: I need to perform some changes in database objects of my test database and then make the same changes on master database. Are there any tools for this purpose in SQL Manager for PostgreSQL?
- A: The <u>Database Registration Info</u> food dialog provides the <u>Logs</u> [117] section where you can enable logging metadata changes performed over the database and/or SQL queries executed in <u>Query Data</u> [415].
- Q: When I create database objects, their names are always converted to lower case. How I can prevent it?
- A: Please try to switch off the "Convert created objects' names to lower case" option within the <u>Object Editors</u> setion of the <u>Environment Options</u> of dialog.
- Q: I am trying to create a report in Report Designer, but I can't get access to the table data: 'Band data source' list is empty.
- A: It is recommended to use <u>Create Report wizard</u> which is run by right-clicking the Reports node in <u>DB Explorer</u> and selecting the 'New Report...' context menu item. The wizard will create all necessary data sources.
- If you still want to use <u>Report Designer</u> at the data source in a report, you need to add database and query components roal to the report.
- Q: How can I speed up my work with large tables?
- A: For your convenience and to speed up your work, the Data Grid [457] allows customizing a number of data display parameters. Here are the most important of them (accessible through the Grid | Data Options [912] section of the Environment Options [871] dialog): Limit options in table and view editors. The 'Select all records of a table' option will enable you to see all table records without extra references to the server, yet in case of large tables or low speed connection channel the data may be fetched with huge delays and the incoming traffic might grow considerably. This mode is recommended when working with local databases or in a private network. The 'Select only' mode restricts the maximum number of records returned after the query. A man cannot process a massive amount of information at once. Hence, we came up with this mode. This mode speeds up table data viewing considerably, prevents hanging and connection timeout. It is recommended to work with large tables, in case of low speed connection channels and when the traffic volume is of importance. This is the default mode. When in this mode, enabling the 'Use SQL sorting in data view' and 'Use SQL filter in data view' options comes really helpful.

- Default Grid Mode. This option defines whether the requested rows will be loaded in the Grid all at once ('Load all rows'), or in parts ('Load visible rows') as the user scrolls down table data. The first mode increases the query opening time, but speeds up scrolling. In the second mode the query opens very fast, but there might be delays when navigating the grid.

We recommend that you set the following option values to achieve maximum efficiency when working with large tables:

- Select only ON
- Load visible rows ON
- Q: I have a table with appr. 1000 records only, and a large number of columns. Opening this table on the 'Data' tab takes too much time.

- A: You need to set the <u>Grid Mode [912]</u> for the table to 'Load Visible Rows'. Please right click within the <u>table grid [194]</u> and select the 'Grid Mode' | 'Load Visible Rows' context menu item.
- Q: I get error 'Timeout expired' when I try to execute a query in Query Data or when I perform some operations with database objects.
- A: You need to increase timeout values within the <u>Tools | Timeouts</u> and section of the <u>Environment Options</u> or set them to 0 (unlimited).

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#### Export/Import questions

- Q: I'm trying to export data from a table, but TEXT columns are not exported.
- A: Columns of type TEXT are not exported by default. You should select these columns manually at the <u>Selecting columns for export</u> [53] step.
- Q: What is the difference between the "Extract Database" and "Export as SQL Script" functions?
- A: <u>Export as SQL Script</u> [608] is intended for exporting table data that will be inserted into a database system other than PostgreSQL. Use <u>Extract Database Wizard</u> [653] to copy metadata and/or data to a database on PostgreSQL afterwards.
- Q: How can I change the default directory where exported data are saved?
- A: Follow the steps below to change the default directory:
  - 1. Right-click the database alias in <u>DB Explorer</u> [65] and select the 'Database Registration Info...' <u>context menu</u> [54] item (you can also find this item in the 'Database' <u>main menu</u> [66]) to open the <u>Database Registration Info</u> [108] dialog.
  - 2. Proceed to the <u>Directories</u> [116] section within the dialog.
  - 3. Set the 'Default directory for Export Data'.

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If you still have any questions, contact us at our <u>Support Center</u>.

## 1.8 Other EMS Products

#### **Quick navigation**



#### MySQL

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#### SQL Management Studio for MySQL

EMS SQL Management Studio for MySQL is a complete solution for database administration and development. SQL Studio unites the must-have tools in one powerful and easy-to-use environment that will make you more productive than ever before!



#### SQL Manager for MySQL

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.



#### Data Export for MySQL

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more.



#### Data Import for MySQL

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.

#### Data Pump for MySQL

Migrate from most popular databases (MySQL, PostgreSQL, Oracle, DB2, InterBase/Firebird, etc.) to MySQL.



#### Data Generator for MySQL

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.



#### DB Comparer for MySQL

Compare and synchronize the structure of your databases. Move changes on your development database to production with ease.

#### DB Extract for MySQL

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.



#### SQL Query for MySQL

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.



#### Data Comparer for MySQL

Compare and synchronize the contents of your databases. Automate your data migrations from development to production database.

Scroll to top 32

#### Microsoft SQL Server

#### SQL Management Studio for SQL Server

EMS SQL Management Studio for SQL Server is a complete solution for database administration and development. SQL Studio unites the must-have tools in one powerful and easy-to-use environment that will make you more productive than ever before!



#### EMS SOL Backup for SOL Server

Perform backup and restore, log shipping and many other regular maintenance tasks on the whole set of SQL Servers in your company.



#### SQL Administrator for SQL Server

Perform administrative tasks in the fastest, easiest and most efficient way. Manage maintenance tasks, monitor their performance schedule, frequency and the last execution result.



#### SQL Manager for SQL Server

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.



#### Data Export for SQL Server

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more



#### Data Import for SQL Server

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.



#### Data Pump for SQL Server

Migrate from most popular databases (MySQL, PostgreSQL, Oracle, DB2, InterBase/Firebird, etc.) to Microsoft® SQL Server™.



#### Data Generator for SQL Server

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.



#### DB Comparer for SQL Server

Compare and synchronize the structure of your databases. Move changes on your development database to production with ease.



#### DB Extract for SQL Server

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.



#### SQL Query for SQL Server

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.



#### Data Comparer for SOL Server

Compare and synchronize the contents of your databases. Automate your data migrations from development to production database.

Scroll to top 32

#### PostgreSQL



#### SQL Management Studio for PostgreSQL

EMS SQL Management Studio for PostgreSQL is a complete solution for database administration and development. SQL Studio unites the must-have tools in one powerful and easy-to-use environment that will make you more productive than ever before!



#### EMS SQL Backup for PostgreSQL

Creates backups for multiple PostgreSQL servers from a single console. You can use automatic backup tasks with advanced schedules and store them in local or remote folders or cloud storages



#### SQL Manager for PostgreSQL

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.



#### Data Export for PostgreSOL

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more



#### Data Import for PostgreSOL

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.



#### Data Pump for PostgreSOL

Migrate from most popular databases (MySQL, SQL Server, Oracle, DB2, InterBase/Firebird, etc.) to PostgreSQL.



#### Data Generator for PostgreSOL

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.



#### DB Comparer for PostgreSOL

Compare and synchronize the structure of your databases. Move changes on your development database to production with ease.



#### DB Extract for PostgreSOL

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.

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#### SQL Query for PostgreSQL

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.

#### Data Comparer for PostgreSOL

Compare and synchronize the contents of your databases. Automate your data migrations from development to production database.

Scroll to top 32

#### **InterBase / Firebird**

#### SQL Management Studio for InterBase/Firebird

EMS SOL Management Studio for InterBase and Firebird is a complete solution for database administration and development. SQL Studio unites the must-have tools in one powerful and easy-to-use environment that will make you more productive than ever before!

#### SQL Manager for InterBase/Firebird

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.



#### Data Export for InterBase/Firebird

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more

#### Data Import for InterBase/Firebird

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.



#### Data Pump for InterBase/Firebird

Migrate from most popular databases (MySQL, SQL Server, Oracle, DB2, PostgreSQL, etc.) to InterBase/Firebird.



#### Data Generator for InterBase/Firebird

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.



Compare and synchronize the structure of your databases. Move changes on your development database to production with ease.



#### DB Extract for InterBase/Firebird

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.



#### SQL Query for InterBase/Firebird

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.



#### Data Comparer for InterBase/Firebird

Compare and synchronize the contents of your databases. Automate your data migrations from development to production database.

Scroll to top 32

#### Oracle



#### SQL Management Studio for Oracle

EMS SQL Management Studio for Oracle is a complete solution for database administration and development. SQL Studio unites the must-have tools in one powerful and easy-to-use environment that will make you more productive than ever before!



#### SQL Manager for Oracle

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.



#### Data Export for Oracle

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more.

#### Data Import for Oracle

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.

#### <u>Data Pump for Oracle</u>

Migrate from most popular databases (MySQL, PostgreSQL, MySQL, DB2, InterBase/Firebird, etc.) to Oracle

## 5

#### Data Generator for Oracle

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.



#### DB Comparer for Oracle

Compare and synchronize the structure of your databases. Move changes on your development database to production with ease.



#### DB Extract for Oracle

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.



#### SQL Query for Oracle

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.



#### Data Comparer for Oracle

Compare and synchronize the contents of your databases. Automate your data migrations from development to production database.

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#### IBM DB2

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#### SQL Manager for DB2

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.



#### Data Export for DB2

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more.



#### Data Import for DB2

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.



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#### Data Pump for DB2

Migrate from most popular databases (MySQL, PostgreSQL, Oracle, MySQL, InterBase/Firebird, etc.) to DB2

#### Data Generator for DB2

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.



#### DB Extract for DB2

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.


#### SQL Query for DB2

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.

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#### **Tools & components**



#### Advanced Data Export for RAD Studio VCL

Advanced Data Export for RAD Studio VCL allows you to save your data in the most popular office programs formats.



#### Advanced Data Export .NET

Advanced Data Export .NET is a component for Microsoft Visual Studio .NET that will allow you to save your data in the most popular data formats for the future viewing, modification, printing or web publication. You can export data into MS Access, MS Excel, MS Word (RTF), PDF, TXT, DBF, CSV and more! There will be no need to waste your time on tiresome data conversion - Advanced Data Export will do the task quickly and will give the result in the desired format.



#### Advanced Data Import for RAD Studio VCL

Advanced Data Import for RAD Studio VCL will allow you to import your data to the database from files in the most popular data formats.



#### Advanced PDF Generator for RAD Studio

Advanced PDF Generator for RAD Studio gives you an opportunity to create PDF documents with your applications written on Delphi or C++ Builder.



#### Advanced Query Builder for RAD Studio VCL

Advanced Query Builder for RAD Studio VCL is a powerful component for Delphi and C++ Builder intended for visual building SQL statements for the SELECT, INSERT, UPDATE and DELETE clauses.



#### Advanced Excel Report for RAD Studio

Advanced Excel Report for RAD Studio is a powerful band-oriented generator of template-based reports in MS Excel.



#### Advanced Localizer for RAD Studio VCL

Advanced Localizer for RAD Studio VCL is an indispensable component for Delphi for adding multilingual support to your applications.

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# 2 Getting Started

SQL Manager for PostgreSQL provides you with an ability to contribute to efficient PostgreSQL administration and development using a variety of available tools easily and quickly.

The succeeding chapters of this document are intended to inform you about the tools implemented in SQL Manager for PostgreSQL. Please see the instructions below to learn how to perform various operations in the easiest way.

- <u>Selecting style and language</u> [41]
- How the application looks when you start it for the first time [43]
- Using Desktop Panel 45
- Database navigation 47
- Working with database objects 49
- Using context menus 51
- Working with child windows 59

See the <u>How to...</u> from chapter to view brief instructions on how to perform some operations on databases, database objects, etc.

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#### Enjoy your work with EMS SQL Manager for PostgreSQL!

See also: Database Explorer 65 Database Management 87 Database Objects Management 155 Change Management 344 Query Management 452 Management 452 Import/Export Tools 535 Database Tools 638 Services 771 Options 870 How To... 1005

## 41 SQL Manager for PostgreSQL - User's Manual

# 2.1 Selecting style and language

Before you start SQL Manager for the first time, you have to choose the appearance style and the interface language. You can change these settings any time using the <u>Environment Options</u> [877] dialog to configure environment style and the language.

#### **Appearance theme**

Select the main color theme for the application: Light, Blue or Dark.

#### **Bar style for editors**

Here you can define the location of action buttons: 
 within the *Navigation bar* (on the left) and/or 
 on the *Toolbar*.

#### **Program language**

Select the interface language from the list of available languages.

#### Sample

See the example of selected options for interface.

choose the appearance theme, language preterences and bar style for editors.									
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Blue	🗲 Compile		SELECT id product name product doop						
Dark	Print		FROM products WHERE ListPrice > \$25						
Bar style for editors	Edit	*	AND ListPrice < \$100						
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## See also: First time started [43]

Using Desktop Panel 45 Database navigation 47 Working with database objects 49 Using context menus 51 Working with windows 59

# 2.2 First time started

This is how SQL Manager for PostgreSQL looks when you start it for the first time. Use the <u>Desktop panel</u> [45] to fulfill any of common tasks: <u>Create a new database</u> [89], <u>Manage existing database(s)</u> [98], and several tasks that do not require database registration, i.e. <u>Execute script</u> [646], accessing the **reference system** or using available **Internet resources**.

The main menu allows you to perform various **Database** operations, open <u>To-Do List</u> [985] and activate/deactivate <u>Database Explorer</u> [65], <u>SQL Assistant</u> [81] and various <u>toolbars</u> [963] within the **View** menu, manage your databases using items of the **Tools** and **Services** menus, <u>customize</u> [870] the application using the **Options** menu, manage SQL Manager **Windows** using <u>Window List</u> [987] and other tools, access <u>Registration</u> [24] information and product documentation, <u>update</u> [995] the product to the latest version using the corresponding items available within the **Help** menu.

To start working with your PostgreSQL server, you should first register one or several databases using <u>Register Database Wizard</u> [98].

By default the corresponding 4 **Register Database** button is available on the <u>toolbar</u> 3 and within the **Database** menu.

When the database connection settings are specified, you can set connection to your database and proceed to <u>Database navigation</u> [47], <u>Database Objects management</u> [155], <u>working with SQL queries</u> [413] and other tools of SQL Manager.



## See also:

Selecting style and language 41 Using Desktop Panel 45 Database navigation 47 Working with database objects 49 Using context menus 51 Working with windows 59

# 2.3 Using Desktop Panel

45

**Desktop Panel** is the area that is visible when no child windows are open in SQL Manager for PostgreSQL. The working area of **Desktop Panel** is divided into four sections: *Getting Started, Database Tools, Help and Support, Internet Resources.* 



😼 <u>create</u> छि a new PostgreSQL database

📴 <u>register</u> 🕬 existing database(s) to operate them afterwards in SQL Manager

tem is available if there is at least one active database connection)

there is at least one active database connection)

## **Database Tools**

₩ execute a script using <u>SQL Script Editor</u>646

🦻 <u>execute a SQL query</u> बि। (this item is available if there is at least one active database connection)

💱 grant permissions on database objects to PostgreSQL <u>users</u>75ी using <u>Grant Manager</u> [76य] (this item is available if there is at least one active database connection)

## **Help and Support**

🥝 show this help file

🔮 use PostgreSQL reference

#### **Internet Resources**

🕥 visit SQL Manager Home Page

towse SQL Manager on-line documentation

🔄 go to <u>Technical Support Center</u>

look through the <u>Frequently Asked Questions</u> [28] page

#### See also:

<u>Selecting style and language</u> [41] <u>First time started</u> [43] <u>Database navigation</u> [47] <u>Working with database objects</u> [49] <u>Using context menus</u> [51] <u>Working with windows</u> [59]

# 2.4 Database navigation

47

After you have registered the required database(s), the corresponding alias(es) appear in the <u>DB Explorer</u> [65] tree on the left. If the **Show Hosts** option is checked on the <u>Environment Options</u> [87] | <u>DB Explorer</u> [882] page, the host nodes are also displayed in the tree (alternatively, you can use the **Show Hosts** item of the <u>Database context menu</u> [54], or the drop-down menu of the **View Mode** [65] toolbar [84] button for the same purpose). If necessary, you can also specify that empty schemas should be hidden in the tree: use the corresponding option available on the <u>DB Explorer</u> [882] page of the <u>Environment Options</u> [87] dialog.



DB Explorer [65] displays all registered databases. Connected/disconnected databases can be easily distinguished in the tree: aliases of disconnected databases are grayed out.



To <u>connect</u> [68] to a database, simply double-click its alias (or select the database alias in <u>DB Explorer</u> [65] and press **Enter**). If the connection is successful, the database node expands into a tree of objects. To select the types of objects to be expanded upon successful database connection, you can use the **Expand after connection** group of the <u>Environment Options</u> [87] | <u>DB Explorer</u> [882] page.

Now you can navigate within the database objects. Use SQL Assistant at the database object. Use SQL Assistant at the surrently selected object.

See also: Selecting style and language 41 First time started 43 Using Desktop Panel 45 Working with database objects 49 Using context menus 51 Working with windows 59

# 2.5 Working with database objects

49

The nodes of the <u>DB Explorer</u> allow you to access <u>objects of the selected</u> <u>database</u> **beta selected**. If PostgreSQL server you are connected to supports certain types of objects, their nodes will appear in the tree.

Double-click an object group to expand/collapse the corresponding tree node. Double-click an object to open it in the corresponding editor. Right-click an object to display its <u>context menu</u> [57] which allows you to perform various operations over the selected object or database.

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	- 69	🚰 🖻 📑 🎽									

If you want to use the <u>DB Explorer</u> is tree for working with **table subobjects** (columns, indexes, Foreign keys, etc.), check the **Show table subobjects** option which is available

within the **General options** group of the Environment Options [871] | <u>DB Explorer</u> [882] page (you can also use the **Show Table Subobjects** menu item in the drop-down menu of the **View Mode** <u>Stoolbar</u> [84] button for the same purpose.)

🗄 Create 🔹 😥 🔪 🦄 🚰 📴 🦿 😔 🔹 View Mode

## See also:

Selecting style and language 41 First time started 43 Using Desktop Panel 45 Database navigation 47 Using context menus 51 Working with windows 59

# 2.6 Using context menus

The **context menus** are aimed at facilitating your work with SQL Manager for PostgreSQL : you can perform a variety of operations using context menu items.

Select an object in <u>DB Explorer</u> and right-click its alias to open the context menu.

- Host context menu
- <u>Database context menu</u> 54
- <u>Object context menu</u> 57

## See also:

Selecting style and language 41 <u>First time started</u> 43 <u>Using Desktop Panel</u> 45 <u>Database navigation</u> 47 <u>Working with database objects</u> 49 <u>Working with windows</u> 59

## 2.6.1 Host context menu

52

The **context menu of a host** in the <u>DB Explorer</u> [65] tree allows you to:

- access services and principals 771 within the Tasks submenu
- launch 🖉 <u>Change management</u> 344 tools
- define host connection settings in the <u>Server Configuration</u> [852] dialog
- create database using the 🔒 <u>Create Database Wizard</u> 🔊
- register a new database using the 🗣 <u>Register Database Wizard</u> 🔊
- 😼 unregister the selected host
- manage databases registration 152
- access 🐱 <u>View Mode</u> 53 options
- manage DB Explorer Tabs 53
- search for database objects using P Find Object 78 dialog
- continue searching for database objects that match the defined conditions.

🕀 🛃 ayz2:54383 (	2)			
🗎 🥊 AYZ2:5439	Tasks	+	G	Server Status
⊕ schel:549	Change Management	•	8	Manage Users
	Server Configuration		8	Manage Groups
Θ.	Create Database		<b>e</b>	Backup
8	Register Database Shift+Alt+R		<b>P</b>	Restore
Ģ	Unregister Host			
	Database Registration Manager			
	View Mode	•		
	Tabs	•		
P	Find Object Ctrl+F			
1	Find Next Object F3			

#### **Tasks**

- check 🗐 server status 🕬 within the corresponding dialog
- manage 🖁 <u>user privileges</u> 751
- manage \iint user groups 7541 and their privileges
- 🐙 backup database 808 using the wizard
- $prestore database^{10}$  using the wizard.

## **Change Management**

- 🗣 <u>create branch/label/tag</u>B48 using the wizard
- check repository 356 using the wizard
- descript 366 using the wizard

## 53 SQL Manager for PostgreSQL - User's Manual

- release new version of database 375 using wizard
- browse 🥙 <u>history</u> 40€ of object/database changes.

## **View Mode**

- 🖾 show/hide table subobjects
- 🗟 show/hide hosts
- sort databases by their aliases (by default databases are displayed due to their registration order)
- show/hide disconnected databases
- check table subobjects to display in <u>SQL Assistant</u> [81] within the **Tables' Details** submenu
- check other subobjects to display in <u>SQL Assistant</u> within the **Objects' Details** submenu.

#### Tabs

- $\square$  create a new DB Explorer <u>tab</u> [75] with the selected database/host only
- rename active tab
- delete active tab.

#### See also:

Database context menu 54 Object context menu

## 2.6.2 Database context menu

54

The **context menu of a registered database** in the <u>DB Explorer</u> [65] tree allows you to:

- X <u>connect</u> to the selected database (if connection to the database is not active yet);
- disconnect 88 from the selected database (if connection to the database has been already activated);
- access database tools and services 771 available in the Tasks submenu;
- access 🕼 <u>change management</u> [344] tools;
- view/edit the Matabase properties 145;
- view/edit the host properties within the Server Configuration [852] dialog;
- 🗟 <u>create a new database</u> 🔊 at the host where the selected database resides;
- 💁 drop 🖅 the selected database;
- view/edit the selected database registration information within the <u>Database</u> registration manager[152];
- register a new database or host using 🙀 <u>Register Database Wizard</u> 🕬;
- 😼 <u>unregister</u> 🕅 the selected database;
- $\mathbf{\Box}$  <u>unregister</u> [87] the host where the selected database resides;
- view/edit the selected database registration information within the **Database** <u>Registration Info</u> 108 dialog;
- generate the database script and open it in <u>Query Data</u>[415];
- generate the database script and copy its text to Windows clipboard;
- access 🐱 <u>View Mode</u> 56 options;
- configure representation of hosts and databases in <u>Database Explorer</u> [65];
- Instruction of the selected database;
- test connection to the database (or reconnect if connection has been already established);
- manage DB Explorer Tabs 561;
- Search [78] for an object within the tree;
- continue searching for database objects that match the defined conditions.

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est o	n aschel:54396			
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🗧 t3581	4 on localhost:54396			
🖻 🖥 🔽	Connect to Database	Shift+Ctrl+C		
8 d 🔨	Disconnect from Database	Shift+Ctrl+D		
- S t	Tasks		• 👳	Backup Database
	Change Management		• 📮	Restore Database
- S t 🗂	Database Properties		2	Grant Manager
81	Server Configuration			Extract Database
	Create Database		1	Copy Database
- S 5 🛼	Drop Database		E	Print Metadata
🗄 🗧 🧧 🚉	Register Database	Shift+Alt+R		HTML Report
	Database Registration Info		1	To-Do List
8.2	Unregister Database	Shift+Alt+U	F	Analyze Tables
8 4	Database Registration Mar	lager	J.	Vacuum Tables
80	Script to Execute Script		•	Reindex Database
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🕀 🗧 c 🕥	View Mode		•	Database Statistics
	Refresh Database	F5		
9 p	Test Connection (Reconne	ct)		
- 8 t	Tabs		•	
	Find Object	Ctrl+F		
S.A	Find Next Object	F3		

## Tasks submenu allows you to:

- له <u>backup database</u>ها using the wizard
- 🕼 <u>restore database</u> हिंदी using the wizard
- 騘 manage privileges
- 🗟 extract database 🖾 objects and/or data to an SQL script
- 🖶 <u>copy database</u> ब्लिंगे objects and data to different location
- هم print metadata
- 🥞 generate <u>html report</u> छिंहै of the selected objects
- E create to-do list 985
- 📱 <u>analyze tables</u> गिरेडे
- 🚇 vacuum tables 777

- <sup>33</sup> reindex database 782
- المعنى database extensions همه المعنى الم
- database statistics 794

#### Change Management submenu allows you to:

- 😽 <u>create branch/label/tag</u>B48 using the wizard
- <u>check repository</u> [348] using the wizard
- 🛃 <u>get change script</u> 🕬 using the wizard
- release new version of database 375 using wizard
- browse 🕙 <u>history</u> 406 of object/database changes

## View Mode submenu allows you to:

- 🖾 show/hide table subobjects
- 🗟 show/hide hosts
- sort databases by their aliases (by default databases are displayed due to their registration order)
- show/hide disconnected databases
- check table subobjects to display in <u>SQL Assistant</u> [81] within the **Tables' Details** submenu
- check other subobjects to display in <u>SQL Assistant</u> (B1) within the **Objects' Details** submenu

## Tabs submenu allows you to:

- create a new DB Explorer tab 75 with the selected database/host only
- rename active tab
- delete active tab.

#### See also:

<u>Host context menu</u> <u>Object context menu</u> जि

## 2.6.3 Object context menu

The **context menu of an object** (e.g. *table* or *view*) in the <u>DB Explorer</u> (65) tree allows you to:

- <u>create</u> [157] a new database object of the same type;
- edit 1551 the selected object in its editor;
- rename the selected object;
- drop [155] the selected object from the database;
- 🖾 <u>duplicate</u> 153 the selected object (create a new object with the same <u>DDL</u> 965 structure and properties as the selected object has);
- access common Tasks applied to this object;
- perform data manipulation 535 operations (for tables 169 and views 229);
- access 🗊 <u>change management</u> 344 features;
- view properties বিগী (for tables বিগী);
- define 🦆 grants 762 for the selected object;
- generate the object script and open it in Query Data 415;
- generate the object script and copy its text to Windows clipboard;
- a refresh all objects of the selected object type;
- view/edit the database registration information within the *by* <u>Database Registration</u> <u>Info</u> dialog.
- create a new tab for the selected object to access it through this tab quickly [75] and/or manage the existing tab;
- $P = \frac{1}{28}$  for an object within the tree.

57



# See also: Host context menu<sup>52</sup>

Database context menu

# 2.7 Working with windows

The **Windows Toolbar** of SQL Manager allows you to switch between child windows easily, like in Windows Task Bar.

To activate the window you need, simply click one of the window buttons. To perform some additional actions with the window, right-click its tab and select the corresponding menu item from the popup menu.



If you have multiple windows opened, you can also switch between them using the Ctrl+Tab shortcut from 1.

The **Number of open editors is restricted** option available in the <u>Windows</u> (B77) section of the <u>Environment Options</u> (B77) options dialog allows you to set the maximum number of editors that may be opened simultaneously. When the number of editors exceeds the specified value, the previously opened editors will be closed automatically.

The **Windows** menu facilitates your work with SQL Manager windows.



- The **Windows** menu allows you to: view the <u>Windows List</u> [987] within the corresponding <u>tab</u> [75] of DB Explorer;
  - set all current windows cascade:

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General       11 Operation : SELECT pg_stat_activity.*, (1 ^ 12         Clear contents       13 Finished : 17.09.2012 11:26:57,820         14 Result : OK.       15         Save to file       15         SQL Monitor options       16 Context ID : 3         Restore default size       17 Started : 17.09.2012 11:27:17,858         Operation : SELECT pg_stat_activity.*, (1 + 15)         19         20 Finished : 17.09.2012 11:27:17,865         21 Result : OK.         22         23 Context ID : 3         24 Started : 17.09.2012 11:27:37,879         25 Operation : SELECT pg_stat_activity.*, (1 + 28         Very Undert WithEnder			-	Ĩ	🔒 SQL Monitor						×	
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- minimize all windows;
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			-			Employee.CurrencyRate				•	,,,,,,, _			
	•		•			Employee.Customer		-						
		1: 1	Modified		•		F		Ľ	•	20: 16 Modifie ,;;			

- set defaults to all windows;
- reset all toolbars and menus 988;
- close all windows;
- close all database windows (closes all windows owned by the database selected in the windows list);
- close all editors of the specified object type (can be selected from the submenu);
- switch to the previous window;
- switch to the next window;
- activate one of currently opened windows.

## See also:

Selecting style and language 41 First time started 43 Using Desktop Panel 45 Database navigation 47 Working with database objects 49 Using context menus 51



# 3 Database Explorer

**Database Explorer** (or **DB Explorer**) is the basic window of SQL Manager for PostgreSQL for <u>navigation</u><sup>[47]</sup> within databases and working with database objects. The tree-like structure of DB Explorer allows you to manage the databases and database objects, and perform other everyday operations quickly and easily.

The following list contains the most frequently used features provided by Database Explorer.

- Managing database registration info
- <u>Connecting to databases</u> 68
- Performing basic operations upon database objects 70
- <u>Selecting multiple objects</u> 73
- <u>Navigating database objects using multiple tabs</u>
- Easy access to recently opened objects 77
- Searching within the tree 78
- Viewing extended information about database objects
- <u>Configuring Database Explorer</u> [83]
- <u>Managing Favorite queries</u>

All objects are structured by their types and are available within the corresponding nodes of the tree. The number of objects of each type is displayed in brackets after the node name denoting the object type. To expand/collapse a node, you can double-click it or use the +/- icons.



To view/hide the Database Explorer window, use the **View | DB Explorer** main menu



Use the Ctrl+Shift+C shortcut for to collapse the current **DB Explorer** tree branch and switch to the parent node.

Note that you can change database aliases order by dragging them within the **DB Explorer** tree.

# See also:Getting\_Started[33]Database Management[87]Database Objects Management[158]Change\_Management[344]Query\_Management[344]Data Management[473]Data Management[452]Import/Export\_Tools[538]Database Tools[638]Services[77]Options[670]How\_To...

# 3.1 Managing database registration info

After you have created and/or registered your database in SQL Manager for PostgreSQL, you can perform a number of operations with the database using the <u>context menu</u> [54].

If you need to view/edit the registration information of a database, right-click the database alias in DB Explorer and select the **Database Registration Info...** context menu item to open the <u>Database Registration Info</u> dialog.

## See also:

67

Register Database 98 Database Registration Info Database Registration Manager 152

# 3.2 Connecting to databases

68

When the <u>database registration</u> is complete, you can establish connection to your database.



The simplest way to connect to a database is to double-click its alias in the <u>Database</u> <u>Explorer</u> [65] tree. The same operation can be performed by selecting the **Connect to Database** item of the database alias <u>context menu</u> [54], or by using the **Database** | **Connect to Database** <u>main menu</u> [66] item.

Databases											
□ 🥃 ayz2:54383											
🕀 🔒	🗄 🔒 TestDB on ayz2:54383										
	DemoE										
- 8	new_d	X	Connect to Database	Shift+Ct	irl+C						
	Demo_	2	Disconnect from Database	Shift+Ct	rl+D						
🕀 🌄 AY.	7est_L Z2:5439		Tasks		•						
🗄 🦁 aso	chel:549	۵	Change Management								

Alternatively, you can use the Shift+CtrI+C shortcut from or the **X** Connect to Database toolbar [83] button.



See also: <u>Register Database</u> ଭାଷା <u>Database Registration Info</u> 108ୀ

# 3.3 Operations with database objects

70

Database Explorer allows you to perform various operations with database objects [155].

To open an object in its editor, you can double-click the object in the **DB Explorer** tree.

You can also right-click an object within the **DB Explorer** tree and use its <u>context menu</u> 57 to perform a number of operations:

- create a new object (the New <object>... item);
- edit currently selected object (the Edit <object\_name>... item);
- rename currently selected object (the **Rename <object\_name>...** item);
- drop the selected object from the database (the **Drop <object\_name>...** item);
- duplicate the selected object (the Duplicate <object\_name>... item);
- define grants for the selected object (the **Grants for <object\_name>...** item).

Note that the context menu contains object-specific items only when the object is currently selected in **DB Explorer**.



Using drag-and-drop operations you can add objects to <u>Query Data</u>[415], <u>Design Query</u>[431] or <u>Execute Script Editor</u>[646]. For your convenience the **Insert to editor** dialog is implemented. The dialog allows you to specify the **statement** to be inserted into the editor: *Name*, *SELECT*, *INSERT*, *UPDATE*, *DELETE*, *CREATE*, *DROP*, *columns list*, *Name and Type*. If necessary, set the **Alias** and **Prefix for variable**.

If more convenient, you can edit the generated statement manually (see <u>Working with</u> <u>Query Data area</u> 418).

	Insert to Editor:		— 🗆 X
E	SELECT	^	Statement
2	emp_no,		Name
3	first_name,		SELECT
4	last_name,		INSERT
5	phone_ext,		UPDATE
6	hire_date,		DELETE
7	dept_no,		CREATE
8	job_code,		DROP
9	job_grade,		
10	job_country,		Name and Type
11	salary,		Nume and Type
12	full_name		
13	FROM		>
14	public.employee ;		
			J
			Alias
			Prefix for variable
		~	
<u> </u>			
			OK Cancel

## See also:

<u>Database Objects Management</u> ସେଥି <u>Query Data</u> 41ଣ୍ଠ <u>Selecting multiple objects</u> 73
# 3.4 Selecting multiple objects

You can select more than one object in **Database Explorer** by pressing the *Ctrl* or the *Shift* key and selecting multiple objects one by one.

The **context menu** of several selected objects allows you to:

- <u>create</u> 155 a new database object of the same type;
- edit the selected objects;
- drop the selected objects;
- perform other operations with the current object (see <u>Operations with database</u> <u>objects</u> 70).

Databases					
🖻 🛄 public		*			
🖻 🛅 Tables (15)					
🖃 🚠 Views (7)					
🐴 actor_info					
👪 customer_	list				
film_list	24	New View		Ctrl+N	
nicer_but_		Edit 3 Selected	Objects	Ctrl+O	
Sales_by_		Deceme ) (evel	Den Kell	CHUD	
ateff list		Rename view t	iim_iist	CIN+R	
	4	Drop 3 Selected	d Objects	Shift+Del	
Domains (1)	<b>e</b>	Duplicate View	'film_list'		
Rules		Tasks			•
🕀 🔁 Triggers (15		Data Manipulati	on		•
🗄 📴 Indices (32)					-
🕀 🔝 Sequences	۵	Grants for View	/ˈfilm_list'		
Composite Ty		Script to New S	QL Editor		•
🗈 🔝 Enum Types		Script to Clipbo	ard		
Range Types		Script to Clipboo	aru		·
Base Types	2	Refresh Views		F5	
± ∑ Aggregates	8	Database Regis	stration Info		
Colletions		Tahe			•
Event Triggers					
	$\rho$	Find Object		Ctrl+F	
E S Languages (1)	$\beta$	Find Next Obje	ct	F3	
Reports	_				
😥 Favorite Queries					
Projects					
Local Scripts		-			
	a (74	🔽 🖻 🔜 »			
4		••••••••••••••••••••••••••••••••••••••			

Hint: You can move several objects to your projects: just drag and drop the selected

objects to the previously created subfolder within the **Projects** node of **DB Explorer**.

## See also:

<u>Operations with database objects</u> [70] <u>Database Objects Management</u> [155] Managing projects

# 3.5 Using tabs for database navigation

To make your work with **Database Explorer** even more convenient, the capability of **working with several tabs** is implemented.

You can use tabs when you wish to work with a particular node of the DB Explorer tree only: with one specific schema, or with tables of some schema, or with a specific database project. Creating such tabs will minimize scrolling within large trees, you only need to switch between them with a single click on the corresponding tab.

### **Creating tabs**

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In order to create a new tab:

• right-click the node (e.g. the **Tables** node) for which you wish to create a tab and select the **New Tab from Here...** context menu item.

**Note:** A tab can be created only on the basis of a tree node. For example, if the **Show Table Subobjects** option is disabled in the <u>View Mode</u> and menu, the **New Tab from Here...** item will not be available for tables, since none of them will be a tree node anymore.

2 <b></b>	Refresh Schemas Database Registration Info	F5	
	Tabs	+	New Tab from Here
$\rho$	Find Object	Ctrl+F	Rename Current Tab
A	Find Next Object	F3	Delete Current Tab

The specified tabs can be displayed in either of the two views:

• as *icons* on the lower pane of DB Explorer:



• as *tabs* with captions:

📴 Databases	
To Windows List	
Projects [TestDB on ayz2:54383]	
Tables of public [TestDB on ayz2:54383]	
Account table [TestDB on ayz2:54383]	
2	÷

Hint: You can reorder items in the *tabs* view by dragging their captions up and down.

To add/remove items to/from the *tabs* view, you can drag the horizontal <u>splitter</u> both up/ down:



or click the **Configure buttons** icon available in the bottom right corner of the **DB Explorer** window, and select **Show More Buttons / Show Fewer Buttons / Add or Remove Buttons** items from the popup menu.



**Note:** Navigation through the tabs is also possible with the help of the following shortcuts 1004:

- Ctrl+Shift+N move to the next tab;
- *Ctrl+Shift+P* move to the previous tab.

#### **Renaming tabs**

In order to rename a tab:

- switch to the tab by clicking its caption or icon (there can be only one active tab, and it is highlighted with a different color);
- right-click within the DB Explorer area and select the Rename Current Tab... context menu item.

#### **Removing tabs**

In order to remove a tab:

- switch to the tab by clicking its caption or icon (there can be only one active tab, and it is highlighted with a different color);
- right-click within the DB Explorer area and select the **Delete Current Tab** context menu item.

#### See also:

Managing projects <u>Windows List</u> छिरी Database Objects Management <sup>155</sup>।

# 3.6 Recently opened objects

77

Use the **Second Objects** button available on the DB Explorer <u>toolbar</u> (B3) to access the list of recently opened database objects (during the current session).

This list is common for all registered databases. Next to the object name the database name and the host/address are displayed. Select an object from this list to open it using its editor.

🗄 📑 Create 🔻 😥   💓 🍡   🌁   😥 🔻	Ø•	😑 🔹 🖕
Search:		public.Inventory [TestDB on ayz2:54383]
I		public.Product [TestDB on ayz2:54383]
1	4	Employees_rl_ondelete on public.Employees [TestDB on ayz2:54383]
		report1 [TestDB on ayz2:54383]
l.		public.products_prod_id_seq [TestDB on ayz2:54383]
1	Σ	public.my_avg(integer) [TestDB on ayz2:54383]
	8	tbsp_temp [TestDB on ayz2:54383]
		public.Employees [TestDB on ayz2:54383]
		Production.Orders [TestDB on ayz2:54383]
		Production [TestDB on ayz2:54383]

To change the number of objects that are considered 'recent', select the **Options** | **Environment Options** main menu<sup>[961]</sup> item, proceed to the **Tools** | **DB Explorer** section within the **Environment Options** dialog, and set the **Recent objects count** option value (see <u>Environment Options</u><sup>[971]</sup> for details).

#### See also:

<u>Database Objects Management</u> 155) <u>Environment Options</u> छरगे

## 3.7 Searching within the tree

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SQL Manager for PostgreSQL provides an ability to search for items within the **DB Explorer** tree. Searching for items may be useful if you have a lot of database objects, and it may be sometimes hard to find the one you need.

There are two search facilities implemented in SQL Manager for your convenience. You can search for objects within the **DB Explorer** tree in either of the following ways:

### • using the **Find Object** dialog

To call the **Find Object** dialog, right-click the **Database** alias, any database object group nodes or objects in the **DB Explorer** tree and select the **Find Object...** <u>context menu</u> [51] item, or use the Ctrl+F <u>shortcut</u> [100].

Find Object	<b>×</b>
Text to find HR	•
Options <u>C</u> ase sensitive <u>W</u> hole words only <u>R</u> egular expressions	Direction <ul> <li><u>F</u>orward</li> <li><u>B</u>ackward</li> </ul>
Scope <u>G</u> lobal <u>S</u> elected text	Origin <ul> <li><u>F</u>rom cursor</li> <li><u>E</u>ntire scope</li> </ul>
OK Show <u>A</u> l	Cancel <u>H</u> elp

Available search options are similar to those provided by the **Find Text** dialog. For detailed description of the search options refer to the Find Text dialog and page.

**Note:** You can specify whether the search will be performed within the entire tree or within the currently selected node only: toggle search mode using the 33 **Search by categories** button on the <u>Search Panel</u> 33, or use the corresponding option available in the <u>Tools</u> | <u>DB Explorer</u> section of the <u>Environment Options</u> 37 dialog.

#### • using the Search Panel

Type in the first letters in the edit-box, and the corresponding object will be highlighted in the tree, as displayed in the picture below. The  $\square$  buttons allow you to define the search direction.



By default, the **Search Panel** is activated in the upper area of DB Explorer. To disable the panel, right-click within the panel and deselect the checkbox at the corresponding popup menu item.

Search:	B			Ţ
		<b>~</b>	SQL Assistant	
		~	Search Panel	
			<u>C</u> ustomize	

The **Search Panel** also contains the button for switching the search mode which allows performing the search by object categories.

Hint: The Search Panel is dockable, i.e. you can drag it to any location within the DB Explorer form.

See also: Find Text dialog

## 3.8 SQL Assistant

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**SQL Assistant** which is located at the bottom of the **Database Explorer** window helps you to work with your <u>database objects</u> **b**. Depending on the current selection in DB Explorer, the SQL Assistant area displays additional information pertaining to the selected object.

ayz2:54383\DemoDB on ayz2:54383\Schemas\HR\Tables\EMPLOYEE					
Field	Туре	A			
EMP_ID	integer	=			
POSITION	varchar(40)				
FIRST_NAME	varchar(30)				
LAST_NAME	varchar(30)				
💷 GENDER	char(1)				
MARITAL_STATUS	char(1)	-			

If you select a **host** in DB Explorer, SQL Assistant displays the list of registered *databases* that reside on this host.

If you select a **database** in DB Explorer, SQL Assistant displays the list of the database *object groups* and *the number of objects* in each group.

If you select a **schema** in DB Explorer, SQL Assistant displays the schema *definition* (by default).

Selecting an **object group** in DB Explorer displays the list of the *objects* in SQL Assistant. Double-clicking the object name in **SQL Assistant** makes the object available for editing in the appropriate editor. The context menu of the object or group of objects (selected with the *Ctrl* or *Shift* keys pressed) allows you to edit or drop the selected objects.

If you select a **table** in DB Explorer, SQL Assistant displays the list of the table subobjects (e.g. *columns* and their *types*) by default. What is displayed in **SQL Assistant** when a table is selected in DB Explorer depends on the **Table Details** selection. Click the **View Mode**  $\underbrace{\text{Mot}}_{\text{Im}} \underbrace{\text{toolbar}}_{\text{Im}}$  button and select the **Table Details | Show...** drop-down menu item, or use the context menu of SQL Assistant. Possible values are: *Show Columns*, *Show Foreign Keys, Show Checks, Show Indexes, Show Triggers, Show Rules, Show Table Status, Show DDL, Show Description.* 

Selecting other objects in **DB Explorer** displays the definition in **SQL Assistant** by default. Use the **Other Objects' Details | Show...** context menu item within the SQL Assistant area to define the content of SQL Assistant when an object is selected in DB Explorer. Possible values are: *Show DDL, Show Description*.

tester1:54111\DemoD	B on tester1:541	11\Schen	n		
Column	Туре				
CUST_NO	integer		1	<b>~</b>	Show Columns
CUSTOMER	varchar(35)			-	Show Foreign Keys
CONTACT_FIRST	varchar(25)	L E	dit Objects		Show Checks
CONTACT_LAST	varchar(25)	D 🖳	rop Objects		Show Indices
	varchar(30)	Т	ables' Details		Chew Trianes
STATE_PROVINC	E varchar(10)		the oblight Details		Show riggers
COUNTRY	varchar(15)	0	ther Objects' Details		Show Rules
POSTAL_CODE	integer		]		Show Table Info
ON_HOLD	varchar(10)				Show DDL
			-		Show Description

You can also use **SQL Assistant** to work with your <u>queries</u> [413] quickly. You can drag-anddrop object aliases to the <u>Query Data</u> [415], <u>Design Query</u> [437] or <u>Execute Script Editor</u> [646] working area, in the same way as <u>this operation</u> [70] is performed in **Database Explorer**.

## See also:

Database Objects Management 155

# 3.9 Configuring Database Explorer

## **Configuring DB Explorer toolbar**

The <u>toolbar</u> [963] of Database Explorer contains most frequently used tools for working with databases and database objects, and a tool for configuring DB Explorer. The following actions are available in the toolbar by default:

• <u>create</u> 155 a new object;

83

- refresh the current tree branch;
- <u>connect</u> 68 to a database;
- disconnect [88] from a database;
- view the selected object properties;
- configure Database Explorer using the View Mode at menu;
- view the list of <u>recently opened objects</u> [77];
- jump to any of registered databases quickly.

Click **More buttons...** on the right side of the toolbar and use the **Add or Remove Buttons** popup menu items to define the set of actions available in the toolbar. To <u>customize</u> [988] the toolbar, select the **Add or Remove Buttons | Customize...** item from the popup menu.

🧧 Create 🛛 🛃 💢	N   🗗	<b>Ĩa - ™ - ⊒ - </b> -				
	<u>A</u> dd or	Remove Buttons 🔻				
	✓ 🗐	Create				
	<ul> <li>C</li> </ul>	Refresh Database	F5			
	<ul> <li>X</li> </ul>	Connect to Database	Shift+Ctrl+C			
	🖌 🏹	Disconnect from Database	Shift+Ctrl+D			
	<ul> <li>Image: Construction</li> </ul>	Object Properties				
	<ul> <li>Sp</li> </ul>	View Mode				
	< 🕑	Recent				
	- 4	Quick Jump to Database				
	<u>R</u> eset Toolbar					
		<u>C</u> ustomize				

## **Configuring the Search Panel**

Click **More buttons...** on the right side of the <u>Search Panel</u> and use the **Add or Remove Buttons** popup menu items to define the set of the panel elements. To <u>customize</u> with panel, select the **Add or Remove Buttons | Customize...** item from the popup menu.



### **Using View Mode menu**

Use the **View Mode b** toolbar button to configure **Database Explorer** according to your needs.

The drop-down menu called upon clicking this button allows you to:

- show/hide table subobjects as child nodes of tables 169;
- show/hide host nodes for registered databases [98];
- sort the list of databases by their aliases in the DB Explorer tree;
- show/hide disconnected databases [68];
- configure tables' details for the <u>SQL Assistant</u> [81] area;
- configure other objects' details for the <u>SQL Assistant [B1] area.</u>



Use the <u>DB Explorer</u> [82] section of the <u>Environment Options</u> [87] dialog (**Options** ] **Environment Options...**) to see more options to configure **Database Explorer**.

See also: Database Objects Management

# 3.10 Managing Favorite queries

85

**Favorite Queries** is a new feature of SQL Manager. Now you are provided with an opportunity to save the most frequently used SQL queries as Favorite Queries.

Use the **Favorite Queries** node of DB Explorer to access the list of your Favorite queries quickly. Queries stored in the database and those stored in Windows registry can be easily distinguished by their icons.

Using the context menu you can create a new Favorite query or edit an existing one using  $\frac{Favorites \ editor}{429}$ , open any of the existing queries in  $\frac{Query \ Data}{415}$  or remove a query if you don't need it any longer.

🗈 🔯 Reports	Ξ	
🖻 法 Favorite Queri	es (1)	
Employee re	view	
🍸 Projects 🔹	New Favorite Query	
🔤 Local Script 🛃	Edit Favorite Query	
new_db on ayz2	Remove 'Employee_review' from Favorite Queries	Shift+Ctrl+Del
Demo_DB on ay	Open in SOL Editor	
Test_DB on ayz		
🗄 🌏 AYZ2:54390 🛛 🙀	New Sub Folder	Shift+Ctrl+F
🔒 Databases	Rename Folder	
🚰 Windows List 💡	Database Registration Info	
2	Refresh Favorite Queries	F5
	Tabs	•
P	Find Object	Ctrl+F
1	Find Next Object	F3

You can also create a separate tab for your Favorite queries. See <u>Using tabs for database</u> <u>navigation</u> 75 section for details.

## See also:

<u>Using tabs for database navigation</u> 75ौ <u>Favorites editor</u> स्वि



# 4 Database Management

SQL Manager for PostgreSQL provides a number of tools you may need to manage your PostgreSQL databases.

Find the list of common database management operations for working in SQL Manager below.

#### **Unregistering host**

In order to unregister a host in SQL Manager for PostgreSQL:

- select the host to unregister in the <u>DB Explorer</u> (65) tree, then select the **Database** | **Unregister Host** <u>main menu</u> জিনী item or use the corresponding **G Unregister Host** toolbar জিনী button;
- right-click the host alias and select the **Unregister Host** <u>context menu</u> [52] item in the <u>DB Explorer</u> [65] tree;
- confirm unregistering in the corresponding dialog window.

#### **Creating database**

In order to create a database in SQL Manager for PostgreSQL:

- select the **Database | Create Database** <u>main menu</u> at item or use the corresponding **Create Database** <u>toolbar</u> button;
- set all the necessary options using <u>Create Database wizard</u> which guides you through the entire process of creating a new database.

#### **Dropping database**

In order to drop a database in SQL Manager for PostgreSQL:

- select the database to drop in the <u>DB Explorer</u> [65] tree;
- select the Database | Drop Database main menu left item;
- confirm dropping in the corresponding dialog window.

### **Registering database**

In order to register a single database in SQL Manager for PostgreSQL:

- select the **Database | Register Database...** <u>main menu</u> at item or use the corresponding **Register Database** toolbar button;
- right-click any database alias and select the **Register Database...** <u>context menu</u> [54] item in the <u>DB Explorer</u> [65] tree;
- set all the necessary options using <u>Register Database wizard</u> which guides you through the entire process of database registration.

#### **Unregistering database**

In order to unregister a database in SQL Manager for PostgreSQL:

- select the database to unregister in the <u>DB Explorer</u><sup>[65</sup>] tree, then select the **Database** | **Unregister Database** <u>main menu</u><sup>[96</sup>] item or use the corresponding **Database** <u>toolbar</u><sup>[963]</sup> button;
- right-click the database alias and select the **Unregister Database** <u>context menu</u> [54] item in the <u>DB Explorer</u> [65] tree;
- confirm unregistering in the corresponding dialog window.

#### **Connecting to database**

In order to connect to a database in SQL Manager for PostgreSQL:

- select the database to connect to in the <u>DB Explorer</u> [65] tree, then select the **Database** 
  - | Connect to Database main menu and item or use the corresponding 💐 Connect to

Database toolbar 83 button;

• right-click the database alias and select the **Connect to Database** <u>context menu</u> [54] item in the <u>DB Explorer</u> [65] tree.

#### **Disconnecting from database**

In order to disconnect from a database in SQL Manager for PostgreSQL:

- select the database to disconnect from in the <u>DB Explorer</u> [65] tree, then select the **Database** | **Disconnect from Database** main menu[961] item or use the corresponding
   Disconnect from Database toolbar [83] button;
- right-click the database alias and select the **Disconnect from Database** <u>context menu</u> [54] item in the <u>DB Explorer</u> [65] tree.

#### Viewing and editing database registration info

In order to view/edit database registration info in SQL Manager for PostgreSQL:

- select the database or any of its objects in the <u>DB Explorer</u> (65) tree, then select the **Database | Database Registration Info...** main menu (961) item;
- right-click the database alias or any of its objects and select the **Database Registration Info...** <u>context menu</u> [54] item in the <u>DB Explorer</u> [65] tree.

#### Viewing and editing database properties

In order to view/edit database properties in SQL Manager for PostgreSQL:

- select the database in the <u>DB Explorer</u> [65] tree;
- right-click the database alias and select the **Database Properties...** <u>context menu</u> [54] item or use the corresponding **Properties** <u>toolbar</u> [83] button.

#### See also:

<u>Getting Started</u> उभै <u>Database Explorer</u> िडी <u>Database Objects Management</u> गिडी <u>Change Management</u> उिभे <u>Query Management Tools</u> मि१ <u>Data Management</u> मिइटे <u>Import/Export Tools</u> जिडे <u>Database Tools</u> जिडे <u>Services</u> गि7 <u>Dotions</u> जिरे How To... जिल्हे

# 4.1 Create Database wizard

89

Create Database wizard allows you to create a new database on your PostgreSQL host.

To start the wizard, select the **Database | Create Database...** <u>main menu</u>ाती item, or use the **L Create Database** button on the main <u>toolbar</u> किंगे.

- <u>Setting database name</u> 90
- <u>Setting connection properties</u>
- <u>Specifying tunneling parameters</u> [93]
- <u>Setting advanced database properties</u>
- <u>Viewing result SQL statement</u> 97



See also: <u>Register Database wizard</u> <u>Database Registration Info</u> <u>Database Properties</u> 145

## 4.1.1 Setting database name

Use this step of the wizard to enter a **name** for the database being created.



### Register after creating

Check this option to register [98] the newly created database in SQL Manager (the Database Registration Info 108] dialog will be opened after database creation).

Click the **Next** button to proceed to the <u>Setting connection properties</u> at the wizard.

## 4.1.2 Setting connection properties

Use this step of the wizard to set the necessary **connection parameters** for the database being created. Use the corresponding boxes and options: *Host name*, *Port*, *User name* and *Password*.

Create Database Wizard		×
Create Database		
Set connection properties	for a new databas	e
	Host name	ayz ~ Port 54160
	<u>U</u> ser name	ayz
	Pa <u>s</u> sword	•••••
SQL Manager for PostgreSQL	Use tunneling Tunneling OSSH tunneling	g <u>H</u> TTP tunneling
Help		< <u>B</u> ack <u>N</u> ext > Cancel

Specify the host where the database being created will reside: type in the host name in the **Host name** field or select one in the drop-down list.

Enter PostgreSQL port to connect through in the **Port** field and provide *authorization* settings: **User name** and **Password**.

#### 🗹 Use tunneling

If this option is checked, you should set tunneling parameters at the *Specifying tunneling parameters* step of the wizard.

## Tunneling

#### SSH tunneling

Select this option to establish connection to an intermediate SSH server and forward all PostgreSQL commands through the secure tunnel. The next step of the wizard allows you to define the corresponding parameters for SSH tunneling.

#### HTTP tunneling

Select this option to access PostgreSQL server through the HTTP protocol in case of Internet access through HTTP proxy only, or if the server does not allow direct

connections to PostgreSQL, but allows HTTP connections. The next step of the wizard allows you to define the corresponding parameters for HTTP tunneling.

Click the **Next** button to proceed to the <u>Setting advanced database properties</u> step of the wizard.

## 4.1.3 Specifying tunneling parameters

93

This step of the wizard allows you to specify the necessary parameters for connection with **SSH** or **HTTP tunneling** used.

## **SSH Tunneling parameters**

Specify **SSH Host name**, **SSH port**, **SSH user name**, **SSH password**, the path to the **SSH key file** (if necessary) in the corresponding boxes.

See <u>SSH connection properties</u> [992] for details.

Create Data	abase Wizard			×		
Create	Database					
Set	tunneling properties f	or a new database				
		SSH <u>h</u> ost name	vadsrv	~		
		SSH <u>p</u> ort	22 -			
	19	SSH <u>u</u> ser name	tester			
		SSH pa <u>s</u> sword				
	SOL	Use Private Key for authentication				
	Manager	SSH key file	C:\SSHKeys\dsa_key.ppk	2		
Í	or					
	-osigresuL					
<u>H</u> elp			< <u>B</u> ack <u>N</u> ext >	Cancel		

## **HTTP Tunneling parameters**

If you have selected **HTTP tunneling** at the <u>first step</u> [99], you need to upload the tunneling *emsproxy.php* script to the webserver and specify the **URL** in the corresponding box in the following format: http://webserver\_address/emsproxy.php

See <u>HTTP connection properties</u> [994] for details.

Create Database Wizard		×
Create Database		
Set tunneling properties for a new	v database	
URL <b>SQL</b> Manager for PostgreSQL	http://webserver_name/emsproxy.php	~
<u>H</u> elp	< <u>B</u> ack <u>N</u> ext >	Cancel

Click the **Next** button to proceed to the <u>Setting specific options</u> [105] step or to the <u>Selecting databases</u> [103] step of the wizard, depending on whether the  $\mathbb{Z}$  **Register a single database** option has been selected or not.

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## 4.1.4 Setting advanced database properties

95

This step of the wizard allows you to set **advanced database properties** for the new database.

Create	Database Wizard		×	
Crea	ate Database			
,	Advanced database prop	erties		
		Template	DemoDB ~	
	BO	Encoding	UTF8 (Unicode, 8-bit) ~	
		Owner	postgres 🗸	
	SOL	Default tablespace	pg_default ~	
	Manager	Connection limit	25	
	for PostareSQL			
				_
H	elp		< <u>B</u> ack <u>N</u> ext > Cancel	

#### Location

Specify an alternate file system location in which the new database should be saved, specified as a literal string (for PostgreSQL 7.4 or lower).

#### Template

Use the drop-down list to select one of the existing databases on the host to indicate as a template for the database you create. Note that if you specified the template, your new database will contain all the data from the selected template.

#### Encoding

This option allows you to use multibyte encoding method in the new database. Use the drop-down list to select the required encoding value.

#### Owner

Use the drop-down list to select the name of the database user who will own the new database (for PostgreSQL 7.3 or higher). If no user is defined, then the currently connected user is used by default.

#### **Default Tablespace**

Use the drop-down list to set the default tablespace for objects of the database being created (for PostgreSQL 8.0 or higher).

## **Connection Limit**

Specify the time limit (in milliseconds, use -1 for unlimited) for connecting to the new database (for PostgreSQL 8.1 or higher).

When you are done, click the **Next** button to view the <u>result SQL statement</u> [97].

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## 4.1.5 Viewing result SQL statement

View the result *CREATE DATABASE* statement issued for the new database creation. You can alter the script manually, if necessary. For more information see <u>Changing Metadata</u> window [969].

Create Database Wizard		×
Create Database		
Result SQL statement. Cli	ck the Run button to create a new database.	
	Result SQL statement:	
EEE SQL Manager for PostgreSQL	CREATE DATABASE "DellStore" WITH OWNER = postgres ENCODING = 'UTF8' TABLESPACE = pg_default TEMPLATE = "DemoDB" CONNECTION LIMIT = 25;	
	Click "Run" to create the database.	>
Help	< <u>B</u> ack <u>R</u> un	Cancel

If the **Register after creating** option was checked at the <u>Setting database name</u> step of the wizard, the <u>Database Registration Info</u> dialog will appear.

# 4.2 Register Database wizard

98

**Register Database Wizard** allows you to register a single database.

To start the wizard, select the **Database | Register Database...** <u>main menu</u> (and item, or use the **Register Database** button on the main <u>toolbar</u> (and item). You can also use the *Shift+Alt+R* <u>shortcut</u> (not) for the same purpose.

- Setting connection parameters [99]
- Specifying tunneling parameters 101
- Selecting databases 103
- Setting specific options 105



### See also:

<u>Create Database wizard</u> छि <u>Database Registration Info</u> गिछी <u>Database Properties</u> गिकी

## 4.2.1 Setting connection parameters

Use this step of the wizard to set the necessary **connection parameters** for the new database/host using the corresponding boxes and options: *Host name*, *Port*, *User name* and *Password*.

Register Database Wizard			
Register Database			
Specify the connection p	arameters		
	Welcome to the Register Database Wizard! This wizard allows you to set the connection parameters for the selected databases only once, giving you the possibility to connect them quickly afterwards. This wizard will guide you through the process of setting the connection parameters, selecting databases, and customizing their specific options.		
SQL	Host name ayz2   Port 54383		
Manager	<u>U</u> ser name	ayz	
PostgreSQL	Password	******	
	Register a sing     Use tunneling     Tunneling     SSH tunneling	le database	
Help		< <u>B</u> ack <u>N</u> ext > Cancel	

Specify the host you are going to work with: type in the host name in the **Host name** field or select one in the drop-down list.

Enter PostgreSQL port to connect through in the **Port** field and provide *authorization* settings: **User name** and **Password**.

#### Register a single database

Check this option if you wish to register only one database at the host.

#### Use tunneling

If this option is checked, you should set tunneling parameters at the *Specifying tunneling parameters* step of the wizard.

#### Tunneling

#### SSH tunneling

Select this option to establish connection to an intermediate SSH server and forward all PostgreSQL commands through the secure tunnel. The next step of the wizard allows you to define the corresponding parameters for SSH tunneling.

#### HTTP tunneling

Select this option to access PostgreSQL server through the HTTP protocol in case of Internet access through HTTP proxy only, or if the server does not allow direct connections to PostgreSQL, but allows HTTP connections. The next step of the wizard allows you to define the corresponding parameters for HTTP tunneling.

Click the **Next** button to proceed to the <u>Setting specific options</u> 105 step or to the <u>Selecting databases</u> 103 step of the wizard, depending on whether the **Register a single database** option has been selected or not.

## 4.2.2 Specifying tunneling parameters

This step of the wizard allows you to specify the necessary parameters for connection with **SSH** or **HTTP tunneling** used.

## **SSH tunneling parameters**

Specify **SSH Host name**, **SSH port**, **SSH user name**, **SSH password**, the path to the **SSH key file** (if necessary) in the corresponding boxes.

See <u>SSH connection properties</u> [992] for details.

Register Database Wizard				
Register Database				
Specify the Secure Shell	(SSH) tunnel parameter	s		
Contraction of the second seco	SSH <u>h</u> ost name SSH <u>p</u> ort SSH <u>u</u> ser name SSH pa <u>s</u> sword I Use Private Key f SSH <u>k</u> ey file	vadsrv 22 tester tor authentication C:\SSHKeys\dsa_key.ppk		
Help		< <u>B</u> ack <u>N</u> ext > Cancel		

#### **HTTP tunneling parameters**

If you have selected **HTTP tunneling** at the <u>first step</u>[99], you need to upload the tunneling *emsproxy.php* script to the webserver and specify the **URL** in the corresponding box in the following format: http://webserver\_address/emsproxy.php

See <u>HTTP connection properties</u> [994] for details.



Click the **Next** button to proceed to the <u>Setting specific options</u> 105 step or to the <u>Selecting databases</u> 103 step of the wizard, depending on whether the **Register a single database** option has been selected or not.

## 4.2.3 Selecting databases

This step of the wizard allows you to select the database(s) that reside on the host for registration in SQL Manager.

To select a database, you need to move it from the **Available databases** list to the **Selected databases** list. Use the **Selected databases** list. Use the **Selected databases** list to another.

Register Database Wizard			x
Register Database			
Select databases to registe	er		
EFFECTIVE SQL Manager for PostgreSQL	Available databases 1 89 AutoGis3 DellStore Demo_DB Demo_DB alex antonio asasasa ayz ayz2_comp3201 ayz2_compared ayz_moved ayz_moved	Selected databases   □   □   □   □   □   □   □   □   □   □   □	
Help		< <u>Back</u> <u>N</u> ext > Canc	el

If database is created by executing script in  $\underline{SQL \ Script}$  [646] editor then the **Register Database** dialog appears.

Move required databases to the Selected databases list of the window and click  $\mathbf{OK}$  to register databases.

Register Database		
Databases		
Select databases to register		
Available databases	Selected databases	
	test1 on doom_server	
	OK Cancel Help	

**Note:** This dialog appears only if the **Register newly created databases** option is enabled in the <u>SQL Script</u> [892] section of <u>Environment Options</u> [871].

**Note:** In the **Lite version** you can register only five databases.

Click the **Next** button to proceed to the <u>Setting specific options</u> step of the wizard.

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## 4.2.4 Setting specific options

This step of the wizard allows you to set database alias, database options, logs and SSL parameters.

Register Database Wizard			
Register Database			
Set some specific options	for registered database(s) and	click the Run button	
	Database	Alias	
	😑 TestDB	TestDB on ayz2:54383(1)	
	E Test_DB	Test_DB on ayz2:54383(1)	
SQL Manager	Database SSL Logs		
for	Database <u>a</u> lias	TestDB on ayz2:54383(1)	
PostgreSQL	Client <u>e</u> ncoding	< Not Set >	
	<u>F</u> ont charset	DEFAULT_CHARSET	
	Login prompt before con	nection Show system objects	
	Refresh objects on conr	nection Autoconnect on startup	
	Ping server every		
	600 📩 seconds		
Help		< <u>B</u> ack <u>E</u> inish Cancel	

#### Database

#### Database name

Type in or use the drop-down list to select the database to be registered.

#### **Client encoding**

This option allows you to use multibyte encoding method in the database. Use the dropdown list to select the required encoding value, or leave this option to apply the default server encoding.

Auth. method - selecting the authentication method when connecting to the database.

#### **I** Login prompt before connection

Enables SQL Manager for PostgreSQL to prompt [997] for user name and password each time you <u>connect</u> [68] to the database.

### **Refresh objects on connection**

This option allows you to enable/disable refreshing objects on connection to the database. It is highly recommended to uncheck this option if your database contains many objects or if connection to the database is slow.

### Autoconnect at startup

With this option set, <u>connection</u> [68] to the registered database is established automatically at application startup.

### Show system objects

If this option is checked, PostgreSQL system objects will be displayed in <u>DB Explorer</u> [65].

#### Ping server every ... seconds

Defines minimal time interval for PostgreSQL server to be pinged. You may find this option useful in some cases.

SSL

Database SSL	Logs
SSL mode	Prefer v
Root certificate	C:\SSL\root.crt
Client certificate	C:\SSL\postgresql.crt
Client key	C:\SSL\postgresql.key
Revocation list	<u>a</u>

Select the preferable **SSL mode**: *Disabled*, *Allow*, *Prefer*, *Require*, *Verify CA*, *Verify Full*. *Allow*, *Prefer*, *Required*, or *Disabled*.

## **Root certificate**

Select the path to the client root.crt file.

#### **Client certificate**

Select the path to the client certificate.

#### Client key

Select the path to the client private key.

#### **Revocation list**

Select the file for Certificate Revocation List.

#### Logs

Database SSL	Logs	
Enable log of me	etadata changes	V Is Unicode
Log <u>f</u> ile	C:\EMS\SQL Manager for Postg	reSQL\Logs\MetadataCha
Enable log of SC	L Editor gueries	V Is Unicode
Log file	C:\EMS\SQL Manager for Postg	reSQL\Logs\SQLEditorLog

## Enable log of metadata changes

Check this option if you wish to log metadata changes of your database in a file.

#### Log file

This field is enabled if the **Enable log of metadata changes** option is selected. Type in or use the **Save as**  $\blacksquare$  button to specify the path to the \*.sql file to store the metadata logs.

### **Enable log of Query Data queries**

Check this option if you wish to log your <u>Query Data 415</u> queries in a file.

### Log file

This field is enabled if the **Enable log of Query Data queries** option is selected. Type in or use the **Save as**  $\blacksquare$  button to specify the path to the \*.sql file to store the logs of SQL queries.

#### 🗹 Is Unicode

Enable this option to save logs in Unicode. If the option is disabled, ANSI will be used.

Click the **Finish** button when done to start working with the newly registered database in SQL Manager for PostgreSQL.

# 4.3 Database Registration Info

Use the **Database Registration Info** dialog to view and edit the registration properties of the database.

To open the dialog, select the database or any of its objects in the <u>DB Explorer</u> (65) tree, then select the **Database** | **Catabase Registration Info...** <u>main menu</u> (96) item, or right-click the database alias in <u>DB Explorer</u> (65) and use the **Database Registration Info...** <u>context menu</u> [54] item. You can also use the **Catabase Registration Info...** button on the main toolbar (963).



- Editing connection properties 109
- Setting database options
- <u>Setting display options</u>
- Setting default directories 116
- <u>Setting log options</u> 117
- Setting SSL options 119
- <u>Setting SSH tunneling options</u>
- <u>Setting HTTP tunneling options</u>
- <u>Setting data options</u>
- Find Option 144

### See also:

<u>Create Database wizard</u> ८८९ <u>Register Database wizard</u> १९८ <u>Database Properties</u> 145
# 4.3.1 Connection

The **Connection** section of the **Database Registration Info** dialog allows you to view and/or edit the connection properties in the corresponding boxes.

Database Registration Info		×
Connection	Connection	
···· ☑ Options ···· র্ম্ভ Session Settings	<u>H</u> ost name	testing-pg v Port 54160
	<u>U</u> ser name	postgres
E Logs	Pa <u>s</u> sword	
SSL SSL	<u>D</u> atabase name	AdventureWorks ~
SSH Tunneling	Database <u>a</u> lias	AdventureWorks on TEST
Data Options	<u>H</u> ost alias	TEST
Change Management	Client encoding	UTF8 (Unicode, 8-bit) ~
	<u>R</u> equire auth	md5 $\checkmark$
Test Connection Los	ad Connection Info 🗸	OK <u>C</u> ancel <u>H</u> elp

### Host name

Stores the name of the Host where the database resides.

## Port

Enter PostgreSQL port to connect through.

#### **User name**

If necessary, edit the User name used to access the database.

# Password

If necessary, edit the Password used to access the database.

#### Database name

Stores the name of the database.

#### **Database alias**

Stores the database alias which is displayed in the <u>DB Explorer</u> [65] tree and SQL Manager tools. By default, a database alias generated by the application has the following format:

<database\_name> on <host\_name>[:<port>]

## Host alias

Set the alias for the current host to be displayed in the DB Explorer.

### **Client encoding**

This option allows you to use multibyte encoding method in the database. Use the dropdown list to select the required encoding value, or leave this option to apply the default server encoding.

### Auth method

Select the authentication method on connecting to the database.

Once you have specified the connection properties, you can check whether it is possible to establish connection to the database: click the **Test Connection** button for this purpose. If connection is successful, you will get the 'Connected!' message; otherwise an error message will be returned.

The **Load Connection Info...** menu allows you to select the alias of a previously registered database and use it for the newly created/configured database.

# 4.3.2 Options

The **Options** section of the **Database Registration Info** dialog allows you to set various options for the database.

Database Registration Info	
Connection Options Session Settings Display Options Change Management Find Option	Options            Login grompt before connection         Show system objects         Autoconnect on startup         Refresh objects on connection         Schema-organized database tree         Ping server every <u>600 x</u> seconds
Test Connection	Copy From V OK Cancel Help

Customize common database options according to your needs. The detailed description is given below.

## **I** Login prompt before connection

Enables SQL Manager for PostgreSQL to prompt [997] for user name and password each time you <u>connect</u> [68] to the database.

# Show system objects

This option determines whether PostgreSQL system objects are displayed in the  $\underline{DB}$  Explorer [65] tree.

### Autoconnect at startup

Check this option to specify that SQL Manager for PostgreSQL automatically establishes connection to the registered database at application startup.

## Refresh objects on connection

This option allows you to enable/disable refreshing objects on connection to the database. It is highly recommended to uncheck this option if your database contains

many objects or if connection to the database is slow.

## Schema-organized database tree

If this option is disabled, the object tree is built without grouping into schemas.

# Ping server every ... seconds

Defines minimal time interval for PostgreSQL server to be pinged. You may find this option useful in some cases.

# 4.3.3 Session settings

The **Session Settings** section of the **Database Registration Info** dialog allows you to define specific server parameters according to your needs.

Database Registration Info		
Connection	Session Settings	
Options	Specify PostgreSQL con	figuration parameters that will be initialized on
Display Options	connection to the databa	se.
C Directories	Parameter Name	Parameter Value
- 🕞 Logs	application_name	'EMS SQL Manager for PostgreSQL'
SSL SSL	debug_assertions	off
👘 SSH Tunneling		
HTTP Tunneling		Add Parameter Ctrl+Ins
Data Options		Edit Daramatar Otdi-Enter
Eind Ontion		
		Delete Parameter Ctrl+Del
		Export Data
	Note! The parameters st within the program and th	atement_timeout, DateStyle, client_encoding are used neir values cannot be set
	mann are program and a	
Test Connection	Copy From	OK <u>C</u> ancel <u>H</u> elp

Right-click an item within the list to call the **context menu** allowing you to *add/edit/ remove* a parameter and export parameters list to a file of preferable format by means of the Export Data Wizard [536].

The following dialog appears on adding or editing parameters.

Add Parameter		×
Parameter name	application_name	
Value	EMS SQL Manager for PostgreSQL	
Parameter Info		
Туре	string	
Context	user	
Source	session	
Minimum value		
Maximum value		
Description		
Sets the appl: in statistics	ication name to be reported 🔺 and logs.	
	Ŧ	
	<u>O</u> K <u>C</u> ancel <u>H</u> elp	

This dialog allows you to change the *parameter name*, set its *value*, browse *parameter info* and supply a *description*, if necessary.

To obtain more information on specific parameters, refer to PostgreSQL documentation.

# 4.3.4 Display options

The **Display Options** section of the **Database Registration Info** dialog allows you to specify which <u>objects</u> will be displayed in the <u>Database Explorer</u> (65) tree.

# **Use custom color for DB editors**

With this option checked the text color for editor tabs is black. To apply user font color uncheck the option and select the color.

Connection	Display Options	
Options	Use custom color for DB editor	s #00000
Display Options Directories Logs SSL SSL SSH Tunneling HTTP Tunneling Data Options Change Management Find Option	<ul> <li>✓ Tables</li> <li>✓ Tables</li> <li>✓ Views</li> <li>✓ Procedures</li> <li>✓ Functions</li> <li>✓ Domains</li> <li>✓ Rules</li> <li>✓ Triggers</li> <li>✓ Indices</li> <li>✓ Sequences</li> <li>✓ Composite Types</li> <li>✓ Enum Types</li> <li>✓ Range Types</li> <li>✓ Base Types</li> <li>✓ Aggregates</li> </ul>	<ul> <li>Operators</li> <li>Collations</li> <li>Event Triggers</li> <li>Tablespaces</li> <li>Foreign Servers</li> <li>Foreign Data Wrappers</li> <li>Languages</li> <li>Statistics</li> <li>Reports</li> <li>Favorite Queries</li> <li>Local Scripts</li> <li>Shared Scripts</li> <li>Favorite Objects</li> </ul>

For your convenience the *Select All* and *Deselect All* functions are implemented in the **context menu** of the objects list area.

# See also:

Database Objects Management 1155

# 4.3.5 Directories

The **Directories** section of the **Database Registration Info** dialog allows you to set the directories to be used by default for <u>database extract</u> [653], <u>data export</u> [536], <u>data import</u> [582], <u>saving HTML reports</u> [686], <u>creating reports</u> [693], saving <u>Local Scripts</u> [335] operations.

Database Registration Info	
Database Registration Info	Directories         Default directory for Extract Metadata         C:\EMS\SQL Manager for PostgreSQL\Metadata\ayz on ayz2 54392\         Default directory for Export Data         C:\EMS\Documents\SQL Manager for PostgreSQL\Exports\ayz on ayz2 5         Default directory for Import Data         C:\EMS\Documents\SQL Manager for PostgreSQL\Imports\ayz on ayz2 5         Default directory for Import Data         C:\EMS\Documents\SQL Manager for PostgreSQL\Imports\ayz on ayz2 5         Default directory for HTML Report         C:\EMS\Documents\SQL Manager for PostgreSQL\HTMLReports\ayz on ayz2 5         Default directory for Reports         C:\EMS\Documents\SQL Manager for PostgreSQL\Reports\ayz on ayz2 5         Default directory for Local Scripts         C:\EMS\Documents\SQL Manager for PostgreSQL\Reports\ayz on ayz2 5
Test Connection	Copy From   Copy From

# 4.3.6 Logs

The **Logs** section of the **Database Registration Info** dialog allows you to specify log file names for metadata changes logging and SQL query logging, if necessary.

Logging can be useful when you are going to move the changes made in the development database to the production database.

Database Registration Info		×
Database Registration Info Connection Options Session Settings Display Options Logs SSL SSL SSH Tunneling Ota Options Change Management	Logs         Metadata changes         ✓ Enable log of metadata changes         Metadata log file         D:\Docs\script.sql         Query data         ✓ Enable log of Query Data gueries         Query Data log file         D:\Docs\script.sql	×
SSL SSL SSH Tunneling HTTP Tunneling Data Options Change Management Find Option	Query data C Enable log of Query Data gueries Query Data log file D:\Docs\query.sql	
Test Connection Lo	ad Connection Info V OK Cancel H	lelp

# Metadata changes

# Enable log of metadata changes

Check this option if you wish to log metadata changes of your database in a file.

## Metadata log file

This field is enabled if the **Enable log of metadata changes** option is selected. Type in or use the **Save as**  $\blacksquare$  button to specify the path to the \*.sql file to store the metadata logs.

## **Query data**

## Enable log of Query Data queries

Check this option if you wish to log your <u>queries</u> [415] in a file.

## **Query Data log file**

This field is enabled if the **Enable log of Query Data queries** option is selected. Type in or use the **Save as** button to specify the path to the \*.sql file to store the logs of SQL queries: date/time of query execution, SQL text, execution result or errors (if any).

# 🗹 In Unicode

Enable this option to save logs in Unicode. If the option is disabled, ANSI will be used.

# 4.3.7 SSL options

The **SSL** tab allows you to connect to the server via encrypted channel for increased security.

# SSL mode

Select the required SSL mode from the dropdown menu: *Disabled*, *Allow*, *Prefer*, *Require*, *Verify CA*, *Verify Full*.

Database Registration Info		
Connection	SSL	
Options     Session Settings	SSL mode	Prefer v
Display Options	Root certificate	C:\SSL\root.crt
Directories	Client certificate	C:\SSL\postgresql.crt
SSL SSL	Client key	C:\SSL\postgresql.key
SSH Tunneling     HTTP Tunneling     Data Options     Change Management     Find Option	Revocation list	
Test Connection	Copy From	▼ OK <u>C</u> ancel <u>H</u> elp

# Root certificate

Select the path to the client root.crt file.

#### **Client certificate**

Select the path to the client certificate.

#### **Client key**

Select the path to the client private key.

# **Revocation list**

Select the file for Certificate Revocation List.

# 4.3.8 SSH tunneling options

The **SSH Tunneling** section of the **Database Registration Info** dialog allows you to enable/disable SSH tunneling for connection to the database and set all the necessary SSH tunneling parameters.

### Connect through the Secure Shell (SSH) tunnel

Select this option to establish connection to an intermediate SSH server and forward all PostgreSQL commands through the secure tunnel.

Specify **SSH Host name**, **SSH port**, **SSH user name**, **SSH password**, the path to the **SSH key file** (if necessary) in the corresponding boxes.

See <u>SSH connection properties</u> [992] for details.

**Note:** PostgreSQL host name on the <u>Connection</u> [109] page should be set relatively to the SSH server in this case. For example, if both PostgreSQL and SSH servers are located on the same computer, you should specify *localhost* as **Host name** instead of the server's external host name or IP address.

Database Registration Info		<b>x</b>
Connection	SSH Tunneling	
Options		
Session Settings	Connect through th	e Secure SHell (SSH) tunnel
Display Options	SSH <u>h</u> ost name	vadsrv
C Directories	SSH port	22
🕞 🕞 Logs	- emen name	tester
SSL SSL	SSIT <u>u</u> ser name	105101
SSH Tunneling	SSH password	*******
HTTP Tunneling	Use Private Key for	authentication
Data Options	SSH key file	C:\SSHKeys\dsa_key.ppk
Change Management		
Find Option		
	Note: You cannot conne simultaneously. The HT tunnel. SSL connections are no	ect through the SSH tunnel and the HTTP tunnel TP tunnel will be disabled when you select the SSH at available when SSH tunnel is enabled.
Test Connection	Copy From	OK <u>C</u> ancel <u>H</u> elp

Please note that either *SSH tunneling*, or *HTTP tunneling* can be used for one connection, but not both types simultaneously.

See also: <u>HTTP tunneling options</u>122

# 4.3.9 HTTP tunneling options

The **HTTP Tunneling** section of the **Database Registration Info** dialog allows you to enable/disable HTTP tunneling for connection to the database and set the necessary HTTP tunneling parameters.

# Connect through the HTTP tunnel

Select this option to access PostgreSQL server through the HTTP protocol in case of Internet access through HTTP proxy only, or if the server does not allow direct connections to PostgreSQL, but allows HTTP connections.

In order to use HTTP tunneling for the connection, you need to upload the tunneling *emsproxy.php* script to the webserver and specify the **URL** in the corresponding box in the following format: http://webserver\_address/emsproxy.php

See <u>HTTP connection properties</u> [994] for details.

**Note:** In case of using this connection method, the response will be slower as compared to the direct connection or SSH Tunneling method, as the data are XML encoded and HTTP is stateless by nature.

Database Registration Info	
Database Registration Info	HTTP Tunneling         Connect through the HTTP tunnel         URL       http://webserver_name/emsproxy.php         Note: You cannot connect through the HTTP tunnel and the SSH tunnel simultaneously. The SSH tunnel is disabled when you select the HTTP tunnel.         Attention: Transactions are not supported with HTTP tunneling enabled.         EMSProxy.php is available in installation directory of the program.
Test Connection	Copy From

Please note that either *SSH tunneling*, or *HTTP tunneling* can be used for one connection, but not both types simultaneously.

See also: SSH tunneling options<sup>[120]</sup>

# 4.3.10 Data options

The **Data Options** section of the **Database Registration Info** dialog allows you to define options for <u>data view</u> [453]. These options will be applied only to this database. Default settings for newly registered databases can be defined on the <u>Grid | Data Options</u> [912] page of the <u>Environment Options</u> [871] dialog.

Database Registration Info	×
Database Registration Info Connection Options Session Settings Display Options Directories Logs SSL SSL SSH Tunneling Data Options Change Management Find Option	Data Options         Default limit options in table and view editors         ○ Select all records from a table         ③ Select only       1000 🐑 records         Advanced         □ Use transactions in object editors, Query Data and Design Query         ☑ Asynchronous query execution *         ☑ Use separate connections for each data view within a database *         □ OID columns as BLOB         □ TIMESTAMP columns as string         Default grid mode         ④ Load all records         ○ Load visible records         Load visible rows mode if records more than
Test Connection Loa	Note: Changes of these options do not influence the way data are viewed in currently opened windows.

## Default limit options in table and view editors

Define the number of records to be selected on opening the **Data** tab of <u>Table Editor</u> 177 and <u>View Editor</u> 229:

Select all records from a table

Select only ... records (you should set the number of records using the corresponding spinner control)

#### Advanced

# **W** Use transactions in object editors, Query Data and Design Query

If this option is enabled, a transaction is active until the 'Data' tab is closed or the 'Commit' button is pressed; all edited records are blocked until the transaction is committed. If this option is disabled, the transaction starts and is immediately committed (autocommit) on saving each record which is blocked only for a short period of time.

#### Asynchronous query execution

Check this option to allow executing queries in background mode (asynchronously).

## Use separate connections for each data view within a database

Select this option to use a separate connection for each <u>data view</u> [453] within a database. Disabling this option is recommended if maximum allowed number of connections is too low. Note that this option is only available when the *Use transactions in Data tab of object editors, Query Data and Design Query* option is enabled.

## I OID columns as BLOB

Enable this option if you want the OID column to be displayed as a BLOB (OID - object ID - the object identifier of a row).

### Default grid mode

It defines grid mode which will be used by default on Data tab.

#### Load all records

The grid loads all records from a dataset. This option increases the grid performance by reloading only changed dataset records when updating. In this mode all features (automatic sorting, filtering and summary calculations) are available.

#### Load visible records

The grid loads only a fixed number of dataset records into memory. This option minimizes dataset loading time. The automatic sorting, filtering, summary calculations are not supported in this mode.

With the **Load all records** option enabled, when loading data, all the records are loaded into grid buffers. In this mode opening the tables with many records may take a very long time. But in this case you have some advantages: e.g. in the filter drop-down list the column headers are displayed with the values for quick filter; it is possible to open several sublevels at the same time when viewing data in master-detail view, etc. Because opening and other operations with an object consisting of many records takes sufficient time the **Load visible records** mode should be used instead. It can be set individually for each table and is saved between sessions (can be set through the <u>context</u> menu [466] of the grid).

### Load visible rows mode if records more than...

Set this option to switch to the **Load visible rows** mode when the number of records in the dataset exceeds the specified value.

## See also:

<u>Data View</u> 453 Grid options 909

# 4.3.11 Change management

The **Change Management** section of the **Database Registration Info** dialog allows you to define settings for database version control.

<u>Change management</u> system (Version control system) enables teamwork under a project.

This system can be useful for single developers, whose databases have complex business logic in procedures, triggers etc. Version control system (VCS) provides change management means to control changes of objects.

VCS contains service information about database added to system, about databases included to a branch etc. If the database backup is created on client workstation, then the label backup will be stored in VCS repository. If the backup is created on server, VCS system only remembers its location.

Version control in SQL Manager for PostgreSQL provides:

- Systematization of release new versions of database process;
- Storing different database versions;
- Tracking of database changes ;
- Getting (storing, testing) change scripts which reveal differences between two database states;
- Possibility to rollback database to definite state;
- Control of database changes.
- For database administrators:
- Control of database changes.

## Enabled

Use this option to enable/disable change management feature for the database. Enabling this option provides access to the VCS settings.

**Note:**  $\frac{1}{100}$  Databases with Change Management enabled can have different icon in the <u>DB</u> <u>Explorer</u> [65] tree.

Click the corresponding button to launch the <u>Repository management wizard</u> [129]. It allows you to *create/check out* repository.

Connection	Change Management	
Options     Session Settings     Display Options     Directories     Logs     SSL SSL     SSH Tunneling     MTTP Tunneling     Data Options	Enabled Version control provider Source provider User name Password	Repository Management Wizard         Team Foundation Server       ✓         TFSSETUP         ••••••         Properties
Change Management	Location Version control project Working folder Branch name	\$/TestTeamProject/SSN/ayz E:\Repository\SSN\ayz Copy From

# **Version control provider**

### Source provider

Use the drop-down list to select version control provider.

The following versions of the VCS providers are supported:

- CVS (version 1.9 or higher)
- Microsoft Visual SourceSafe (version 8.0)
- Team Foundation Server (2005, 2008, 2010)

Client program installation is required for each version control system.

**Note:** .Net Framework 4.0 must be installed for working with 2005/2008 Team Foundation Server.

Specify User Name and Password if VCS repository requires authorization.

The **Properties** button opens the **Provider Settings** dialog. Use this dialog to view/edit or test the selected VCS provider settings:

<u>CVS</u>138 <u>SVN</u>139 <u>VSS</u>140 <u>TFS</u>141

#### Location

#### Version control project

Use this field to define the location of VCS project. Format of the server path depends on the VCS selected.

## Working folder

Specify the location of the local repository directory.

#### **Branch name**

Displays name of the database branch. The branch containing information about current database is selected automatically. If there is no branch with information about current database in VCS, the <u>Version Control Branches dialog</u> [142] appears. Use this dialog to select the branch to link with the current database.

The **Copy From...** allows you to get repository settings from any of the registered databases with VCS settings defined.

See also: Enable change management Create branch/label/tag Check repository Get change script Release new database version Changes history 406

# 4.3.11.1 Repository management wizard

This wizard allows you to create VCS repository for the database or checkout the existing one. See the instructions below to get sufficient information to perform the operation.

Wersion Control Repository Management Wizard		
Version Control Repository Management		
Select the operation		
Bo	Welcome to the Repository Management Wizard! This wizard allows you to create new change management repository or checkout an existing one.	
SQL Manager	The wizard will guide you through the following steps: 1. Choosing version control system and configuring it. 2. Selecting repository location. 3. Performing the operation.	
for PostgreSQL	Please select operation you would like to perform.	
	Checkout an existing database repository from version control project	
Help     Copy From       ▼     < Back       Next >		

<u>Selecting operation</u> <u>Selecting version control provider</u> <u>Solution control provider</u> <u>Specifying provider settings</u> <u>Specifying repository settings</u> <u>Defining label options</u> <u>Performing operation</u> [137]

#### 4.3.11.1.1 Selecting operation

This step of the wizard allows you to select the operation to be performed.



It is possible either to **O** Create new repository or **O** Checkout an existing one.

**Note:** If you are using VCS system for the first time select the **O Create new repository** mode.

Click the **Next** button to proceed to the <u>Selecting version control provider and</u> step of the wizard.

4.3.11.1.2 Selecting version control provider

Use this step to select version control provider:

- Oncurrent Version System,
- Subversion,
- Visual SourceSafe,
- Team Foundation System.

👸 Version Control Repository	Management Wizard	×
Version Control Reposito	y Management	
Select version control prov	der	
EFFE	Version Control provider Concurrent Versions System (CVS) Subversion (SVN) Visual SourceSafe (VSS) Team Foundation System (TFS)	
Help Copy From	▼ < <u>B</u> ack <u>N</u> ext > Ck	ose

Click the **Next** button to proceed to the <u>Configuring version control provider</u> (132) step of the wizard.

#### 4.3.11.1.3 Configuring provider settings

This step of the wizard contains the set of options necessary to define the version control repository.

Set of options available in this step depends on the provider selection made in the <u>Selecting version control provider (131)</u> step of the wizard: <u>CVS</u>[132] <u>SVN/VSS</u>[133] TFS[134]

## 4.3.11.1.3.1 CVS

This step of the wizard contains settings available for CVS provider.

👸 Version Control Repository	Management Wizard		<b>—</b> ×
Version Control Repository Management			
Configure provider setting	3		
SQL Manager for PostgreSQL	Provider settings User name Password CVS executable C:\CVS\cvs.exe CVSROOT Use environment variable Use custom value	:local:C:\cvs_rep	est
Help Copy From	n 🔽	< Back Next > Ck	ose

Specify **Username** and **Password** to authorize to the repository.

### **CVS** executable

Use this field to locate the 'cvs.exe' file. Type the path to the file or use the  $\bigcirc$  **Explorer** button to locate it within the Open dialog.

## CVSROOT

This section allows you to define CVSROOT variable's value - set protocol, repository

location, default user name and so on. At least the CVS repository location must be specified. You can **O Use environment variable** or specify **O custom value**.

To check the defined repository settings click the **Test** button.

Click the **Next** button to proceed to the <u>Specifying repository settings</u> as step of the wizard.

#### 4.3.11.1.3.2 SVNVSS

Use this step to define **Subversion/Visual SourceSafe** version control provider settings.

📆 Version Control Repository	Management Wizard		<b>X</b>
Version Control Repository Management			
Configure provider settings			
SQL Manager for PostgreSQL	Provider settings User name Password Subversion client libraries pa C:\Repository\Source Safe\s	th srcsafe.ini	Test
Help Copy From	<b></b>	< Back Next >	Close

Specify **Username** and **Password** to authorize to the repository.

Locate the **SourceSafe database file** for the VSS or **Subversion client libraries path** for the SVN using the corresponded field. You can click the B **Explorer** button to define file location.

To check the defined repository settings click the **Test** button.

Click the **Next** button to proceed to the <u>Specifying repository settings</u> 1351 step of the

wizard.

## 4.3.11.1.3.3 TFS

Use this step to define settings for **Team foundation server** version control provider.

📆 Version Control Repository Management Wizard		
Version Control Repository Management		
Configure provider setting	S	
EFFECTION OF CONTRACT OF CONTRACT.	Provider settings User name Password Server http://server:8080 Workspace AYZ2	tfssetup  *****  ****   Test Client Test Connection
Help Copy Fro	m 🔻	< <u>B</u> ack <u>N</u> ext > Close

Specify **Username** and **Password** to authorize to team foundation server.

## Server

Define HTTP-address of the TFS server. For example: 'http://server:8080' or 'http:// localhost:8080'.

#### Workspace

Select the workspace on the TFS server to be used with repository.

Click the **Test client** button to check TFS client availability. Click the **Test connection** button to check connection to the TFS server with the settings defined above.

Click the **Next** button to proceed to the <u>Specifying repository settings</u> [135] step of the wizard.

#### 4.3.11.1.4 Specifying repository settings

Use this step of the wizard to define repository location.

🖥 Version Control Repository Management Wizard		
Version Control Repository Management		
Specify repository setting	8	
Specify repository settings         Image: Sql garge specify repository specific repository location         Sql garge specific repository specific repository name in the server and locat path         Repository name       demodb_pg         The wizard will create a new folder with the repository name in the server and locat paths.         For example, to create CVS repository folder 'server/db/my_db' and place it to 'c'(CVS\DB\'my_db' local working folder, please specify' 'server/db' as Server path,         'C:(CVS\DB\'my_db' local path (it is checked out from 'server/db'), 'my_db' as Repository name.		
<u>H</u> elp Copy From ▼ < <u>B</u> ack <u>N</u> ext > Close		

### Server path

Path to the repository on the VCS server. Specify the repository name in this field only when checking out the repository. You need to specify the server path under convention of version control system used. You can specify the repository name in this field only when extracting information from the repository and creating a local copy (*check\_out* operation).

### Local path

Location of repository working folder on client computer without repository directory. Directory with the **Repository name** must be absent form the specified local path folder or empty.

## **Repository name**

Name of the repository to be created. This field is disabled when checking out the repository.

Click the **Next** button to proceed to the <u>Defining label options</u> step of the wizard.

#### 4.3.11.1.5 Defining label options

This step appears only when creating new repository. Use this step to define database label options.

👸 Version Control Repository	Management Wizard	×	
Version Control Reposito	Version Control Repository Management		
Specify options to create la	abel		
EFFE SQL Manager for PostgreSQL	Specify options to create label Backup storage location Oversion Control Repository Separately Backup options Separately Backup metadata only		
Help Copy From	▼ < <u>B</u> ack <u>N</u> ext > Close	e	

### Backup storage location

This section defines the directory to store backup copies that are created with the label. By default these copies are stored in the **Oversion control repository**. To set different location activate the **Oversion Control repository**.

## Backup metadata only

Use this option to define whether to include data in backups created with the label.

Click the **Next** button to proceed to the <u>final</u> step of the wizard.

## 4.3.11.1.6 Performing operation

This step informs you that all necessary settings are defined and version control repository can be created/checked out.

🚟 Version Control Repository Management Wizard		×
Version Control Repository Management		
Click the Run button to sta	art the operation	
	Process completed successfully!	
200	100 %	
SQL Manager for PostgreSQL	U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Tables/0000004C.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Tables/0000004C.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Tables/0000004E.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Tables/0000004E.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Tables/BridgeTable.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Tablespaces/00000001.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Tablespaces/BridgeTable.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Tiblespaces/BridgeTable.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Tiblespaces/BridgeTable.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Tiblespaces/BridgeTable.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Views/00000001.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Views/00000001.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Views/00000002.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Views/00000003.xml U C: \wc\subrep1\subrep1\demodb_pg/Trunk/Views/BridgeTable.xml	
Close the Wizard after successful completion		
Help Copy From	▼ < <u>B</u> ack <u>R</u> un Clo	se

To close the wizard after successful completion of the operation use the respective option.

Click the **Run** button to perform the operation.

# 4.3.11.2 Configuring provider settings

# 4.3.11.2.1 CVS

# **CVS** executable

Use this field to locate the 'cvs.exe' file. Type or use the B **Explorer** button to locate the file within the standard *Open* dialog.

Provider Settings	<b>—</b>
CVS executable	
C:\CVS\cvs.exe	<u></u>
CVSROOT Use environment variable	:local:C:\cvs_rep
O Use custom value	
	Test
<u></u> K	<u>C</u> ancel <u>H</u> elp

# **CVSROOT**

This section allows you to set CVS repository settings. At least the CVS repository location must be specified. You can **O Use environment variable** or specify **O custom value** for the purpose.

To check the defined repository settings click the **Test** button.

## 4.3.11.2.2 SVN

Locate the **Subversion client libraries path** in the corresponding field. You can click the B **Explorer** button to define file location using the Open dialog.

Note that SQL Manager supports only 32-bit SVN clients.

Provider Settings	<b>—</b>
Subversion client libraries path	
C:\Program Files\CollabNet Subversion Client\	2
	Test
<u>O</u> K <u>C</u> ancel	<u>H</u> elp

To check the defined repository settings click the **Test** button.

4.3.11.2.3 VSS

Locate the **SourceSafe database file**, using corresponded field. You can click the Becker button to define file location using the Open dialog.

Provider Settings	<b>—</b>
SourceSafe database file	
C:\Repository\Source Safe\srcsafe.ini	2
	Test
<u>Q</u> K <u>C</u> ancel	<u>H</u> elp

To check the defined repository settings click the **Test** button.

## 4.3.11.2.4 TFS

## Server

Define HTTP-address of the TFS server. For example: 'http://server:8080' or 'http:// localhost:8080'.

# Workspace

Select the workspace on the TFS server to be used when working with the repository.

Provider Settings	<b>—</b>
Server	
http://server:8080	
Workspace	
test	
	Test Client Test Connection
<u> </u>	K <u>C</u> ancel <u>H</u> elp

Click the **Test client** button to check TFS client availability.

Click the **Test connection** button to check connection to the TFS server with settings defined above.

### 4.3.11.3 Version Control Branches

Using database change management functionality in SQL Manager for PostgreSQL implies that a database is linked with VCS repository branch. Therefore with each repository branch a database copy is created.

When creating new database repository the name of this database is stored in the head/ trunk branch of VCS repository. When you are using the existing repository, the working branch is defined automatically by the database name. If no branches of the repository contain information about the database, then you will be offered to associate existing repository branch with the database:



Press **Yes** to open the **Version Control Branches** dialog to select the needed branch:

elect branch					
anch Name	Database Name	Database ID	Creation Date	User	
Trunk	ddb	157285	27.09.2012 13:48:36	postgres	
<sup>B</sup> branch1	ddb_branch1	449878	28.09.2012 13:40:50	postgres	
<sup>B</sup> branch2	ddb_branch2	473313	28.09.2012 13:42:10	postgres	
branch3	ddb_branch3	496760	28.09.2012 13:43:02	postgres	
		[	<u>OK</u>	ancel <u>H</u> e	elp

Branch selection needs to be confirmed in the appeared window.

Database name in the selected branch will be change with the current database name.



# 4.3.12 Find Option

The **Find Option** section allows you to search for options available within the **Database Registration Info** dialog easily and quickly.

# Option

In this field you can enter the name of the option to search for within the database registration options.

Database Registration Info X								
	Find Option							
Session Settings	Option use							
Display Options	Available Options	Option Kind or DB e Database Registr	Category Display Options	Group				
SSL SSL	SSH <mark>use</mark> r name Use Private Key for	Database Registr auther Database Registr	SSH Tunneling SSH Tunneling					
	Use separate conn User name	ections Database Registr Database Registr	Data Options Connection	Advanced				
Change Management	Use transactions in User name	object Database Registr Database Registr	Data Options Change Manager	Advanced Version control p				
Find Option								
			Q	Show Option				
Test Connection Load	I Connection Info	• ОК	<u>C</u> ancel	Help				

The **Available options** area lists all options of the Database Registration category according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location.

Select the required option in the list and click **Show Option** to open the corresponding section where you can view/edit the value of this option. For your convenience the required option is marked with an animated  $\frac{1}{20}$  icon.
# 4.4 Database Properties

The **Database Properties** dialog allows you to view/edit a number of properties which can be changed to optimize database performance.

To open the dialog, right-click the database alias in <u>DB Explorer</u> [65] and select the **Database Properties...** context menu [54] item, or use the **Properties** button on the DB Explorer toolbar [83].



A number of database options that determine the characteristics of the database can be set for each database. These options are unique to each database and do not affect other databases.

- General 146
- Description 148
- Permissions 149
- Find Option 151

## See also:

<u>Create Database wizard</u> छि <u>Register Database wizard</u> 98 <u>Database Registration Info</u> गिठी

## 4.4.1 General

The **General** section of the **Database Properties** dialog allows you to view/edit general database properties: Database name, Database owner, OID, Encoding, Default tablespace, Database size (in MB), Connection limit.

Database Properties - Test	DB		×
General	General		
Description Permissions	Database name	TestDB	
Find Option	Database owner	postgres	$\sim$
	OID	65827	
	Encoding	UTF8	
	Default tablespace	pg_default	
	Database size (MB)	7,38	
	Connection limit	1000 💌 🔽 No limit	
		<u>O</u> K <u>C</u> ancel <u>H</u> el	p

#### Database name

Displays the name of the database.

#### Database owner

Specifies the database <u>user</u> who owns the database (for PostgreSQL 7.3 or higher).

#### OID

Displays the object identifier of the database.

### Encoding

Displays the encoding used in the database.

#### Default tablespace

Displays the default tablespace for the database (for PostgreSQL 8.0 or higher).

#### Database size

Displays the size of the database (in megabytes).

## **Connection limit**

Specifies the time limit for connecting to the database (for PostgreSQL 8.1 or higher).

## 🗹 No limit

Enable the option for unlimited connections.

### See also:

Description 148 Permissions 149 Find Option 151

# 4.4.2 Description

The **Description** section of the **Database Properties** dialog allows you to add/edit an optional description for the database.

Database Properties - Test	tDB	×
General	Description	
	Optional text to describe a database	~
Permissions		
Find Option		
	<	>
	<u>OK</u> <u>C</u> ancel <u>H</u> elp	
L		_

See also: General ମଧ୍ୟରି Permissions ମଧ୍ୟରି Find Option ମรୀ

## 4.4.3 Permissions

The **Permissions** section of the **Database Properties** dialog allows you to view and set grants for the current database.

Right-click on the grid cell where the row stands for a group 754 or user 751, and the column is the operation for granting (OWN, CRT, etc), then select the Grant item from the context menu to permit the selected operation to the group/user. See <u>Managing privileges</u> 766 for details.

### **OWN** (OWNER)

Allows to set the new owner of the database (to alter the owner, you must own the database and also be a direct or indirect member of the new owning role).

### **CONN** (CONNECT)

Allows the user to connect to the current database (note that this column appears only when working with server version 8.2 or higher).

### **CRT** (CREATE)

Allows new schemas to be created within the database.

### **TMP** (TEMPORARY)

Allows temporary tables to be created while using the database.

Database Properties - Test	DB						×
General	Permissions						
	Grantee	0	WN CONN		CRT TMP	TMP	^
Permissions	S Groups						
Find Option	🔊 krb_users	[					
	🖧 pg_checkpoint		G	rant			
	S pg_create_subscription	15	G	rant with (	Grant Optic	n	
	🛃 pg_database_owner		R	Revoke			
	S pg_execute_server_program		-				
	S pg_monitor		G	Frant All			
	S pg_read_all_data		G	Grant All with Grant Option			
	pg_read_all_settings		R	Revoke All			
	pg_read_all_stats		G	rant on All			
	pg_read_server_files	1.3	G	rant on All	with Gran	t Option	
	pg_signal_backend			evoke On	A II		
	pg_stat_scan_tables			evoke on		1	_
	pg_use_reserved_connection	<u> </u>					-
	pg_write_all_data						~
	E DO WERO DODIOR TION			0		Uala	
		<u>0</u> K		Cano	el	Help	

See also: General Description Find Option

## 4.4.4 Find Option

The **Find Option** section allows you to search for options available within the **Database Properties** dialog easily and quickly.

## Option

In this field you can enter the name of the option to search for within the database properties.

Database Properties - TestDB	3				×
General	Find Option				
Description Permissions	Option	database			
Find Option	Available Opt	ions	Option Kind	Category	Group
	Database nar	ne	Database Proper	General	
	Database ow	ner	Database Proper	General	
	Database size	e (MB)	Database Proper	General	
				0	Show Option
					cherr ophon
			<u>о</u> к	<u>C</u> ancel	Help

The **Available options** area lists all options of the Database Properties category according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location.

Select the required option in the list and click **Show Option** to open the corresponding section where you can view/edit the value of this option. For your convenience the required option is marked with an animated  $\frac{1}{20}$  icon.

See also: <u>General</u>ायले <u>Description</u>ायश <u>Permissions</u>ायश

# 4.5 Database Registration Manager

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Database Registration Manager allows you to register new databases and delete the registration of non-existing databases.

To open **Database Registration Manager** use the corresponding item of the <u>database</u> <u>context menu</u> [54].

testing-pg:54160 🔹	C				-
Host	*	Dat	tabase	Registered with alias	Register
testing-pg:54160	~	3	AdventureWorks	AdventureWorks on testing-pg:54160	
General	*	3	DemoDB	DemoDB on testing-pg:54160	
General	^	8	pg16_comparer_test		
🔁 Refresh		8	pg16_Copy		
Selection	~ 1	3	pg16_restore		
Selection	^	3	pg16_testdb		
Ev Select all		9	рд16сору		
Cuncheck all	<	3	postgres		
Uncheck deleted DB		3	qqqqqweqwe		
	L	3	t2		
Legend	*	3	template1		
Exist on host		3	test_db		
Removed from host		3	TestDB	TestDB on testing-pg:54160	$\checkmark$
-					

Table contains all databases located on the selected host. You can change **Host** selection using the appropriate drop-down list in the <u>navigation bar</u>[153]. Check all databases to be registered.

For automatic registration of selected databases click the **\*** Apply changes button.

<u>Availability</u>: **Full** version (for Windows) **Yes Lite** version (for Windows) **No Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

## See also:

Register Database wizard 98

## 4.5.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Database Registration Manager**.

Host	*
🥃 ayz2:54383	•
General	*
Refresh	
Apply changes	
General Check non-registered databa	ases
G Uncheck deleted databases	
Legend	*
Exists on host	
Removed from host	

The Navigation bar of Database Registration Manager allows you to:

# Host

🧟 select a host

## General

**Refresh** the list of databases

- Apply changes register selected databases
- Belect databases located on the host, but not registered in <PRODUCT\_TITLE>
- Belete registration of the database removed from the server.

## Legend

- 📒 Exist on host
- Removed from host

NB: You can enable\disable Toolbars and Navigation bars at Environment options 877.



# 5 Database Objects Management

SQL Manager for PostgreSQL provides powerful tools to manage **database objects**.

To obtain detailed information concerning PostgreSQL database objects, refer to the official PostgreSQL server documentation.

**Note:** Before working with database objects in SQL Manager for PostgreSQL you should <u>connect to the database</u> [68] first.

### **Creating Database Objects**

To create a database object:

- select the Database | New Object... main menu 961 item;
- select the type of object within the <u>New Object</u> [157] dialog;
- follow the steps of the wizard which guides you through the entire process of creating the object, or set the object properties using its editor depending on the selected object type.

Note that you can also create a database object by selecting the appropriate <u>context</u> <u>menu</u> [51] item of the <u>DB Explorer</u> [70] tree or using the Ctrl+N <u>shortcut</u> [100].

To create a new object with the same properties as one of existing objects has:

- select the Database | Duplicate Object... main menu 961 item;
- follow the instructions of Duplicate Object Wizard 159.

Alternatively, you can right-click an object in the <u>DB Explorer</u> (65) tree and select the **Duplicate Object <object\_name>...** context menu item.

### **Editing Database Objects**

To edit a database object:

- select the database object in the <u>DB Explorer</u> [65] tree;
- right-click the object to call its <u>context menu</u> and select the **Edit <object type> <object name>** context menu item, or double-click the object to open it in its editor;

## **Renaming Database Objects**

To rename a database object:

- select the object to rename in the <u>DB Explorer</u> 65<sup>th</sup> tree;
- right-click the object and select the Rename <object type> <object name>... item from the <u>context menu</u> [57];
- edit the object name using the **Rename Object...** dialog.

**Note:** This operation is possible for all objects except for <u>schemas</u> [164], <u>domains</u> [259], <u>rules</u> [264], <u>base types</u> [278], <u>composite types</u> [283], <u>enumerated types</u> [287], <u>operators</u> [300], <u>tablespaces</u> [318].

### **Dropping Database Objects**

To drop a database object:

- select the database object in the <u>DB Explorer</u> 70<sup>1</sup> tree;
- right-click the object to call its <u>context menu</u> and select the **Drop <object type> <object name>** context menu item;
- confirm dropping in the dialog window.

**Note:** If more convenient, you can also use the following <u>shortcuts</u> from: *Ctrl+N* to create a new object; *Ctrl+O* to edit the selected object; *Ctrl+R* to rename the object; *Shift+Del* to drop the object from the database.

When using an object editor, you can benefit from **tabs**. To switch between tab views, click on their respective tabs at the top of the main editor window. You can do it at any time, since the tab views are absolutely independent.

To compile a newly created or edited object, you can use the  $\frac{5}{5}$  **Compile** item available within the <u>Navigation bar</u> or <u>Toolbar</u> of the object editor.

See also: <u>Getting Started</u> [39] <u>Database Explorer</u> [65] <u>Database Management</u> [87] <u>Change Management</u> [87] <u>Change Management</u> [344] <u>Query Management</u> [344] <u>Query Management</u> [452] <u>Import/Export Tools</u> [535] <u>Database Tools</u> [535] <u>Database Tools</u> [535] <u>Database Tools</u> [535] <u>Database Tools</u> [536] <u>Services</u> [771] <u>Options</u> [870] <u>How To...</u> [100]

# 5.1 New Object

The **Create New Object** dialog allows you to select the type of the object to be created and run the appropriate wizard or editor.

To open the dialog, select the **Database | I** New Object... <u>main menu</u> (sef) item.



Use the **Database** drop-down list to select the alias of the database where the new object should be created. Pick an object type icon and click **OK** to invoke the corresponding wizard or dialog.



## See also:

<u>Operations with database objects</u> [70] <u>Duplicate Object Wizard</u> <u>Schemas</u> <u>Schema Objects</u> <u>Non-schema Objects</u> 313]

# 5.2 Duplicate Object Wizard

Use the **Duplicate Object Wizard** to create a new database object of the same type and having the same properties as one of the existing ones.

To run the wizard, select the **Database |**  Duplicate Object... <u>main menu</u> (self) item, or right-click an object of the desired type in the <u>DB Explorer</u> (self) tree and use the **Duplicate <object type> <object name>...** <u>context menu</u> (self) item.

<u>D</u> ata	abase	<u>V</u> iew	<u>T</u> ools	<u>S</u> ervices	<u>O</u> ptions	Windows	<u>H</u> elp
8	Regis	ter Data					
8	Datab	ase Reg	gistration	Info			
₽.	Unreg	gister Da	tabase	Shif	t+Alt+U		
Ģ	Unreg	gister Ho	st				
	Datab	ase Reg					
X	Conn	ect to Da	atabase	Shift	-Ctrl+C		
•	Disco	nnect fro					
	Disco						
8	Cr <u>e</u> at						
6	Drop	Databas					
	New	Object					
<b>B</b>	Duplic	cate Obj	ect				

- Selecting the source database 160
- Selecting object to duplicate 161
- Selecting destination database 162
- Modifying the new object's definition 163

## See also:

<u>Operations with database objects</u> <u>New Object</u> <u>Schemas</u> <u>Schema Objects</u> <u>Schema Objects</u> <u>Schema Objects</u> <u>Schema Objects</u> <u>Schema Objects</u> <u>Schema Objects</u> <u>Statabase objects</u>

## 5.2.1 Selecting the source database

This step of the wizard allows you to select the **source database** containing the source object to be duplicated.

📆 Duplicate Object Wizard		×					
Duplicate Object							
Select the source databa	ase						
	Welcome to the Duplicate Object Wizard! This wizard allows you to create a new database object with the same propertion one of the existing objects has.	es as					
	This wizard will request the source object, the name of the new object, generate a SQL statement for creating the new object, and execute this statement.						
SQL Manager for PostgreSQL	Source database [] TestDB on ayz2:54383 [TestDB]	-					
Help	< <u>B</u> ack <u>N</u> ext > Can	cel					

Click the **Next** button to proceed to the <u>Selecting object to duplicate</u> as the wizard.

## 5.2.2 Selecting object to duplicate

Use the **Objects** drop-down menu to select the type of object you intend to duplicate.

Select a database object to copy its properties to the new object.

**Hint:** The **context menu** of the objects list area allows you to specify whether objects of the specified type should be displayed as *icons* or as *list*.

🛅 Duplicate Object Wizard					×
Duplicate Object					
Select the object to dupli	cate				
	<u>O</u> bjects	Tables		•	
SQL Manager for PostgreSQL	Tables public.Ac public.Ca	ccount Idress ategories ty puntry puntryLanguage ust_Hist epartment epartments aployees ventory derlines	pp pp pp pp pp pp pp pp pp pp pp pp pp	ublic.Prod_desc ublic.Product ublic.Products ublic.TypeList ublic.child_feelings_1 ublic.dummy1 ublic.dummy1_new ublic.gpmfavorites ublic.pgmreports ublic.table10 ublic.table11 ublic.table12	public. public. public. public. public. public. public. public. public. public. tests./ tests./ tests./
Help			< <u>B</u> a	ack <u>N</u> ext >	Cancel

Click the **Next** button to proceed to the <u>Selecting destination database</u> [162] step of the wizard.

## 5.2.3 Selecting destination database

Select the **target database** and **schema** (**New object namespace**) to create the new object in, set the **name** of the new database object.

Check the **Copy data** option to copy data from the source table to the new one.

📆 Duplicate Object Wizard			×
Duplicate Object			
Select the target databas	e and the new object name		
Image: Constraint of the second sec	<u>T</u> arget database New object name <u>s</u> pace <u>N</u> ew object name Table options ☐ Copy <u>d</u> ata	TestDB on ayz2:54383 [TestDB] Production Orders_new	
Help		< <u>B</u> ack <u>N</u> ext > Ca	ncel

Click the **Next** button to proceed to the <u>Modifying the new object's definition new object</u> step of the wizard.

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## 5.2.4 Modifying the new object's definition

This step of the wizard allows you to browse **the result SQL statement**.

If necessary, you can edit the definition of the new object.

🌃 Duplicate Object Wizard		×
Duplicate Object		
Modify the new object de	efinition and click the Run button to create the object	
	New object definition	
SQL Manager for PostgreSQL	CREATE TABLE "Production"."Orders_new" ( orderid INTEGER NOT NULL, orderdate DATE NOT NULL, customerid INTEGER, netamount NUMERIC(12,2) NOT NULL, tax NUMERIC(12,2) NOT NULL, totalamount NUMERIC(12,2) NOT NULL, bytea BYTEA ) WITHOUT OIDS;  Close the Wizard after duplicating Open object when finished	

### Close the wizard after duplicating

If this option is selected, the wizard is closed automatically when the new object is created.

## Open object when finished

Select this option to open the newly created object in its editor.

Click the **Run** button to create the object.

# 5.3 Schemas

164

A **Schema** is essentially a namespace: it can be defined as a collection of database <u>objects</u> [168] that form a single namespace. A namespace is a set in which each element has a unique name.

### **Creating Schemas**

- select the Database | New Object... main menuper) item;
- select **Schema** in the <u>Create New Object</u> [157] dialog;
- define schema properties using the appropriate tabs of <u>Schema Editor</u> 165.

**Hint:** To create a new schema, you can also right-click the **Schemas** node or any object within this node in the <u>DB Explorer</u> [65] tree and select the **New Schema** item from the <u>context menu</u> [57].

To create a new schema with the same properties as one of existing schemas has:

- select the Database | Duplicate Object... main menu and item;
- follow the instructions of <u>Duplicate Object Wizard</u> 159.

Alternatively, you can right-click a schema in the <u>DB Explorer</u> of tree and select the **Duplicate Schema <schema\_name>...** context menu item.

Duplicate Object Wizard대회 allows you to select the database to create a new schema in, and to edit the result SQL statement for creating the schema.

### **Editing Schemas**

- select the schema for editing in the <u>DB Explorer</u> (65) tree (type the first letters of the schema name for quick <u>search</u> (78);
- right-click the object and select the Edit Schema <schema\_name>... context menu item, or simply double-click the schema;
- edit schema properties using the appropriate tabs of <u>Schema Editor</u> 165.

### **Dropping Schemas**

- select the schema to drop in the <u>DB Explorer</u> [65] tree;
- right-click the object and select the Drop Schema <schema\_name>... context menu item;
- confirm dropping in the dialog window.

**Note:** If more convenient, you can also use the following <u>shortcuts</u> from: *Ctrl+N* to create a new schema; *Ctrl+O* to edit the selected schema; *Shift+Del* to drop the object from the database.

### See also:

<u>Operations with database objects</u> [୮୦] <u>New Object dialog</u> ୩୭୮] <u>Duplicate Object Wizard</u> ୩୭୭ <u>Schema Objects</u> ୩୫୫] Non-schema Objects ଓ ସାସ୍ତ୍ର

## 5.3.1 Schema Editor

**Schema Editor** allows you to manage PostgreSQL schemas efficiently. It opens automatically when you create a new schema and is available on editing an existing one (see <u>Create schema</u> 164) and <u>Edit schema</u> 164) for details).

To open a schema in **Schema Editor**, double-click it in the <u>DB Explorer</u> [65] tree.

- Using Navigation bar and Toolbar
- Creating/editing schema 167
- Browsing object dependencies
- Editing schema description 966
- Viewing DDL definition 965

### 5.3.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Schema Editor**.



## Object

select a database
select a schema for editing

## General

- 🐓 <u>compile</u> 🕬 the schema (if it is being created/modified)
- 😼 save the schema <u>description</u>छित्ते (if it has been modified)
- refresh the content of the active tab
- مة print metadata المعقد print metadata والمعامة في المحتجد المعامة المحتجد المحت
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the schema:

## Description

- 🚽 save object <u>description</u>968 to file
- copy <u>description</u> [66] to clipboard

## DDL

🚽 save <u>DDL</u>छठी to file 📝 open <u>DDL</u>छठी in <u>Query Data</u>415ी

NB: You can enable disable Toolbars and Navigation bars at Environment options [877].

## 5.3.1.2 Creating/editing schema

Use the **Schema** tab of **Schema Editor** to create/edit a schema and specify its properties.

🖽 Schema - [HR] - [DemoDB on ayz2:54383]								
🗄 🖯 Databases 🕶 😼 💼	8	2	🗷 📳 н	R				
Object	*		Schema	Depende	n <u>c</u> ies	Description	DD <u>L</u>	Permissions
BemoDB on ayz2:543	83 [ 💌		<u>N</u> ame		HR			
I HR	-		<u>O</u> wner		ayz			•
General	*							
🞸 Compile		1000						
Refresh								
la Print		2						
Restore default size								

## Name

Specify the name by which the schema is identified within the database.

#### Owner

Specify the name of the database-level principal (user principal or <u>role</u> principal) that will own the schema. This principal may own other schemas, and may not use the current schema as its default schema.

# 5.4 Schema Objects

A **schema** is a collection of logical structures of data, or **schema objects**. A schema is owned by a database user. Each user can own a single schema. Schema objects can be created and manipulated with SQL and include the following types of objects:

- Tables 169
- <u>Views</u>229
- Functions 239
- Procedures 254
- Domains 259
- <u>Rules</u> 264
- <u>Sequences</u> 274
- Base Types 278
- Composite Types 283
- ENUM Types 287
- Range Types 291
- <u>Aggregates</u> 295
- Operators 300
- Collations 305
- Statistics 309

Use the <u>DB Explorer [65</u>] tree to <u>navigate</u> [47] within the existing schemas and their objects.

## See also:

<u>Operations with database objects</u> <u>New Object dialog</u> [157] <u>Duplicate Object Wizard</u> [159] <u>Schemas</u> [164] <u>Non-schema Objects</u> [313]

## 5.4.1 Tables

Relational databases store all their data in **Tables**. A table is a data structure consisting of an unordered set of horizontal rows, each containing the same number of vertical columns. The intersection of an individual row and column is a field that contains a specific piece of information. Much of the power of relational databases comes from defining the relations among the tables.

### **Creating Tables**

- select the **Database | New Object...** main menuper item;
- select **Table** in the <u>Create New Object</u> 157 dialog;

• define table properties and fields using the appropriate tabs of <u>Table Editor</u> [170]. **Hint:** To create a new table, you can also right-click the **Tables** node or any object within this node in the <u>DB Explorer</u> [65] tree and select the **New Table...** item from the context menu [57].

To create a new table with the same properties as one of existing tables has:

- select the Database | Duplicate Object... menu item;
- follow the instructions of <u>Duplicate Object Wizard</u> [159].

Alternatively, you can right-click a table in the <u>DB Explorer</u> of tree and select the **Duplicate Table <table\_name>...** context menu item.

Duplicate Object Wizard 대해 allows you to select the database to create a new table in, and to edit the result SQL statement for creating the table.

### **Editing Tables**

To edit an existing table (manage its <u>columns</u> 205), <u>indexes</u> 187), <u>data 194</u>), etc.):

- select the table for editing in the <u>DB Explorer</u> [65] tree (type the first letters of the table name for quick <u>search</u> [78]);
- right-click the object and select the Edit Table <table\_name> context menu item, or simply double-click the table;
- edit table subobjects and data using the appropriate tabs of Table Editor 1771.
- To change the name of a table:
  - select the table to rename in the <u>DB Explorer</u> [65] tree;
  - right-click the table alias and select the Rename Table <table\_name>... item from the <u>context menu[57]</u>;
  - edit the table name using the **Rename Object...** dialog.

### **Dropping Tables**

- select the table to drop in the <u>DB Explorer</u> [65] tree;
- right-click the object and select the Drop Table <table\_name>... context menu item;
- confirm dropping in the dialog window.

**Note:** If more convenient, you can also use the following <u>shortcuts</u> [100]: *Ctrl+N* to create a new table; *Ctrl+O* to edit the selected table; *Ctrl+R* to rename the table;

*Shift+Del* to drop the object from the database.

## 5.4.1.1 New table

The **New Table** window is a mode of <u>Table Editor</u> [177] that opens automatically when you create a new table (see <u>Create table</u> [169] for details) and allows you to create a new table, set table <u>properties</u> [172], specify table <u>columns</u> [175] and edit table description.

To call **Table Editor** for creating a new table, you can right-click the **Tables** node or any object within this node in the <u>DB Explorer</u> [65] tree and use the Ctrl+N shortcut [100].

- Using Navigation bar and Toolbar 171
- <u>Setting table properties</u> 172
- Specifying table columns 175

#### 5.4.1.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Table Editor**.



## Database

号 select a database to create a new table in

### General

- ダ <u>compile</u> 여러 the newly created table
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the table:

## Columns

- 🐺 <u>add</u> 2081 a new column
- 😼 edit 🕬 selected column
- 🙀 drop २०८१ selected column(s)

### Description

- 🚽 save object <u>description</u>968 to file
- े copy <u>description</u> विद्ये to clipboard

### DDL

🚽 save <u>DDL</u>ब्रिडी to file 📝 open <u>DDL</u>ब्रिडी in <u>Query Data</u>41डी

NB: You can enable\disable Toolbars and Navigation bars at Environment options 877.

#### 5.4.1.1.2 Setting table properties

Use the **Table** tab of **Table Editor** to create a table and specify its properties.

#### Table name

Select a <u>schema</u> 164 and enter a name for the new table. Note that table names must comply with the rules for identifiers and must be unique within the <u>schema</u> 164. A table name can contain a maximum of 128 characters.

#### **Table type**

Ordinary table

Use this option to create an ordinary PosgreSQL table.

#### Foreign table

Select this option to create a foreign table. Such tables allow data stored outside the database to be used like native PostgreSQL-stored data. From the drop-down list select the <u>foreign server</u> be used for the foreign table.

If the selected foreign server has the '*postgres\_fdw*' as a data wrapper then the **Select Table** button becomes available.

#### Temporary table

Select this option to create a temporary table. A temporary table will automatically be deleted if the connection dies and the name is valid per connection. This means that two different connections can both use the same temporary table name without conflicting with each other or with an existing table of the same name (the existing table is hidden until the temporary table is deleted).

### **Behavior on end of transaction**

This group allows you to define the temporary table behavior at the end of a transaction block:

Preserve rows
 Delete rows
 Drop table

📑 New Table - [EMS on ayz]													
🗄 🛢 Databases 👻 🗲 🛛 🖃													
	Table Columns Foreign T	Table Options	D <u>e</u> scr	iption	DDL								
	Table Properties	ble Properties											
	Table <u>n</u> ame	public		$\sim$	table								
	Table type												
	Ordinary table												
	Foreign table												
	Foreign server	foreign_serv	/er	Select	ct Table								
	O Temporary table												
	Behavior on end of transaction												
Π	Preserve rows	O Delete r	ows	Orop	table								
	Table owne <u>r</u>	postgres 🗸											
I	Tablespace	< Default >					$\sim$						
I	Options												
>	With OIDs		Unl	ogged									
I	Fillfactor												
	✓ Use default fillfactor		Fillfact	ог		100	T						
	Partition												
U	Partition by												
	For values												
	Inherits From												
	Available Tables public.customer public.department public.details public.employee public.job public.payment	▲ ↓	Sele	ected 1	Tables								

## Table owner

Use the drop-down list to select the <u>user</u>  $\frac{1}{75}$  that will own the table being created.

### Tablespace

Use the drop-down list to specify the new table data storage (a tablespace 318).

### Options

### With OIDs

This option specifies whether rows of the new table should have OIDs (object identifiers) assigned to them.

### **Unlogged**

For PostgreSQL ver. 9.1 and above.

If specified, the table is created as an unlogged table. Data written to unlogged tables is not written to the write-ahead log, which makes them considerably faster than ordinary tables.

**Note:** An unlogged table is automatically truncated after a crash or unclean shutdown.

#### Fillfactor

The fillfactor for a table is a percentage between 10 and 100. 100 (complete packing) is the default. When a smaller fillfactor is specified, INSERT operations pack table pages only to the indicated percentage; the remaining space on each page is reserved for updating rows on that page. This gives UPDATE a chance to place the updated copy of a row on the same page as the original, which is more efficient than placing it on a different page. For a table whose entries are never updated, complete packing is the best choice, but in heavily updated tables smaller fillfactors are appropriate.

## **Use default fillfactor**.

Check this option to set fillfactor value to 100.

### Fillfactor

Specify the custom fillfactor value in this field. **Note:** To set this value you need to uncheck **Use default fillfactor** option.

### **Partition**

Partition by

Select the column to set a partition key.

### For values

Set the range of partition table values.

### **Inherits from**

This area allows you to define the table(s) to inherit properties from. Use of inheritance creates a persistent relationship between the new child table and its parent table(s). Schema modifications to the parent(s) normally propagate to children as well, and by default the data of the child table is included in scans of the parent(s).

To select a table, you need to move it from the **Available Tables** list to the **Selected Tables** list. Use the **Selected** buttons or drag-and-drop operations to move the tables from one list to another.

The following icons distinguish inherited tables in <u>Database Explorer</u>

Interprete and the set of the

🛅 - means that the table is inherited from another one

 $100\,$  - means that the table is inherited from a table and there is another table inherited from this table

To compile the table, use the  $\mathbf{\mathcal{F}}$  **Compile** item available within the <u>Navigation bar</u>  $\mathbf{\mathcal{F}}$ .

#### 5.4.1.1.3 Specifying columns

The **Columns** tab is intended for setting up table <u>columns</u> 208. Double-click a column to open <u>Column Editor</u> for editing the column.

Right-click within the **Table Columns** area to display the context menu allowing you to *add*, *insert*, *edit* or *delete* columns.

Columns management tools are also available through the <u>Navigation bar</u> 171 and <u>toolbar</u> 171 of **Table Editor**.

T <u>a</u> ble	<u>C</u> olui	mns	Foreig	gn Tat	ole Optio	ns D <u>e</u> s	scription	DDL							
Table	Colum	nns													
Primary Key		Column Name (Alt+N)			Data Ty	pe	Size		Precision	Array Dims	Not Null	Unique	Default Value	Comment	
1	1	ID			INTEGER					0	$\checkmark$	$\checkmark$			
	ProdName			VARCHAR		32			0			Unknown product			
		ProdE	Descri	scription		VARCH	VARCHAR				0			No description	
							~	10	<b>•</b>	0	0				
	Add Column Ctrl+		Ctrl+Ins												
					Insert (	Column									
		Edit Co		lumn	Ctrl+Enter										
				R	Delete	Column	Ctrl+Del								
				0	Move l	Jp	Ctrl+Up								
				O	Move D	Down	Ctrl+Down								
				_											

The **Columns** list provides the following attributes of each column of the new table: *Primary Key* 

Column Name Data Type Size Precision Array Dims Not Null Unique Default Value Comment

For details see <u>columns</u> 2081.

To compile the table, use the  $\frac{1}{7}$  **Compile** item available within the <u>Navigation bar</u> 17 or <u>toolbar</u> 17.

#### 5.4.1.1.4 Foreign table options

Use this tab to define options to be associated with the new foreign table or one of its columns. This tab is available for editing if the  $\bigcirc$  Foreign table is selected on the Table 172 tab.

📑 New Table - [EMS on ayz]										
🗄 🥃 Databases 🔻 🖊 🌠										
Table Columns Foreign Table O	otions Description DDL									
Foreign Table Options										
Name	Value									
schema_name	export									
table_name	tab_serial									

To add and delete options use the **New Option** and **Delete Option(s)** context menu items.

The allowed option names and values are specific to each foreign data wrapper and are validated using the foreign-data wrapper's validator function. Duplicate option names are not allowed (although it's OK for a table option and a column option to have the same name).

### 5.4.1.2 Table Editor

**Table Editor** is the basic SQL Manager tool for working with tables
 tables
 tables

 automatically in the New table
 Newtable
 New table
 <

 Table Editor allows you to create, edit and drop table's columns 208, indexes 219, foreign keys 212 and other table subobjects, manage table data 194, properties 191 and much more.

To open a table in **Table Editor**, double-click it in the <u>DB Explorer</u> [65] tree.

- Using Navigation bar and Toolbar
- Managing table columns
- Changing columns order 183
- Managing table foreign keys
   185
- Managing table checks 186
- <u>Managing table indexes 187</u>
- Managing table triggers 189
- Managing rules 190
- Managing policies 193
- Browsing object dependencies
- Working with table data 194
- Editing table description
- <u>Viewing DDL definition</u>
- <u>Setting object permissions</u> 968
- Table properties 191

### 5.4.1.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Table Editor**.

Object	*
BemoDB on ayz2:54383 [DemoDB]	•
	•
General	*
Refresh	
📚 Print	
Restore default size	
ntering the end of the terminal termina	
Tools	*
Tanalyze & vacuum	
📜 Cluster table	
📑 Truncate table	
Reindex table	
Leate view on table	
Dependency tree	
Fields	*
🙀 New field	
Edit field 'EMP_ID'	
Drop field 'EMP_ID'	
Explorer	*
Fields (13)	-
EMP_ID [integer]	≡
EIDST NAME (varchar(40))	
LAST NAME [varchar(30)]	
GENDER [char(1)]	
MARITAL_STATUS [char(1)]	
BIRTH_DATE [date]	Ŧ

## Object

- 😑 select a database
- 🕫 select a table for editing

## General

- 퇴 save the table <u>description</u> (if it has been modified)
- lateral refresh the content of the active tab
- مه print metadata المعالية print metadata
- b adjust <u>Table Editor options</u>
- restore the default size and position of the editor window

## Tools

- analyze and vacuum [197] the table
- 🛍 <u>cluster</u> 🕬 the table indexes
- 😻 <u>truncate</u>2051 data of the table
- 🐱 <u>reindex</u>206 the table indexes
- 💁 create a view 🕬 based on the table
- view the <u>dependency tree</u> 638 for the table

## Explorer

browse the table subobjects using the Explorer tree

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the table:

## Columns

- 📮 <u>add</u>208े a new column
- 🐱 edit विशे selected column
- 🙀 drop २०८१ selected column(s)

## Foreign keys

- 훢 add 💷 a new foreign key
- 🔁 edit 212 selected foreign key
- 🗟 drop 212 selected foreign key(s)

### Checks

- 🚳 <u>add</u>218 a new check
- 🔀 edit 🕬 selected check
- 🕻 drop 🔤 اها selected check(s)

## Indices

- <u>add</u> विश्व a new index
- 🐱 edit वाग्री selected index
- 🍇 drop वाग्री selected index(-es)

## Triggers

- 💐 add a new trigger
- 😼 edit selected trigger
- drop selected trigger(s)

### Rules

- 4 add a new rule
- 🚭 edit selected rule
- drop selected rule(s)

## **Policies**

- 📤 add a new policy
- 현 edit selected policy
- drop selected policy(s)

## **Data Management**

💙 commit transaction

X rollback transaction

**Note:** These actions are available if the **I Use transactions in object editors, Query Data and Design Query** option is checked in the <u>Database Registration Info</u> | <u>Data</u><u>options</u> 124 dialog.

- san export data from the table using Export Data Wizard
- ि export data from the table as SQL script using Export as SQL Script Wizard
- ो import data into the table using Import Data Wizard [582]
- 🕆 save data 617
- ो <u>load data</u> हिटही

## Description

📕 save object <u>description</u>७०६ to file

copy <u>description</u> विकी to clipboard

## DDL

- 🚽 save DDL 🕬 to file
- 📝 open <u>DDL</u>965ी in <u>Query Data</u> 415ी

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].
### 5.4.1.2.2 Managing columns

The **Columns** tab is intended for managing table <u>columns</u> 2081.

**Hint:** This tab is selected by default upon opening **Table Editor** if the *Always open the first tab* option is enabled on the <u>Tools | Object Editors</u> [886] page of the <u>Environment</u> <u>Options</u> [877] dialog.

Double-click a column to open <u>Column Editor</u><sup>209</sup> for editing the column.

Right-click a column to display the context menu allowing you to *create* new, *edit*, *drop*, *rename*, *duplicate* the selected column, or <u>reorder</u>[183] columns of the table. Using the menu you can also copy to clipboard or <u>export</u>[536] the list of the table columns to any of supported <u>formats</u>[983].

Columns management tools are also available through the <u>Navigation bar and toolbar</u> free bar of **Table Editor**.

	Table - [public.em	nployee] - [E	MS on ayz]			
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	Columns Properties	s Foreign <u>K</u>	eys <u>C</u> hecks <u>I</u> nd	dices T <u>r</u> igg	ers R <u>u</u> les	Pol < >
	Column Name	Column Type	e Key	Not Null	Default Desc	cription
	🤌 🔣 emp_no	integer	Primary Key		Empl	oyee ID, p
	first_name	varchar(40)			First	name
	last_name	varchar(40)			Last	name
	phone_ext	varc 📭	New Column		Ins	number
	hire_date	times 📑 🛛	Edit Column 'last_n	ame'	Enter	when the
n	dept_no	integ	Rename Column 'la	st_name'		tment ID
	job_code	varc	Dron Column 'last u	name'	Del	ode
	job_grade	integ 🍢	Stop Column last_	name	Dei	ade
	job_country	varc I	Duplicate Column			ountry
1	salary	integ I	Re <u>o</u> rder Columns			/ per 1 y
	full_name	varc	what List			ame
			<u>Aport List</u>			
		(	Copy List of Colum	in Names to (	Clipboard	
			Fit Column Widths			
	<					- >
	Column Descriptio	on [last_nan	ne]			
	Last name		-			^
						×
	12: 1	J	Modified Ir	nsert		

The **Columns** list provides the following attributes of each column of the table:

Column Name Column Type Key Not Null Default Description

For details see <u>Columns</u> 2081.

If necessary, you can also use the **Column Description** area to supply a *description* for each column.

### 5.4.1.2.3 Changing columns order

The **Reorder Columns** dialog allows you to change the columns order in the table.

To open this dialog, open the table in **Table Editor**, proceed to the <u>Columns</u> [181] tab there, right-click within the **Columns** list and select the **Reorder Columns** item from the context menu.

**NB:** Since PostgreSQL server does not have a native command for reordering table columns, this operation is implemented in SQL Manager for PostgreSQL by generating the script according to which the data of the original table are copied into a temporary table, then the original table is dropped, and a new table with the same name but having the newly specified order of columns is created, and afterwards all the data are copied from the temporary table into the new one.

Nevertheless such script cannot be executed in some cases. If a table is referenced by another table (e.g. there is a Foreign Key 212 constraint) or is a base table for a view 229, the **Reorder Columns** operation cannot be performed. It is recommended to drop Foreign Keys before column reordering, and create them again after the reordering operation is completed.

By default, before the **Reorder Columns** dialog is opened, a warning window is displayed. Use the **Operations by recreating** drop-down list to specify whether the **Reorder Columns** operation will be available after the current operation is performed:

Enabled - such operation will be performed without warnings;

*Enabled, show warning* - the warning window will appear if the operation requires table recreation;

Disabled - denies operations of this type.

**Note:** You can change this value any time using the **Table altering operations performed via recreation** drop-down list available on the <u>Confirmations</u> [875] page of the <u>Environment Options</u> [871] dialog.



The columns are displayed in the Column name list in the current order.

To change the columns order, use the O O buttons or drag-and-drop operations within the list. Click the **OK** button to view the modification script in the <u>Changing Metadata</u> window and apply changes.

Reorder Columns	
Column Name	Data Type
emp_no	integer
first_name	varchar(40)
last_name	varchar(40)
phone_ext	varchar(4)
hire_date	timestamp
dept_no	integer
job_code	varchar(5)
job_grade	integer
job_country	varchar(40)
salary	integer
full_name	varchar(40)
<u>ок</u>	Cancel <u>H</u> elp

5.4.1.2.4 Managing foreign keys

The **Foreign Keys** tab is provided for managing table <u>foreign keys</u> 212. Double-click a foreign key to open <u>Foreign Key Editor</u> for editing the foreign key.

Right-click a foreign key to display the context menu allowing you to *create* new, *edit*, *drop* a foreign key. Using the menu you can also export [536] the list of the table foreign keys to any of supported formats [583].

Foreign keys management tools are also available through the <u>Navigation bar 178</u> and <u>toolbar</u> 178 of **Table Editor**.

	🖥 Table - [public.dep	artmer	nt] - [EM	S on ayz]							•	3
	😑 Databases 👻 🚽	-	<u> </u>	₽ 柴								=
	Columns Properties	Forei	gn <u>K</u> eys	Checks	Indices	T <u>r</u> iggers	Rules	Policies	Dep	endencies	D <u>a</u> t≀ ≤	>
	Foreign Key Name		On Col	umn	FK Ta	ble	FK C	olumn		On Update		0
	department_f	k	mngr_n	10	public	.employee	emp	no		No Action		Nc
		<b>6</b>	New For	eign Key			Ins					
n			Edit Fore	ign Key 'de	epartment	_fk' Er	nter					
			Rename	Foreign Ke	y 'depart	ment_fk'						
>		<b>\$</b>	Drop For	eign Key 'o	departme	nt_fk'	Del					
	<		E <u>x</u> port Li	st								>
	Foreign Key Descri	¢	Fit Colum	n Widths								
	Modified		Modi	fied	Insert							

The **Foreign Keys** list provides the following attributes of each foreign key of the table: *Foreign Key Name* 

On Column FK Table FK Column On Update On Delete Deferrable Check Time Description

For details see Foreign Keys 212.

If necessary, you can also use the **Foreign Key Description** area to supply a *description* for each foreign key.

5.4.1.2.5 Managing checks

The **Checks** tab is provided for managing table <u>check constraints</u> 216. Double-click a check to open <u>Check Editor</u> 217 for editing the check.

Right-click a check to display the context menu allowing you to *create* new, *edit*, *drop* the selected check. Using the menu you can also export [536] the list of the table checks to any of supported formats [983].

Check constraints management tools are also available through the <u>Navigation bar and toolbar and too</u>

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	Colu <u>m</u> ns	Prop	erties	Foreign <u>K</u> ey	s <u>C</u> hecks	Indices	T <u>r</u> iggers	Rules	Policies	Dependencies	D <u>a</u> ta	D <u>e</u> scri < →
	Check Na	me		Not Validated	Non-inherit	able Defi	nition					Description
	🖽 😳 🕬	ountry	_chk			((co	ntinent)::tex	d = 'Asia	l'::text) OR	t ((continent)::tex	t = 'Afric	٤
		1	¥7	New Check		Ins						
		1	<b>1</b>	Edit Check 'co	untry_chk'	Enter						
Π				Rename Check	c'country_cl	1 <b>k'</b>						
		1	Х,	Drop Check 'co	ountry_chk'	Del						
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	Check De	escrip	ption	[country_chl	(]							
		Mod	ified	Мо	dified	Insert						
		,		J		J	, j					

The **Checks** list provides the following attributes of each check constraint of the table: *Check Name Definition* 

Description

For details see Checks 218.

If necessary, you can also use the **Check Description** area to supply a *description* for each check constraint.

5.4.1.2.6 Managing indexes

The **Indices** tab is provided for managing table  $\frac{\text{indexes}}{219}$ . Double-click an index to open Index Editor 200 for editing the index.

Right-click an index to display the context menu allowing you to *create* new, *edit*, *drop*, *reindex* the selected index, or *reindex* all indexes. Using the menu you can also <u>export</u> [536] the list of the table indexes to any of supported <u>formats</u> [983].

Indexes management tools are also available through the <u>Navigation bar</u> 178 and <u>toolbar</u> 178 of **Table Editor**.

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	Columns Properties	Foreign <u>K</u> ey	/s <u>C</u> hecks	Indices	Trigge	rs R <u>u</u> les	Policies	Dependenc	ies D <u>a</u> ta	D <u>e</u> scription	$\sim$
	Index Name	Function	On Column(s)	Туре	Unique	Primary Key	Where	Description	Deferrable	Check Time	
	employee_pkey		emp no	btree	$\checkmark$		,				
		24	vew index			ins					
			Edit Index 'em	ployee_p	okey"	Enter					
			Rename Index	employ	ee_pkey	'					
Π			Drop Index 'er	nployee_	_pkey'	Del					
		1	E <u>x</u> port List								
>		12	Reindex 'empl	oyee_pk	ey'						
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		_	Fit Column Wie	iths							
U	Index Description [e	mplo <del>yee_</del> p	well	_	_						
	Modified	Me	odified	Insert							_

The **Indexes** list provides the following attributes of each index of the table:

Index Name Function On Column(s) Type Unique Primary Key Where Description

For details see Indexes 219.

If necessary, you can also use the **Index Description** area to supply a *description* for each index.

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### 5.4.1.2.7 Managing triggers

The **Triggers** tab is provided for managing table  $\underline{\text{triggers}}_{268}$ . Double-click a trigger to open  $\underline{\text{Trigger Editor}}_{268}$  for editing the trigger.

Right-click the area to display the context menu allowing you to *create* new, *edit*, *drop*, *enable/disable* the selected trigger, or *enable/disable* all triggers. Using the menu you can also <u>export</u> [536] the list of the table triggers to any of supported <u>formats</u> [983].

Triggers management tools are also available through the <u>Navigation bar</u> 178 and <u>toolbar</u> 178 of **Table Editor**.

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	Colu <u>m</u> ns	Properties	Foreign	<u>K</u> eys	Checks	Indices	Triggers	R <u>u</u> les	Policies	Depen	dencies	D <u>a</u> ta	D <u>e</u> scri <	>
	Trigger Na	ame	Morr	ent	Event		Function			Enabled	Arguments	s Desc	cription	
	SE C	ountry_tr	befo	re	insert		public.coun	try triga	er					
				24	New Trig	ger	h	ns						
					Edit Trigg	er 'count	try_tr' Ent	er						
n					Rename 1	Frigger 'o	ountry_tr'							
				2 <b>.</b>	Drop Trig	ger 'cour	ntry_tr' C	el						
>	Trigger [	)escription	[country		E <u>x</u> port Lis	st			_					
					Enable Tr	igger 'co	untry_tr'							
					Disable T	rigger 'co	ountry_tr'							
					Enable Al	l Triggers	3							
					Disable A	ll Trigger	s							
					Fit Colum	n Widths								
		Modified		Modi	fied	Insert								

The **Triggers** list provides the following attributes of each trigger of the table:

Trigger Name Moment Event Function Disabled Arguments

For details see Triggers 268.

If necessary, you can also use the **Trigger Description** area to supply a *description* for each trigger.

5.4.1.2.8 Managing rules

The **Rules** tab is provided for managing table rules 264. Double-click a rule to open Rule Editor 264 for editing the rule.

Right-click the area to display the context menu allowing you to *create* new, *edit*, *drop* the selected rule. Using the menu you can also <u>export</u> [536] the list of the table rules to any of supported <u>formats</u> [983].

Rules management tools are also available through the <u>Navigation bar and toolbar and</u> of **Table Editor**.

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	ei 🖉	mployee_rl_o	indelete	update									
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	Rule Des	cription [er	nployee	_rl_on	deletej								
		Modified		Modif	ied	Insert							

The **Rules** list provides the following attributes of each rule of the table: Rule Name Event Instead WHERE Condition Description

See <u>Rules</u> 264 for details.

If necessary, you can also use the **Rule Description** area to supply a *description* for each rule.

### 5.4.1.2.9 Table properties

The **Properties** tab allows you to view/edit common properties of the table: Table name, Schema name, Table options (Storage attributes, Table lock usage, etc.), Table information.

**Hint:** These properties are also available within a modal dialog which is called through the **Table Properties...** context menu item of the table alias in <u>DB Explorer</u> [65].

E	🖥 Table - [public.Employee	s] - [TestDB on ayz2:54383]
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	Table owne <u>r</u>	ayz 💌
	Tablespace	< Default >
	Options	
	With OIDs	Temporary
	Inherits From     Available Tables   public.City   public.Country   public.CountryLanguage   public.Cust_Hist   public.Department   public.Departments   public.Employees   public.Inventory   public.Orderlines	e

### **Table name**

Select a <u>schema</u> and edit the name of the table. Note that table names must comply with the rules for identifiers. The name of the table must be unique within the schema. A table name can contain a maximum of 128 characters.

### **Table owner**

Use the drop-down list to select the <u>user</u> that will own the table being created.

## Tablespace

Use the drop-down list to specify the new table data storage (a <u>tablespace</u> [318]). Check the **Move indices too** option if you prefer the table indices stored in the specified tablespace.

### Options

This group allows you to specify the  $\blacksquare$  With OIDs, and  $\blacksquare$  Temporary options.

# With OIDs

This option specifies whether rows of the new table should have OIDs (object identifiers) assigned to them.

## **Unlogged**

For PostgreSQL ver. 9.1 and above.

If specified, the table is created as an unlogged table. Data written to unlogged tables is not written to the write-ahead log, which makes them considerably faster than ordinary tables.

**Note:** An unlogged table is automatically truncated after a crash or unclean shutdown.

### Temporary

Check this option to create a temporary table. A temporary table will automatically be deleted if the connection dies and the name is valid per connection. This means that two different connections can both use the same temporary table name without conflicting with each other or with an existing table of the same name (the existing table is hidden until the temporary table is deleted).

### **Inherits from**

This area allows you to define the table(s) to inherit properties from. Use of inheritance creates a persistent relationship between the new child table and its parent table(s). Schema modifications to the parent(s) normally propagate to children as well, and by default the data of the child table is included in scans of the parent(s).

To select a table, you need to move it from the **Available Tables** list to the **Selected Tables** list. Use the **Selected** buttons or drag-and-drop operations to move the tables from one list to another.

#### 5.4.1.2.10 Managing policies

The **Policies** tab is provided for managing table policies.

## Enable row level security

Enables row security on a table. включить

## Force row level security

Enables row level security for table owner.

Right-click the area to display the context menu allowing you to *create* new, *edit*, *rename* or *drop* the selected policy. Using the menu you can also <u>export</u> [536] the list of the table policies to any of supported <u>formats</u> [983]. Double-click a policy to open <u>editor</u> [226] for editing the policy.

Policy management tools are also available through the <u>Navigation bar [178]</u> and <u>toolbar [178]</u> of **Table Editor**.

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Ι.	Colu <u>m</u> ns	Properties	s Foreign <u>K</u> eys	Checks	Indices	T <u>r</u> iggers	R <u>u</u> les	Policies	Dependencies	D <u>a</u> ta	D <u>e</u> scri < →
	🗌 Ena	ble row leve	l security								
	For	ce row level	security								
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	test poli	cy .									^
											~
		12: 1	Modi	fied	Insert						

See the <u>Policy editor</u><sup>226</sup> to edit policy properties.

5.4.1.2.11 Working with table data

The **Data** tab displays the table data as a grid by default (see <u>Data View</u>[453] for details). The context menu of this tab allows you to <u>Export Data</u>[536], <u>Import Data</u>[582], <u>Export as SQL</u> <u>Script</u>[608], <u>Save Data</u>[617], <u>Load Data</u>[626].

<u>Data management</u> [452] tools are also available through the <u>Navigation bar</u> [178] and <u>toolbar</u> [178] of **Table Editor**.

While working with data, you are provided with a number of <u>filtering</u> and <u>grouping</u> facilities.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

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🖕 Print				+	18	Alter Victo	ry			A Thou	ughtful Drama of a	2 006	_
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· ·					21	American	Circu	S	_	A Insig	htful Drama of a Girl	2 006	
Tools	*				public.film	actor pu	iblic.f	ilm_category	public.inv	entory			_
Analyze & vacuum					🗄 actor_i	✓ film_id	¥	last_update		~		,	^
			Þ		► 2	25	21	15.02.2006 10	:05:03				
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Reindex table		1			11	9	21	15.02.2006 10	:05:03				
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Data Management	\$			+	23	Anaconda	Conf	essions		A Lack	dusture Display of a	2 006	_
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Commit transaction				+	25	Angels Life	•			A Thou	ughtful Display of a	2 006	_
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Export data			<	Ĩ								0.000	×
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See also:

<u>Working with view data</u> 23त्री <u>Data View</u> 453

|--|

# 5.4.1.3 Table Services

SQL Manager for PostgreSQL provides a number of powerful tools that allow you to perform various operations over your tables. The following *table services* are available in SQL Manager for PostgreSQL:

# Analyze & Vacuum Table

Collects statistics about the contents of tables in the database.

<u>Cluster Table</u> 2011 Allows you to cluster a table on its <u>indexes</u> विग्री (with PostgreSQL routines used).

# Truncate Table 205

Allows you to truncate a table, i.e. delete all records from the table.

# Reindex Table 206

Allows you to rebuild corrupted indexes.

5.4.1.3.1 Analyze & Vacuum Table

**Analyze & Vacuum Table Wizard** collects statistics about the table contents, and reclaims storage occupied by deleted tuples (optionally). These operations can also be performed for multiple tables with the help of <u>Analyze Tables</u> and <u>Vacuum Tables</u> wizards.

To run the wizard, use the **Analyze & vacuum** item of the <u>Navigation bar</u> [178] (or <u>toolbar</u> [178]) in <u>Table Editor</u> [177], or right-click the table alias in the <u>DB Explorer</u> [65] tree and select the **Tasks | Analyze & Vacuum Table...** item from the <u>context menu</u> [57].

- <u>Setting analyze parameters</u> 197
- Selecting columns to analyze 198
- <u>Running analyze & vacuum service</u>
- Using templates 982

Tools	*
Analyze & vacuum	
Iruncate table	
a Reindex table	
Create view on table	
Dependency tree	

<u>Availability</u>: **Full** version (for Windows) **Yes Lite** version (for Windows) **No Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u><sup>[22]</sup> page.

# See also:

<u>Cluster Table</u> 201 <u>Truncate Table</u> 205 <u>Reindex Table</u> 206

5.4.1.3.1.1 Setting analyze parameters

This step of the wizard allows you to specify basic analyze *parameters* to be applied to the operation.

🛐 Analyze & Vacuum Table Wizard 📃 💷 🔜			
Analyze and Vacuum Table			
Specify analyze parameters			
Contraction of the end	Welcome to the Analyze and Vacuum Table Wizard! This wizard allows you to analyze columns in the specified table. The wizard will analyze columns using PostgreSQL routines and show the current status of the columns. Analyze Parameters ✓ Reclaim storage occupied by deleted tuples (VACUUM) Compact unused space (EULL) - exclusively locks the table! Freeze tuples (FREEZE) - recommended only for read-only databases Show detailed operation report (VERBOSE)		
<u>H</u> elp <u>T</u> emplates	✓ < <u>Back</u> <u>Next</u> > Cancel		

# **Reclaim storage occupied by deleted tuples**

In normal PostgreSQL operation, tuples that are deleted or obsolete due to an update are not physically removed from their table and therefore remain present. Select this option to perform the VACUUM operation that reclaims storage occupied by deleted and obsolete tuples.

# Compact unused space

This option specifies "full" vacuum which may reclaim more space, but takes much longer and exclusively locks the table (*FULL*).

## Freeze tuples

This option enforces "freezing" of tuples (*FREEZE*). The option is recommended for readonly databases.

### Show detailed operation report

Check this option to receive a detailed vacuum activity report for the table (VERBOSE).

Click the **Next** button to proceed to the <u>Selecting columns to analyze</u> [198] step of the wizard.

### 5.4.1.3.1.2 Selecting columns to analyze

Use this step of the wizard to *select the columns* to be analyzed using PostgreSQL routines.

To select a column, you need to move it from the **Available** list to the **Selected** list. Use the a a b buttons or drag-and-drop operations to move the columns from one list to another.

Analyze & Vacuum Table V Analyze and Vacuum Tab	Vizard D <b>le</b>		
Select columns to analyze			
Eventski state i state	Available GENDER MARITAL_STATUS BIRTH_DATE IS_ACTIVE SALARY DETAILS DEPT_ID MANAGER_ID	Selected EMP_ID POSITION FIRST_NAU LAST_NAW	ME
Help Templates		< <u>B</u> ack <u>N</u> ext	t> Cancel

When you are done, click the **Next** button to proceed to the <u>Running service</u> [199] step of the wizard.

# 5.4.1.3.1.3 Running service

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the analyze and vacuum table process.

The **Operations** tab allows you to view the log of operations and errors (if any).

🍓 Analyze & Vacuum Table W	izard		
Analyze and Vacuum Table			
Click the Run button to sta	t service		
	Click "Run" to analyze table.		
नात	0 %		
SQL Manager for PostgreSQL	Close the Wizard after successful completion		
Help Templates	▼ < <u>B</u> ack <u>R</u> un	Cancel	

# Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to complete the operation.

5.4.1.3.2 Cluster Table

**Cluster Table Wizard** allows you to cluster a table on its indexes with PostgreSQL routines used).

To run the wizard, use the **Cluster table** item of the <u>Navigation bar</u> 178 (or <u>toolbar</u> 178) in <u>Table Editor</u> 177, or right-click the table alias in the <u>DB Explorer</u> 165 tree and select the **Tasks | Cluster Table...** item from the <u>context menu</u> 157.

- Selecting index for clustering 201
- Running service 203
- Using templates 982



<u>Availability</u>: **Full** version (for Windows) **Yes Lite** version (for Windows) **No Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u><sup>[22]</sup> page.

See also: <u>Analyze & Vacuum Table</u> ୮୨୩ <u>Truncate Table</u> 20ଣି <u>Reindex Table</u> 20ଣି

5.4.1.3.2.1 Selecting index for clustering

The first step informs you about the operations that will be performed by the wizard.



Click the **Next** button to proceed to the **Selecting index for clustering** step of the wizard.

The **Selecting index for clustering** step lists table indexes. If the table was clustered previously, the index used for that clustering operation is selected by default.

🕼 Cluster Table Wizard - [Database: EMS on ayz] — 🗌 🗙			×			
Cluster Table						
Select index for clusteri	ng					
	Select an index to operation is by de	cluster table on. / fault selected in th	An index used on ne list.	the last table c	lustering	
2	Index Name	Function	Columns		Key	
	employee_pkey		emp_no		Primary	,
SQL Manager for PostgreSQL	Analyze Table					
<u>H</u> elp <u>T</u> emplates	-	[	< <u>B</u> ack	<u>N</u> ext >	Cano	el

Select one **index** to cluster the table on.

## Analyze table

Select this option if you want to perform the <u>Analyze table</u> 773 operation as well.

Click the **Next** button to proceed to the <u>Running service</u> 203 step of the wizard.

5.4.1.3.2.2 Running service

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the cluster table process.

The **Operations** tab allows you to view the log of operations and errors (if any).

🕼 Cluster Table Wizard - [Database: TestDB on ayz2:54383]			
Cluster Table			
Click the Run button to sta	irt service.		
	Process completed successfully!		
SQL Manager for PostgreSQL	======================================		
<u>H</u> elp <u>T</u> emplates	Close the Wizard after successful completion          ▼       < <u>B</u> ack <u>R</u> un	Ciose	

# Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to complete the operation.

### 5.4.1.3.3 Truncate Table

The **Truncate Table** service allows you to truncate a table, i.e. delete all records from the table.

To run the service, use the **Truncate table** item of the <u>Navigation bar</u> [178] (or <u>toolbar</u> [178]) in <u>Table Editor</u> [177], or right-click the table alias in the <u>DB Explorer</u> [65] tree and select the **Tasks | Truncate Table** item from the <u>context menu</u> [57].

• Running service 205



<u>Availability</u>: **Full** version (for Windows) **Yes Lite** version (for Windows) **No Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u><sup>[22]</sup> page.

See also: Analyze & Vacuum Table Cluster Table Reindex Table 200

5.4.1.3.3.1 Running service

By default, before the *TRUNCATE* operation is performed, a confirmation window is displayed. Click **Yes** to confirm truncating all data of the table, or **No** to cancel the operation.



5.4.1.3.4 Reindex Table

The **Reindex Table** service allows you to rebuild corrupted indexes 213 for a table. This operation can also be performed for multiple tables with the help of <u>Object Reindex</u> 782 wizard.

To run the service, use the **Reindex table** item of the <u>Navigation bar</u> 178 (or <u>toolbar</u> 178) in <u>Table Editor</u> 177, or right-click the table alias in the <u>DB Explorer</u> 165 tree and select the **Tasks | Reindex Table...** item from the <u>context menu</u> 157.

• Running service 206



 Availability:

 Full version (for
 Yes

 Windows)
 Vindows)

 Lite version (for
 No

 Windows)
 Note: To compare all features of the Full and the Lite versions of SQL Manager, refer to the Feature Matrix<sup>[22]</sup> page.

See also: Analyze & Vacuum Table Cluster Table Truncate Table

5.4.1.3.4.1 Running service

The service is implemented by issuing the *REINDEX TABLE* statement. Click **Commit** to execute the statement. For more information refer to the <u>Changing Metadata window</u> [969] page.



## 5.4.1.4 Columns

Table fields are managed within the **Fields** tab of <u>Table Editor</u> 1771.

### **Creating Columns**

- open the table in <u>Table Editor</u> [177];
- proceed to the **Columns** tab there;
- right-click the tab area and select the New Columns context menu item, or press the Ins key;
- define the field properties using the <u>Column Editor</u> dialog.

### **Editing Columns**

- open the table in <u>Table Editor</u> [177];
- proceed to the **Columns** tab there;
- right-click the column and select the Edit Column <column\_name> context menu item, or simply double-click the column;
- edit the column properties using the <u>Column Editor</u><sup>209</sup> dialog.
- To change the order of table columns:
  - open the table in <u>Table Editor</u> [177];
  - proceed to the **Columns** tab there;
  - right-click a column and select the Reorder Columns <column\_name> context menu item;
  - edit columns' order using the <u>Reorder Columns</u> 183 dialog.

# **Dropping Columns**

- open the table in Table Editor 1771;
- proceed to the **Columns** tab there;
- right-click the field and select the Drop Column <column\_name> context menu item;
- confirm dropping in the dialog window.

### 5.4.1.4.1 Columns Editor

**Column Editor** allows you to specify column definition and set field properties. It opens automatically when you create a new column and is available on editing an existing one (see <u>Create column</u> 208) and <u>Edit column</u> 208) for details).

To open a column in **Column Editor**, double-click it in the <u>DB Explorer</u> [65] tree, or use the **Edit Column...** item of the context menu within the <u>Columns</u> [181] tab of <u>Table Editor</u> [177].

### 5.4.1.4.1.1 Editing column definition

### Column name

Enter a name for the new column, or modify the name of the column being edited. Note that the name of a column must be unique among all the column names in the table.

Edit column "	×	
Column <u>n</u> ame Data type	QW	
<u>Т</u> уре	CHAR (3)	
<u>S</u> ize	3  ☐ Unlimited	
Precision	0	
Number of <u>a</u> rray	0	
Collation		
Generated	ALWAYS ~	
Storage	EXTENDED ~	
Compression	DEFAULT ~	
Column flags Not Nu <u>l</u> l <u>P</u> rimary Key <u>U</u> nique	Statistics Number of statistic <u>d</u> etails (0 - no statistics) 100 - Default	
Default <u>V</u> alue Descri	iption	
	▲	
<	>	
<u></u> K	<u>C</u> ancel <u>H</u> elp	

# Data type

## Туре

Here you can set the column type by selecting it from the drop-down list of the standard PostgreSQL data types.

# Change by expression

Specify an expression that defines the value of the computed column.

### Size

Specify the size value (for certain types). Check the  $\mathbb{V}$  **Unlimited** option to use the maximum values set by PostgreSQL.

### Precision

Specify precision for numeric data type column.

Set the number of array dimensions in the **Number of array dimensions** spinner control. This control is disabled if the column is not an array column.

## Collation

Select column collation from the list.

### Generated

Select the value for identity column. If ALWAYS is specified, a user-specified value is only accepted if the INSERT statement specifies OVERRIDING SYSTEM VALUE. If BY DEFAULT is specified, then the user-specified value takes precedence.

### Storage

You can change the storage type to PLAIN, EXTENDED, EXTERNAL or MAIN.

### Compression

Select the compression method: pglz, lz4 or default to be selected by the server. Compression is supported only for variable-width data types, and is used only when the column's storage mode is main or extended.

### **Column flags**

# 🗹 Not Null

Check this option to specify that the values for the column should never contain a null value.

## Primary key

Check this option to include the column into the primary key. Note that if you include a column to a primary key, you should also make it *Not Null*.

A table typically has a column or combination of columns that contain values that uniquely identify each row in the table. This column, or columns, is called the primary key (PK) of the table and enforces integrity of the table.

# 🗹 Unique

Check this option to create a unique key on the column that provides entity integrity for a particular column or columns using a unique index.

The **Statistics** group enables collection of row-level statistics on database activity. **Number of statistic details** 

Allows setting the level of row-level statistics on database activity accumulation.

Use the **Default Value** and the **Description** tabs of **Column Editor** to set values taken by default and optional text as a description for the column.

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## 5.4.1.5 Foreign Keys

A **Foreign key** constraint (also called a *referential integrity constraint*) designates a column as the Foreign key and establishes a relationship between that foreign key and a specified *Primary* or *Unique* key called the *referenced key*. A composite Foreign key designates a combination of columns as the foreign key.

Table Foreign keys are managed within the **Foreign Keys** tab of <u>Table Editor</u> 177.

## **Creating Foreign Keys**

- open the table in <u>Table Editor</u> 177;
- proceed to the Foreign Keys tab there;
- right-click the tab area and select the New Foreign Key context menu item, or press the Ins key;
- define the Foreign key properties using the <u>Foreign Key Editor</u> 213 dialog.

## **Editing Foreign Keys**

- open the table in <u>Table Editor</u> 1771;
- proceed to the Foreign Keys tab there;
- right-click the Foreign key to edit and select the Edit Foreign Key
   <foreign\_key\_name> context menu item, or simply double-click the Foreign key;
- edit the Foreign key properties using the Foreign Key Editor 213 dialog.

# **Dropping Foreign Keys**

- open the table in <u>Table Editor</u> [177];
- proceed to the Foreign Keys tab there;
- right-click the Foreign key and select the Drop Foreign Key <foreign\_key\_name> context menu item;
- confirm dropping in the dialog window.

5.4.1.5.1 Foreign Key Editor

**Foreign Key Editor** allows you to specify foreign key definition and set foreign key properties. It opens when you create a new foreign key or edit an existing one (see <u>Create Foreign Key</u> 212) and <u>Edit Foreign Key</u> 212) for details).

To open a foreign key in **Foreign Key Editor**, double-click it in the <u>DB Explorer</u> [65] tree, or use the **Edit Foreign Key...** item of the context menu within the <u>Foreign Keys</u> [185] tab of <u>Table Editor</u> [177].

- Editing foreign key definition 213
- Editing foreign key description 966

5.4.1.5.1.1 Editing foreign key definition

Use the **Foreign Key** tab of **Foreign Key Editor** to create/edit a foreign key constraint and specify its properties.

### Foreign key name

Enter a name for the new foreign key, or modify the name of the foreign key being edited.

### **Not validated (for Postgres 9.1 and higher)**

If this option is selected then a foreign key can initially be added to a large existing table without checking its initial contents, but new tuples must comply with it.

# **Foreign table**

The drop-down list of <u>tables</u> allows you to select the table for which the foreign key is created.

Image: Boreign Key 'department_fk' on 'public.department'         X		
Properties Description		
Foreign key name dep	artment_fk Not validated	
Available Columns budget department dept_no head_dept	<ul> <li>Included Columns</li> <li>mngr_no</li> </ul>	
Foreign table put	v lic.employee	
Available Columns dept_no first_name full_name hire_date job_code	<ul> <li>Included Columns</li> <li>emp_no</li> </ul>	
On Delete action No Action Match type Simple Full	<ul> <li>✓ On Update action</li> <li>Deferrable</li> <li>☐ Deferrable</li> <li>Check time</li> <li>Immediate</li> </ul>	
	<u>O</u> K <u>C</u> ancel <u>H</u> elp	

The **Table Columns** area allows you to select Foreign key column(s).

To select a column, you need to move it from the **Available Columns** list to the **Included Columns** list. Use the  $\square$  is buttons or drag-and-drop operations to move the columns from one list to another.

### Foreign table

Use the drop-down list to select the foreign table.

The **Foreign Table Columns** area allows you to select the column(s) of the Foreign table.

To select a column, you need to move it from the **Available Columns** list to the **Included Columns** list. Use the **Section** buttons or drag-and-drop operations to move the column from one list to another.

If the referenced column(s) are changed frequently, it may be wise to add an index to the foreign key column so that referential actions associated with the foreign key column were performed more efficiently. See Indexes [219] for details.

## On Update action / On Delete action

• No action

Produce an error indicating that the deletion or update would create a foreign key constraint violation. If the constraint is deferred, this error will be produced at constraint check time if there still exist any referencing rows. This is the default action.

Restrict

Produce an error indicating that the deletion or update would create a foreign key constraint violation. This is the same as NO ACTION except that the check is not deferrable.

• Cascade

Delete any rows referencing the deleted row, or update the value of the referencing column to the new value of the referenced column, respectively.

• Set NULL

Set the referencing column(s) to null.

• Set default Set the referencing column(s) to their default values.

### Match type

A value inserted into the referencing column(s) is matched against the values of the referenced table and referenced columns using the given match type. These are the available match types:

Simple

Allows some foreign key columns to be null while other parts of the foreign key are not null (MATCH SIMPLE).

🧕 Full

Does not allow one column of a multicolumn foreign key to be null unless all foreign key columns are null (*MATCH FULL*).

# Deferrable

### Deferrable

This option controls whether the constraint can be deferred. A constraint that is not deferrable will be checked immediately after every command. Checking of constraints that are deferrable may be postponed until the end of the transaction.

## **Check Time**

If a constraint is deferrable, this option specifies the default time to check the constraint: Immediate

If the constraint is *INITIALLY IMMEDIATE*, it is checked after each statement. *Deferred* 

If the constraint is *INITIALLY DEFERRED*, it is checked only at the end of the transaction.

### 5.4.1.6 Checks

A **check** specifies an expression producing a Boolean result which new or updated rows must satisfy for an insert or update operation to succeed. Expressions evaluating to TRUE or UNKNOWN succeed. Should any row of an insert or update operation produce a FALSE result an error exception is raised and the insert or update does not alter the database. A check constraint specified as a column constraint should reference that column's value only, while an expression appearing in a table constraint may reference multiple columns.

Table checks are managed within the **Checks** tab of <u>Table Editor</u> 1771.

## **Creating Checks**

- open the table in <u>Table Editor</u> [177];
- proceed to the Checks tab there;
- right-click the tab area and select the New Check context menu item, or press the Ins key;
- define the check properties using the <u>Check Editor</u> dialog.

## **Editing Checks**

- open the table in <u>Table Editor</u> [177];
- proceed to the Checks tab there;
- right-click the check and select the Edit Check <check\_name> context menu item, or simply double-click the check;
- edit the check properties using the <u>Check Editor</u> 217 dialog.

## **Dropping Checks**

- open the table in <u>Table Editor</u> [177];
- proceed to the **Checks** tab there;
- right-click the check and select the Drop Check <check\_name> context menu item;
- confirm dropping in the dialog window.
5.4.1.6.1 Check Editor

**Check Editor** allows you to specify check definition and set check properties. It opens automatically when you create a new check and is available on editing an existing one (see <u>Create check</u><sup>216</sup> and <u>Edit check</u><sup>216</sup> for details).

To open a check constraint in **Check Editor**, double-click it in the <u>DB Explorer</u> [65] tree, or use the **Edit Check...** item of the context menu within the <u>Checks</u> [186] tab of <u>Table Editor</u> [177].

Editing check definition

5.4.1.6.1.1 Editing check definition

Use the **Check** tab of **Check Editor** to create/edit a check constraint and specify its properties.

### Check name

Enter a name for the new check, or modify the name of the check being edited.

\overline Edit Check Constraint	'Foo_Details_chk'	<b>—</b> ×-
Check name	Foo_Details_chk	
	Not validated	Non-inheritable
Condition		
1 (amount IS NU	LL) OR (amount >=	(0):: <u>numeric</u> ) 🔺
		+
<		•
Description		
not negative		<u> </u>
		E
		-
<ul> <li></li></ul>		•
	<u>о</u> к	<u>Cancel</u> <u>H</u> elp

### Not validated (for Postgres 9.2 and higher)

If this option is selected then a check can initially be added to a large existing table without checking its initial contents, but new tuples must comply with it.

### Non-inheritable (for Postgres 9.2 and higher)

If this option is selected then a check will not propagate to child tables.

### Condition

This area represents the condition implied by the check constraint. You can specify any logical (Boolean) expression that returns *TRUE* or *FALSE* based on the logical operators. For example, *salary* >= 15000 AND salary <= 100000. The **Description** field allows you to view and edit the comment for the object.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see <u>Working with Query</u> Data area [418] and <u>Using the context menu</u> [420].

# 5.4.1.7 Indexes

**Indexes** are objects used to find rows with specific column values quickly. If a table has an index for the columns in question, PostgreSQL can quickly determine the position to seek to in the middle of the data file without having to look at all the data.

Table indexes are managed within the **Indices** tab of <u>Table Editor</u> 1771.

## **Creating Indexes**

- open the table in <u>Table Editor</u> [177];
- proceed to the **Indexes** tab there;
- right-click the tab area and select the New Index context menu item, or press the Ins key;
- define the index properties using the <u>Index Editor</u> dialog.

# **Editing Indexes**

- open the table in <u>Table Editor</u> [177];
- proceed to the **Indexes** tab there;
- right-click the index and select the **Edit Index** context menu item, or simply doubleclick the index;
- edit the index properties using the <u>Index Editor</u> [220] dialog.

# **Dropping Indexes**

- open the table in <u>Table Editor</u> [177];
- proceed to the Indexes tab there;
- right-click the index and select the Drop Index context menu item;
- confirm dropping in the dialog window.

5.4.1.7.1 Index Editor

**Index Editor** allows you to specify index definition and set index properties. It opens automatically when you create a new index and is available on editing an existing one (see <u>Create Index</u><sup>[219]</sup> and <u>Edit Index</u><sup>[219]</sup> for details).

To open an index in **Index Editor**, double-click it in the <u>DB Explorer</u> [65] tree, or use the **Edit Index...** item of the context menu within the <u>Indices</u> [187] tab of <u>Table Editor</u> [177].

- Using Navigation bar and Toolbar 220
- Editing index definition 220
- Editing index description 966
- Viewing DDL definition 965

5.4.1.7.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Index Editor**.

# **Object**

- 📙 select a database
- select an index for editing

# General

- 🐓 <u>compile</u> and the index (if it is being created/modified)
- 😼 save the index <u>description</u> (if it has been modified)
- refresh the content of the active tab
- 📚 print metadata 🔊 of the index
- الالت المعنى معنى المعنى معنى المعنى ن المعنى المعن معنى المعنى المعنى المعنى المعنى المعنى المعنى المعنى معنى المعنى المعنى المعنى المعنى المعنى المعنى المعنى المعن المعني
- <sup>33</sup> reindex<sup>782</sup> the current table index
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the index:

# Description

📕 save object <u>description</u>छिली to file 🛅 copy <u>description</u>छिली to clipboard

# DDL

🚽 save <u>DDL</u>lब्रह्मे to file 🗹 open <u>DDL</u>lब्रह्मे in <u>Query Data</u>415ो

NB: You can enable disable Toolbars and Navigation bars at Environment options 877.

5.4.1.7.1.2 Editing index definition

Use the **Index** tab of **Index Editor** to create/edit an index on a specified table or materialized view, and specify index properties.

### Name

Enter a name for the new index, or modify the name of the index being edited.

# For table or materialized view

The drop-down list of <u>tables</u> and <u>materialized views</u> allows you to select the object to be indexed (available on creating a new index).

#### Index type

Primary key - this selection indicates that the primary key index is created.

Inique key - this selection indicates that the unique key index is created.

Inique index - makes index unique, causes the system to check for duplicate values in the table when the index is created (if data already exist) and each time data is added.

Index - this selection specifies a regular, non-unique index.

Exclusion - this selection specifies that the exclusion constraint is created. It ensures that if any two rows are compared on the specified columns or expressions using the specified operators, at least one of these operator comparisons will return false or null.

## Mark for table cluster

This option selects the index as default for future CLUSTER operations. It does not actually re-cluster the table (*ALTER TABLE ... CLUSTER ON ...*).

### Deferrable

If Primary or Unique key is selected as Index type, this section appears. It controls whether the index can be deferred. A constraint that is not deferrable will be checked immediately after every command.

### Deferrable

Check this option to defer the index.

### **Check Time**

If a constraint is deferrable, this option specifies the default time to check the constraint: *Immediate* - it is checked after each statement.

Deferred - it is checked only at the end of the transaction.



### Don't lock table on creation

Use this option to build the index without taking any locks that prevent concurrent inserts, updates, or deletes on the table.

#### Tablespace

Use the drop-down list to specify the index storage (a <u>tablespace</u> [318]).

### **Index method**

Select the index type. PostgreSQL provides several index methods: *B*-tree, *R*-tree, *hash*, *GiST* (*Generalized Index Search Trees*), *SP*-*GiST* (*space-partitioned GiST for Postgres 9.2* and *higher*), *brin* (*Block Range INdex for Postgres 9.5* and *higher*).

The **B-tree** index method is an implementation of Lehman-Yao high-concurrency B-trees. The **R-tree** index method implements standard R-trees using Guttman's quadratic split algorithm.

The **hash** index method is an implementation of Litwin's linear hashing.

### **Use default fillfactor**

Check this option to set fillfactor value to 100.

### Fillfactor

Specify the custom fillfactor value in this field. **Note:** To set this value you need to uncheck **Use default fillfactor** option.

### **B-tree index method**

## Use default deduplicate items

This option is available for *B*-tree method only. It controls usage of the B-tree deduplication technique for work optimization. If enabled, it applies the default value.

### Deduplicate\_items

Sets the value for inserts from triggering deduplication.

#### **GIN index method**

# Use default fast update

This option is available for *Gin* method only. Enable this setting to control the usage of the fast update technique. If enabled, it applies the value set below by default.

#### Fastupdate

Set this option ON to improve update speed or OFF otherwise.

### Use default gin\_pending\_list\_limit

This option is available for *Gin* method only. Enable this setting to control the limit to move entries to the main GIN data structure. If enabled, it applies the default value (4Mb).

### Gin\_pending\_list\_limit

This value is specified in kilobytes. If the pending list becomes larger than this value, the entries are moved to the main GIN data structure using the same bulk insert techniques used during initial index creation.

## **GIST index method**

### Use default buffering

This option is available for *Gist* method only. It controls whether to use the buffered build technique to build the index. If enabled, it applies the value set by default.

## Buffering

If it's OFF the buffering is disabled, ON it is enabled, and with AUTO it is initially disabled, but is turned on on-the-fly once the index size reaches effective\_cache\_size.

### **BRIN index method**

# Use default pages\_per\_range

This option is available for *Brin* method only. It controls whether the default value must be applied.

### Pages\_per\_range

It defines the number of table blocks that make up one block range for each entry of an index.

## **Use default autosummarize**

This option is available for *Brin* method only. It applies the default value fo autosummarizing.

# Autosummarize

Enables summarization is queued for the previous page range whenever an insertion is detected on the next one. Whenever autovacuum runs in that database, summarization will occur for all unsummarized page ranges that have been filled.

# Condition for partial index

A partial index is an index that contains entries for only a portion of a table, usually a portion that is more useful for indexing than the rest of the table. If you wish to create partial index, enter conditional expression in this edit box.

# Index keys

# **Operator Class**

This column allows you to specify an operator class for each column of the index. Use the drop-down list to select the operator class identifying the operators to be used by the index for the column.

# Selected index key

Specifies an index key name or an expression based on one or more index key columns of the table. This feature is useful to obtain fast access to tables based on the results of computations.

## 5.4.1.8 Policies

A policy grants the permission to select, insert, update, or delete rows that match the relevant policy expression.

Table policies are managed within the <u>Policy tab</u> [193] of <u>Table Editor</u> [177].

## **Creating Policies**

To create a new policy:

- open the table in <u>Table Editor</u> [177];
- proceed to the **Policies** tab there;
- right-click the tab area and select the New Policy context menu item, or press the Ins key;
- define the policy properties using the <u>Policy Editor</u><sup>[226]</sup> dialog.

# **Editing Policies**

To view an existing policy:

- open the table in <u>Table Editor</u> 177;
- proceed to the **Policies** tab there;
- right-click the policy and select the Edit Policy <policy\_name> context menu item, or simply double-click the policy;
- edit the policy properties using the <u>Policy Editor</u><sup>226</sup> dialog.

# **Dropping Policies**

To drop a policy:

- open the table in <u>Table Editor</u> [177];
- proceed to the **Policies** tab there;
- right-click the policy and select the **Drop Policy <policy\_name>** context menu item;
- confirm dropping in the dialog window.

#### 5.4.1.8.1 Policy Editor

#### 5.4.1.8.1.1 Editing Policy Definition

Use the **Policies** tab of **Policy Editor** to create/edit a policy and specify its properties.

### **Policy name**

Enter a name for the new policy, or modify the name of the policy being edited. Policy names are per-table. Therefore, one policy name can be used for many different tables and have a definition for each table which is appropriate to that table.

### For table

Select a table to create a policy for.

### Restrictive

When enabled a restrictive policy is created. By creating restrictive policies, administrators can reduce the set of records which can be accessed as all restrictive policies must be passed for each record.

### Command

Select the command to which the policy applies: ALL, SELECT, INSERT, UPDATE, or DELETE.

### Roles

Move the roles from *Available* to *Selected* to which the policy is to be applied.

Policy name employee_policy For table public.table Command <all> Roles Available Roles pg_database_owner pg_read_all_data pg_write_all_data pg_monitor</all>
Policy name employee_policy For table   Command < All >   Roles   Available Roles   pg_database_owner   pg_read_all_data   pg_write_all_data   pg_write_all_data   pg_monitor   For table   public.table   For table   public.table   Policy   Command   Selected Roles   tester   Policy   policy
Command <all> Restrictive Roles Available Roles pg_database_owner pg_read_all_data pg_write_all_data pg_monitor</all>
Roles          Available Roles          pg_database_owner          pg_read_all_data          pg_write_all_data          pg_monitor          Item to the time t
Available Roles pg_database_owner pg_read_all_data pg_write_all_data pg_monitor
pg_database_owner pg_read_all_data pg_write_all_data pg_monitor
pg_read_all_data pg_write_all_data pg_monitor
pg_write_all_data pg_monitor
pg_monitor
pg_read_all_settings
Osing expression
< >
······
Check expression
1 "Job" is 'HR'
· · · · · · · · · · · · · · · · · · ·
< >>
Description
test policy
v .
< >
OK Cancel Help

#### Using expression

Use this field to define an SQL conditional expression to be added to queries that refer to the table if row level security is enabled. Rows for which the expression returns true will be visible. Any rows for which the expression returns false or null will not be visible to the user (in a SELECT), and will not be available for modification (in an UPDATE or DELETE).

### Check expression

Use this field to define an SQL conditional expression. It's only available for INSERT and UPDATE commands. Only the rows satisfying the expression will be allowed.

The **Description** field allows you to view and edit the comment for the policy.

After all properties have been set you can enable or force row level security for the table on the **Policies tab** using the corresponding options:

# **Enable row level security**

Use this option to apply the policies to the table.

# Force row level security

With this option ON, row level security policies will be applied when the user is the table owner. If disabled then row level security will not be applied when the user is the table owner.

<u>F</u> ields	Foreign <u>K</u> ey	vs <u>C</u> hecks	Indices	T <u>r</u> iggers	R <u>u</u> les	Policies	Properties	Dependencies	D <u>a</u> ta	Description 4
Ena	able row leve	l security								
For	ce row level	security								
Policy N	lame	Command	F	Roles		Using			V	/ith Check
<b>b</b>	TEST_pol		p	ostgres						
<										>

# 5.4.2 Views

A **View** is a logical table based on one or more tables or views. A view contains no data itself. The tables upon which a view is based are called *base tables*.

**Views** are useful for allowing users to access a set of relations ( $\underline{tables}$ ) as if it were a single table, and limiting their access to just that. Views can also be used to restrict access to rows (a subset of a particular table).

**View Editor** allows you to create new views and define their properties (view name and the SELECT statement it implements). It opens automatically when you <u>create</u> 1551 a new view and is available on <u>editing</u> 1551 an existing one. SQL Manager supports manual creating and editing of Materialized views.

**Hint:** A view can be created by building a query in <u>Visual Design Query</u> [431] (click the **Create view** <u>Navigation bar</u>[432] item after building).

- Using Navigation bar and Toolbar 230
- <u>Creating/editing\_view</u>
   <sup>232</sup>
- <u>Managing columns</u>
   233
- Managing indexes 234
- Managing rules 235
- Managing triggers 236
- Browsing object dependencies
- <u>Working with data</u>
- Editing view description 966
- <u>Viewing DDL definition</u>
- Setting object permissions 968

## 5.4.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **View Editor**.



# **Object**

select a database
select a view for editing

# General

- f <u>compile</u>
- 퇴 save the view <u>description</u> (if it has been modified)
- 🕌 edit the view query using <u>Design Query</u>[431]
- refresh the content of the active tab
- ه print metadata المعامة print metadata والمعامة print metadata والمعامة المعامة محمد معامة المعامة مع
- 📴 view the <u>dependency tree</u> ि हो ही for the view
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the view:

# Rules

- 4 add a new rule
- dit selected rule
- drop selected rule(s)

# Triggers

- 😼 add a new trigger
- 😼 edit selected trigger
- drop selected trigger(s)

# **Data Management**

- ✓ commit transaction
- × rollback transaction

**Note:** These actions are available if the **I Use transactions in object editors, Query Data and Design Query** option is checked in the <u>Database Registration Info</u> | <u>Data</u> <u>options</u> 124 dialog.

- 🕆 export data from the view using Export Data Wizard
- export data from the view as SQL script using Export as SQL Script Wizard बिछ
- ो import data 582

# **Materialized View**

refreshes data of materialized view
refreshes data of materialized view

# Description

🚽 save object <u>description</u> ७६६ to file

🐚 copy <u>description</u> बिली to clipboard

# DDL

🚽 save <u>DDL</u>965 to file

📝 open <u>DDL</u>965ी in <u>Query Data</u>415ी

NB: You can enable \disable Toolbars and Navigation bars at Environment options [877].

# 5.4.2.2 Creating/editing view

Use the **View** tab of **View Editor** to create/edit a view and specify its definition.

This tab represents the view definition as SQL statement, hence it is enough to simply edit the whole definition using the editor area to make appropriate changes, and recompile the view.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see <u>Working with Query</u> Data area [418] and <u>Using the context menu</u> [420].



**Note:** The visual representation of a view can be easily created using the <u>Visual Design</u> <u>Query</u> [431].

**Note:** You can create Materialized views manually.

To compile a view, you can use the  $\frac{4}{5}$  **Compile** item available within the <u>Navigation bar</u> 230 or <u>toolbar</u> 230.

# 5.4.2.3 Managing columns

The **Columns** tab is provided for viewing columns represented in the view.

Right-click a column to display the context menu allowing you to *rename* the selected column, <u>export</u> and column name list or copy it to clipboard.

Vjew	<u>C</u> olumns	T <u>r</u> iggers	R <u>u</u> les	Dependen <u>c</u> ies	D <u>a</u> ta	Description	DD <u>L</u>	Permissions		
Column	Name		Colum	п Туре	Descri	Description				
	dept_no		char(3	)						
	departmen	t	varcha	ar(25)						
	head_dept		char(3	)						
	mngr_no		smallin	t						
	budget		numeri	c(12,2)						
	location		varcha	ır(15)						
	phone_no		varcha	ar(20)						
		R	ename C	olumn 'phone_n						
		E	oport List	t						
		C	opy List (	of Column Name	s to Clipb	bard				
		Fi	t Column	Widths		-				
Colum	n Descript	tion [phor	ne_no]							
	Modifie	d	Modi	fied Ins	ert				_	

The **Columns** list provides the following attributes of each column of the view:

Column Name Column Type Description

For details see <u>Columns</u> 2081.

If necessary, you can also use the **Column Description** area to supply a *description* for each column.

## 5.4.2.4 Managing indexes

The **Indices** tab is provided for managing indices for the **Materialized views** only. Double-click an index to open Index Editor 220 for editing the index.

Right-click the area to display the context menu allowing you to *Create new*, *Edit*, *Rename*, *Drop*, *Reindex* the selected index, or *Reindex all* indices. Using the menu you can also export [536] the list of the table indices to any of the supported formats [983].

Indices management tools are also available through the <u>Navigation bar</u> 220 and <u>toolbar</u> 220 of **View Editor**.

If necessary, you can also use the **Index Description** area below to supply a *description* for each index.

View	<u>F</u> ields	Indices	Dependen <u>c</u> ies	D <u>a</u> ta	D <u>e</u> scription	DD <u>L</u>	<u>P</u> ermissions		
Index Na	ame		Function	C	n Field (s)		Туре	Unique	Primary Key
	supply	idx	New Index Edit Index 'supply Rename Index 'supply Drop Index 'supply_ Reindex 'supply_ Reindex All Indica Export List	/_idx' upplyi lyidx' _idx' es	Ins Enter dx' Del		brin		
Index D	Descrip	otion (su	III Ipply_idx]						•

**NOTE:** This tab is only available for materialized views.

### 5.4.2.5 Managing rules

The **Rules** tab is provided for viewing rules specified for the view. Double-click a rule to open Rule Editor for editing the rule.

Right-click a rule to display the context menu allowing you to *create* new, *edit*, or *drop* the selected rule. Using the menu you can also <u>export</u> [536] the list of the view rules to any of supported <u>formats</u> [983].

View	<u>F</u> ields	<u>R</u> ules	Dependencies	D <u>a</u> ta	Description	DD <u>L</u>	Permissions	
Rule N	ame		Event	Instea	d Where	e Conditi	on Descript	ion
	products	s_view_rl	update					
			New Rule		Ins			
			Edit Rule 'prod	lucts_vi	ew_rl' Enter			
			Drop Rule 'pro	ducts_v	riew_rl' Del			
			Export List					
Rule I	Descrip	tion (pro	oducts_view_rl	]				
<	1							۴.
	1:	1						

The **Rules** list provides the following attributes of each rule of the view:

Rule Name Event Instead WHERE condition

For details see <u>Rules</u> 264.

If necessary, you can also use the **Rule Description** area to supply a *description* for each rule.

## 5.4.2.6 Managing triggers

The **Triggers** tab is provided for managing table  $\underline{\text{triggers}}_{268}$ . Double-click a trigger to open  $\underline{\text{Trigger Editor}}_{268}$  for editing the trigger.

Right-click the area to display the context menu allowing you to *create* new, *edit*, *drop*, *enable/disable* the selected trigger, or *enable/disable* all triggers. Using the menu you can also <u>export</u> [536] the list of the table triggers to any of supported <u>formats</u> [983].

Triggers management tools are also available through the <u>Navigation bar</u>व्यिण and <u>toolbar</u>व्यिण of **View Editor**.

View	<u>F</u> ields	<u>T</u> riggers	<u>R</u> ules	Depende	n <u>c</u> ies	D <u>a</u> ta	Description	DD <u>L</u>	Permi	ssions		
Trigger	Name		Mom	ent Even	ıt	Functio	n	Enabl	ed	Argume	nts	
	view1_t	r	befor	re upda	te	public.Update_view			<b>V</b>			
					84	New T	rigger	Ins	s			
					8	Edit Tri	igger 'view1_tr	' Ente	r			
					<b>S</b>	Drop T	rigger 'view1_t	tr' De	1			
						E <u>x</u> port	List					
•												÷.
Trigge	er Desc	ription (vi	iew1_trj									
Comme	ent fo	r trig	ger									*
												-
	<u></u>										P	_
	23	: 1	Mo	dified	In	sert						

The **Triggers** list provides the following attributes of each trigger of the table:

Trigger Name Moment Event Function Disabled Arguments

For details see Triggers 268.

If necessary, you can also use the **Trigger Description** area to supply a *description* for each trigger.

### 5.4.2.7 Working with data

The **Data** tab displays the view data as a grid by default (see <u>Data View</u> 453) for details). The context menu of this tab and the <u>Navigation bar</u> विडे allow you to <u>Export Data</u> 538, <u>Import Data</u> 582), <u>Export as SQL Script</u> 608).

While working with view data, you are provided with a number of <u>filtering</u> and <u>grouping</u> facilities.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

<u>Data management</u> [452] tools are also available through the <u>Navigation bar</u> [230] and <u>toolbar</u> [230] of **View Editor**.

View	<u>F</u> ields	Rules	Depender	n <u>c</u> ies	D <u>a</u> ta	De	escription	DD <u>L</u>	<u>P</u> ermis	sions				
	<b>* • •</b>	• • •	+		× [~]*	e Þ,	* 7	**		3 100	0		>>	Ŧ
Dra	g a columr	n header h	nere to grou	ıp by t	hat colun	nn								1
∃ DI	EPT_I 💌	DEPART	MENT_NA	N 🖵 I	MANAGE	T	GROUP_	NAME					•	
	1	Administr	ation			4	Executive	Genera	l and Ad	ministra	tion			
	2	Marketin	g			7	Sales and	I Marketi	ng					
	3	Purchasi	ng			12	Sales and	I Marketi	ng					=
	4	4 Human Resources 35 Executive General and Administration												
	5	Shipping				24	24 Inventory Management							
	6	IT			2 Research and Development									
₽	7	Public Re	elations		25 Research and Development									
	8	Sales				9	Sales and	I Marketi	ng					
	9	Executiv	e			19	Executive	Genera	I and Ad	ministra	tion		_	
	10	Finance				3	Executive	Genera	I and Ad	ministra	tion			
	11	Accounti	ng			8	Executive	Genera	I and Ad	ministra	tion			
	12 Treasury 31 Executive General and Administration													
	13	Corporat	e Tax			26	Executive	Genera	I and Ad	ministra	tion			Ŧ
Grid	View	For <u>m</u> Viev	v Pri <u>n</u> t (	Data										
Reco	ords fetche	ed: 21/21				exe	ec: 125 ms	; total: 2	19 ms	LIMIT	1000 (	OFFS	ET 0	,

For **Materialized views** the following operations are available on the Navigation bar or Toolbar:

refreshes data of materialized view

I clears data of materialized view (REFRESH with NO DATA)

See also: Working with table data Data View बिठ्ये

# 5.4.3 Functions

A **Function** is a mapping embodied as a program (the function *body*) that can be invoked by using zero or more input values (*arguments*) to a single value (the *result*). A **Function** can be stored as a database object providing reusable code.

PostgreSQL provides four kinds of functions:

- query language functions (functions written in SQL);
- procedural language functions (functions written in, for example, PL/Tcl or PL/pgSQL);
- internal functions;
- C-language functions.

Every kind of function can take <u>base types</u> 278, <u>composite types</u> 283, or combinations of these as arguments (parameters). In addition, every kind of function can return a *base type* or a *composite type*. Many kinds of functions can take or return certain *pseudo-types* (such as *polymorphic types*), but the available facilities vary.

**Function Editor** allows you to define function properties. It opens automatically when you <u>create</u> a new function and is available on <u>editing</u> an existing one.

- Using Navigation bar and Toolbar 240
- <u>Creating/editing function</u><sup>242</sup>
- Executing functions 246
- <u>Specifying input parameters</u> 247
- Browsing object dependencies 967
- Editing function description 966
- Viewing DDL definition 965
- <u>Debugger</u><sup>248</sup>

## 5.4.3.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Function Editor**.



The Navigation bar of Function Editor allows you to:

# Object

- select a database
  select a function for editing
- General
- $\frac{4}{3}$  compile **bases** the function (if it is being created/modified)
- 😼 save the function <u>description</u>छि (if it has been modified)
- View Check function syntax
- 🕝 debug the function using <u>Function debugger</u> 248।
- 🧯 debug with <u>pldbgapi extension</u>248
- ▶ <u>execute</u> 246 the function
- lateral refresh the content of the active tab
- م <u>print metadata</u> المعقاقة print metadata
- 🧮 view the <u>dependency tree</u> बिडी for the function
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the function:

# Description

- save object <u>description see</u> to file
- opy <u>description</u> विकी to clipboard

# DDL

जि save <u>DDL</u>965ी to file बि open <u>DDL</u>965ी in <u>Query Data</u>415ी NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

## 5.4.3.2 Creating/editing function

Use the **Function** tab of **Function Editor** to create/edit a function and specify its definition.

### Name

Select a <u>schemaned</u> and enter a name for the new function, or modify the name of the function being edited.

Honction - [public.inventory_held_by_	customer(p_inventory_id integer)] - [DVDRENT on localhost:54396]	
📒 🖯 Databases 🕶 😼 👘 💱 🕇 🍞 🎗	🛊 🕨 = 🛛 🏖 🛃 🙀 inventory_held_by_custor 🧹 🔡 🛛 🧹 🗙 📑 📑	
Object \$	Eunction Configuration Parameters Dependencies Description DDL Permissions	
🔒 DVDRENT on localhost:54396 [DVI 🗸	Name public v inventory_held_by_customer Returns same result on same arguments	
inventory_held_by_customer(p_in ~	Returns         Single value         O Set of values         Table         Returns null input           Nothing         Trigger         Is window function	
General 🎗	Return type INTEGER V Is leakproof function	
	Rejurn table Column Name Column Type Optimization Never (VOLATILE)	$\sim$
SQL Check syntax	Parallel UNSAFE	$\sim$
> Debug	Planner options (0 - default)	
Debug with extension	Estimated execution cost 100	)
Execute	Language plpgsql V Estimated number of rows D	*
Refresh	Arguments	
le Print	Name Type Mode Default Value	
Dependency tree	1 p_inventory_id INTEGER Input	
Restore default size		
	Definition	*
	1 DECLARE	^
	2 v_customer_id <u>INTEGER;</u> 3 BEGIN	
	4	
	5 SELECT customer_id INTO v_customer_id	
	6 FROM rental 7 WHERE return date IS NULL	
	8 AND inventory id = p inventory id;	
	9	
	10 RETURN v_customer_id;	
	11 END	
	٢	>
	insert inignighting unicode (UCS-2)	.;

# Returns

Use this options to define what data is to return by the function:

Single value - the function returns a single item; to define its type use the drop-down list.

Set of values - the function returns a set of items; define its type using the drop-down list.

Table - the function returns table; define its type using the Return table column (for Postgres 9.1 and higher).

Nothing - the function returns void.

Trigger - the function returns a trigger.

The **Arguments** list provides the following attributes of each argument used in the function:

Name Type (the argument data type) Mode (in, out, in/out) Default value Set the function arguments by right-clicking in the list and selecting + Add Argument. Once the argument is added, select its type from the Argument Type drop-down list. To delete the existing argument, select - Delete Argument from the popup menu. To reorder the arguments within the list, use the + Move Up and + Move Down items or the corresponding Ctrl+Up/Ctrl+Down shortcuts world.

It is possible to set the argument names for server version 8.0 and higher. **Hint:** You can reorder arguments in the list using the **Move Up** and **Move Down** popup menu items.

# Language

Select the language that the function is implemented in: SQL, C, internal, or the name of a user-defined procedural language  $32^{1}$ .

### Returns NULL on NULL input

This option indicates that the function always returns null whenever any of its arguments are null. If this parameter is specified, the function is not executed when there are null arguments; instead a null result is assumed automatically.

### Execute with definer's privileges

This option specifies that the function is to be executed with the privileges of the <u>user</u> rsh that created it. Otherwise, the function is to be executed with the privileges of the user that calls it.

# ✓ Is window function

This option indicates that the function is a window function rather than a plain function. A window function performs a calculation across a set of table rows that are somehow related to the current row.

# Is leakproof function

This option indicates that the function has no side effects. It reveals no information about its arguments other than by its return value. For example, a function which throws an error message for some argument values but not others, or which includes the argument values in any error message, is not leakproof.

### Optimization

Select the behaviour of the function:

**IMMUTABLE** indicates that the function cannot modify the database and always returns the same result when given the same argument values.

**STABLE** indicates that the function cannot modify the database, and that within a single table scan it will consistently return the same result for the same argument values, but that its result could change across SQL statements.

**VOLATILE** indicates that the function value can change even within a single table scan, so no optimizations can be made.

### Parallel

Set whether the function can be executed in the parallel mode:

**UNSAFE** value prohibits parallel mode.

**RESTRICTED** indicates that the function can be executed in parallel mode, but the execution is restricted to parallel group leader.

**SAFE** value indicates that the function can be run in parallel mode.

### **Planner options**

This group is available for server version 8.3 and higher. The spinner controls allow you to specify **Estimated execution cost** and **Estimated number of rows**.

## Definition

This area allows you to set the function definition (body).

For your convenience the **syntax highlight**, **code folding**, using macro and a number of other features for efficient SQL editing are implemented. For details see <u>Working with</u> <u>Query Data area</u> 418, <u>Using the context menu</u> 420 and .

The possibility to use macros is also implemented.

To *start recording* a macro, click the  $\bullet$  **Record** button available in the status bar area, or use the *Shift+Ctrl+R* shortcut.

To *stop recording*, click the **Stop** button, or use the *Shift+Ctrl+R* shortcut. To *call* the recorded macro, use the **Play** button, or use the *Shift+Ctrl+P* shortcut.

To <u>execute</u> 1246 the function, you can use the **Execute** item available within the <u>Navigation bar</u> 1240 or <u>toolbar</u> 1240.

### 5.4.3.3 Setting configuration parameters

Use the **Configuration Parameters** tab to set function or procedure configuration parameters.

Eunction	Configuration Parameters	Depe	nden <u>c</u> ies	Description	DDL	Permissions	
Parameter	Name		Paramete	r Value			Take Current Value
application	n_name		EMS SQL	Manager for	Postgres	SQL	
check_fur	nction_bodies	-					
block_siz	e						
bonjour		(=1)					
bonjour_n	ame						
bytea_out	tput						
check_fu	nction_bodies						
checkpoir	nt_completion_target						
checkpoir	nt_segments						
checkpoir	nt_timeout	Ŧ					

Configuration parameter is set to the specified value when the function\procedure is entered, and then restored to its prior value on exiting.

Use the **Parameter Name** list to select settable run-time parameters.

### **Parameter Value**

Enter a new value of parameter. Values can be specified as string constants, identifiers, numbers, or comma-separated lists of these, as appropriate for the particular parameter.

If the **Take Current Value** option is checked for a particular parameter then the session's current value of the parameter is saved as the value to be applied when the function\procedure is entered.

### 5.4.3.4 Executing functions

**Function Editor** provides an ability to execute functions. Click the **Execute** item of the <u>Navigation bar</u><sup>240</sup> or use the corresponding <u>toolbar</u><sup>240</sup> button to execute the function.

If the function has input parameters, SQL Manager allows you to specify the values for these parameters in the Input Parameters 247 dialog, which appears just before execution.

The result of the successfully executed function, as well as the error message in case of execution failure, appears in the message panel at the bottom of the **Function Editor** window.

**Note:** If any unsaved changes are applied to the stored function being currently edited, the execution of the function is impossible unless changes are saved through the **Compile** item of the **Navigation bar**.

See also: Specifying input parameters 247।

# 5.4.3.5 Specifying input parameters

If the stored function has parameters, the **Enter Parameter values** dialog appears before the function <u>execution</u><sup>[246]</sup>. This dialog is provided for browsing the list of parameters of the function and allows you to specify the values for all function parameters. After changes are done, click the **OK** button to execute the stored function, or the **Cancel** button to abort the execution.

Enter parameter	values			<b>—</b>
param1 bigint	V Null		* *	
param2 varchar	✓ Null			
		<u>o</u> ĸ	Cancel	

# 5.4.3.6 Debugger

To fix the errors in the function or procedure code and to optimize its work, you can debug the function or procedure step-by-step before compilation, using the **Debugger**.

To activate the debugger, open the function or procedure in the Editor, then click the  $\hat{e}$  **Debug** button on the toolbar 240 or on the Navigation bar 240.

**NB** You can use **Debug with extension** button to debug with server pldbgapi extension. In this case you will be able to use Step into feature, which is not available in the built-in program debugger. To install the extension of use Services --> Database extensions.

<u>Availability</u>: **Full** version (for Windows) **Yes Lite** version (for Windows) **No Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u><sup>[22]</sup> page.

### 5.4.3.6.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in the **Debugger**.



# General

restore the default size and position of the debugger window

# Debug

- ✓ commit retaining
- step over the next statement
- it step into the statement. Available if <u>Debug with extension</u> 48 used
- run the function\procedure
- run the function\procedure to cursor
- toggle breakpoint at the current statement
- reset function\procedure execution

Items of the **Navigation bar** are also available on the **ToolBar** of **Function Debugger**. To enable the <u>toolbar</u>[963], open the <u>Environment Options</u>[871] dialog, proceed to the <u>Windows</u>[877] section there and select **()** *Toolbar* (if you need the toolbar only) or **()** *Both* (if you need both the toolbar and the <u>Navigation bar</u>[961]) in the **Bar style for child forms** group.

### 5.4.3.6.2 Debugging

The working area allows you to view the text of object definition.

The red spots ( $\bullet$ ) at the left of the workspace and red highlight stand for <u>breakpoints</u> between the green arrow ( $\bullet$ ) and blue highlight indicate the currently executed statement.

🏂 Function Debug - [pub	lic.TestF] - [	TestDB on ayz2:54	383]			-	- • <b>· · ·</b>
🗄 🧹 Commit Retaining	🕝   🕨 🛛	🖌 🔍 🖉 🖉					F
General	*	DECLA     2 p1	ARE int;				<u>^</u>
Restore default size		3 BEGIN	;= 1;				=
Debug	*	● ♦ 🗆 del 6 whe	ete from red	rder			
<ul> <li>Step over</li> <li>Step Into</li> <li>Run</li> <li>Run to cursor</li> <li>Toggle breakpoint</li> <li>Reset</li> </ul>		7 8 9 11 END;	prod_id and prod_des surn 2;	<pre>= param1 scription =</pre>	param2;		•
		Parameters and	/ariables Results	Last Statement	Breakpoints	Messages	
		Name S1 [para S2 [para Found Found Found Result Oi	Value           m1]         < NULL >           m2]         < NULL >           < NULL >         1           d         < NULL >		Kind Variable Variable Variable Variable Variable		
4:5			Insert	Highlig	hting Uni	code (UCS-2)	.:

For your convenience the following <u>shortcuts</u> are implemented:

- To start executing step-by-step, press F8.
- To reset the execution, press the **Ctrl+F2** key combination.
- To add/remove a breakpoint to/from the current statement, press the **Ctrl+F8** key combination.
- To run the function\procedure (to the end or to the next breakpoint) press F9.

Set mouse cursor over a parameter to see a **hint** with its current value.

**Hint:** Click an embedded function (or any other object) name with the *Ctrl* key pressed to open the object in its editor. For details see <u>Using object links</u> 425.

NB: **Step into** button is only available if <u>Debug with extension</u><sup>[248]</sup> used

The lower area of the **Debugger** window allows you to browse *parameters and variables*, *results*, *last statement*, *breakpoints*, *messages*. For details see <u>Browsing debug</u> <u>information</u>[251].

5.4.3.6.3 Brow sing debug information

Use tabs at the bottom of the debugger window to view miscellaneous debug information.

### **Parameters and Variables**

This tab displays the list of input and output parameters and variables (distinguished by respective icons) with their values and types.

$\underline{P}\textsc{arameters}$ and Variables		Results	Last Statement	<u>B</u> reakpoints	<u>M</u> essages	
Name		Value	1	Kind		
Var	Found	< NULL >	١	/ariable		
Var	p1	1	١	/ariable		
Var	Result Oid	< NULL >	١	/ariable		-
Var	Return Value	< NULL >	١	/ariable		
Var	Row Count	1	١	/ariable		-

Double-click an item in the list to call the **Modify variable** dialog allowing you to set the parameter/variable type and value.

👸 Modify variable	<b>X</b>
Return value	
Variable Type	
Numeric	Date and Time
String	Array
Boolean	
✓ Null	
	Modify Cancel

### Variable Type

Select the data type to be applied to the variable being edited:

- 🧕 Numeric
- String
- 🖲 Boolean
- 🧕 Date and Time

Use the **Value** box below to specify a value for the variable, or select the **Value** option. The control varies according to the selected data type. For your convenience the *Calculator* and *Date editor* are implemented for *Numeric* and *Date and Time* types respectively: click the arrow-down button to call the *Calculator / Date editor* popup window.

#### Results

This tab displays the function execution results.

Parameters and Var	riables	<u>R</u> esults	Last Statement	<u>B</u> reakpoints	Messages	
#	Return	n value				
1	2					

### Last Statement

This tab displays the last executed statement, the statement execution plan and the execution time.



### **Breakpoints**

This tab displays the function breakpoints: the breakpoint line, statement and the number of its passes.

Pa	rameters ar	d Variables	<u>R</u> esults	Last Statement	<u>B</u> reakpoints	<u>M</u> essages	
Lin	e	Statement				Passes	
•	5	delete from	reorder	where prod_	id = p1;	0	

## Messages

This tab displays various **Debugger** messages and errors (if any).
Param	eters and Variables	Results Last Statement Breakpoints Messages					
Type Text							
1	1 Error ERROR: operator does not exist: integer == integerLINE 1: delete from reorder						
ERROR: operator does not exist: integer == integer LINE 1: delete from reorder where prod_id == 1::int							
	LINE T. delete from reorder where prod_id == 1int						

## 5.4.4 Procedures

A Procedure is a part of code, which performs the row of actions, but doesn't return any values. One of the main features of procedures is using transaction in code. Procedures are supported in PostgreSQL server versions starting from 11.0.

You can create or edit existing procedures in Procedure editor 257.

Using Navigation bar and Toolbar<sup>[255]</sup> Creating/editing procedure<sup>[257]</sup> Setting configuration parameters<sup>[245]</sup> Specifying input parameters<sup>[247]</sup> Browsing object dependencies<sup>[967]</sup> Editing procedure description<sup>[966]</sup> Viewing DDL definition<sup>[965]</sup> Setting object permissions<sup>[968]</sup>

### 5.4.4.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Procedure Editor**.



The Navigation bar of Procedure Editor allows you to:

## **Object**

- 😑 select a database
- select a procedure for editing

## General

- $\frac{1}{2}$  <u>compile</u> with the procedure (if it is being created/modified)
- ធ save the procedure <u>description</u>ब्ली (if it has been modified)
- Version check procedure syntax
- 🕝 debug the procedure using <u>debugger</u>248
- ▶ <u>execute</u><sup>246</sup> the function
- refresh the content of the active tab
- <u>print metadata</u>ها of the function
- view the <u>dependency tree</u> [538] for the function
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the procedure:

## Description

- 🚽 save object <u>description</u> छिंही to file
- 🗅 copy <u>description</u> बिही to clipboard

# DDL

🚽 save <u>DDL</u>ଡ଼ିଶ to file 🗹 open <u>DDL</u>ଡ଼ିଶ in <u>Query Data</u>41ର୍ଶ NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

### 5.4.4.2 Creating/editing procedure

Use the **Procedure** tab of **Procedure Editor** to create/edit a procedure and specify its definition.

### Name

Select a <u>schemaned</u> and enter a name for the new procedure, or modify the name of the procedure being edited.

Database	*	Procedure Configuration Parameters Dependencies Description DDL	
B db_one on tester1:541	11   ~	Name public ~ . procedure	
Company		Language pipgsql V	
General	~	Arguments	
😴 Compile		Name Type Mode Default Value	
SQL Check syntax		a BIGINT V V	
Debug			
bebug with extension			
Restore default size			
_			
		· · · · · · · · · · · · · · · · · · ·	>
		D <u>e</u> finition	*
		1 INSERT INTO tbl VALUES (a);	^
		2 INSERT INTO tbl VALUES (b);	
		3	

#### Language

Select the language that the procedure is implemented in: SQL, C, internal, or the name of a user-defined procedural language [32].

The **Arguments** list provides the following attributes of each argument used in the function:

Name Type (the argument data type) Mode (in, out, in/out) Default value

Set the procedure arguments by right-clicking in the list and selecting **+** Add Argument. Once the argument is added, select its type from the Argument Type drop-down list. To delete the existing argument, select **-** Delete Argument from the popup menu. To reorder the arguments within the list, use the **+** Move Up and **+** Move Down items or the corresponding Ctrl+Up/Ctrl+Down shortcuts within.

#### Definition

This area allows you to set the procedure definition (body).

For your convenience the **syntax highlight**, **code folding**, using macro and a number of other features for efficient SQL editing are implemented. For details see <u>Working with</u>

Query Data area 418, Using the context menu 420 and .

To execute the function you can use the **Execute** item available within the <u>Navigation</u>  $\frac{bar}{240}$  or <u>toolbar</u>  $\frac{1}{240}$ .

# 5.4.5 Domains

A **Domain** is based on a particular  $\frac{base type}{278}$  and for many purposes is interchangeable with its base type. However, a domain may have constraints that restrict its valid values to a subset of what the underlying base type would allow.

**Domain Editor** allows you to define domain properties. It opens automatically when you <u>create</u> [155] a new domain and is available on <u>editing</u> [155] an existing one.

- Using Navigation bar and Toolbar 260
- Creating/editing domain 263
- Managing domain checks 262
- Browsing object dependencies
- Editing domain description 966
- <u>Viewing DDL definition</u>
- Setting object permissions 968

# 5.4.5.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Domain Editor**.



## **Object**

😑 select a database 🚽

🖄 select a domain for editing

## General

- $\frac{1}{9}$  <u>compile</u> of the domain (if it is being created/modified)
- 퇴 save the domain <u>description</u> 📾 (if it has been modified)
- a refresh the content of the active tab
- 🛸 <u>print metadata</u> 🕬 of the domain
- 🧮 view the <u>dependency tree</u>िक्छी for the domain
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the domain:

# Checks

- 🚰 <u>add</u>वाबे a new check
- 🔀 edit वाले selected check
- 🙀 drop वाही selected check(s)

# Description

🚽 save object <u>description</u> छिले to file 🛅 copy <u>description</u> छिले to clipboard

# DDL

🚽 save <u>DDL</u>छठी to file 📝 open <u>DDL</u>छठी in <u>Query Data</u>415ी NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

## 5.4.5.2 Managing domain checks

The **Checks** tab is provided for managing domain checks. Double-click a check to call <u>Check Editor</u> [217] for editing the check. A right-click displays the context menu allowing you to create a new, edit, or drop the selected check.

Do <u>m</u> ain	Checks	De	Dependencies Description DDL						
Check N	Check Name Definition								
🖬 g	positive-number_chk VALUE >= (1)::numeric								
		1	New Check			Ins			
		1	Edit Check	positive-numbe	er_chk'	Enter			
			Rename Ch	eck 'positive-n	umber_c	hk'			
	1			Drop Check 'positive-number_chk' Del					
			E <u>x</u> port List						
•	4								
	······								

See <u>Checks</u> 216 for details.

## 5.4.5.3 Creating/editing domain

Use the **Domain** tab of **Domain Editor** to create/edit a domain and specify its definition.

### Name

Select a <u>schemaned</u> and enter a name for the new domain, or modify the name of the domain being edited.

New Domain - [TestDB on ayz2:54383]							
🕴 😑 Databases 🕶 😼 💼 🛛		=					
Database 🎗	Domain Checks Dependencies Description DDL						
E TestDB on ayz2:54383	Name public   positive-number  pata type						
General	Type NUMERIC	-					
Gompile	Size     15     □ Unlimited       Precision     3       Number of array dimensions     0						
	Advanced       Image: Not Null       Default value						

#### Data type

Select the underlying *data type* of the domain from the drop-down list, and set its *size*, *precision*, if required for the selected data type. To create an array of the chosen type, use the **Number of array dimensions** spinner control.

### Advanced

#### Not Null

If enabled, specifies that values of this domain are not allowed to be null.

#### **Default value**

This specifies a default value for columns of the domain data type. The value is any variable-free expression (but subqueries are not allowed). The data type of the default expression must match the data type of the domain. If no default value is specified, then the default value is the null value.

The default expression will be used in any insert operation that does not specify a value for the column. If a default value is defined for a particular column, it overrides any default associated with the domain. In turn, the domain default overrides any default value associated with the underlying data type.

# 5.4.6 Rules

The **Rule** system modifies queries to take rules into consideration, and then passes the modified query to the query planner for planning and execution. It is very powerful, and can be used for many things such as query language procedures, views, and versions.

**Rule Editor** allows you to define rule properties. It opens automatically when you <u>create</u> 155 a new rule and is available on <u>editing</u> 155 an existing one.

- Using Navigation bar and Toolbar 265
- Creating/editing rule 266
- Browsing object dependencies
- Editing rule description 966
- <u>Viewing DDL definition pesh</u>

### 5.4.6.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Rule Editor**.



# Object

select a database select a rule for editing

## General

- 🖸 <u>compile</u>669) the rule (if it is being created/modified)
- 😼 save the rule <u>description</u> छि (if it has been modified)
- refresh the content of the active tab
- م print metadata المعامة print metadata المعامة في المعامة محمد معامة محمد معام
- 🧮 view the <u>dependency tree</u>ब्उंशे for the rule
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the rule:

## Description

🚽 save object <u>description</u>छित्तै to file 🗅 copy descriptionछित्ती to clipboard

## DDL

🚽 save <u>DDL</u>छिडी to file 📝 open <u>DDL</u>छडी in <u>Query Data</u>415ी

NB: You can enable \disable Toolbars and Navigation bars at Environment options [877].

## 5.4.6.2 Creating/editing rule

Use the **Rule** tab of **Rule Editor** to create/edit a rule and specify its definition.

### Name

Enter a name for the new rule, or modify the name of the rule being edited.

### For table or view

Use the drop-down list to select the <u>table</u> 169/<u>view</u> 229 the rule applies to.

## 🗹 Instead

This option indicates that the commands should be executed instead of the original command.

🕼 Rule - [Employees_rl_ondelete on public.Employees] - [TestDB on ayz2:54383]								
🕴 😑 Databases 👻 🐓 🐘 🛛 🇞 🛃 🎇 Employees_rl_ondelete on Employees 🔹 💱								
Object <sup>*</sup>	Rule Dependencies D	escription DDL						
E TestDB on ayz2:54383	<u>N</u> ame	Employees_rl_ondelete	Instead					
Employees_rl_ondelete	For table or view	public.Employees	▼					
General *		OPDATE						
<ul> <li>✓ Compile</li> <li>✓ Refresh</li> <li>✓ Print</li> <li>✓ Dependency tree</li> <li>✓ Restore default size</li> </ul>	Action         SELECT "Emp1         2       "Emp1         3       "Emp1         4       "Emp1         5       "Emp1         6       "Emp1         7       "Emp1         8       "Emp1         10       "Emp1         11       "Emp1         12       "Emp1         13       "Emp1	Loyees"."EMP_ID", Loyees"."POSITION", Loyees"."FIRST_NAME", Loyees"."LAST_NAME", Loyees"."GENDER", Loyees"."MARITAL_STATUS' Loyees"."BIRTH_DATE", Loyees"."HIRE_DATE", Loyees"."IS_ACTIVE", Loyees"."SALARY", Loyees"."DETAILS", Loyees"."DEPT_ID", Loyees"."MANAGER_ID"						
	14 FROM "Employ	<u>yees";</u>	-					
1: 1	Modified	Insert Highlighting	Unicode (UCS-2) ,;;					

### Event

.

Use the drop-down list to select the rule event: SELECT, UPDATE, INSERT, DELETE.

#### Condition

Specify the condition that defines the rule using arithmetic and relational operators. This can be any SQL conditional expression (returning *boolean*). The condition expression may not refer to any tables except NEW and OLD, and may not contain <u>aggregate functions</u> [295]

## Action

This area represents the action(s) to be taken upon the specified event occurrence. Specify the command or commands that make up the rule action. Valid commands are SELECT, INSERT, UPDATE, DELETE, or NOTIFY.

For your convenience the **syntax highlight**, **code folding** and a number of other features for efficient SQL editing are implemented. For details see <u>Working with Query Data area</u> [418] and <u>Using the context menu</u> [420].

The possibility to use macros is also implemented.

To *start recording* a macro, click the • **Record** button available in the status bar area, or use the *Shift+Ctrl+R* shortcut.

To *stop recording*, click the **Stop** button, or use the *Shift+Ctrl+R* shortcut.

To *call* the recorded macro, use the **Play** button, or use the *Shift+Ctrl+P* shortcut.

# 5.4.7 Triggers

A **trigger** is a special kind of stored procedure that automatically executes when an event occurs in the database.

Data manipulation language triggers are executed in response to user's attempts to change data with the help of DML. DML events include *INSERT*, *UPDATE* and *DELETE* operations which can be applied to a table.

Table triggers are managed within the **Triggers** tab of <u>Table Editor</u> 177.

**Trigger Editor** allows you to specify trigger definition and set trigger properties. It opens automatically when you <u>create</u> 153 a new trigger and is available on <u>editing</u> 153 an existing one.

- Using Navigation bar and Toolbar 269
- Editing trigger definition 271
- Browsing object dependencies 967
- Editing trigger description 966
- Viewing DDL definition 965

# 5.4.7.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Trigger Editor**.



## Object

📙 select a database

📓 select a trigger for editing

# General

- $\frac{1}{9}$  <u>compile</u> **bases** the trigger (if it is being created/modified)
- ቘ save the trigger <u>description</u> 🕬 (if it has been modified)
- refresh the content of the active tab
- که print metadata
- view the <u>dependency tree</u> [538] for the trigger
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the trigger:

## Description

🚽 save object <u>description</u> छिछै to file 🛅 copy description छिछै to clipboard

## DDL

🚽 save <u>DDL</u>965ी to file

📝 open DDL ७६३ in Query Data ४१३

NB: You can enable\disable Toolbars and Navigation bars at Environment options

## 5.4.7.2 Editing trigger definition

Use the **Trigger** tab of **Trigger Editor** to create/edit a table trigger and specify its properties.

## Name

Enter a name for the new trigger, or modify the name of the trigger being edited.

## Enabled

Enables/disables the trigger immediately after it is created.

### For table or view

The drop-down list of <u>tables</u> and <u>views</u> allows you to select the table on which the trigger is executed.

🛃 Ne	ew Trigger - [withbigd	lata on localhost]		
🗄 🖯 Databases 🕶 😼 📠 🛛 🗟 🔈		× 12		=
Database \$	Trigger Dependencies	Description DDL		
😑 withbigdata on localhost [v 🗸	Name	trigger1		<ul> <li>Enabled</li> </ul>
	For table or view	public.pgmreports	~	
General	Constraint			
🞸 Compile	Referenced table		~	
Restore default size	Deferrable	Check Time	Immediate V	
	Type Eefore After Instead of	For each <u>Row</u> Statement	On event Insert Update Updated columns	Delete Truncate All columns> Y
	Condition			
	Arguments			
	Ose existing function     Ocreate new function	Fun <u>c</u> tion	name piposol	
	1 DECLARE 2 variable_nam 3 BEGIN 4 statements; 5 EXCEPTION 6 WHEN exception	n_name THEN		~
5: 8		Insert High	ighting Unicode (	UCS-2) ,;;

# Constraint

Check this option to create a constraint trigger with adjusted timing of firing. A constraint trigger can only be of After Row type.

## **Referenced table**

Select the table for the trigger.

## **Deferrable**

This option controls whether the trigger can be deferred. Set this option to fire the trigger at the end of the containing transaction, otherwise it's fired at the end of the statement causing the triggering event.

### **Check time**

This option specifies the default timing of the trigger: deferred trigger can be fired immediately or can be deferred.

## Туре

Select the trigger behaviour type: *Before*Specifies that the trigger is fired before the event. *After*Specifies that the trigger is fired after the event.

### **For each**

This specifies whether the trigger procedure should be fired once for every row affected by the trigger event, or just once per SQL statement.

### **On event**

Specify the data modification statements that activate the trigger when it is tried against this table: *Insert, Update, Delete* or *Truncate* (ON TRUNCATE is supported only from PostgreSQL version 8.4). At least one option must be specified.

### Updated columns

From this drop-down list you can select the columns that will be updated.

## Condition

Define statement for WHEN condition of the trigger.

#### Function

A user-supplied function that is declared as taking no arguments and returning type trigger, which is executed when the trigger fires. You can use already existing function or create new one.

#### Arguments

This area allows you to specify an optional list of arguments to be provided to the **function** when the trigger is executed. The arguments are literal string constants. Simple names and numeric constants may be written here, too, but they will all be converted to strings.



Set the arguments by right-clicking in the list and selecting **+ Add argument** from the context menu (or by pressing the corresponding button). After the argument is added, set its value in the **Argument Value** field. To delete the existing argument, select **- Delete argument** from the context menu (or press the corresponding button).

To change the arguments order, use the **Move Up** / **Move Down** context menu items or the **1** buttons.

The **Definition** area below specifies the trigger conditions and actions that determine whether the tried DML statements cause the trigger actions to be performed. The trigger actions take effect when the DML operation is performed.

# 5.4.8 Sequences

**Sequence** objects (also called *sequence generators* or just *sequences*) are special single-row tables. A sequence object is usually used to generate unique identifiers for rows of a table.

**Sequence Editor** allows you to define sequence properties. It opens automatically when you <u>create</u> 155 a new sequence and is available on <u>editing</u> 155 an existing one.

- Using Navigation bar and Toolbar 275
- <u>Creating/editing sequence</u>
- Browsing object dependencies 967
- Editing sequence description 966
- Viewing DDL definition 965
- <u>Setting object permissions</u> [968]

### 5.4.8.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Sequence Editor**.



## **Object**

号 select a database

🕮 select a sequence for editing

## General

- $\frac{1}{9}$  <u>compile</u> of the sequence (if it is being created/modified)
- ቘ save the sequence <u>description</u>छि (if it has been modified)
- a refresh the content of the active tab
- <u>print metadata</u>هه of the sequence ومجافعة print metadata
- iew the <u>dependency tree</u> العقابة for the sequence العقابة المعامينة المعاملة معاملة معاملة معاملة معاملة معاملة معاملة معاملة
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the sequence:

# Description

🚽 save object <u>description</u>छिही to file 🛅 copy <u>description</u>छिही to clipboard

# DDL

🚽 save <u>DDL</u>965ो to file 📝 open <u>DDL</u>965ो in <u>Query Data</u>415ो

NB: You can enable disable Toolbars and Navigation bars at Environment options [877].

## 5.4.8.2 Creating/editing sequence

### Name

Select a <u>schemane</u> and enter a name for the new sequence, or modify the name of the sequence being edited.

🔐 Sequence - [public.products_prod_id_seq] - [TestDB on ayz2:54383]								
🗄 📴 Databases 🕶   🐓 💼   🗃 🎥 products_prod_id_seq 💿 🕞								
Object	*	Sequ	ence Depe	nden <u>c</u> ies	Description	DDL Per	missions	
E TestDB on ayz2:54	4383 💌	<u>N</u> am	e		public	•	products_prod_id_seq	
products_prod_id_	General \$					1		
General						1	Cycle	
		Min	/alue			1		
Refresh		M <u>a</u> x	value		922337203	6854775807		
le Print	la Print		ne			1		
Dependency tree								
Restore default size								

**Next Value** (**Start value -** when creating a new sequence)

This option defines the sequence value to begin from. The default starting value is **Min value** for ascending sequences and **Max value** for descending ones.

#### Increment

Specifies which value is added to the current sequence value to create a new value. A positive value will make an ascending sequence, a negative one a descending sequence. The default value is 1.

## **Min Value**

Determines the minimum value a sequence can generate.

## Max Value

Determines the maximum value for the sequence.

## Cache

Specifies how many sequence numbers are to be preallocated and stored in memory for faster access. The minimum value is 1 (only one value can be generated at a time, i.e., no cache).

## Temporary

If specified, the sequence object is created only for this session, and is automatically dropped on session exit. Existing permanent sequences with the same name are not visible (in this session) while the temporary sequence exists, unless they are referenced with schema-qualified names.

# 🗹 Cycle

This option allows the sequence to wrap around when the maxvalue or minvalue has been reached by an ascending or descending sequence respectively. If the limit is reached, the next number generated will be the minvalue or maxvalue, respectively. Otherwise, any calls to nextval after the sequence has reached its maximum value will return an error.

# 5.4.9 Base Types

A **Type** is internally represented as an existing type, but is considered to be a separate data type.

**Base types** are those, like int4, that are implemented below the level of the SQL language (typically in a low-level language such as C). They generally correspond to what are often known as **abstract data types**. PostgreSQL can only operate on such types through functions provided by the user and only understands the behavior of such types to the extent that the user describes them. Base types are further subdivided into **scalar** and **array** types. For each scalar type, a corresponding array type is automatically created that can hold variable-size arrays of that scalar type.

**Base Type Editor** allows you to define base type properties. It opens automatically when you <u>create</u> a new base type and is available on <u>editing</u> an existing one.

- Using Navigation bar and Toolbar 279
- Creating/editing base type 281
- Browsing object dependencies 967
- Editing base type description 966
- <u>Viewing DDL definition 965</u>
- Setting object permissions 968

# 5.4.9.1 Using Navigation bar and Toolbar

The Navigation bar and Toolbar provide quick access to tools implemented in Base Type Editor.



## Object

号 select a database

📑 select a base type for editing

# General

- $\frac{1}{9}$  <u>compile</u> with the base type (if it is being created/modified)
- ቘ save the base type <u>description</u> 📾 (if it has been modified)
- refresh the content of the active tab
- م print metadata المعامة print metadata
- view the <u>dependency tree</u> [538] for the base type
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the base type:

# Description

save object <u>description</u> [966] to file

🐚 copy <u>description</u> छिंही to clipboard

### DDL

📕 save <u>DDL</u>छठी to file

📝 open DDL १०६३ in Query Data 415।

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

### 5.4.9.2 Creating/editing base type

The **Base Type** tab of **Base Type Editor** allows you to view/edit the base type properties.

### Name

Select a <u>schemane</u> and enter a name for the new base type, or view the name of the base type being edited.

🕒 New Base Type - [ayz on ayz2:54383]								
🚦 🖯 Databases 🔻 🖸 📓 🚴 🛃 🚺 🔹								
Database	*	Base Type Depende	ncies Description DDL					
🔒 ayz on ayz2:54383 [ayz]	•	<u>N</u> ame	public   box		Synonym			
General	*	Input function	pg_catalog.box_in	•	Output function	pg_catalog.box_out		
Gompile	1	Internal length	0 📩 🔽 Variable					
🛃 Restore default size		Analyze function	public.difference	•				
	3	Send function	pg_catalog.box_send	•	Receive function	pg_catalog.box_recv		
		Element		•	Default	default_box_value		
		Alignment	int4	•	Delimiter			
		Storage	PLAIN	•	Passed by value			

#### Synonym

Set the type synonym (available for older server versions).

#### Input function

Use the drop-down list to select the <u>function</u><sup>[239]</sup> that will convert data from the type's external textual form to its internal form.

#### **Output function**

Use the drop-down list to select the <u>function</u><sup>23</sup> that will convert data from the type's internal form to its external textual form.

### Internal length

This value specifies the length (in bytes) of the new type's internal representation. Use the spinner control to set a value or check the  $\mathbb{Z}$  **Variable** option to apply variable-length (default assumption).

### **External length**

This value specifies the length (in bytes) of the new type's external representation. Use the spinner control to set a value or check the  $\mathbb{Z}$  **Variable** option if the type length is unknown (for server version 7.3 and lower only).

### Analyze function

Use the drop-down list to select the <u>function</u> [239] that will perform statistical analysis for the data type.

## **Receive function**

Use the drop-down list to select the <u>function</u><sup>[239]</sup> that will convert data from the type's

external binary form to its internal form.

## Send function

Use the drop-down list to select the function 23 that will convert data from the type's internal form to its external binary form.

### Element

If the type being created is an array, use the drop-down list to specify the type of the array elements.

### Default

If necessary, specify the default value for the data type. By default the NULL value is applied.

### Alignment

Use the drop-down list to select the storage alignment requirement of the data type: *char*, *int2*, *int4*, or *double*.

### Delimiter

If necessary, specify the delimiter character to be used between values in arrays made of this type.

#### Storage

Use the drop-down list to select the storage strategy for the data type: *PLAIN*, *MAIN*, *EXTERNAL*, *EXTENDED*.

#### Passed by value

This option indicates that values of this data type are passed by value rather than by reference.

# 5.4.10 Composite Types

A **Type** is internally represented as an existing type, but is considered to be a separate data type.

**Composite types**, or **row types**, are created whenever the user creates a table; it is also possible to define a "stand-alone" composite type with no associated table. A composite type is simply a list of types with associated field names. A value of a composite type is a row or record of field values. The user can access the component fields from SQL queries.

**Composite Type Editor** allows you to define composite type properties. It opens automatically when you  $\underline{\text{create}}^{153}$  a new composite type and is available on  $\underline{\text{editing}}^{153}$  an existing one.

- Using Navigation bar and Toolbar
   284
- <u>Creating/editing composite type</u>
   <sup>286</sup>
- Browsing object dependencies 967
- Editing composite type description 966
- Viewing DDL definition 965
- Setting object permissions 968

## 5.4.10.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Composite Type Editor**.



# **Object**

- 号 select a database
- 📑 select a composite type for editing

## General

- ダ <u>compile</u> बिन्नी the composite type (if it is being created/modified)
- 퇴 save the composite type <u>description</u> 🔤 (if it has been modified)
- refresh the content of the active tab
- م print metadata المعامة print metadata المعامة print metadata ألم
- iew the dependency tree [638] for the composite type
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the composite type:

# Description

- 🚽 save object <u>description</u>966 to file
- 🔄 copy <u>description</u> विकी to clipboard

## DDL

📕 save <u>DDL</u>छठी to file

📝 open DDL १०६३ in Query Data 415।

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

### 5.4.10.2 Creating/editing composite type

The **Composite Type** tab of **Composite Type Editor** allows you to view/edit the composite type properties.

### Name

Select a <u>schemane</u> and enter a name for the new composite type, or modify the name of the composite type being edited.

🖶 Composite Type - [public.breakpoint_new] - [ayz on ayz2:54383]							
📴 Databases 🕶 😼 🔚 🛛 😓 🛃 📑 breakpoint_new 💽 🔡							
Object *	Composite Type Dependenci	es Description DDL					
🔒 ayz on ayz2:54383 [ayz] 💌	Name public	▼. breakpoint_	new				
General \$	Name Type	Size	Precision Number of array dims				
Gompile	char CHAF	R 3425					
le Print	🕂 Add Column	Ctrl+Ins					
Dependency tree	- Delete Column	Ctrl+Del					
Restore default size	Move Up	Ctrl+Up trl+Down					

### Columns

This grid lists the arguments (columns) of the composite type: Name, Type, Size, Precision, Number of array dims.

Right-click within the **Columns** area to display the context menu allowing you to *add* new, *delete* the selected column, or move it up/down within the list.

### Name

The name of an attribute (column) for the composite type.

### Туре

The name of an existing data type to become a column of the composite type.

## Size

Specifies the size of the type for this attribute.

### Precision

Specifies the precision of the type for this attribute. The precision indicates the number of significant digits.

#### Number of array dims

Specifies the number of array dimensions (for multidimensional arrays).

# 5.4.11 Enumerated Types

A **Type** is internally represented as an existing type, but is considered to be a separate data type.

**Enumerated types**, or **ENUM types**, are data types that are comprised of a static, predefined set of values with a specific order. They are equivalent to the enum types in a number of programming languages. An example of an enum type might be the days of the week, or a set of status values for a piece of data.

**ENUM Type Editor** allows you to define ENUM type properties. It opens automatically when you <u>create</u> a new ENUM type and is available on <u>editing</u> an existing one.

- Using Navigation bar and Toolbar 288
- Creating/editing ENUM type 290
- Browsing object dependencies 967
- Editing ENUM type description 966
- Viewing DDL definition 965
- <u>Setting object permissions</u> 968

## 5.4.11.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **ENUM Type Editor**.



# Object

号 select a database

iselect an enumerated type for editing

## General

- $\frac{4}{9}$  <u>compile</u> (if it is being created/modified)
- 😼 save the enumerated type <u>description</u>छिली (if it has been modified)
- refresh the content of the active tab
- م print metadata المعامة والمعامة print metadata والمعامة المعامة محمد
- is view the <u>dependency tree</u> [638] for the enumerated type
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the enumerated type:

## Description

🚽 save object <u>description</u>िक्ही to file

copy <u>description</u> for clipboard

### DDL
📕 save <u>DDL</u>छठी to file

📝 open DDL १०६३ in Query Data 415।

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

### 5.4.11.2 Creating/editing ENUM type

The **ENUM Type** tab of **ENUM Type Editor** allows you to view/edit the enumerated type properties.

#### Name

Select a <u>schemane</u> and enter a name for the new enumerated type, or modify the name of the enumerated type being edited.

🛃 Enum Type - [public.msn_status] - [ayz on ayz2:54383]							
🗄 🖯 Databases 🕶 😼	i 🔒 Databases 🔻 🐬 💼 😥 😓 🛃 👪 msn_status 🔹 🚦						
Object	*	Enum Type Dependencies Description DDL					
eyz on ayz2:54383	[ayz] 🔻		<u>N</u> ame <u>V</u> alues	public		▼. msn_s	tatus
General	*	# Name					
			2	Busy			
Refresh		3	3	Be right back	-	Add Value	Ctrl+Ins "
len Print		1	4	Away		Insert Value	Shift+Ins
Dependency tree			5	In a call	_	Delete Value	Ctrl+Del
Restore default size			6	Out to lunch		Move Un	Ctd+Up
			7	Offline	-0	Move Down	Ctrl+Down
						-	

## Values

This grid lists the values implied by the enumerated type.

Right-click within the **Values** area to display the context menu allowing you to *add* new, *delete* the selected value, or move it up/down within the list.

#### Name

Specifies a string representing the textual label associated with one value of the enumerated type.

## 5.4.12 Range Types

A **Type** is internally represented as an existing type, but is considered to be a separate data type.

**Range types** are data types representing a range of values of some element type (called the range's subtype). For instance, ranges of timestamp might be used to represent the ranges of time that a meeting room is reserved. In this case the data type is tsrange (short for "timestamp range"), and timestamp is the subtype. The subtype must have a total order so that it is well-defined whether element values are within, before, or after a range of values.

**Range Type Editor** allows you to define range type properties. It opens automatically when you <u>create</u> 155 a new range type and is available on <u>editing</u> 155 an existing one.

- Using Navigation bar and Toolbar<sup>292</sup>
- Creating/editing range type 294
- Browsing object dependencies 967
- Editing range type description 966
- <u>Viewing DDL definition</u> 965
- Setting object permissions 968

### 5.4.12.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Range Type Editor**.



## Object

号 select a database

🖶 select a composite type for editing

## General

- √ <u>compile</u> [669] the range type (if it is being created/modified)
- 😼 save the range type <u>description</u>ाकी (if it has been modified)
- refresh the content of the active tab
- <u>print metadata</u>هه of the range type في المحتوي ال
- iew the <u>dependency tree</u> [538] for the range type
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the range type:

## Description

🚽 save object <u>description</u>७०० to file

copy <u>description</u> [966] to clipboard

### DDL

📕 save <u>DDL</u>छठी to file

📝 open DDL १०६३ in Query Data 415।

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

### 5.4.12.2 Creating/editing range type

The **Range Type** tab of **Range Type Editor** allows you to view/edit the range type properties.

🖶 Range Type - [ayz.range_type1] - [ayz on ayz2:54392]						
🕴 🖯 Databases 🕶 😼 🛒	8 😓	🖌 🖶 range_type1 🔹 🗦				
Object	*	Range Type Dependencies Description DDL Permiss	ions			
🔒 ayz on ayz2:54392 [a	yz] 💌	Name ayz ra	nge_type1			
🖶 range_type1	•	Subtype INTEGER	•			
General	*	Collation	<b></b>			
Compile Compile Refresh Print Dependency tree Restore default size		Subtype operator class     pg_catalog.int4_ops       Canonical function	pg_catalog.int4_ops			

### Name

Select a <u>schema</u> and enter a name for the new range type, or modify the name of the range type being edited.

### Subtype

Use the drop-down list to select the subtype. The range type's subtype can be any type with an associated b-tree operator class (to determine the ordering of values for the range type).

If the selected subtype is collatable, and you want to use a non-default collation in the range's ordering, specify the desired collation in the **Collation** field.

#### Subtype operator class

If you want to use a non-default operator class, specify its name in this field.

#### **Canonical function**

Enter the canonical function name here. This function takes an input range value, and must return an equivalent range value that may have different bounds and formatting.

#### Subtype difference function

Use the drop-down list to specify the subtype difference function here. This function takes two input values of the subtype, and returns their difference (i.e., X minus Y). You can use the 1 button to create a new function or the 2 button to edit selected function in Function Editor<sup>23</sup>.

## 5.4.13 Aggregates

295

**Aggregate functions**, or **Aggregates**, perform a calculation on a set of values and return a single value, i.e. compute a single result value from a set of input values.

Aggregate functions in PostgreSQL are expressed as state values and state transition functions. That is, an aggregate can be defined in terms of state that is modified whenever an input item is processed. To define a new aggregate function, one selects a data type for the state value, an initial value for the state, and a state transition function. The state transition function is just an ordinary function that could also be used outside the context of the aggregate. A final function can also be specified, in case the desired result of the aggregate is different from the data that needs to be kept in the running state value.

Aggregate Editor allows you to define aggregate properties. It opens automatically when you <u>create</u> a new aggregate and is available on <u>editing</u> an existing one.

- Using Navigation bar and Toolbar 296
- <u>Creating/editing aggregate</u>298
- Browsing object dependencies
- Editing aggregate description 966
- Viewing DDL definition 965

## 5.4.13.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Aggregate Editor**.



## Object

- 号 select a database
- la select an aggregate for editing

## General

- 🐓 <u>compile</u> 🕬 the aggregate (if it is being created/modified)
- save the aggregate <u>description</u>छि (if it has been modified)
- refresh the content of the active tab
- <u>print metadata</u>هم of the aggregate و الم
- view the <u>dependency tree</u> [638] for the aggregate
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the aggregate:

## Description

- 🚽 save object <u>description</u> ७०६ to file
- opy <u>description</u> विकी to clipboard 🛍

### DDL

📕 save <u>DDL</u>छठी to file

📝 open DDL १०६३ in Query Data 415।

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

### 5.4.13.2 Creating/editing aggregate

Use the **Aggregate** tab of **Aggregate Editor** to create/edit an aggregate function and specify its definition.

#### Name

Select a <u>schemane</u> and enter a name for the new aggregate, or modify the name of the aggregate being edited.

🔄 Aggregate - [public.my_avg(integer)] - [ayz on ayz2:54383] Read Only						
🗄 🔒 Databases 🔹 😼 д	) 🗟 😓	🛃 🛛 🛂 my_avg(integer)	- Ju			
Object	*	Aggregate Dependencies	s Description DDL			
ayz on ayz2:54383 [a	yz] ▼	<u>N</u> ame Input data types	Data Type			
General	*		1 INTEGER			
<ul> <li>Compile</li> <li>Save description</li> </ul>						
Refresh		State type	BIGINT []			
Print		State function	pg_catalog.int4_avg_accum			
Restore default size		Final type	NUMERIC			
		Final function	pg_catalog.int8_avg			
		Initial state	{0,0}			
		Sort operator				

#### Input data types

Use this area to specify the input data type(s) on which this aggregate function operates. This can be specified as "ANY" for an aggregate that does not examine its input values (an example is count(\*)).

#### State type

Use the drop-down list to select the data type for the aggregate's state value.

### State function

Use the drop-down list to select the name of the state transition function to be called for each input data value. This is normally a function of two arguments, the first being of type *state data type* and the second of type *input data type*. Alternatively, for an aggregate that does not examine its input values, the function takes just one argument of type *state data type*. In either case the function must return a value of type *state data type*. This function takes the current state value and the current input data item, and returns the next state value.

#### **Final type**

Specifies the data type for the aggregate's result value.

## **Final function**

Use the drop-down list to select the name of the final function called to compute the aggregate's result after all input data has been traversed. The function must take a single argument of type *state data type*. The return data type of the aggregate is defined as the return type of this function. If *ffunc* is not specified, then the ending state value is used as the aggregate's result, and the return type is *state data type*.

## **Initial state**

Specifies the initial setting for the state value. This must be a string constant in the form accepted for the data type *state data type*. If not specified, the state value starts out of NULL.

#### Sort operator

Use the drop-down list to select the sort operator (for a MIN- or MAX-like aggregate).

# 5.4.14 Operators

PostgreSQL supports *left unary*, *right unary*, and *binary* **operators**. **Operators** can be overloaded; that is, the same operator name can be used for different operators that have different numbers and types of operands. When a query is executed, the system determines the operator to call from the number and types of the provided operands.

**Operator Editor** allows you to define operator properties. It opens automatically when you <u>create</u> [155] a new operator and is available on <u>editing</u> [155] an existing one.

- Using Navigation bar and Toolbar 301
- Creating/editing operator 303
- Browsing object dependencies
- Editing operator description
- <u>Viewing DDL definition</u>

### 5.4.14.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Operator Editor**.



## Object

- 😑 select a database
- 站 select an operator for editing

## General

- $\frac{1}{2}$  compile p the operator (if it is being created/modified)
- 🕫 save the operator <u>description</u>कि (if it has been modified)
- refresh the content of the active tab
- م print metadata هم وجنوبه وجنوبه من print metadata والمعالية المعام المعالية المعالية في المعالية والمعالية ال
- view the <u>dependency tree</u> [538] for the operator
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the operator:

## Description

🚽 save object <u>description</u>छिही to file 🛅 copy <u>description</u>छिही to clipboard

## DDL

🚽 save <u>DDL</u>965ी to file

📝 open DDL ७६३ in Query Data ४१३

NB: You can enable\disable Toolbars and Navigation bars at Environment options

### 5.4.14.2 Creating/editing operator

Use the **Operator** tab of **Operator Editor** to create/edit an operator and specify its definition.

1 New Operator - [ayz on ayz2:54383]						
📔 Databases 🕶 😼 📠 📓 🔈		- I Be				
Database	Operator Dependencies De	scription DDL				
🔒 ayz on ayz2:54383 [ayz] 💌	Name	public				
General *	Function	pg_catalog.timestamp_eq_date				
🞸 Compile	Left operand type	TIMESTAMPTZ Support hash joins				
🛃 Restore default size	Right operand type	DATE Support merge joins				
	Commutator	pg_catalog.=				
	Negator	pg_catalog.<>				
	Restrict function	pg_catalog.eqsel				
	Join function	pg_catalog.eqjoinsel				

### Name

Select a <u>schema</u> 164 and enter the name of the operator to be defined. See below for allowable characters. Two operators in the same schema can have the same name if they operate on different data types. This is called overloading.

The operator name is a sequence of up to NAMEDATALEN-1 (63 by default) characters from the following list:

+ - \* / < > = ~ ! @ # % ^ & | `?

There are a few restrictions on your choice of name:

- -- and /\* cannot appear anywhere in an operator name, since they will be taken as the start of a comment.
- A multicharacter operator name cannot end in + or -, unless the name also contains at least one of these characters:

~!@#%^&|`?

For example, @- is an allowed operator name, but \*- is not. This restriction allows PostgreSQL to parse SQL-compliant commands without requiring spaces between tokens.

#### Function

The function used to implement this operator. Select it from the list of all database <u>functions</u> [239].

### Left operand type

The type of the left-hand argument of the operator, if any. This option would be omitted for a left-unary operator.

#### **Right operand type**

The type of the right-hand argument of the operator, if any. This option would be omitted for a right-unary operator.

#### Commutator

Use the drop-down list to select the commutator of this operator.

#### Negator

Use the drop-down list to select the negator of this operator.

#### **Restrict function**

Use the drop-down list to select the restriction selectivity estimator function for this operator.

#### Join function

Use the drop-down list to select the join selectivity estimator function for this operator.

### Support hash joins

Check this option to indicate that this operator can support a hash join.

#### Support merge joins

Check this option to indicate that this operator can support a merge join.

### Left sort operator

If this operator can support a merge join, select the operator that sorts the left-hand data type of this operator.

#### **Right sort operator**

If this operator can support a merge join, select the operator that sorts the right-hand data type of this operator.

#### Less than operator

If this operator can support a merge join, select the less-than operator that compares the input data types of this operator.

#### **Greater than operator**

If this operator can support a merge join, select the greater-than operator that compares the input data types of this operator.

## 5.4.15 Collations

The **collation** allows to specify the sort order and character classification behavior of data per-column, or even per-operation. This alleviates the restriction that the LC\_COLLATE and LC\_CTYPE settings of a database cannot be changed after its creation.

**Collation Editor** allows you to define Collation properties. It opens automatically when you <u>create</u> 155 a new Collation and is available on <u>editing</u> 155 an existing one.

- Using Navigation bar and Toolbar 306
- Creating/editing Collation 308
- Browsing object dependencies 967
- Editing Collation description
- Viewing DDL definition 965

### 5.4.15.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Operator Editor**.



## Object

🦲 select a database

ڬ select an operator for editing

# General

- $\frac{1}{9}$  <u>compile</u> (if it is being created/modified)
- 🕫 save the Collation <u>description</u> 🕬 (if it has been modified)
- refresh the content of the active tab
- م print metadata
- view the <u>dependency tree</u> [538] for the Collation
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the Collation:

## Description

🚽 save object <u>description</u> छिल्ले to file ो copy description छिल्ले to clipboard

#### DDL

save <u>DDL</u>965 to file

📝 open DDL ७६३ in Query Data ४१३

NB: You can enable\disable Toolbars and Navigation bars at Environment options

### 5.4.15.2 Creating/editing collation

Use the **Operator** tab of **Operator Editor** to create/edit an operator and specify its definition.

🖞 Collation - [public.collation1] - [pegas on userver:54391]						
🚦 🔒 Databases 🔻 🐓 💼 🛛 👌	2	collation1	-	Ŧ		
Object *		Collation Dependencies Description	DDL			
😑 pegas on userver:54391 💌		Name	public	<ul> <li>russian</li> </ul>		
collation1		Locale				
General *	2	Collation order (LC_COLLATE)	ru_UA.utf8			
Gompile	2000	Character classification (LC_CTYPE)	ru_UA.utf8			
Rave description		Existing collation to copy from	< Not Set >			
2 Refresh	2					
😓 Print						
E Dependency tree						
Restore default size						

### Name

The name of the collation. The collation name can be schema-qualified. If it is not, the collation is defined in the current schema. The collation name must be unique within that schema.

### Locale

This is a shortcut for setting LC\_COLLATE and LC\_CTYPE at once. If you specify this, you cannot specify either of those parameters.

#### **Collation order**

Use the specified operating system locale for the LC\_COLLATE locale category. The locale must be applicable to the current database encoding.

#### **Character classification**

Use the specified operating system locale for the LC\_CTYPE locale category. The locale must be applicable to the current database encoding.

### Existing collation to copy from

The name of an existing collation to copy from. The new collation will have the same properties as the existing one, but it will be an independent object.

## 5.4.16 Statistics

The **statistics** creates a new extended statistics object to track data for the selected table, foreign table or materialized view.

**Statistics Editor** allows you to define Statistics properties. It opens automatically when you <u>create</u> a new Statistics and is available on <u>editing</u> an existing one.

- Using Navigation bar and Toolbar 306
- <u>Creating/editing statistics</u>
- Browsing object dependencies
- Editing description
- Viewing DDL definition 965

### 5.4.16.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Statistics Editor**.



## Object

- 😑 select a database
- iselect a statistics for editing

## General

- 🖸 <u>compile</u> 🕬 the Statistics (if it is being created/modified)
- lateral refresh the content of the active tab
- م print metadata المعامة print metadata والمعامة print metadata ألجه
- view the dependency tree [538] for the Statistics
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the Statistics object:

### Description

- 🚽 save object <u>description</u> ७०६ to file
- copy <u>description</u> been to clipboard

# DDL

- save <u>DDL</u>965 to file
- open <u>DDL</u>965) in <u>Execute Script</u>646) editor

NB: You can enable\disable Toolbars and Navigation bars at Environment options 877.

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### 5.4.16.2 Creating/editing statistics

Use the **Statistics** tab of **Statistics Editor** to create/edit a Statistics object and specify its definition.

🔄 Statistics - [public.Customer_Statistics] - [dvdrental on vadsrv:54930]						
🗄 🛢 Databases 🕶 🗲 🖷 🔁 🖶 💽						
Object *	Domain Description DDL					
🧧 dvdrental on vadsrv:54930   🗸	Name Customer_Statistics					
Customer_Statistics ~	Table public.CUSTOMER ~					
General *	Owner 🕹 postgres 🗸					
<ul> <li>Compile</li> <li>Refresh</li> <li>Print</li> <li>Dependency tree</li> <li>Restore default size</li> </ul>	Available Columns CUST_NO CONTACT_FIRST CONTACT_LAST STATE_PROVINCE Functional dependency Most-common values Expression					

## Name

Set the name for the statistics.

#### Table

Select the table containing columns to calculate statistics.

#### Owner

Set the owner of the statistics object.

### Columns

Select the columns to be covered by the computed statistics using the corresponding buttons. At least two column names or expressions must be specified, and their order is not significant.

## Kind

Select statistics types to be calculated. If none is selecte, all supported statistics kinds are included in the statistics object.

## N-distinct

**Functional dependency** 

Most-common values

## Expression

Specify an expression to be covered by the computed statistics. This may be used to build univariate statistics on a single expression, or as part of a list of multiple column names and/or expressions to build multivariate statistics.

# 5.5 Non-schema Objects

Other types of objects are also stored in the database and can be created and manipulated with SQL, but are not contained in a schema:

- <u>Tablespaces</u>318
- Languages 321
- Local Scripts
- Shared scripts 336

Use the <u>DB Explorer [65] tree to navigate [47] within the database(s) and the objects.</u>

## See also:

<u>Operations with database objects</u> [७०] <u>New Object dialog</u>ाइने <u>Duplicate Object Wizard</u> <u>Schemas</u> 164] <u>Schema Objects</u> 168]

## 5.5.1 Event triggers

An **Event Trigger** fires whenever the event with which it is associated occurs in the database in which it is defined. Unlike regular triggers [268], which are attached to a single table and capture only DML events, event triggers are global to a particular database and are capable of capturing DDL events.

**Event Trigger Editor** allows you to define event trigger properties. It opens automatically when you <u>create</u> 155 a new event trigger and is available on <u>editing</u> 155 an existing one.

- Using Navigation bar and Toolbar 315
- Creating/editing event trigger 316
- Browsing object dependencies
- Editing event trigger description 966
- <u>Viewing DDL definition pesh</u>

## 5.5.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Event Trigger Editor**.



## Object

select a database
select an event trigger for editing

## General

- ダ <u>compile</u> 🕬 the event trigger (if it is being created/modified)
- a refresh the content of the active tab
- <u>print metadata</u>ها of the event trigger
- 💐 view the <u>dependency tree</u>638 for the event trigger
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the tablespace:

## Description

🚽 save object <u>description</u> छिछै to file 🛅 copy <u>description</u> छिछै to clipboard

### DDL

🚽 save <u>DDL</u>छठी to file 📝 open <u>DDL</u>छठी in <u>Query Data</u>415ी

NB: You can enable disable Toolbars and Navigation bars at Environment options [877].

### 5.5.1.2 Creating/editing event trigger

Use the **Trigger** tab of **Event Trigger Editor** to create/edit an event trigger and specify its definition.

#### Name

Enter a name for the new event trigger, or modify the name of the event trigger being edited.

### Enabled

Enables/disables the event trigger immediately after it is created or modified.

街 Event Trigger - [abort_ddl] - [datarental on ayz:54393]							
🗄 🖯 Databases 🔹 😼 🕞 🕼 🗞 🛃 🍓 abort_ddl 🔹 🔹 😫							
Object *	<u>Trigger</u> Dependencies Description	DDL					
image: datarental on ayz:54393         image: abort_ddl         image: abor	Name     abort_dd       Event <ul> <li>Before DDL command</li> <li>After SQL drop</li> <li>After DDL command</li> <li>Command filter</li> <li>Fire of</li> <li>Available Commands</li> <li>ALTER USER MAPPING</li> <li>ALTER VIEW</li> <li>CREATE AGGREGATE</li> <li>CREATE CAST</li> <li>CREATE CAST</li> </ul>	n all commands Selected Commands ALTER TRIGGER	C Enabled				
	<ul> <li>Use existing function</li> </ul>	Function name ayz.ab	oort_any_command				
	Create new function	Language plpgsql	· ▼				
	1 BEGIN 2 RAISE EXCEPTION 'T 3 END;	'he command % is disa	bled', tg_tag;				
5: 3	Insert	Highlighting Unicod	de (UCS-2) ;;				

#### **Event**

Select the event on which the event trigger should be fired:

### Before DDL command

This option is equal to the *ddl\_command\_start* PosgreSQL event. This event occurs just before the execution of a CREATE, ALTER, or DROP command. No check whether the affected object exists or doesn't exist is performed before the event trigger fires.

### After SQL drop

This option is equal to the *sql\_drop* PosgreSQL event. This event occurs just before the

*ddl\_command\_end* event trigger for any operation that drops database objects.

### After DDL command

This option is equal to the *ddl\_command\_end* PosgreSQL event. This event occurs just after the execution of a CREATE, ALTER, or DROP command.

## **Command filter**

You can filter the list of commands on which the event trigger should be fired. To select a command, you need to move it from the **Available Commands** list to the **Selected Commands** list. Use the **Description Description Description Description Commands** list to another.

If you want the trigger to be fired on all commands of the event check the  $\blacksquare$  Fire on all commands option.

In the lower area define the user-supplied function that is declared as taking no argument and returning type *event\_trigger*. This function is executed when the trigger fires. You can use already existing function and provide its name in the **Function name** field or create new one.

# 5.5.2 Tablespaces

A **Tablespace** allows superusers to define an alternative location on the file system where the data files containing database objects (such as <u>tables</u> and <u>indexes</u> and <u>indexes</u> may reside.

**Tablespace Editor** allows you to define tablespace properties. It opens automatically when you <u>create</u> a new tablespace and is available on <u>editing</u> an existing one.

- Using Navigation bar and Toolbar 319
- Creating/editing tablespace 320
- Browsing object dependencies 967
- Viewing DDL definition 965
- Setting object permissions 968

## 5.5.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Tablespace Editor**.



## Object

select a database
select a tablespace for editing

## General

🐓 <u>compile</u> 🕬 the tablespace (if it is being created/modified)

refresh the content of the active tab

🛸 print metadata 🕬 of the tablespace

🧮 view the <u>dependency tree</u>ब्छि for the tablespace

move all objects from the current tablespace to another one (available for PostgreSQL 9.4)

restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the tablespace:

## DDL

🚽 save <u>DDL</u>छिडी to file 🗹 open <u>DDL</u>छिडी in <u>Query Data</u>41डी

NB: You can enable disable Toolbars and Navigation bars at Environment options [877].

#### 5.5.2.2 Creating/editing tablespace

Use the **Tablespace** tab of **Tablespace Editor** to create/edit a tablespace and specify its definition.

#### Name

Enter a name for the new tablespace, or modify the name of the tablespace being edited. The name cannot begin with  $pg_{-}$ , as such names are reserved for system tablespaces.

#### Owner

Use the drop-down list to select the name of the user who will own the tablespace. Only superusers may create tablespaces, but they can assign ownership of tablespaces to non-superusers.

### Location

Specify the directory that will be used for the tablespace. The directory must be empty and must be owned by the PostgreSQL system user. The directory name must be specified as an absolute path string.

Tablespace - [tbsp_temp] - [dvdrental on tio:54394]						
🗄 🔒 Databases 🕶 🗳	2 😓 🖻	🛃 tbsp_temp	-   <del>1</del> 8			
Object	*	Tablespace Dependencies DDL	Permissions			
dvdrental on tio:54	394 [dv ∨ ∨	Name         tbsp_temp           Owner         postgres	¥			
General	*	Location C:\temp				
<ul> <li>Compile</li> <li>Refresh</li> <li>Print</li> <li>Dependency tree</li> <li>Move all objects to</li> <li>Restore default size</li> </ul>		Size 8 KB				

The lower area displays the current **Size** of the tablespace being edited.

## 5.5.3 Languages

There are currently four procedural **languages** available in the standard PostgreSQL distribution: PL/pgSQL, PL/Tcl, PL/Perl, and PL/Python. Other languages can be defined by users.

**Language Editor** allows you to define language properties. It opens automatically when you <u>create</u> a new language and is available on <u>editing</u> an existing one.

- Using Navigation bar and Toolbar 322
- Creating/editing language 324
- Browsing object dependencies 967
- Editing object description 966
- Viewing DDL definition 965
- Setting object permissions 968

### 5.5.3.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Language Editor**.



## Object

- 📒 select a database
- 🖄 select a language for editing

## General

- $\frac{1}{9}$  <u>compile</u> of the language (if it is being created)
- 퇴 save the language <u>description</u> 🔤 (if it has been modified)
- refresh the content of the active tab
- که print metadata اهم print metadata ما المجامع 😓
- 🧮 view the <u>dependency tree</u>ब्उंशे for the language
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the language:

## Description

save object <u>description</u>966 to file

🗅 copy <u>description</u> बिही to clipboard

## DDL

🚽 save <u>DDL</u>965ी to file

📝 open DDL ७६३ in Query Data ४१३

NB: You can enable\disable Toolbars and Navigation bars at Environment options

### 5.5.3.2 Creating/editing language

#### Name

The name of the new procedural language. The language name is case insensitive. The name must be unique among the languages in the database.

🛀 Language - [plpgsql] - [TestDB on ayz2:54383] Read Only						
🗄 🔒 Databases 🕶 🐺 д	🔒 Databases 🔻 🐺 д 😓 😥 🖃 💁 pipgsqi 🔹 🕄					
Object	*	Language Dependencies Description I	DDL Permissions			
FestDB on ayz2:54383	•	Name plpgsql ✓ <u>T</u> rusted				
General	*	Validator function				
<ul> <li>Save description</li> <li>Refresh</li> <li>Print</li> <li>Dependency tree</li> <li>Restore default size</li> </ul>						

## 🗹 Trusted

This option specifies that the call handler for the language is safe, i.e. it does not offer an unprivileged user any functionality to bypass access restrictions. If this option is disabled, only users with the PostgreSQL superuser privilege can use this language to create new functions.

### Handler function

Select the call handler function for this language from the drop-down list. *Call handler* is the name of a previously registered function<sup>[239]</sup> that will be called to execute the procedural language functions. The call handler for a procedural language must be written in a compiled language such as C with version 1 call convention and registered with PostgreSQL as a function taking no arguments and returning the language\_handler type, a placeholder type that is simply used to identify the function as a call handler.

### Validator function

Select the validation function for this language from the drop-down list. *Validator function* is the name of a previously registered function 23 that will be called when a new function in the language is created, to validate the new function.
# 5.5.4 Foreign Servers

A **Foreign Server** typically encapsulates connection information that a <u>foreign-data</u> <u>wrapper</u> [331] uses to access an external data resource. Additional user-specific connection information may be specified by means of user mappings.

**Foreign Server Editor** allows you to define foreign server properties. It opens automatically when you <u>create</u> 153 a new server and is available on <u>editing</u> 153 an existing one.

- Using Navigation bar and Toolbar 326
- Creating/editing foreign server 328
- User mapping 329
- Browsing object dependencies 967
- Editing object description 966
- Viewing DDL definition 965
- Setting object permissions 968

# 5.5.4.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Foreign Server Editor**.



# Object

- 号 select a database
- select a foreign server for editing

# General

- 🐓 <u>compile</u> and the foreign server (if it is being created)
- 尾 save the foreign server <u>description</u> (if it has been modified)
- refresh the content of the active tab
- ها print metadata المعامة print metadata المعامة print metadata المعامة معامة معامة محمد معامة المعامة معامة محمد معامة محمد
- 🧮 view the <u>dependency tree</u> बिग्धी for the foreign server
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the language:

## Description

🚽 save object <u>description</u>968 to file 🛅 copy <u>description</u>968 to clipboard

# DDL

🚽 save <u>DDL</u>965ी to file

📝 open DDL 🔤 in Query Data 🖽

NB: You can enable\disable Toolbars and Navigation bars at Environment options

#### 5.5.4.2 Creating/editing foreign server

#### Name

The name of the new/existing foreign server. The server name must be unique within the database.

Foreign Serve	r - [foreign_server4] - [	testdvd on tio:54394]	- • ×
📔 🖯 Databases 🔻 🐓 💼 🛛 🗟	🛛 🕝 👔 foreign_server4	▼	-
Object \$	Eoreign Server User Map	ping Dependen <u>c</u> ies D <u>e</u> scription D	DDL Permissions
😑 testdvd on tio:54394 [tes 🗸	<u>N</u> ame	foreign_server4	
<pre>foreign_server4 </pre>	Foreign data wrapper	postgres_fdw	¥
	Server t <u>v</u> pe		
General <sup>2</sup>	Ve <u>r</u> sion	9.4	
🦸 Compile	Options		
Refresh	Name	Value	
😓 Print	port	5432	
Dependency tree	host	test	
Restore default size	dbname	testdb	

#### Foreign data wrapper

Use the drop-down list to select the Foreign data wrapper [331] for the server being created.

#### Server type

Enter the optional server type.

#### Version

Enter the optional server version.

#### Options

Use the grid with **Name** and **Value** columns to specify the options for the server. The options typically define the connection details of the server, but the actual names and values are dependent on the server's foreign-data wrapper

# 5.5.4.3 User mapping

Use this tab to specify additional user-specific connection information.

Foreign Server - [foreign_server4] - [testdvd on tio:54394]									
🕴 🖯 Databases 🕶 😼 📖	2	٢	🛃 🗍 foreigr	_server4		×			-
Object	*		<u>Foreign Server</u>	User Mapping	Dependen <u>c</u> ies	Description	DD <u>L</u>	Permissions	
estdvd on tio:54394 [t	e: V		Role Name appserver		Options	dvd			
foreign_server4	~								
General	*	3							
😼 Compile									
Refresh									
🖕 Print									
Dependency tree		ſ							
Restore default size									

To add connection options for the Role use the **New User Mapping** item of the context menu.

To edit connection options for the Role use the **Edit User Mapping** item of the context menu.

User Mapping						×
Role	appserver		•			
Options						
Name		Value				
user		test				
password		*******				
		4	New Option Delete Option(s)	Ins Del		
			<u>о</u> к	<u>C</u> ancel	<u>H</u> el	p

In the **User Mapping** dialog you can set the *User* and *Password* options for the selected **Role**. To manage these options use the **New Option** and **Delete Option(s)** context menu items.

# 5.5.5 Foreign Data Wrappers

All operations on a foreign table are handled through its **Foreign Data Wrapper**, which consists of a set of functions that the core server calls. The foreign data wrapper is responsible for fetching data from the remote data source and returning it to the PostgreSQL executor.

**Foreign Data Wrapper Editor** allows you to define foreign data wrapper properties. It opens automatically when you <u>create</u> 155 a new foreign data wrapper and is available on <u>editing</u> an existing one.

- Using Navigation bar and Toolbar 332
- Creating/editing foreign data wrapper 334
- Browsing object dependencies 967
- Editing object description 966
- Viewing DDL definition 965
- Setting object permissions 968

#### 5.5.5.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Foreign Data Wrapper Editor**.



# **Object**

- 号 select a database
- 👒 select a foreign server for editing

## General

- 🖸 compile 🕬 the foreign data wrapper (if it is being created)
- save the foreign data wrapper <u>description</u> छिंते (if it has been modified)
- lateral refresh the content of the active tab
- 📚 <u>print metadata</u>🕬 of the foreign data wrapper
- 📲 view the <u>dependency tree</u> िउंधे for the foreign data wrapper
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the language:

# Description

- 🚽 save object <u>description</u>968 to file
- copy <u>description</u> been to clipboard

#### DDL

📕 save <u>DDL</u>छठी to file

📝 open DDL १०६३ in Query Data 415।

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

## 5.5.5.2 Creating/editing foreign data wrapper

#### Name

The name of the new/existing foreign data wrapper. The foreign data wrapper name must be unique within the database.

🗞 Forei	gn Data V	Vrapper - [postgres]	_fdw] - [testo	dvd on tio:	54394	]	
🕴 🔒 Databases 🔹 😼 📮	🔒 🖻 😓	🛃 🏟 postgres_fdw				►	=
Object	*	<u>F</u> oreign Data Wrapper	Dependen <u>c</u> ies	Description	DD <u>L</u>	Permissions	
estdvd on tio:54394	[testc 🗸	<u>N</u> ame	postgres_f	dw			
ig postgres_fdw	~	Handler function	public.post	gres_fdw_har	dler	~	No handler
		Validator function	public.post	gres_fdw_vali	dator	~	No validator
General	* :	Options					
🞸 Compile		Name		Value			
R Save description							
Refresh							
line Print							
Dependency tree							
Restore default size							

#### Handler function

This is the name of a previously registered function that will be called to retrieve the execution functions for foreign tables. The handler function must take no arguments, and its return type must be fdw\_handler.

It is possible to create a foreign-data wrapper with no handler function by checking the **No handler** option.

#### **Validator function**

This is the name of a previously registered function that will be called to check the generic options given to the foreign data wrapper, as well as options for foreign servers, user mappings and foreign tables using the foreign-data wrapper. The validator function must take two arguments: one of type text[], which will contain the array of options as stored in the system catalogs, and one of type oid, which will be the OID of the system catalog containing the options.

If the **No validator** option is checked, then options will not be checked at creation time.

#### Options

Use the grid with **Name** and **Value** columns to specify the options for the server. The allowed option names and values are specific to each foreign data wrapper and are validated using the foreign-data wrapper's validator function. Option names must be unique.

# 5.5.6 Local Scripts

Local scripts 646 are stored locally and can be easily accessed from the DB Explorer 65.

To create new local script right-click the appropriate branch in the DB Explorer tree and select the **New Script** item. You will be asked for the script name. When the name is assigned the script appears in the DB Explorer tree.

If a script is created in Execute Script editor and saved to the default folder, it will appear in the DB Explorer tree as local one.

New Script	×
Enter the script's new name	
new_script	
OK Cancel	

It is also possible to create subfolders in the Local scripts branch. Folders created there are created physically as subfolders to the folder assigned as default for local scripts in the **DB Registration info** | **Directories**.

To change directory where local scripts to be stored use the **Select Directory** item of the **Local Scripts** context menu, or use the respective field of the **DB Registration info** | **Directories** dialog. If specified folder already contained scripts, these scripts will be added to the <u>DBExplorer</u> [65] tree.

Script is opened in the <u>Execute Script</u> बिकी where it can be edited or performed. You can also save local script as the <u>shared</u> विउने one.

See also: Execute Script Editorଜ୍ୟଣ୍ଡି Database Explorer ନ୍ରେ Shared Scripts Database Registration Info noଣି

# 5.5.7 Shared scripts

Shared scripts are the scripts stored in the VCS repository. That makes scripts available for all the users working with the database having version control enabled.

Any script opened in the <u>Script Editor</u> 646 can be saved as a shared script.

**Note:** Shared scripts are stored in the '%LocalRepositoryPath%\Trunk\Script' folder or its subfolders (where '%LocalRepositoryPath%' is a directory defined in the **Database registration info | Change management | Working folder** field).

Shared script is opened in the Execute Script Editor 646 where you can edit or execute it.

See the topics below to get information about specific actions for shared scripts:

- <u>TFS</u>337
- <u>CVS</u>339
- <u>VSS</u>340
- <u>SVN</u>342

See also: Execute Script 646 DB Explorer 65 Local Script 836 Database registration info 108 Change Management Settings 126 Change Management Tools 844

#### 5.5.7.1 TFS

Actions you can perform under shared scripts in Team Foundation Server version control system:

to version control B Get latest version Check in Check out

#### Adding script to version control

Enables version control for the selected script, script folder or whole shared script branch. Operation is available only for scripts or folders that are not included in version control.

#### **Getting latest version**

Gets the selected script from server repository to either replace or to merge it with the local copy. You will be asked for operation confirmation. This should be used, if you need to discard all changes made to script locally and to start working with up-to-date script file. If the operation is applied to **Shared Script** branch of the <u>DB Explorer</u> [65] (or any shared script folder) you will get information about all shared scripts added by other database users that work in the same VCS repository (or about script added to the folder).

#### Checking out

Enables edit mode for the script. This operation should be used when you need to add changes to script. It locks the script file so that nobody else can open it until you perform the *Check In* operation.

#### Checking in

Commits changes made to the script. You will be asked for transaction comments. After script is checked in, its latest version appears on server repository.

You can also browse shared script history. Use the **Change management | Solution** History item of the context menu for this purpose.

You can identify current script state by its icon:

Image: Shared script is not added to version control;

률 Shared script is checked out and has been changed locally;

- 💤 Shared script can't be edited until checked out;
- 💤 Shared script is checked out and can be edited;
- 📫 There is a conflict in this shared script.

**Note:** The most common situation for conflicts to occur is when you are trying to check in locally modified script, but there is a newer version of this script in server repository. Conflicts should be resolved manually by means of TFS. Shared scripts are stored in the '*%LocalRepositoryPath%\Trunk\Script*' folder (where '*%LocalRepositoryPath%*' is a directory defined in the **Database registration info | Change management | Working folder** field).

#### See also:

Shared scripts in CVS Shared scripts in VSS 340 Shared scripts in SVN 342

#### 5.5.7.2 CVS

Actions you can perform under shared scripts in Concurrent Versions System:

- 端 Add to version control
- 🔊 Update from Version Control
- 📬 Commit to Version Control

#### Adding script to version control

Enables version control for the selected script, script folder or whole shared script branch. Operation is available only for scripts or folders that are not included in version control.

#### Updating script from Version Control

Merge two files: one from server repository and another from the local repository. Use this function when you need to work with the latest version of a file.

#### Committing changes to Version Control

Add latest changes made to shared script into server repository.

You can also browse shared script history. Use the **Change management | Solution** History item of the context menu for this purpose.

You can identify current script state by its icon:

- Shared script is not added to version control;
- 률 Shared script is added to version control and contains uncommitted changes;
- 💤 Shared script is added to version control and contains no local changes;
- 📫 There is a conflict in this shared script.

**Note:** The most common situation for conflicts to occur is when you are trying to commit changes made to script, but there is a newer version of this script in server repository. Conflicts should be resolved manually by means of CVS. Shared scripts are stored in the '*%LocalRepositoryPath%*\*Trunk*\*Script*' folder (where '*%LocalRepositoryPath%*' is a directory defined in the **Database registration info | Change management | Working folder** field).

# See also:

Shared scripts in TFS 337 Shared scripts in VSS 340 Shared scripts in SVN 342

#### 5.5.7.3 VSS

Actions you can perform under shared scripts in Visual Source Safe version control system:

to version control B Get latest version Check in Check out

#### Adding script to version control

Enables version control for the selected script, script folder or whole shared script branch. Operation is available only for scripts or folders that are not included in version control.

#### Getting latest version

Gets the selected script from server repository to replace local copy. You will be asked for operation confirmation.

This should be used, if you need to discard all changes made to script locally and to start working with up-to-date script file. If the operation is applied to **Shared Script** branch of the <u>DB Explorer</u> (65) (or any shared script folder) you will get information about shared scripts added by other database users that work in the same VCS repository (or about script added to the folder).

#### **Checking out**

Enables edit mode for the script. This operation should be used when you need to add changes to script.

#### Checking in

Commits changes made to the script. You will be asked for transaction comments. After script is checked in, its latest version appears on server repository.

You can also browse shared script history. Use the **Change management** | **Change management** | **Change management** |

You can identify current script state by its icon:

- 📠 Shared script is not added to version control;
- 🛱 Shared script is checked out and has been changed locally;

🛋 Shared script can't be edited until checked out;

💤 Shared script is checked out and can be edited;

📠 There is a conflict in this shared script.

**Note:** The most common situation for conflicts to occur is when you are trying to check in locally modified script, but there is a newer version of this script in server repository. Conflicts should be resolved manually by means of VSS. Shared scripts are stored in the ' %LocalRepositoryPath%\Trunk\Script' folder (where '%LocalRepositoryPath%' is a directory defined in the **Database registration info | Change management | Working folder** field).

See also: Shared scripts in TFS विजेगी <u>Shared scripts in CVS</u> छउ9 <u>Shared scripts in SVN</u> छ42

#### 5.5.7.4 SVN

Actions you can perform under shared scripts in Subversion version control system:

- 端 Add to version control
- 🔊 Update from Version Control
- 📬 Commit to Version Control

#### Adding script to version control

Enables version control for the selected script, script folder or whole shared script branch. Operation is available only for scripts or folders that are not included in version control.

### Updating script from Version Control

Merge two files: one from server repository and another from the local repository. Use this function when you need to work with the latest version of a file.

### **Committing changes to Version Control**

Add latest changes made to shared script into server repository.

You can also browse shared script history. Use the **Change management |** Second History item of the context menu for this purpose.

You can identify current script state by its icon:

- Shared script is not added to version control;
- 뤅 Shared script is added to version control and contains uncommitted changes;
- # Shared script is added to version control and contains no local changes;
- 📫 There is a conflict in this shared script.

**Note:** The most common situation for conflicts to occur is when you are trying to commit changes made to script, but there is a newer version of this script in server repository. Conflicts should be resolved manually by means of SVN. Shared scripts are stored in the '%LocalRepositoryPath%\Trunk\Script' folder (where '%LocalRepositoryPath%' is a directory defined in the **Database registration info | Change management | Working folder** field).

See also: <u>Shared scripts in TFS</u> <u>Shared scripts in CVS</u> <u>Shared scripts in VSS</u> <u>Shared scripts in VSS</u> [340]



# 6 Change Management

#### **Database Change Management**

Change Management integrated into version control system (VCS) allows you to:

- manage database related development processes;
- remember database states;
- get a script with differences between two database states;
- test generated scripts on a test database;
- rollback database to any of its previous versions;
- browse history of database and/or object changes;
- store any SQL scripts in version control system repository of a database.

Change management makes the process of deploying changes and updates from development to testing and production environments easier and more controllable. Supported VCS: Concurrent Versions System (CVS), Subversion (SVN), Visual SourceSafe (VSS), Team Foundation Server (TFS).

This tool can be useful not only for development teams, but also for single developers, who are in need of a mean for managing database versions, or whose databases have complex business logic in procedures, triggers etc.

Change management tools can be accessed through the respective section of database context menu or Tools section of the main menu.



To enable Change Management for a database you need to define connection settings for the VCS and create database repository. Open the Database Registration Info dialog at the Change management tab and launch the Version Control Repository Management Wizard for this purpose.

# What VCS stores

Database VCS repository stores:

- 1. All database objects in XML files. All the object properties that affect object definition are recorded into these files
- 2. SQL scripts with all changes in the database
- 3. Database backups created with each label
- 4. User can add custom files to VCS (so-called shared scripts)

SQL manager automatically records each changing of a database object (made in object editor, or by SQL script) to the respective file and to database history and then commits these changes to VCS.

If database was changed in other program, not in SQL Manager, Check Version Control Repository Wizard provides resolving of differences in database and its description in the VCS repository. It is strongly recommended to launch Check Repository Wizard to reveal and remove such differences.

Repository stores metadata only, not data.

#### Branches, labels, tags

Change Management tool allows you to create database branches. Database branch is a copy of original DB and corresponding branch in the database repository. Database that has been originally added to VCS is a trunk branch of the repository. On branch creation any PostgreSQL server can be specified as destination for created branch database if its version coincides with the version of original server.

Database tags and labels can be created as well. Database tag is a mark for all database files in VCS repository. Using tags is recommended for marking definite database state or version. This provides possibility to get differential script to this state.

Database label is a database tag plus database backup copy. It enables restore of the database to the labeled state. Label is always created when creating a branch. In this case label gets the name of the branch with "\_AutoLabel" ending. During initial creation of database repository, the label named "Trunk\_AugoLabel" is created automatically.

#### Get Change script

One of the key features of Change Management is the possibility to get script of database changes from tag/time point/current database state to another tag/date/current database state. Script can be generated in two ways: differential or step-by-step.

Differential script is a result of comparing of two database states. Step-by-step script is an aggregate of all database changes occurred in a period. Step-by-step script can generated only for two contiguous database states and only in forward direction. For example, such script can be generated for two database states within a single branch. Step-by-step script contains all SQL statements that have been performed from start time point to destination one. It means that all intermediate changes of an object will be included to script. Instead of step-by-step script, differential script contains only sum of these changes. Step-by-step scripts, as opposed to differential ones, can contain DML statements in addition to DDL statements. Using of step-by-step scripts is more secure if all changes to database have been made in SQL Manager only.

### Change Management tools

Tools available:

- 1. <u>Check Version Control Repository Wizard</u> 356. Defines whether object description in repository matches object properties in database. If differences persist, wizard corrects repository in order to eliminate them and adds the script with missing statements to DB history.
- 2. <u>Create Tag Wizard</u> [348]. Provides tag, label or branch creation. Also allows restore of database from an existing label. Such database will not be included in change management, and can be used, for example, for testing scripts.
- 3. <u>Get Change Script Wizard</u> [366]. Enables getting script with changes from tag/date/ current database state to tag/date/current database state.
- 4. <u>Release New Version of Database Wizard</u> [375]. Automates intermediate processes that are required when releasing new version of database. Allows to get script with changes between previous version of database and current one and to test this script on previous database version. The wizard includes the following operations:
  - a. VCS repository is checked to ensure that description exactly matches current database state (same as Check Version Control Repository Wizard performs).
  - b. Current database state is marked in the VCS repository with tag or label. This provides ability to get change script with possible additional changes.
  - c. Script with changes between previous version of database and current database state is generated.
  - d. Test database is created from for example an existing label. Generated scripts are tested on this database. After script is executed, test database is compared with current database state to ensure that there no differences between them.
- 5. <u>Database History</u> 407. Shows all changes of database in specified branch. History is a list of scripts performed on database. <u>Object History</u> 408. Shows all changes of a DB object similar to file history in VCS.

#### Connect to VCS 126

To access change management tools:

Select the **Tools | Change Management** item of the <u>main menu</u> or

Select the **Change Management** item from the <u>database</u> [54] or <u>host context menus</u> [52].

For a single <u>database object</u> 155 only <u>object history</u> 406 can be browsed.

#### <u>Availability</u>:

Full version (for Windows) Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

## See also:

<u>Getting Started</u> उग्री <u>Database Explorer</u> 6ि <u>Database Management</u> 8ि <u>Database Objects Management</u> 158 <u>Query Management Tools</u> 413 <u>Data Management</u> 452 <u>Import/Export Tools</u> 53ର <u>Database Tools</u> 63ର <u>Services</u> 771 <u>Options</u> 870 <u>How To...</u> ଲେଇ

# 6.1 Create branch/label/tag wizard

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This wizard allows you to create tag, label or branch.

**Tag** is a special mark that defines certain database state. (It is a marks for all files of the database repository in the specified branch)

**Label** is a special mark that defines certain database state. With the label a backup copy of the database is created. Label provides database state for creating database branch/ copy.

**Branch** is an independent direction of database development. It is a database copy which can be modified with no effect on the original database (database in head branch). Objects in different branches are identical before branching point and divergent after it. Label is always created with branch. (This branch is for all files of DB repository in VCS plus copy of the original database)

To launch the wizard use the **Change Management** | **Create Branch/Label/Tag** item of the <u>host</u> or <u>database</u> of the <u>host</u> of thost of the <u>host</u> of thost of the <u>host</u> of the <u>host</u>

X	Connect to Database	Shift+Ctrl+C			
•	Disconnect from Database	Shift+Ctrl+D			
	Tasks		۲		
	Change Management		۲	R	Create Branch/Label/Tag
<b>e</b> 1	Database Properties			ø	Get Change Script
	Server Configuration				Release New Version of Database
8	Create Database				Check Repository
	Drop Database			0	About Change Management
<b>e</b> .	Register Database	Shift+Alt+R		Ø	History
8	Database Registration Info			8	Repository Options
₿.	Unregister Database	Shift+Alt+U			
Ģ	Unregister Host				
	Database Registration Mana	ager			

- <u>Selecting source database</u> 350
- <u>Selecting operation</u> 351
- <u>Setting created object options</u> 353
- <u>Specifying connection settings</u>
   <sup>354</sup>
- Performing operation 355

#### <u>Availability</u>:

Full	version	(for Windows)	Yes
Lite	version	(for Windows)	No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

See also:

<u>Check repository wizard</u>ଛେ <u>Get change script wizard</u>ଛେ <u>Release new version of database</u>ଛେ <u>History</u>40ଣ

# 6.1.1 Selecting source database

In this step you need to select the database to create a tag for. Proceeding to the next step is possible only when VCS is enabled for the selected database.

🙀 Create Tag Wizard	×
Create Branch/Label/Ta	g
Select source database	
	Welcome to the Create Tag Wizard! This wizard allows you to create branch, label, tag or create database from existing label.
	The wizard will guide you through the process of selecting desired operation and options required for its successful completion.
SQL Manager for PostgreSQL	Source database
Help	< <u>B</u> ack <u>N</u> ext > Cancel

Use the drop-down list to select **Source database**.

Click the **Next** button to proceed to the <u>Selecting operation</u> [351] step of the wizard.

# 6.1.2 Selecting operation

In this step you need to select type of the operation to be performed.

🙀 Create Tag Wizard				<b>—</b> X—
Create Branch/Label/Tag	3			
Select operation				
SQL Manager for PostgreSQL	What kind of operation we Create branch From existing Create label Create tag Create database	ould you like to perform?   label e from label		<b>T</b>
	Branch name	NewBranch		
	Move tag/label if it alre	eady exists		
Help		< <u>B</u> ack	Next > Can	cel

#### Oreate branch

Use this option to create a branch.

If needed you can create branch  $\blacksquare$  **From existing label**. Enable the appropriate option and select a label from the drop-down list for the purpose.

#### Oreate label

Use this option to create a label.

#### Oreate tag

Select the option to create a tag.

### Oreate database from label

This option allows you to create a database from label. Select a label from the corresponding drop-down list.

# Branch / Label / Tag name

Defines the name of the created object.

#### Move tag/label if it already exists

Enable the option to move the existing object with the new one if their names coincide.

Click the **Next** button to proceed to the <u>Setting created object options</u> [353].

If a tag is created then clicking the **Next** button will move you to the last step [355].

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# 6.1.3 Setting created object options

This step appears only when creating label. Use this step to define label parameters.

保 Create Tag Wizard		×
Create Branch/Label/Tag	I	
Set creating label options		
Final Solution of the second s	Specify created label options. Backup storage location Version Control Repository Separately Backup options Backup metadata only	
Help	< <u>B</u> ack <u>N</u> ext > Can	cel

#### Backup storage location

Use this section to define whether to store database backup in **O Version Control Repository** or **O Separately**.

## Backup metadata only

Disable the option if you need full database backup to be created with the label.

Click the **Next** button to proceed to the <u>Specifying connection settings</u> [354] step.

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# 6.1.4 Specifying connection settings

This step appears when creating branch or database from label (action specified at the <u>Selecting operation</u> step). Use this step to define settings for new database.

🛃 Cre	eate Tag Wizard		<b>—</b>
Cre	eate Branch/Label/Ta	g	
	Specify destination datab	ase location	
	-	Specify database	destination.
	<b>F</b>	Host name	ayz2   Port 54383
		<u>U</u> ser name	ayz
	SQL	Password	*****
	Manager	Database name	DemoDB_NewBranch
	PostgreSQL		
	Help		< <u>B</u> ack <u>N</u> ext > Cancel

Use the **Host** drop-down list to define server. This list contains all registered hosts. Use the corresponding field to specify **Port** for connection.

Define **User name** and **Password** for server authorization.

**Database name** must be specified within the appropriate field.

Click the Next button to proceed to the final [355] step.

# 6.1.5 **Performing operation**

This step of the wizard is intended to inform you that all necessary options have been set, and you can run branch/label/tag creating process.

The log area allows you to view the log of operations and errors (if any).

🙀 Create Tag Wizard		×
Create Branch/Label/Tag	1	
Click the Run button to st	art the operation	
	0 %	_
SQL Manager for PostgreSQL	Updating file(s): C:\wc\subrep1\subrep1\demodb_pg\Trunk\Locks.xml U Locks.xml Committing file(s): C:\wc\subrep1\subrep1\demodb_pg\Trunk\Locks.xml Checking in Locks.xml; C:\cvs_rep/subrep1/subrep1/demodb_pg/Trunk/Locks.xml,v < Locks.xml new revision: 1.2; previous revision: 1.1 done Updating file(s): C:\wc\subrep1\subrep1\demodb_pg\Tags.xml	
	Close the Wizard after successful completion	
Help	< <u>B</u> ack <u>R</u> un Can	cel

# Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

Click the **Run** button to create branch/label/tag.

# 6.2 Check repository wizard

**Check repository wizard** reveals differences (if any) between database state and its description in the VCS repository and eliminates ones if any. This wizard should be used when any changes have been made to database without synchronization to the corresponding repository e.g. changes made when VCS was disabled for the database.

To launch the wizard use the **Change management | Check repository...** item of <u>database context menu</u> [54] (or any database object context menu), or use the **Tools | Change management | Check repository...** main menu item.

X	Connect to Database	Shift+Ctrl+C			
2	Disconnect from Database	Shift+Ctrl+D			
	Tasks		۲		
١	Change Management		►	R	Create Branch/Label/Tag
<b>*</b>	Database Properties			ø	Get Change Script
	Server Configuration				Release New Version of Database
8	Create Database				Check Repository
-	Drop Database			0	About Change Management
е,	Register Database	Shift+Alt+R		Ø	History
8	Database Registration Info			8	Repository Options
₽.	Unregister Database	Shift+Alt+U			
Ģ	Unregister Host				
	Database Registration Mana	ager			

- Selecting database 358
- Selecting object types 359
- Checking repository 360
- Specifying action for each difference
- Selecting objects to remove from the repository 362
- Checking and correcting script 363
- Adding comments 364
- Performing operation 365

 Availability:

 Full version (for Windows)
 Yes

 Lite version (for Windows)
 No

 Note: To compare all features of the Full and the Lite versions of SQL Manager, refer to the Feature Matrix 22 page.

See also:

<u>Create tag wizard</u> छ48 <u>Get change script</u> छ66 <u>Release new version of database</u> छ75 <u>History</u> म06

# 6.2.1 Selecting database

In this step you should select a database to check version control repository. Proceeding to the next step is allowed only if VCS is enabled for the selected database.

🔐 Check Version Control Repository Wizard								
Check Version Control Repository								
Select database to check version control repository								
Ea	Welcome to the Check Version Control Repository Wizard! This wizard allows you to inspect version control repository for mismatches and other problems.							
	The wizard will guide you through the process of comparing database and version control objects, searching for problems and resolving them.							
SQL Manager for PostgreSQL	Database to check							
Help	< <u>B</u> ack <u>N</u> ext > Cancel							

Use the **Database to check** drop-down list for the purpose.

Click the **Next** button to proceed to the <u>Selecting object types</u> step of the wizard.

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# 6.2.2 Selecting object types

In this step you need to select object types for check repository operation.

Theck Version Control Repository Wizard								
Check Version Control Repository								
Select object types to check								
20	<ul> <li>Check the whole database</li> <li>Check selected object types only</li> </ul>							
SQL Manager for PostgreSQL	Objects         Tables         Functions         Base Types         Languages         Aggregates         Schemas         Operators         Sequences         Views         Domains         Enum Types							
Help	< <u>B</u> ack	Next > Cancel						

## Check the whole database

Selects all database objects for check repository operation.

# Check selected object types only

This option enables selecting object types manually. This option enables selecting object types manually. Selecting object types manually can increase speed of operation performance, but it also can make it less secure.

Click the **Next** button to proceed to the <u>Checking repository</u> [360] step of the wizard.

# 6.2.3 Checking repository

This step informs you that all necessary settings are defined and version control repository can be checked.

The log area allows you to view the log of operations and errors (if any). Errors state for differences between database objects and their description in the repository.

📸 Check Version Control Repository Wizard									
Check Version Control Repository									
Check the repository									
	Check of version control repository is complete								
	100 %								
SQL Manager	Updating file(s): C:\wc\subrep1\subrep1\demodb_pg\Trunk\Version.xml U Version.xml Refreshing database	•							
for PostgreSQL	Updating branch folder Updating file(s): C:\wc\subrep1\subrep1\demodb_pg\Trunk ? Scripts/ScriptFolder/ScriptFolder Checking database objects								
	Checking version control objects Operation completed 19 error(s) found								
	Check Agair	1							
Help	< <u>B</u> ack <u>N</u> ext > Ca	incel							

If differences are present, then the repository should be changed in order to correspond with current state of the database.

If no differences have been found, proceeding with the next step of the wizard is unavailable.

You can repeat repository checking clicking the **Check Again** button.

Click the **Next** button to proceed to the <u>Specifying action for each difference</u> soft step of the wizard.
## 6.2.4 Specifying action for each difference

In this step you can view objects that have been changed and whose changes are not reflected in the repository.

Use the Action column to define action for the selected object.

#### Save

This action is available only for objects that exist in database and are described in VCS repository but whose properties are not up to date. Use the option to add changes to the object description.

#### Create New/Replace Existing

This actions appear for objects that exist in database but have no description in the database VCS repository. Use the **Create New** option to add new description, or the **Replace Existing** to substitute the existing description. If the **Replace Existing** option is selected, the **Replacement** should be defined. Note that the Replacement field contains the list of similar objects that are described in the repository but are absent from the database.

📆 Check Version Control Repo	sitory Wizard			×
Check Version Control Re	pository			
Specify appropriate action f	or each problem to resolve			
	Specify action for each found	problem to resolve it.		
	Object in Database	Error	Action	Replaced Obj
SQL Manager for PostgreSQL	Tables  Tables  Total results  Tota	s Object is modified No object in version No object in version No object in version	Save Create ne Replace exis	ting
Help		< <u>B</u> ack	Next >	Cancel

Click the **Next** button to proceed to the <u>Selecting objects to remove from the repository</u> [362] step.

## 6.2.5 Selecting objects to remove from the repository

Use this step to mark objects to remove its description from the repository.

Table contains only objects whose descriptions exist in VCS repository but are absent from the database.

Check Version Control Re	pository Wizard	<b>—</b>			
Check Version Control Repository					
Select missing database	objects to remove from the repository				
	Specify objects that will be removed from the v not exist in the database.	version control repository as they do			
	Object in Version Control	Remove Object			
SQL Manager for PostgreSQL	■ ▲ Views ■ ▲ HR.DEPT_VIEW				
Help	< <u>B</u> ack	Cancel			

Click the **Next** button to proceed to the <u>Checking and correcting script</u> 363 step.

# 6.2.6 Checking and correcting script

This step allows you to view and correct script with changes selected at the previous steps.

In this editor you can use all the features available in <u>Query Data and set</u> syntax highlight, code completion etc.

**Note:** This script will not be executed. It will be added to the <u>database history</u> and in the version control repository. If database history already contains commands that caused such changes in the database, remove corresponding commands from the script.

👸 Check Version Control Rep	pository Wizard	×
Check Version Control I	Repository	
Check and correct script	that will be added to the change log	
SQL Manager	If necessary, edit the following script that will be added to the change log in the version control repository.          EALTER TABLE "Production". "Address"         17       ADD COLUMN "Address_type" INTEGER;         18       ECREATE TABLE "Production". "Order" (         20       order_id INTEGER NOT NULL,         21       order_date DATE,	<b>^</b>
PostgreSQL	<pre>22 product_id INTEGER, 23 CONSTRAINT "Order_pkey" PRIMARY KEY(order 24 ) WITHOUT OIDS; 25 CREATE OR REPLACE VIEW "Production".view1 ( 27 id, 28 name, 4 III</pre>	_i
Help	< <u>B</u> ack <u>N</u> ext > Cano	cel

Click the **Next** button to proceed to the <u>Adding comments</u> 364 step of the wizard.

# 6.2.7 Adding comments

Use this step to bind commentaries to the changes that will be made to the version control repository.

Changes that will be applied to the repository you can find in the <u>Specifying action for</u> <u>each difference</u> and <u>Selecting objects to remove from the repository</u> and <u>Selecting objects to remove from the re</u>

Check Version Control Rep	pository Wizard				
Check Version Control	Check Version Control Repository				
Specify comment for cha	nges that will be performed in the repository				
	Please type comment describing changes that will be written to the version control repository.				
SQL Manager for PostgreSQL	Create table "Order" Alter table "Address"				
Help	< <u>B</u> ack <u>N</u> ext > Cancel	]			

Click the **Next** button to proceed to the <u>final</u> [365] step.

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## 6.2.8 Performing operation

This step informs you that all necessary settings are defined and changes can be applied.

The log area allows you to view the log of operations and errors (if any).

👸 Check Version Control Rep	oository Wizard	×		
Check Version Control F	Repository			
Click the Run button to a	oply changes			
	Process completed successfully!			
200	100 %			
SQL Manager for PostgreSQL	SQL Manager for PostgreSQL       V::sqiry < 00000000.sqi initial revision: 1.1 done Updating file(s): C:\wc\subrep1\subrep1\demodb_pg\Trunk\ChangeTable\00000000.xml O0000000.xml C:\wc\subrep1\subrep1\demodb_pg\Trunk\ChangeTable\00000000.xml C:\wc\subrep1\subrep1\demodb_pg\Trunk\ChangeTable\00000000.xml,v < 00000000.xml			
	done Operation completed	(E) •		
	Close the Wizard after successful completion			
Help	< <u>B</u> ack Run Clos	ie		

Click the **Run** button to apply changes defined at the previous steps.

To close the wizard after successful completion of the operation use the corresponding option.

# 6.3 Get change script wizard

**Get change script wizard** generates script that reflects differences between two database states. This script can be used to bring database to the required state. Any database state existing in its version control history can be taken as start or end point.

To launch the wizard use the **Change management |** <u>database context menu</u> [54] (or any database object context menu), or use the **Tools | Change management | Get change script...** main menu item.

X	Connect to Database	Shift+Ctrl+C			
2	Disconnect from Database	Shift+Ctrl+D			
	Tasks		۲		
۵	Change Management		۲	P	Create Branch/Label/Tag
<b>*</b>	Database Properties			P	Get Change Script
	Server Configuration				Release New Version of Database
Β.	Create Database				Check Repository
В.	Drop Database			0	About Change Management
е.	Register Database	Shift+Alt+R		Ø	History
8	Database Registration Info			8	Repository Options
₽.	Unregister Database	Shift+Alt+U			
Ģ	Unregister Host				
	Database Registration Mana	ager			

- Selecting source database 368
- Selecting script generation method 369
- Specifying start and end points for the script 370
- <u>Specifying comments</u> 372
- Specifying script destination 373
- Performing operation 374

Availability:

Full version (for Windows) Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

## See also:

<u>Create branch/label/tag wizard</u> <u>Check repository wizard</u> <u>Release new version of database</u>



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## 6.3.1 Selecting source database

Use this step to select source database to get change script. Proceeding to the next step is allowed only if VCS is enabled for the selected database.

🥵 Get Change Script Wizard		×
Get Change Script		
Select source database		
	Welcome to the Get Change Script Wizard! This wizard allows you to collect the script representing changes in the database the period you specify.	for
	The wizard will guide you through the process of selecting the period when the changes were made and output script options.	
SQL Manager for PostgreSQL	Source database	•
Help	< <u>B</u> ack <u>N</u> ext > Cancel	

Use the **Source database** drop-down list for the purpose.

Click the **Next** button to proceed to the <u>Selecting script generation method</u> step.

## 6.3.2 Selecting script generation method

This step allows you to select script generation method.



## Generate step-by-step script

Use this method to generate script that reflects consecutive changes made to database during the period defined at the next 370 step.

**Note:** This script can't be used to rollback to the initial state of the database (start point).

#### Generate differential script

Using this method the program generates script reflecting difference between two database states.

**Note:** Script generated using this method never contains intermediate changes of an object.

Click the **Next** button to proceed to the <u>Specifying start and end points for the script</u> [370] step of the wizard.

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## 6.3.3 Specifying start and end points for the script

This step allows you to define the period. Generated script will consider changes made in this period.

🥵 Get Change Script Wizard			×
Get Change Script			
Specify start and end poir	nts for the generatin	ng script	
SQL Manager for PostgreSQL	Script start poi Tag Date Script end poin Last revisio Tag Date	int DemoDB_26/09/12   DemoDB_26/09/12	
Help		< <u>B</u> ack <u>N</u> ext > Cance	el 📄

#### Script start point

First select start point type: **•** Tag or **•** Date. Then either select  $\underline{tag}_{348}$  from the dropdown list, or specify date. **•** Last revision of branch can be selected as start point only when getting differential script.

## Script end point

First select end point type: 

Last revision of branch (current database state),
Tag or 
Date. Then either select tag from the drop-down list, or specify date.

**Note:** When the Step-by-step method of script generation is selected the Tag list will contain all tags/labels from current and parent branches. Tags/labels from parent branches appear in the list only if these branches heads are located in VCS tree structure higher than last revision the of branch.

#### Script end point

First select end point type: 
Ist revision of branch (current database state), 
Tag or 
Date. Then either select tag from the drop-down list, or specify date.

**Note:** If the step-by-step mode is selected in the previous step [369], start point must be

earlier then end point.

Click the **Next** button to proceed to the <u>Specifying comments</u> [372] step of the wizard.

# 6.3.4 Specifying comments

This step allows you to select comments to be added to each statement script of the script. When getting differential script this step is unavailable.

🥵 Get Change Script Wizard		×
Get Change Script Specify comments		
SQL Manager for PostgreSQL	You can include additional information for each change in the result script Add description Script identification number Date and time User who had made a change Comment that user had provided	
Help	< <u>B</u> ack <u>N</u> ext > C	ancel

Check the needed options to add corresponding comment to each script statement.

To disable comments uncheck the **Add description** option.

Click the **Next** button to proceed to the <u>Defining script destination</u> 373 step of the wizard.

# 6.3.5 Specifying script destination

In this step you need to set script destination.

👴 Get Change Script Wizard	
Get Change Script	
SQL Manager	Script destination  Automatically load to Script Editor  Save to file  File name  C:\EMS\SQL Manager for PostgreSQL\changescript.sc
for PostgreSQL <u>H</u> elp	File charset     Database default       Image: State of the s

## Automatically load to Script Editor

With this option enabled the generated script will be opened in **Script Editor** where you can execute it at once.

## Save to file

Use this option to save script to a file for future use. File name and its location is defined in the **File name** field.

Regardless of the script destination selected you need to define **Script character set**.

Click the **Next** button to proceed to the <u>final</u> step of the wizard.

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## 6.3.6 Performing operation

This step informs you that all necessary settings are defined and change script can be generated.

The log area allows you to view the log of operations and errors (if any).

👴 Get Change Script Wizard		×
Get Change Script		
Click the Run button to sta	art the operation	
	Process completed successfully!	
	100 %	
SQL Manager for PostgreSQL	Refreshing folder Updating file(s): C:\wc\subrep1\subrep1\demodb_pg\Trunk\ChangeTable Collecting change script Collecting complete Operation completed	
	Load script to Script Editor	
	Close the Wizard after successful completion	
Help	< <u>B</u> ack <u>R</u> un Close	•

Click the **Run** button to generate change script.

## Load script to Script Editor

Enable the option to open the result script within the Execute Script Editor 646.

To close the wizard after successful completion of the operation use the corresponding option.

# 6.4 Release new version of database

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Release new database wizard provides automatic performing of all necessary operations that required for new database release.

It allows you to get script with database changes from previous state to current one and to test it on the previous database state.

The wizard consists of the following operations:

1. VCS repository is checked to define whether it contains the exact description of current database state (similar to the <u>Check repository wizard</u> [356]).

2. Actual position of the database in VCS repository is labeled/tagged. This provides possibility to get script with the additional changes made after this point if such changes appear.

The script containing changes from previous database state to current is generated.
 Test database is created from previous state label/tag. Change script is tested on this database. Then the result database is compared to current version.

To launch this wizard use the **Change Management | Release New Version of Database** item of the host [52] or database context menu [54].

You can also use the **Tools | Change management | Release New Version of Database** item of the main menu



 Availability:

 Full version (for Windows)
 Yes

 Lite version (for Windows)
 No

 Note: To compare all features of the Full and the Lite versions of SQL Manager, refer to the Feature Matrix [22] page.

See also:

<u>Create branch/label/tag wizard</u> 34ଶି <u>Check repository wizard</u> 56 <u>Get change script wizard</u> 36 <u>History</u> 406

## 6.4.1 Selecting versions source

This step allows you to select the database to release and it's previous version.

🚺 Release New Version of Da	tabase Wizard			
Releasing New Version of Database				
Select new and previous	versions source			
Final Sector         SQL         Manager         for         PostgreSQL	Welcome to the Release New Y This wizard allows you to make new version. The wizard will guide you throu 1. Checking version control re problems. 2. Creating label for the new ver 3. Getting a script that transfer 4. Test the script on a test data New version <u>d</u> atabase Previous version <ul> <li>In label</li> <li>In database</li> </ul> <li>Only test existing script</li>	/ersion of Database Wizard! e a script that transfers a database from gh the following: pository of the database for mismatches ersion of the database. s the database from the previous to the abase. DemoDB on localhost:54391 [Database]	n previous to s and other e new version. emoDB]	
Help		< Back Next >	Close	

Select the **new version database** from the appropriate drop-down list.

## **Previous version**

This section defines previous version parameters.

- 🧕 In label
- Use this mode to get previous database version from an existing label.

#### In database

This mode allows you to get previous database version from a database.

Select the needed object from the list.

## **Only test existing script**

This option defines whether to generate new change script. Enable the option to proceed to the step where you can select an existing script file and test it.

Click the **Next** button to proceed to the <u>Checking repository</u> [378] step.

If the  $\blacksquare$  **Only test existing script** is selected, then you will proceed to the <u>Checking</u> repository [378] step.

# 6.4.2 Checking repository

Click the **Run** button to check repository of the selected database.

The log area allows you to view the log of operations and errors (if any). Errors state for differences between database objects and their description in the repository.

🚺 Release New Version of Dat	tabase Wizard	- • •
Checking Version Contro	al Repository	
Check the repository to fin	d mismatches that may affect script generation	
	Check of version control repository is complet	e
	100 %	
	C:\wc\subrep1\subrep1\testdb_pg\Trunk\Version.xml U Version.xml	*
SQL Manager	Updating branch folder	
for	C:\wc\subrep1\subrep1\testdb_pg\Trunk ? Scripts/ScriptFolder/ScriptFolder	
PostgreSQL	Checking database objects Checking version control objects	
	Operation completed 7 error(s) found	-
	Skip error correction (not recommended)	
		Check Again
Help	< <u>B</u> ack <u>N</u> ext >	Close

If errors were found, then the repository should be changed in order to correspond with current state of the database.

You can repeat repository checking clicking the **Check Again** button.

## Skip error correction

Enable the option to skip repository errors correction, but it is not recommended.

Click the Next button to proceed to the next step.

If no errors found you will proceed with the <u>Creating label/tag</u>384 step. Otherwise the <u>Creating label/tag</u>384 step will be the next.

## 6.4.3 Specifying actions for problems to resolve

In this step you can view objects that have been changed and whose changes are not reflected in the repository.

Use the Action column to define action for the selected object.

#### Save

This action is available only for objects that exist in database and are described in VCS repository but whose description is not up to date. Use the option to add changes to the object description.

#### Create New/Replace Existing

This actions appear for objects that exist in database but have no description in the database VCS repository. Use the **Create New** option to add new description, or the **Replace Existing** to substitute the existing description. If the **Replace Existing** option is selected, the **Replacement** should be defined. Note that the Replacement field contains the list of similar objects that are described in the repository but are absent from the database.

🕼 Release New Version of Data	abase Wizard			- • •
Checking Version Control	Repository			
Specify appropriate action	for each problem to resolve			
	Specify action for each found pro	blem to resolve it.		
	Object in Database	Error	Action	Replaced Obj
SQL Manager for PostgreSQL	Tables  Production.City  Functions  Production.function2	Object is modified No object in version No object in version	Save Create ne ▼ Create new Replace exist	ing
Help		< <u>B</u> ack	<u>N</u> ext >	Close

Click the **Next** button to proceed to the <u>Selecting objects to delete from repository</u> step.



## 6.4.4 Selecting objects to delete from repository

Use this step to mark objects to remove its description from the repository.

Table contains only objects whose descriptions exist in VCS repository but are absent from the database.

🚺 Release New Version of Dat	abase Wizard		
Checking Version Control Repository			
Select missed in database	objects to remove from the repository		
	Specify objects that will be removed from the version of exist in the database.	on control repository as they do	
	Object in Version Control	Remove Object	
SQL Manager	city head		
for PostgreSQL			
Help	< <u>B</u> ack	Next > Close	

Click the **Next** button to proceed to the <u>Checking and correcting script</u> [381] step.

# 6.4.5 Checking and correcting script

This step allows you to view and correct script with changes selected at the previous steps.

In this editor you can use all the features available in <u>Query Data and set</u> syntax highlight, code completion etc.

**Note:** This script will not be executed. It will be added to the <u>database history</u> and in the version control repository. If database history already contains commands that caused such changes in the database, remove corresponding commands from the script.

🚺 Release New Version of Da	atabase Wizard	- • •
Checking Version Contr	ol Repository	
Check and correct script	that will be added to the change log	
SQL Manager for	If necessary, edit the following script that will be added to the change version control repository. CREATE TABLE "Production"."Order" ( 15 order_id INTEGER, 16 order_date DATE, 17 order_name VARCHAR(20) 18 ) WITHOUT OIDS;	e log in the
PostgreSQL	( )     (     ( )     (     ( )     (     ( )	E T Close

Click the **Next** button to proceed to the <u>Specifying comments</u> 382 step.

# 6.4.6 Specifying comments

Use this step to bind commentaries to the changes that will be made to the version control repository.

Changes that will be applied to the repository you can find in the <u>Specifying action for</u> <u>each difference</u> (त्रिण) and <u>Selecting objects to remove from the repository</u> (त्रिण) steps of the wizard.

🕼 Release New Version of Da	tabase Wizard	- • •
Checking Version Contr	ol Repository	
Specify comment for cha	nges that will be performed in the repository	
	Please type comment describing changes that will be written to repository.	the version control
	Create table "Order"	
	Create function	
SQL		
Manager		
PostgreSQL		
Help	< <u>B</u> ack <u>N</u> ext >	Close

Click the **Next** button to proceed to the <u>Performing repository correction</u> [383] step.

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## 6.4.7 Performing repository correction

This step informs you that all necessary settings are defined and changes can be applied.

The log area allows you to view the log of operations and errors (if any).

🚺 Release New Version of Da	itabase Wizard
Checking Version Contr	ol Repository
Perform correction of the	repository
	Process completed successfully!
200	100 %
SQL Manager for PostgreSQL	<pre>\cvs_rep/subrep1/subrep1/demodb_pg/Trunk/ChangeTable/00000000/0000000 D.sql,v &lt; 0000000D.sql initial revision: 1.1 done Updating file(s): C:\wc\subrep1\subrep1\testdb_pg\Trunk\ChangeTable\00000000.xml U 0000000.xml Committing file(s): C:\wc\subrep1\subrep1\testdb_pg\Trunk\ChangeTable\00000000.xml Checking in 0000000.xml; C:\cvs_rep/subrep1/subrep1/demodb_pg/Trunk/ChangeTable\00000000.xml,v &lt; 0000000.xml new revision: 1.13; previous revision: 1.12 done</pre>
	Operation completed
Help	< <u>B</u> ack <u>N</u> ext > Close

Click the **Next** button to return to the <u>Checking repository</u> [378] step. Repository rechecking is necessary to make sure that no errors persist.

## 6.4.8 Creating label/tag

Creating of label or tag is necessary for marking current database state.

Use the **O Create label** option if you are not planning to make changes to the released database version.

Use the **O Create tag** option if not all the changes were applied and it is planned to get change script with further changes.

🚺 Release New Version of Da	atabase Wizard		- • •
Creating Label or Tag			
Create a label or a tag to	mark database state		
	You should create a label Create a label if you don't any more. Create a tag if no all chang additional changes.	or a tag to mark the current point of the plan to do changes in the releasing ver ges have been made and later you plan	database. sion of the database to get a script of
SQL Manager for PostgreSQL	<ul> <li>Create label</li> <li>Create tag</li> <li>Don't create</li> </ul>		
	Label name	demo_26/09/12	
	Move label/tag if it alre	ady exists	
Help		< <u>B</u> ack <u>N</u> ext >	Close

## Don't create

Use this option to skip label/tag creation.

## Label/Tag name

Specifies name for created tag or label.

#### Move label/tag if it already exists

Enable the option to move the existing object with the new one if their names coincide.

Depending on the option selected the you will proceed to different steps: For **Create label** selected - the next step will be <u>Specifying label options</u>[385]; For **Create tag** selected - the next step will be <u>Performing label creation</u>[386]; For **Don't create** selected - the next step will be <u>Generating change script</u>[387].

# 6.4.9 Specifying label options

This step appears only when label is created. Use this step to define label parameters.

🕼 Release New Version of Dat	tabase Wizard	
Creating Label or Tag		
Set creating label options		
	Specify created label options.	
SQL Manager	Backup storage location Version Control Repository Separately	
PostgreSQL	Backup options	
Help		< <u>B</u> ack <u>N</u> ext > Close

## Backup storage location

## Version Control Repository

Database backup copy will be stored in the VCS repository folder.

## Separately

Database backup copy will be stored in the folder specified below.

## Backup metadata only

Disable the option if you need full database backup to be created with the label.

Click the **Next** button to proceed to the <u>Performing label creation</u> [386] step.

## 6.4.10 Performing label creation

This step is intended to inform you that all necessary settings have been defined and you can perform tag or label creation.

The log area allows you to view the log of operations and errors (if any).

🕼 Release New Version of Da	tabase Wizard	
Creating Label or Tag		
Perform label creation		
	Process completed successfully!	
	100 %	
SQL Manager for PostgreSQL	Updating branch folder Updating file(s): C:\wc\subrep1\subrep1\testdb_pg\Trunk ? Scripts/ScriptFolder/ScriptFolder Updating file(s): C:\wc\subrep1\subrep1\testdb_pg\Tags.xml U Tags.xml Saving information Committing file(s):	
	C:\wc\subrep1\subrep1\testdb_pg\Tags.xml Checking in Tags.xml; C:\cvs_rep/subrep1/subrep1/demodb_pg/Tags.xml,v < Tags.xml new revision: 1.6; previous revision: 1.5 done Operation completed	T III
Help	< <u>B</u> ack <u>N</u> ext >	Close

Click the **Run** button to create label/tag.

After the operation is successfully finished, **Next** button appears instead of **Run**. Click the button to proceed to the <u>Generating change script</u> [387] step.

## 6.4.11 Generating change script

Use this step to define change script creation parameters.

🚺 Release New Version of Da	tabase Wizard	
Generating and Testing	Script	
Generate change script		
SQL Manager for PostgreSQL	<ul> <li>Generate new script file</li> <li>Script file name</li> <li>File charset</li> <li>Add script to the Trunk</li> <li>Append latest changes to</li> <li>Script file name</li> <li>Get latest changes from</li> </ul>	C:\wc\subrep1\subrep1\testdb_pg\Trunk\Scripts\v Unicode (UTF-8)
Help		< <u>B</u> ack <u>N</u> ext > Close

#### Generate new script file

For the new script you need to define its location and file name. Use the corresponding field for this purpose.

You also need to select **File charset** from the drop-down list.

#### Add script to version control repository

Enable the option to add created script to the database VCS repository. The option can be enabled only if specified script file location is the same as the local repository folder directory where shared scripts are stored.

#### Append latest changes to existing script file

Use this mode if change script has been already generated by the **Release New Version** of **Database Wizard**, but then changes were added to the released database. It is supposed that label have been created after previous script generation.

#### Script file name

Select existing script file within this field. Use the  $\blacksquare$  Save As button to open dialog window to ease file selecting.

#### Get latest changes from

Select tag or label from this drop-down list. Only latest changes will be added to the script selected in the **Script file name** field. In this case the **Previous version** 

selected at the <u>first step</u> 377 will be used only for providing information concerned test database, but not for script generation.

If the **O** Generate new script file mode is selected, the next step will be <u>Selecting</u> <u>method of script generation</u>[389].

Otherwise the wizard will proceed with the <u>Specifying test database location</u> [394] step.

## 6.4.12 Selecting method of script generation

Use this step to select generated script type.



## In the second second

Using this method the program generates script reflecting difference between two database states.

**Note:** Script generated using this method never contains intermediate changes of an object.

## Generate step-by-step script (all changes from the change history)

Use this method to generate script that reflects consecutive changes made to database. Script will contain all statements from VCS  $\underline{\text{history}}$  between its previous and actual states.

For differential script generation the next step will be the <u>Performing script generation</u> ि की; for step-by-step - <u>Specifying comments</u> किंगे.

# 6.4.13 Specifying comments

This step allows you to select comments to be added to each statement script of the script. When getting differential script this step is unavailable.

🚺 Release New Version of Da	tabase Wizard
Generating and Testing	Script
Additional information for e	each change in the script
Eventski for bostgre SQL	You can include additional information for each change in the result script Add description Script identification number Date and time User who had made a change Comment that user had provided
Help	< <u>B</u> ack <u>N</u> ext > Close

Check the needed options to add corresponding comment to each script statement.

To disable comments uncheck the  $\blacksquare$  **Add description** option.

Click the **Next** button to proceed to the <u>Performing script generation</u> [391] step.

## 6.4.14 Performing script generation

This step informs you that all necessary settings are defined and change script can be generated.

The log area allows you to view the log of operations and errors (if any).

🚺 Release New Version of Dat	tabase Wizard	×
Generating and Testing	Script	
Perform script generation		
	Process completed successfully!	
	100 %	
SQL Manager for PostgreSQL	Collecting change script Collecting complete Adding file(s): C:\wc\subrep1\subrep1\testdb_pg\Trunk\Scripts\demo_script.sql Committing file(s): C:\wc\subrep1\subrep1\testdb_pg\Trunk\Scripts\demo_script.sql RCS file: C: \cvs_rep/subrep1/subrep1/demodb_pg/Trunk/Scripts/demo_script.sql,v	•
Help	done Checking in demo_script.sql; C:\cvs_rep/subrep1/subrep1/demodb_pg/Trunk/Scripts/demo_script.sql,v < demo_script.sql initial revision: 1.1 done Operation completed < Back Next > Close	E

Once the operation is performed, the **Next** button appears. Click the button to proceed to the <u>Specifying test database location</u> [394].

## 6.4.15 Specifying script to test

This step appears if the  $\square$  Only test existing script option was enabled at the first step  $\boxed{377}$ .

Use this step to define name of script file to be checked.

🕼 Release New Version of Database Wizard						
Generating and Testing Script						
Specify script file to test						
Contraction of the second seco	Script file name	C:\wc\subrep1\subrep1\testdb_pg\Trunk\Scripts\				
<u>H</u> elp		< <u>B</u> ack <u>N</u> ext > Close				

## Script file name

Use the field to define file name and location.

If program can't define file encoding, then clicking the **Next** button opens the **Script Conversion** dialog where script encoding can be defined manually.

Script Conversion				
Select the encoding for script convertion				
<ul> <li>Windows default</li> <li>Database default</li> <li>Other encoding</li> </ul>	latin7 (ISO 8859-13 Baltic) latin8 (ISO 8859-14 Celtic) Unicode (UCS-2) Unicode (UTF-8)	4 1		
Preview				
1 /* 2 ID : 1 3 Date : 26.08.2010 4 User : root 5 Comment :	10:57:21	<b>^</b>		
<pre>6 */ 7 ECREATE TABLE public."C 8 code CHAR(3) NOT NUL 9 name TEXT NOT NULL, 10 continent TEXT NOT N 4 III</pre>	ountry_new" ( L, ULL.	<b>*</b>		
	OK Cancel Help			

When encoding is defined click **OK** to proceed to the <u>Selecting the way of getting test</u>  $\frac{database}{394}$  step.

## 6.4.16 Selecting the way of getting test database

In this step you need to define the way of getting test database.

🔋 Release New Version of Database Wizard						
Generating and Testing Script						
Select the way of getting test database						
SQL Manager for	Specify way how to get a database to test the generated script.					
	Restore from the previous version label					
	Restore an existing backup copy					
	Backup copy location	C:\EMS\SQL Manager for Po	stgreSQL\Backi			
	Use existing database					
PostgreSQL						
Help		< <u>B</u> ack <u>N</u> ext >	Close			

# Restore from the previous version label or Backup/restore the previous version database

Use this mode to get test database by restoring from label backup or from previous version of database respectively.

**Note:** Option name depends on the *previous version* source selected in the <u>first step</u> 377. **Restore an existing backup copy** 

Select this mode to get test database by restoring from a backup copy.

## **Backup copy location**

Define backup copy location within this field. Use the B **Open** button locate backup file using standard dialog.

#### Use existing database

Use an existing database as a test one. You can define connection properties in the next step.

Click the **Next** button to proceed to the <u>Specifying test database location</u> [395] step.

## 6.4.17 Specifying test database location

Use this step to define test database connection parameters.

🔋 Release New Version of Database Wizard					
Generating and Testing Script					
Specify test database location					
	Specify test dat	abase location			
	Host	localhost:54391			
	<u>U</u> ser name	postgres			
SQL	Pa <u>s</u> sword	*****			
Mana	Database name	DemoDB			
Postgr	eSQL Register dat	tabase if not registered			
Help		< <u>B</u> ack <u>N</u> ext > Close			

#### Host

Use the drop down list to select one of the registered hosts where database is located.

Specify **User name** and **Password** to be used for connection.

Specify the **Database name** to be created/registered.

#### Register database if not registered

Enable the option to register the database if it is not registered yet.

If the **Output** Use existing database option was selected in the previous step अभे, the wizard will proceed with the <u>Confirming checking test database</u> अभे step. Otherwise the next step will be <u>Performing test database creation</u> अभे.

# 6.4.18 Performing test database creation

This step informs you that all necessary settings are defined and test database can be created.

Click the **Run** button to perform the operation. The log area allows you to view the log of operations and errors (if any).

🕼 Release New Version of Dat	abase Wizard	- • ×			
Generating and Testing	Script				
Perform test database crea	Perform test database creation				
SQL         Manager         for         PostgreSQL	Process completed successfully!				
	100 %				
	pg_restore91: setting owner and privileges for FK CONSTRAINT FK_EmployeeDepartmentHistory_Employee_EmployeeID pg_restore91: setting owner and privileges for FK CONSTRAINT FK_EmployeeDepartmentHistory_Shift_ShiftID pg_restore91: setting owner and privileges for FK CONSTRAINT FK_EmployeePayHistory_Employee_EmployeeID pg_restore91: setting owner and privileges for FK CONSTRAINT country_capital_fkey pg_restore91: setting owner and privileges for FK CONSTRAINT countrylanguage_countrycode_fkey WARNING: errors ignored on restore: 8				
	Operation completed				
Help	< <u>B</u> ack <u>N</u> ext >	Close			

After the operation is completed the <u>Database Registration Info</u> hold dialog appears. It allows you to check and modify database registration information.

**Run** button also changes to **Next**. Click the button to proceed to the <u>Confirming checking</u> test database
## 6.4.19 Confirming checking test database

Use this step to define whether to **Compare the test database with the original previous version database**.

During this process complete metadata of two databases is compared.

🕼 Release New Version of Da	atabase Wizard
Generating and Testing	Script
Specify either you need t	o check the created test database or not
E D	To ensure that the created test database is identical to the original previous version database it is recommended to compare them.
	✓ Compare the test database with the original previous version database
SQL Manager for PostgreSQL	
Help	< <u>B</u> ack Close Close

If you enable the option, the wizard will proceed with the <u>Perform comparison of test</u> database with new version of database [398]. Otherwise, the next step will be <u>Executing</u> change script on test database [401].

# 6.4.20 Performing comparison of test database with the previous version of database

In this step test database will be compared with the previous version of the database.

🕼 Release New Version of Data	abase Wizard	- • •						
Generating and Testing Script								
Perform comparison the tes	Perform comparison the test database with the previous version of database							
	Process completed successfully!							
20	100 %							
SQL Manager for PostgreSQL	Table.xml able.xml (1.xml (2.xml (3.xml (4.xml (ble.xml							
	The test database is different than the previous version of the d	atabase!						
Help	< <u>Back</u> <u>N</u> ext >	Close						

To start the process click the **Run** button.

The log area allows you to view the log of operations and errors (if any).

Click the **Next** button to proceed to the Executing change script on test database  $40^{-1}$  step.

## 6.4.21 Bringing test database to previous version of database state

This step appears if comparison of test database and previous version of database revealed differences.

🚺 Release New Version of Da	tabase Wizard							
Generating and Testing Script								
Bring the test database to	state as in the previous version of the database							
SQL Manager for PostgreSQL	The test database is different from the original previous version database. A script is generated to bring the test database to the state as the previous version has. Execute the script on the test database. I generated the difference Click the Open Script button to open the generated script in SQL Script tool. Open Script							
Help	< <u>B</u> ack <u>N</u> ext > Close							

#### **Ignore the difference**

Enable the option to skip re-comparing test database and previous version of database. It is recommended to leave the option disabled.

The **Open Script** button launches the <u>Execute Script</u> [646] with change script loaded. You can execute this script on test database to bring it to correspondence with previous version of database.

Correct the script if needed, then execute it on test database and return to the wizard by clicking the **Save&Return to Wizard** button.

	Save	& Return to the Wizard
Scr	ipt	
	þ	ALTER TABLE "Employee". "ContactType"
323		OWNER TO postgres;
324		
	P	CREATE UNIQUE INDEX "AK_ContactType_Name" ON "Employee".
326		USING btree ("Name" COLLATE pg_catalog."default");

If the **Ignore the difference option** is enabled, the wizard will take you to the Executing change script on test database 401 step.

Otherwise you will return to the <u>Performing comparison of test database with the previous</u> <u>version of database</u> step.

## 6.4.22 Executing change script on test database

In this step the corrections can be added to the generated change script. Moreover this script can be executed on test database.

🚺 Release New Version of Da	atabase Wizard							
Generating and Testing Script								
Execute the change scri	ot on the test database							
EFFE SQL Manager for PostgreSQL	Do any changes in the generated script and execute it on the test database. If any error occurs, correct the script and continue the execution from the corrected statement. Click the Open Script button to open the generated script in SQL Script tool. Open Script							
Help	< <u>B</u> ack <u>N</u> ext > Close							

#### **Open Script**

The **Open Script** button launches the <u>Execute Script</u> [646] with change script loaded. You can execute this script on test database to bring it to correspondence with previous version of database.

Correct the script if needed, then execute it on test database and return to the wizard by clicking the **Save&Return to Wizard** button.

S	ave	& Return to the Wizard
Scri	pt	
	Ģ	ALTER TABLE "Employee". "ContactType"
323		OWNER TO postgres;
324		
	Ę	CREATE UNIQUE INDEX "AK_ContactType_Name" ON "Employee".
326	L	USING btree ("Name" COLLATE pg_catalog."default");

If the script is not executed on test database, the wizard will take you back to the

Perform comparison of test database with the previous version of database 398 step. Otherwise, you will proceed to the <u>Specify how to test the generated additional change</u> <u>script</u> 403 step.

## 6.4.23 Performing comparison of test database with the new version of database

Use this step to perform comparison of test database with new version of database.



To launch the process click the **Run** button.

The log area allows you to view the log of operations and errors (if any).

Click the **Next** button to proceed to the  $\frac{\text{final}}{405}$  step. If the operation completed unsuccessfully, you will be taken to the <u>Specify action for the test database</u> 404 step.

## 6.4.24 Specify action for the test database

This step appears when additional script was generated because of differences found between test and target databases.

🕼 Release New Version of Database Wizard									
Generating and Testing Script									
Specify how to test the g	enerated additional change script								
	An additional script is generated because of differences between the test and the target databases.								
	Append the additional script to the original and test the entire script								
	A new test database will be created								
SOL	Drop the current test database								
Manager	Unregister the current test database								
for Dectars SOI	Test only the additional script on the current test database								
Posigresul	Click the Open Script button to open the additional script in SQL Script tool. Do any changes and execute the script on the test database. If any error occurs, correct the script and continue the execution from the corrected statement. The script will be appended to the original script.								
Open Script									
Help	< <u>B</u> ack Close								

#### Append the additional script to the original and test the entire script

Select this option to add update change script and test it on new test database.

Use the corresponding options to **I** Drop the test database and/or **I** Unregister the test database. These actions will be applied to the previously created test database.

#### Itest only the additional script on the current test database

Use this mode to test only additional statements of differential script. Statements will be tested on the previously created test database. The script file will be opened in Execute Script Editor on clicking the **Next** button.

Click the **Open Script** button to view the additional script in the Execute Script Editor 646.

If the **Append the additional script to the original and test the entire script** option is selected, the wizard will take you back to the <u>Selecting the way of getting test</u> <u>database</u>[394] step. Otherwise, you will proceed to the <u>Performing comparison of test</u> <u>database with the new version of database</u>[403] step of the wizard. 405 SQL Manager for PostgreSQL - User's Manual

## 6.4.25 Finishing the operation

This is the final step of the wizard. Script has been created and tested successfully. No differences have been found between test database and new version of database.

If needed, you can drop and unregister test database using respective options.

🕼 Release New Version of Da	tabase Wizard							
Generating and Testing Script								
The tasks completed suc	cessfully!							
SQL Manager for PostgreSQL	The script is tested with success.							
Help	The tasks completed successfully! Click the Close button to close the wizard.							

Click **Run** to drop and/or unregister test database, or **Close** to exit the wizard.

## 6.5 History

With this tool you can view all the changes made to database/object.

To open database/object history use the **Change management** | O **History** item of <u>database/object context menu</u>, or select the **Tools** | **Change management** | O **History** item of main menu.

				-	
X	Connect to Database	Shift+Ctrl+C			
•	Disconnect from Database	Shift+Ctrl+D			
	Tasks		F		
١	Change Management		۲	R	Create Branch/Label/Tag
<b>e</b> 1	Database Properties			ø	Get Change Script
	Server Configuration				Release New Version of Database
8	Create Database				Check Repository
•	Drop Database			0	About Change Management
<b>e</b> .	Register Database	Shift+Alt+R		0	History
8	Database Registration Info			8	Repository Options
₿.	Unregister Database	Shift+Alt+U			
Ģ	Unregister Host				
	Database Registration Mana	ger			

- Database history 407
- Object history 408
- Comparing object versions 409

#### <u>Availability</u>:

Full version (for Windows)Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

#### See also:

<u>Create tag wizard</u>ତ୍ୟିଶ <u>Check repository wizard</u>ତରେ <u>Get change script</u>ତରେ 407 SQL Manager for PostgreSQL - User's Manual

## 6.5.1 History of database changes

Use the navigation bar to select **Database**. Define the **Period** within the corresponding section. Changes made in this period will be displayed in the working area.

🛞 Database Histor	y - [DemoDB	on localhost	54391]				×			
🚦 😑 Databases 🔻	Period from	27.08.2012	▼ To 27.0	9.2012	-   2	2	Ŧ			
Database	*	Drag a co	olumn header he	re to grou	up by that colu		^			
🔒 DemoDB on k	ocalhost 💌	ID .	<ul> <li>Date</li> </ul>	-	User 💌	Comment				
General	*		8 26.09.2012 1	0:55:43	ayz	Create table "Order" Alter table "Address"				
A Refresh			9 26.09.2012 1	1:29:40	ayz					
		1	0 26.09.2012 1	1:30:29	ayz					
Period	*	1	1 26.09.2012 1	1:33:02	ayz					
Show changes fro	m date	1	2 26.09.2012 1	1:35:55	ayz		=			
		1	3 26.09.2012 14	4:34:36	postgres					
Up to date	<b>`</b>	1	4 26.09.2012 1	5:33:31	postgres	Create table "Order" Create function				
27.09.2012	•						Ŧ			
		SQL								
		ALTER	TABLE "Pro	ducti	on". <mark>"</mark> Addı	ress"	~			
		ADD	COLUMN "Ad	dress	_type" <u>IN</u>	ITEGER;				
	CREATE TABLE "Production". "Order" (									
		orde ∢ Ⅲ	r id TNTEG	ER NO	r NULL.		• •			

At the top of the window you can find a table that displays information about changes made in the specified period. It displays transaction *ID*, *Date* when transaction was made, name of the *User* who made changes and *Comment* to a transaction if any.

**Note:** You can customize grouping 460 and <u>filtering</u> 463 within this table.

In the bottom part of the window you can view SQL statement of the selected action.

See also: <u>Object history</u> मिण्डी <u>Comparing object versions</u> मिण्डी

## 6.5.2 Object history

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You can browse change history of any object.

To open object history use the **Change management** |  $\textcircled{\begin{subarray}{c} \blacksquare \begin{subarray}{c} \textsf{Mistory} \\ \textsf{Context menu} \\ \textsf{S7} \end{subarray}. \end{subarray}$ 

🛞 History - [Table Production.City] - [DemoDB on localhost:54391]											
🗄 🖯 Databases 🔻 😢 📩											
Database	\$		Table - P	roduction.City	/						
	_		Revision		Date	Autho	or La	bels	Comment		
BemoDB on localhost:54391	-		🖃 🚰 Trur	nk							
			- <u>*</u>	1.1	24.09.2012 13:	tio			*** empty log mes	sage ***	
General	*			DemoDB_26/09			đ	Com	pare Properties		
Refresh		2		demolabel			đ	Com	pare DDL		
		- 6	- <b>1</b>	1.2	26.09.2012 11:	tio	7000	01	- <b>D</b>	ige ***	
Select object		1	· 🌇	1.3	26.09.2012 14:	tio	-	Snov	w Properties	ige ***	
		1					9	Shov	w DDL		
		2						Save	DDL As		
			Comment					-			
			*** emp	tv log mes	sage ***			Expo	on Data		
			-		2						
			L								

History of object changes is displayed as table. In this table you can find the following information: database *Revision* and *Date* when object was changed. The *Author* of changes made to object is also displayed.

*Comment* part of the window displays comments to the selected object modification.

The navigation bar of this window allows you to  $\Theta$  select database, to A refresh data and to  $\Theta$  select object.

See also: <u>History of database changes</u> 407। <u>Comparing object versions</u>409।

## 6.5.3 Comparing object versions

🚱 History - [Table Production	.Order] -	[DemoDB o	n localhost:54391]									
🚦 🔒 Databases 🔻 😥 📸 🛃									-			
Database	\$	Table - F	Table - Production.Order									
	_	Revision		Date		Author	Labels	Comm	ent			
DemoDB on localhost:543	91 🔻	🗏 🐨 🗖 Tru	ink									
			1.1	26.09.2012 16:40:27		tio		*** em	pty log message ***			
General	*		Trunk_AutoLabel									
D Refrech		- <u>*</u>	1.2	26.09.2012 16:42:17		tio		*** em	pty log message ***			
Reiresii			1.3	26.09.2012 16:43:29		tio		*** em	pty log message ***			
Select object		Ma	1.4	26.09.2012 16:44:55		tio		*** er	npty log message ***			
					đ	Compan	e Propertie	es				
					đ	Compar	e DDL					
					10 mil	Chave						
						Show Pi	ropenies					
		-			1	Show D	DL					
					5	Save DI	DL As					
		Comment				Evenent F	Dete					
			tu log moga			Export	Jala					
		and Guit	CY IOG MESS	age and								

You can view differences between two object versions.

Select two object revisions you need to compare. Right-click any of the objects to call the context menu and select the <u>Compare Properties</u> [410] or <u>Compare Scripts</u> [411] item to view differences as table of properties or as object script respectively.

The window displaying progress of the operation will appear. Close it to view the results of the operation.

Version Control Operation	
Process completed successfully!	Close
100 %	<< Details
Close after finish	
Operations	
<ul> <li>Company of memory memory and an exception of the second sec</li></ul>	
U C:\wc\subrep1\subrep1\demolocal\_TmpPath/0000004D.xml	· · · · · · · · · · · · · · · · · · ·
U C:\wc\subrep1\subrep1\demolocal\_TmpPath/0000004E.xml	
U C:\wc\subrep1\subrep1\demolocal\_TmpPath/0000004F.xml	
U C:\wc\subrep1\subrep1\demolocal\_TmpPath/0000050.xml	
U C:\wc\subrep1\subrep1\demolocal\_TmpPath/00000051.xml	
U C:\wc\subrep1\subrep1\demolocal\_TmpPath/BridgeTable.xml	
Checking out file(s):	
C:\wc\subrep1\subrep1\demolocal\_TmpPath\	
U C:\wc\subrep1\subrep1\demolocal\_TmpPath/BridgeTable.xml	
Operation completed	
	•

Check the  $\blacksquare$  Close after finish flag if you need the results window appear once the operation is finished.

operty Name	Revision ID: 1.1	Revision ID: 1.4	
Properties			
Description		List of orders	
Tablespace			
Owner	postgres	postgres	
Inherited From			
With OIDs	No	Yes	
Fill Factor	0	12	
Name	Order	Order	
Checks			
Fields			
Name	order_id	order_id	
H Name	order_date	order_date	
Name	order_name	order_name	
⊡ Name		order_type	
Foreign keys			

## Viewing properties comparison results:

Window contains table where you can see all object properties and its value in compared revisions. Properties with different values are highlighted with grey.

#### n Compare States of 'Production.Order' - - **-**1 🕜 🔮 🔎 🔎 1 CREATE TABLE "Production". "Order" ( \* 1 CREATE TABLE "Production". "Order" ( order\_id INTEGER, order\_id INTEGER, 2 2 order date DATE, order date DATE, 3 3 order name VARCHAR(20) order name VARCHAR(20), 4 5 ) WITHOUT OIDS; 5 order\_type INTEGER 6 ) WITH (fillfactor = 12, OIDS); 6 7 8 8 COMMENT ON TABLE "Production". "Order" 9 9 IS 'List of orders'; 10 10 11 11 CREATE INDEX "Order\_idx" ON "Production"."Order" 12 12 USING btree (order id); < III.

#### Viewing script comparison results:

Window contains DDL of objects revisions. Extra lines in an early revision script are red, in latter revision - grey. Lines for pasting absent lines are yellow and different lines are blue. Use the toolbar buttons to move cursor to  $\bigcirc$  **Previous** difference or to  $\bigcirc$  **Next** one, to  $\bigcirc$  **Find** word or statement or to  $\bigcirc$  **Find next** one.

See also: History of database changes 407। Object history



# 7 Query Management Tools

When using SQL Manager for PostgreSQL, you are provided with two basic tools you may need to manage your SQL queries: <u>Query Data 415</u> for editing SQL query text directly and <u>Design Query</u> 431 for building queries visually. Find the list of common SQL query management operations below.

#### **Creating New Queries**

In order to create a new query in *Query Data*:

- select the **Tools | Query Data** <u>main menu</u> at item or use the corresponding for <u>toolbar</u> solution;
- click the **Add new query** item of the <u>Navigation bar</u>[416];
- edit the query text within the **Query** tab of <u>Query Data</u> [415].

In order to create a new query in *Design Query*:

- select the **Tools | Design Query** <u>main menu</u>িল্লী item or use the corresponding <u>toolbar</u>জ্জী button;
- build the query visually within the **Builder** tab of <u>Query Designer</u> [431].

#### **Editing Queries**

In order to open a query in *Query Data*:

- select the **Tools | Query Data** <u>main menu</u> at item or use the corresponding <u>toolbar</u> solution;
- use the numbered tabs at the bottom of the editor window to switch between previously edited queries. The last edited query is displayed automatically on opening the editor;
- edit the query text within the **Query** tab of <u>Query Data</u> [415].

In order to open a query in *Design Query*:

- select the **Tools | Design Query** <u>main menu</u> left item or use the corresponding keep toolbar left button;
- the last edited query is displayed automatically on opening Design Query;
- to load a previously saved diagram, click the **Load diagram** item of the Navigation bar [432];
- to load a query from an \*.sql file, open the Query tab and click the Load SQL button of the Navigation bar;
- edit the query visually within the **Builder** and/or the **Query** tabs of **Design Query**.

In order to load a query from an \*.sql file:

- select the **Tools | Query Data** <u>main menu</u> at item or use the corresponding <sup>I</sup> <u>toolbar</u> 963 button;
- click the Load from file item of the Navigation bar [416];
- browse for the query file using the **Open SQL File** dialog;
- edit the query text within the **Query** tab of <u>Query Data</u> [415].

#### **Executing Queries**

- create a new query or open an existing one;
- click the ▶ **Execute** item of the <u>Navigation bar</u>[416] or use the *F9* hot-key to execute the query;
- view/edit the returned data within the **Results** tab of <u>Query Data</u> 415.

#### **Saving Queries**

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- create a new query or open an existing one;
- click the **Save to file** <u>Navigation bar</u>[416] item (in Query Data) or the **Save SQL** <u>Navigation bar</u>[432] item (in Design Query), or use the *Ctrl+S* <u>shortcut</u>[1001] to save the query using the **Save as...** dialog;
- click the **Save diagram** <u>Navigation bar[432</u>] item in <u>Design Query</u>[431] to save the designed diagram;

or

• use the **Save all** <u>Navigation bar</u>[416] item in <u>Query Data</u>[415] if you need to save all the queries to one file.

#### See also:

<u>Getting Started</u> <u>Database Explorer</u> <u>Database Management</u> <u>Database Objects Management</u> <u>Data Management</u> <u>Management</u> <u>Management</u> <u>Management</u> <u>Services</u> <u>Trh</u> <u>Options</u> <del>BTD</del> How To...

## 7.1 Query Data

Query Data is the basic tool of SQL Manager for PostgreSQL for creating and executing queries. The tool allows you to create and edit the SQL text of a query, prepare and execute queries and view the results of query execution.

To open Query Data select the **Tools | Query Data** <u>main menu</u> and items or use the corresponding  $\mathbf{I} / \mathbf{I}$  toolbar buttons. You can also use the *Shift+F12 / F12* shortcuts for the same purpose.



- Using Navigation bar and Toolbar 416
- Working with Query Data area 418
- Using the context menu 420
- Viewing query plan 422
- Using object links 425
- Executing queries and viewing results 426
- <u>Viewing query logs 428</u>
- Favorites editor 429

#### See also:

<u>Design Query</u>431 <u>Query parameters</u>449 <u>Execute Script editor</u>648 <u>Editor Options</u>925

## 7.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Query Data**.



#### Database

🗄 select a database for the query

#### General

- execute the current query
- We wiew estimated <u>query execution plan</u> [422]
- kan be sign Query बिगी to design the query as a diagram
- switch the results representation mode: on Edit tab or on separate tab
- 🧶 configure Query Data editor at Environment Options 🕅 dialog
- restore the default size and position of the editor window
- 🖲 disable/enable all code features

#### Queries

🗰 add a new query (note that the current query text will not be lost)

- 🖶 rename the current query
- 😼 remove the query
- 🙀 remove all queries from the editor

🔹 edit the query text using <u>Favorites editor</u>बियी and add the query to the <u>Favorite Queries</u> ाडी list

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with queries:

#### Edit

- 🔎 activate the <u>Find Text</u>ागी dialog
- Ioad a query from an \*.sql file using the Open SQL File dialog
- save the query to an \*.sql file
- dialog save the query to an \*.sql file using the **Save as...** dialog
- 🚺 save all queries to an \*.sql file

## Logs

- 🔎 activate the <u>Find Text</u>ष्ग्री dialog
- 🚽 save the query log to a file
- 📝 clear logs

#### Data Management

- 🜱 commit transaction
- × rollback transaction

**Note:** These actions are available if the **I Use transactions in object editors, Query Data and Design Query** option is checked in the <u>Database Registration Info</u> | <u>Data</u><u>options</u> 124 dialog.

- 🖥 export the returned dataset using Export Data Wizard छि
- ि export the returned dataset as SQL Script using the Export as SQL Script 608 wizard import data [582]
- NB: You can enable \disable Toolbars and Navigation bars at Environment options [877].

## See also:

<u>Working with editor area</u> बि <u>Viewing query plan</u> बि <u>Executing queries</u> बि <u>Viewing query logs</u> बि Favorites editor बि20

### 7.1.2 Working with Query Data area

The **Editor area** of Query Data editor is available within the Query tab and is provided for working with SQL queries in text mode.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented:

- using object links 425 allowing you to open the object in the associated editor;
- ability to display line numbers;
- code folding for statements and clauses;
- customizable margins and gutters;

• formatting code for better representation and more.

If necessary, you can enable/disable or customize most of Query Data editor features using the Editor Options dialog.

The example of code completion is illustrated in the picture below. You can set the delay within the <u>Quick code as a set in the Editor Options</u> dialog or activate the completion list manually by pressing the *Ctrl+Space* shortcut from 1.



For your convenience the possibility to use macros is implemented.

To *start recording* a macro, click the • **Record** button available in the status bar area, or use the *Shift+Ctrl+R* shortcut.

To *stop recording*, click the **Stop** button, or use the *Shift+Ctrl+R* shortcut. To *call* the recorded macro, use the **Play** button, or use the *Shift+Ctrl+P* shortcut.

**Hint:** To use a <u>keyboard template basile</u>, type the template name and press the Ctrl+J <u>shortcut</u> from: the text associated with the template will be inserted automatically.

If necessary, you can **print** the SQL text of your query using the corresponding item of the context menu<sub>420</sub>.

#### See also:

<u>Using Navigation bar and Toolbar</u>[418] <u>Using the context menu</u>[420] <u>Editor Options</u>[925] <u>Keyboard Templates</u>[953] <u>Favorites editor</u>[429] <u>Find Text dialog</u>[973] <u>Replace Text dialog</u>[973]

## 7.1.3 Using the context menu

The **context menu** of Query Data area contains execution commands, most of the standard text-processing functions (*Cut, Copy, Paste, Select All*) and functions for working with the query as a whole, e.g. you can *move the cursor to a particular line, change the case* of selected text, view the query *properties* or *print* the text of the query. Each of these operations can be also performed with the corresponding hot keys used.

Implementation of the Find Text [971] / Replace Text [973] dialogs and Incremental search [964] bar contributes to more efficient work with the SQL code.

Find the complete list of Query Data context menu items below. The context menu allows you to:

- add the selected text to dictionary or correct text (see <u>Spell checking</u>[942] for details);
- execute the query/selected text/text under cursor, and reset execution point (if necessary);
- manage markers: Drop Marker, Collect Marker, Swap Marker;
- toggle bookmarks allowing you to navigate through the query text and jump to a line with a particular number;
- perform editing operations: Undo/Redo, Cut, Copy, Paste, Select all;
- perform <u>search</u> [971] and <u>replace</u> [973] operations;
- save/load a query to/from an external \*.sql file;
- perform preview/print operations;
- use the *Quick code* group allowing you to format the selected code using *SQL Formatter* to make the code easier to read, toggle comments for code fragments, change case of the selected text, indent/unindent code lines;
- add the query to the <u>Favorite Queries</u> [85] list;
- open the <u>Editor Options</u> 925 dialog.



## See also: <u>Working with Query Data area</u>418 Executing queries<sup>428</sup>

#### 7.1.4 Viewing query plan

Using SQL Manager for PostgreSQL, you can view **the plan** for each of the queries created and executed in the application. The query plan is available within the corresponding **Plan** tab.

To view the **Plan** of a query, open the query in **Query Data** and use the **Explain query** item of the <u>Navigation bar</u> 416 or <u>toolbar</u> 416.

The **Plan** tab allows you to view the sequence of actions performed by the database server in the process of the query execution, and the amount of system resources used for the query execution.



The **Operation** panel below displays the operations as a tree list with the following columns: *Operation Info, Operation, Start-up Cost, Total Cost, Number of Rows, Row Width, Startup Time, Total Time, Real Number of Rows, Loops.* Right-click within the panel to display the **context menu** allowing you to configure the set of *visible columns* or <u>export</u> [536] the plan to any of supported <u>formats</u> [983].

If necessary, you can specify that the **Plan** tab appears automatically upon query execution in Query Data: select the  $\blacksquare$  **Explain query on execution** option available

within the <u>Tools | Query Data</u> [888] section of the <u>Environment Options</u> [871] dialog.

You can also view the execution plan *as text* at the bottom of the current tab: select the **Verbose** option available in the **Explain query** menu on the <u>toolbar</u>[416] of Query Data.



The menu also allows you to enable the **Analyze** option to make the query execution plan more detailed (with execution time included).

See also: Query Data options Executing queries 428

## 7.1.5 Adding objects to query

An object can be placed to query from <u>DB Explorer</u>  $65^{-1}$ . Just drag-and-drop the required object from DB Explorer tree or from <u>SQL Assistant</u>  $81^{-1}$  to editor. Define statement for the object in the appeared window.

**Note:** You can drag-and-drop objects from <u>DB Explorer</u> [65] to <u>Query Designer</u> [431] too.

	Insert to Editor:		— 🗆 X
2 3 4 5 6 7 8 9 10 11 12 13 14	<pre>Insert to Editor: SELECT emp_no, first_name, last_name, phone_ext, hire_date, dept_no, job_code, job_grade, job_grade, job_country, salary, full_name FROM public.employee ;</pre>	^	Statement         Name         SELECT         INSERT         UPDATE         DELETE         CREATE         DROP         Columns list         Name and Type
		~	Alias Prefix for variable OK Cancel

Use the Statement list to define statement for the object: Name, SELECT, INSERT ( parameters 449) are used instead of values), UPDATE, DELETE, CREATE, DROP, Columns, List, Name and Type.

You can define *alias* for an object and *prefix for variable* in the respective fields.

See also: Query parameters 449 Query Designer 431

## 7.1.6 Using object links

Objects that exist in the database are highlighted in the text as hyperlinks. You can open an object in the appropriate editor by clicking the object name in the text with the *Ctrl* key pressed.



Please note that you can change the way highlighted objects look in the editor: use the <u>Color</u> [933] section of the <u>Editor Options</u> [925] dialog.

#### See also:

<u>Working with Query Data area</u>418 <u>Editor Options</u>बिटवी

## 7.1.7 Executing queries

When all the query parameters are set, you can immediately **execute the query** in Query Data editor.

To execute a query, click the **Execute** item of the <u>Navigation bar</u> [416]. You can also use the <u>context menu</u> [420] or F9 hot key for the same purpose.

If the SQL syntax is correct, the query is executed and, in case the query statement is supposed to return data (e.g. as SELECT statement), the returned dataset appears within the **Results** tab. The position of the tab depends on the **Results on Edit tab / Results on separate tab** selection in the <u>Navigation bar</u>[416].

**Hint:** *Ctrl+D* enables/disables the **Results on Edit tab** option.

If SQL syntax of the query contains any errors, the query execution is stopped and the corresponding error message is displayed in the status bar area at the bottom of the editor window.



By default, data returned by a query are displayed as a grid (see <u>Data View</u>[453] for details). The <u>context menu</u>[466] of the grid allows you to <u>Export Data</u> िउली, <u>Export as SQL</u> <u>Script</u>

📝 SQL Editor - [ayz on ayz2:54383]						
🕴 🖯 Databases 🔹 🤌 💭 🗸 🗊 🕨 🔹 🛤 🔹 🗸 🗶 🗐 🔹 😼 🐘 💷 🕒 🧶 🐘 🔹 🖓 🖓 🖓 🚱 📨 🍃						
Database	*	Edit Results Lo	gs			
🔒 ayz on ayz2:54383 [ayz	-		₩+-▲	]√ × <b>™</b> ₩ ਙ	7 Find:	
Drag a column header here to group by that column						
General	*	E ContactID	Title 💌	FirstName	MiddleName	LastName
Execute		2	Ms.	Catherine	R.	Abel
Explain query		4	Sr.	Humberto	Null	Acevedo
🔛 Run Query Builder		5	Sra.	Pilar	Null	Ackerman
E Results on Edit tab	2	6	Ms.	Frances	В.	Adams
I SQL Editor options	3	7	Ms.	Margaret	J.	Smith
Restore default size		≥ 9	Mr.	Jay	Null	Adams
B Disable all code features	- 2	10	Mr.	Ronald	L.	Adina
		11	Mr.	Samuel	N.	Agcaoili
Queries	*	12	Mr.	James	т.	Aguilar
Add new query	1	13	Mr.	Robert	E.	Ahlering
Rename current query	2	. 14	Mr.	François	Null	Ferrier
Remove current query		15	Ms.	Kim	Null	Akers 👻
Remove all queries						• •
Add to Eavorite Queries		Grid View Form V	iew Pri <u>n</u> t I	Data <u>B</u> lob View		
		Records fetched: 199	72/19972	exec: 2	81 ms; total: 296 ms L	IMIT 1000 OFFSET 0
Data Management	¥	19972 rows ret	turned (s	vecution time	• 281 mg• total	time: 296 mg)
		15572 1005 10	surnea (e	Recution time.	. 201 m3, 00041	cime: 250 ms) -
			1	1	1	*
3: 3 Modified Insert Highlighting Unicode (UCS-2)						

See also: Data View Export Data Export as SQL Script

#### 7.1.8 Viewing query logs

This tab allows you to view the query **log**. The log is available within the **Logs** tab of Query Data editor.

Using this tab you can view *log entries* containing the following details:

- date and time of the query execution;
- text of the query;
- number of rows fetched and fetch time, or the text of the error (if any).

Date/time and the execution result information are embedded as code comments conforming with the rules of SQL.

With the help of the **context menu** the log can be *printed*, *saved* to file or *cleared*. You can also use a number of Query Data editor <u>context menu</u><sup>[420]</sup> generic functions.



#### See also:

<u>Executing queries</u>4िही Using the context menu420

#### 7.1.9 Favorites editor

For your convenience the **Favorite Queries** list is implemented in SQL Manager for PostgreSQL. This list is available within the  $\boxed{R}$  **Favorite Queries** node of <u>Database</u> <u>Explorer</u>[85] and allows you to store the most frequently used SQL queries in one location.

To add a query to the **Favorite Queries** list, use the **Add to Favorite Queries** <u>Navigation bar [416]</u> item in **Query Data**. The corresponding item is also available in the <u>context menu</u> [420] of Query Data working area.

You can edit any of your Favorite Queries using Favorites editor.

Favo	orites Editor			×				
<u>N</u> ar	ne Employee	Storage	Registry	•				
	SELECT			*				
2	"ContactID",							
3	"Title",							
4	"FirstName",							
5	"MiddleName",							
6	"LastName",			=				
7	"Suffix",							
8	"EmailAddress",							
9	"EmailPromotion",							
10	"Phone",							
11	"PasswordHash",							
12	"PasswordSalt",							
13	"AdditionalContactInfo"							
14	FROM							
15	"Employee"."Contact" ;							
	-							
				-				
•	m			- F -				
				Hala				
		<u>0</u> ĸ		Heip				

#### Name

Set the name of the Favorite query.

#### Storage

Specify where the Favorite query will be stored: in *Windows Registry* or in the *Database*. In case of *Database* storage "public"."pgmfavorites" table is created to store queries.

**NB:** If you store Favorite queries in the *Windows Registry* then they can be lost after the Windows reinstall. To avoid this problem save the registry branch or store Favorite queries in a database.

See also: <u>Managing Favorite queries</u> <u>Working with Query Data area</u> [418]

# 7.2 Design Query

**Query Designer** is implemented in SQL Manager for PostgreSQL for building queries visually. The tool allows you to create and edit queries without deep knowledge of SQL. You can also prepare and execute queries, and view the results of their execution.

To open Visual Design Query, select the **Tools | Design Query**  $\underline{\text{main menu}}$  items or use the corresponding  $\underbrace{\text{Loolbar}}_{\text{loss}}$  buttons.

<u>D</u> atabase	<u>V</u> iew	Tools	Services	<u>O</u> ptions	<u>W</u> indows	<u>H</u> elp
		Query Data		F12		
		🔛 Design Query				

• Using Navigation bar and Toolbar 432

- <u>Working with diagram area</u>
   434
- Joining two database objects by fields 436
- <u>Setting the selection criteria</u>438
- <u>Setting output fields for selection</u> [440]
- <u>Setting the grouping criteria</u>[442]
- <u>Setting parameters of sorting</u> [443]
- <u>Working with editor area</u>444
- Executing queries and viewing results 445
- Viewing query plan 447

#### <u>Availability</u>:

Full version (for Windows) Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

#### See also:

<u>Query Data</u>बिगडी <u>Query parameters</u>बिम्डी <u>Design Query options</u>छिमी

## 7.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Design Query**.



#### Database

号 select a database for the query

#### General

- execute the current query
- <sup>1</sup> view estimated <u>query execution plan</u>447
- 😼 clear the query
- 4 create a <u>view</u>229

🥮 configure Design Query with the <u>Design Query Options</u>छिम्मे page of the <u>Environment</u> <u>Options</u>छिंगी dialog

restore the default size and position of the builder window

## **Objects**

browse objects of the database; you can also add tables and views to the diagram using drag-and-drop operations

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with queries:
### **Visual Builder**

- load a diagram from a \*.vqb file using the **Open diagram** dialog
- I save the diagram to a \*.vqb file using the **Save diagram as...** dialog

## Edit

- load a query from an \*.sql file using the **Open SQL File** dialog
- save the query to an \*.sql file

## Data Management

- ✓ commit transaction
- × rollback transaction
- **Note:** These actions are available if the **I Use transactions in object editors, Query Data and Design Query** option is checked in the <u>Database Registration Info</u> | <u>Data</u><u>options</u> 124 dialog.
- 🕆 export the returned dataset using Export Data Wizard विडले
- Resport the returned dataset as SQL Script using the Export as SQL Script and wizard

NB: You can enable \disable Toolbars and Navigation bars at Environment options [877].

## See also:

<u>Working with diagram area</u> 43वे <u>Query execution</u> 44डी

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### 7.2.2 Working with diagram area

The main working area of **Design Query** editor is the diagram area available within the **Builder** tab. Here you can create a query by placing the database tables and views within the onto the area, and edit it by selecting the required data fields and setting links between objects.

To add an object to the query, you can simply drag it from the <u>DB Explorer</u>  $70^{\circ}$  tree to the diagram area.

To include a field in the query, check the corresponding box located to the left from the field name in the list, or just double-click it. To include all fields of the table/view, check the box located to the left of the table/view caption. If you do not check any fields, the SQL statement is generated as SELECT \* FROM <table/view\_name>, i.e. all the fields are included in the query.

To *collapse/expand* the list of table/view fields, click the minimize/maximize button at the object caption.

*To exclude a field* from the query, uncheck the respective box. In order to remove the entire table/view from the query, close it by clicking the corresponding cross-button at the object caption, or right-click the object and select **Delete** from the context menu. You can also select the object and press the **Del** key.

*To edit the alias* of a table/view, double-click the object caption and enter the new name, or right-click the object and select **Rename** from the context menu.



**Design Query** allows you to create complex queries consisting of two or more queries combined in one with the *UNION* operator, or add nested queries. The panel to the left of the diagram area displays the **tree of subqueries**.

*To add a query*, right-click within the **tree of subqueries** area and select **Add union** from the context menu. A tab for the new query will appear in the diagram area. *To remove a query* from the tree, right-click the query and select **Delete union** from the context menu.

To add the UNION ALL operator to the query, right-click the newly added query and select the corresponding context menu item.

Builder Edit							
Select							
Query 1	Query 1 Query 2 [union all]						
Query 2 [union all]							
Add union							
Delete union							
Vnion All		+					

**Note:** Depending on which query type you need to execute, you can select one from the drop-down list above the tree of subqueries: *Select*, *Insert*, *Update*, or *Delete*.

Builder	Edit
Select	
Select	
Insert	
Update	
Delete	

See also:

<u>Joining two objects</u> 436 <u>Working with the editor area</u> 444 <u>Query execution</u> 445

## 7.2.3 Joining two objects

The **diagram area** allows you to associate two objects by their columns: this operation is performed by dragging a field from one object list to another. This will set a link between these objects by the selected fields. It is indicated by a bidirectional arrow between the linked fields.

You can *view the link properties* of objects association: set the mouse cursor over the linking arrow, and a hint containing the association condition will popup after a short delay.

*To edit the link properties*, double-click the linking arrow or right-click it and select the **Property** popup menu item. The **Link properties** dialog allows you to change the association condition by choosing it from the drop-down list (=, >, <, >=, <=, <>).

Link properties	
join tables: Employee.Contac	t and Employee.Employee
ContactID =	<ul> <li>ContactID</li> </ul>
Include all from Employee.Contact	Include all from Employee.Employee
ОК	Cancel

For your convenience the **Include all** option is available for each object of the association:

if the option is enabled for the left table, the *LEFT JOIN* operator will be used for the association;

if the option is enabled for the right table, the *RIGHT JOIN* operator is used for the association;

if the option is enabled for neither of the tables, the *INNER JOIN* operator is used for the association.

if the option is enabled for both of the tables, the *FULL OUTER JOIN* operator is used for the association.

Click **OK** to apply the changes you have made.

*To remove a link* between objects, right-click the linking arrow and select the **Delete link** popup menu item.

To add a point to the link line, right-click the linking arrow and select the **Insert point** popup menu item. Using the point you can move the link line easily. The point does not cause any changes to the query, it is only used for the diagram representation and makes visual building handy and more comprehensible.

Insert point
Delete link
Property

See also: Working with diagram area Setting criteria

## 7.2.4 Setting criteria

Use the **Criteria** tab to set the selection conditions.

The way the conditions are used is set in the upper string of the area (All, Any, None or Not all of the following are met). Click the green link to change it.



*To add a condition*, click the ellipsis button on the left, and select the **Add condition** popup menu item.

*Edit the condition* by clicking the elements of the condition pattern and setting the necessary values. Clicking the numbered button to the left of the condition string activates the popup menu which allows you to *add a new condition* at the same enclosure level, *make composite condition* by adding a new enclosure level, *delete the current condition*, *expand* or *collapse* enclosure levels of the condition (if the condition is composite).

Add condition
Make composite condition
Delete condition
Expand condition

A simple condition pattern contains three elements: an argument, a condition operator and a second argument (if required for the condition).

Clicking each element field allows you to set its value. You can add a field by drag-anddropping it from the working area to Criteria, Selection, Grouping criteria or Sorting tabs. When clicking an argument field, you can edit the argument as a text string: set an object name or a certain value in this field. Right-clicking the field in the edit mode activates the popup menu with the **Insert field** (also called by the *Shift+Enter* shortcut it his item allows you to select a field from the list of all the table fields) and **Insert query** (this item adds a nested query) items.



Clicking the condition operator field activates the popup menu from which you can select the operator you need.

=
$\diamond$
<
>
<=
>=
!<
!=
!>
LIKE
NOT LIKE
IN
NOT IN
BETWEEN
NOT BETWEEN
IS NULL
IS NOT NULL

# See also:

Setting output fields 440 Setting grouping criteria 442 Setting sorting parameters 443

## 7.2.5 Setting output fields

The **Selection** tab displays the output fields of the query as a grid.

The grid allows you to edit the names of the query output fields, specify their display order and set the aggregate functions for each field. To remove a field from the list, right-click the field row and select the **Delete current row** popup menu item.

Delete selected rows
Insert query
Insert CASE

The popup menu also allows you to *insert a nested query* and add a *CASE* clause. To edit the CASE clause, use the **CASE END AS** dialog.

e	CAS	E END AS "1"		- • •
N	Name	Employee.Contact	🚽 Alia	s 1
[		When		Then
			OK	Cancel

To change the *input query field*, click it and then type the field name or select it from the drop-down list.

To change the *output query field* name, set the cursor at the corresponding column and type the required field name.

To reorder fields in the list, use the  $\Box$  buttons.

Criteria	Selectio	on Gr	ouping criteria	Sortin	ng						
Sele	ct only un	nique re	cords								-
O	utput	S	ource field nam	e	1	Name of ou	utput field	Aggreg	ate	Grouping	*
	E	Employ	ee.Contact.Title	•	Tit	le				Yes	
	E	Employ	ee.Contact.Firs	tName	Fin	stName					
	E	Employ	ee.Contact.Mid	dleNan	Mic	ddleName					
	E	Employ	ee.Contact.Las	tName	La	stName					
	E	Employ	ee.Contact.Suff	ix	Su	ffix					Ξ
	E	Employ	ee.Contact.Ema	ailAddre	Em	ailAddres	s				
►	E	Employ	ee.Employee.Ei	mploye	Em	nployeeID			-		
	E	Employ	ee.Employee.N	ationall	Na	tionalIDNu	Imber	AVG			
	E	Employ	ee.Employee.Lo	oginID	Lo	ginID		MAX	I		
	E	Employ	ee.Employee.M	anagei	Ма	anagerID		MIN			
	E	Employ	ee.Employee.Ti	tle	Tit	le		SUM			Ŧ

To set an aggregate function for a field, click the field row within the **Aggregate** column, and then type in the function name or select one from the drop-down list (*SUM*, *MIN*, *MAX*, *AVG*, or *COUNT*).

The **Grouping** column displays the grouping state for each of the output fields.

### Select only unique records

If you check this option, the duplicate records (if any) are not included into the query result (i.e. the *DISTINCT* keyword is added to the SQL query text).

## See also:

<u>Setting criteria</u>438 <u>Setting grouping criteria</u>442 <u>Setting sorting parameters</u>443

# 7.2.6 Setting grouping criteria

The **Grouping criteria** tab allows you to set conditions for grouping query records.

The grouping condition pattern fields are set in the same way as those of the Criteria [438] pattern.



These conditions will be included in the HAVING statement of the generated SQL query.

See also: <u>Setting criteria</u>[438] <u>Setting output fields</u>[440] <u>Setting sorting parameters</u>[443]

## 7.2.7 Setting sorting parameters

The **Sorting** tab allows you to set sorting parameters for the records returned by the query.

The working area contains the **Output fields** list (at the left) which represents all fields of the objects used in the query, and the **Sorted fields** list (at the right) which contains the fields to sort records by.

To move a field from one list to another, drag the selected field or use the **Add** and **Remove** buttons: **I I I I**.

To change the sorting order for a sorted field, select the field in the **Sorted fields** list and move it using the **Up** and **Down** buttons.

To change the sorting direction, select the field in the **Sorted fields** list and switch the direction (*Ascending*, *Descending*) using the corresponding **A..Z/Z..A** button.

Criteria	Selection	Grouping criteria	Sorting			
				Up Down		A.Z
Output fi	elds			Sorted fields	Sort order	
Employee.Contact.rowguid				Employee.Contact.Co	nta: Ascending	
Employee.Contact.ModifiedDate				Employee.ContactCre	ditC Ascending	
Employee.ContactCreditCard.ModifiedDate			ate	Employee.Employee.E	mpl Ascending	
Employee.Employee.NationalIDNumber			=			
Employee.Employee.ManagerID						
Employee.Employee.BirthDate						
Employee.Employee.MaritalStatus						
Employe	e.Employee	Gender	-			

See also: Setting criteria 438 Setting output fields 440 Setting grouping criteria 442

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# 7.2.8 Working with the editor area

The **Editor area** of Query Designer is available within the **Edit** tab and is provided for working directly with the SQL query text which is generated automatically while you build the query visually.

You can edit this text according to the rules of SQL, and all the changes will be displayed within the **Builder** tab respectively.

To learn more about the Query Data features available within the **Edit** tab, see <u>Working</u> with Query Data editor area 418.

:	e D	atabases 🔻	🔜   🚰 ▼ 🚍 ▼  ▶ 🔲 🖷   ✓ ×   🖳   🎭 ▼  ฿ 🖻 🖻			
	Builde	lder Edit				
	Ę	SELECT		~		
	2	publ	ic.film_actor.actor_id,			
	3	publ	ic.film_actor.film_id,			
	4	publ	<pre>ic.film_actor.last_update,</pre>			
	5	publ	ic.actor.actor_id,			
	6	public.actor.first_name,				
	7	<pre>public.actor.last_name,</pre>				
n	8	<pre>public.actor.last_update,</pre>				
ш	9	public.actor.boocean				
ш	10	FROM				
>	11	publ	ic.actor			
ш	12	INNE	R JOIN public.film_actor ON (public.actor.actor_id = public.film_actor.actor_id)			
ш	13	INNE	R JOIN public.film ON (public.film_actor.film_id = public.film.film_id)			
ш	14	ORDER BY				
М	15	publ	ic.actor.actor_id			

### See also:

<u>Working with diagram area</u> 434े <u>Query execution</u> 445ो <u>Query Data</u> 415ो

## 7.2.9 Query execution

When all the query parameters are set, you can immediately **execute the query** in **Design Query editor**.

To execute a query, click the **Execute query** item of the <u>Navigation bar [432]</u>. You can also use the F9 hot key for the same purpose.

If the query parameters are specified correctly, the query is executed and, in case the query statement is supposed to return data (e.g. as *SELECT* statement), the returned dataset appears within the **Result** tab.

If SQL syntax of the query contains any errors, the query execution is stopped and the corresponding error message is displayed in the status bar area at the bottom of the Design Query window.

By default, data returned by a query are displayed as a grid (see <u>Data View</u> 453) for details). The <u>context menu</u> 466 of the grid allows you to <u>Export Data</u> 536, <u>Export as SQL</u> <u>Script</u> 608.

1 Mr. I 2 Ms. 4 Sr. 5 Sra. 6 Ms.	Gustavo Catherine Humberto Pilar	Null       R.       Null	Achong Abel Acevedo	Null Null	gustavo0@adventure-works.com catherine0@adventure-works.com			
[ 2 Ms. 4 Sr. 5 Sra. 6 Ms.	Catherine Humberto Pilar	R. Null	Abel Acevedo	Null	catherine0@adventure-works.com			
4 Sr. 5 Sra. 6 Ms.	Humberto Pilar	Null	Acevedo	1				
5 Sra. 6 Ms.	Pilar			Null	humberto0@adventure-works.co			
6 Ms.		Null	Ackerman	Null	pilar1@adventure-works.com			
	Frances	В.	Adams	Null	frances0@adventure-works.com			
7 Ms.	Margaret	J.	Smith	Null	margaret0@adventure-works.com			
9 Mr.	Jay	Null	Adams	Null	jay1@adventure-works.com			
10 Mr.	10 Mr. Ronald		Adina	Null	ronald0@adventure-works.com			
11 Mr.	Samuel	N.	Agcaoili	Null	samuel0@adventure-works.com			
12 Mr.	James	Τ.	Aguilar	Jr.	james2@adventure-works.com			
13 Mr.	Robert	E.	Ahlering	Null	robert1@adventure-works.com			
14 Mr.	François	Null	Ferrier	Null	françois1@adventure-works.com			
15 Ms.	Kim	Null	Akers	Null	kim3@adventure-works.com			
16 Ms.	Lili	J.	Alameda	Null	lili0@adventure-works.com			
•	1	III	1					

## See also:

<u>Working with diagram area</u> बिउमे <u>Working with the editor area</u> बि4मे <u>Data View</u> बि5अे

### 7.2.10 Viewing query plan

Using SQL Manager for PostgreSQL, you can view **the plan** for each of the queries created and executed in the application. The query plan is available within the corresponding **Plan** tab.

To view the **Plan** of a query, open **Design Query** and use the **Explain query** item of the <u>Navigation bar</u><sup>[432]</sup> or <u>toolbar</u><sup>[432]</sup>.

The **Plan** tab allows you to view the sequence of actions performed by the database server in the process of the query execution, and the amount of system resources used for the query execution.



The **Operation** panel below displays the operations as a tree list with the following columns: *Operation Info, Operation, Start-up Cost, Total Cost, Number of Rows, Row* 

Width, Startup Time, Total Time, Real Number of Rows, Loops. Right-click within the panel to display the **context menu** allowing you to configure the set of visible columns or export [536] the plan to any of supported formats [983].

The area at the bottom displays the execution plan *as text*.

See also:

Query execution 445

# 7.3 Query parameters

Both <u>Query Data 415</u> and <u>Design Query 431</u> support parameters usage inside the query text. A parameter is a kind of variable for which a value can be specified just before the query execution. In the query text the parameter should appear as an identifier with a colon (':') at the beginning, e.g.

SELECT \* FROM MYTABLE WHERE ID = :param1;

**Note:** The **Allow using of parameters in query text** option should be checked on the <u>Tools</u> [379] page of the <u>Environment Options</u> [371] dialog for this feature to be enabled.

See also: <u>Query Data</u>415 <u>Design Query</u>431

## 7.3.1 Input parameters dialog

The **Input Parameters** dialog is used to specify the query parameters as well as values of the input parameters of the query before execution.

🚮 Input	Parameter	s 💌
cont_id	Null	5
		<u>O</u> K <u>C</u> ancel <u>H</u> elp

Click  $\mathbf{OK}$  button to apply the values and execute the query or click  $\mathbf{Cancel}$  button to abort execution.



# 8 Data Management

Table data and query results are displayed on the **Data** or **Results** tab of <u>Table Editor</u> (177), <u>Query Data</u> [415], <u>Design Query</u> [431] editors, etc.

Data can be displayed in one of the following modes: **Grid View**, **Form View**, **Print Data**, **BLOB View**. See <u>Data View</u><sup>[453]</sup> to learn more about these modes. You are also provided with a number of <u>filtering tools</u><sup>[463]</sup> when working with your data.

- Data View 453
- Custom Filter 522
- Filter Builder dialog 524

### See also:

# 8.1 Data View

SQL Manager for PostgreSQL provides you with powerful tools for **viewing, editing and printing data** from tables and queries:

- table / view data are available within the **Data** tab of <u>Table Editor</u> (177) / <u>View Editor</u> 229) correspondingly;
- upon a <u>query execution</u> [426] the returned dataset appears within the **Result(s)** tab of <u>Query Data</u> [415] / <u>Design Query</u> [431] (in Query Data the position of the tab depends on the **Results on Edit tab / Results on separate tab** selection in the <u>Navigation bar</u> [416] ).

The data can be displayed in one of four available **modes**: *Grid View*, *Form View*, *Print Data* and *BLOB View*. The **status bar** at the bottom displays the number of records in the current dataset, the time the records were fetched by the application and the status of the records (whether the data are read-only or editable).

Please see the succeeding chapters to learn how to work with your data in the simplest and most efficient way.

- Using Navigation bar and Toolbars 454
- Grid View
   457
- Form View 479
- Print Data 481
- BLOB View 507
- Applying changes 521

### See also:

<u>Custom Filter</u>िइट्टी <u>Filter Builder dialog</u>हि24ी <u>Table Editor</u>ार7ी <u>View Editor</u>229

# 8.1.1 Using Navigation bar and Toolbars

When the **Data** tab (in <u>Table Editor</u> مراجع), <u>View Editor</u> or the **Result(s)** tab (in <u>Query</u> <u>Data</u> (مراجع), <u>Design Query</u> (مراجع)) is selected, the <u>Navigation bars</u> of these tools contain the **Data Management** group which allows you to:

^

 export data
 638

 export data as SQL script
 608

 import data
 582

 import data
 617

 save data
 617

 ind data
 628

 ind

Items of the **Navigation bar** are also available on the **ToolBar**. To enable the <u>toolbar</u> [963], open the <u>Environment Options</u> [877] dialog, proceed to the <u>Windows</u> [877] section there and select (if you need the toolbar only) or (if you need both the toolbar and the <u>Navigation bar</u> [961]) in the **Bar style for child forms** group.

The Navigation pane contains toolbars allowing you to:



- go to the first record of the dataset;
- go to the previous page;
- go to the previous record;
- go to the next record;
- go to the next page;
- go to the last record of the dataset;
- insert a new record (in Table Editor only);
- delete the selected record (in Table Editor only);
- edit the selected record (in *Table Editor* only);
- post 521 edit (in Table Editor only);
- cancel edit (in Table Editor only);
- refresh data;
- set bookmark;
- go to saved bookmark;
- call the Filter Builder [524] dialog;
- search for a string in the currently selected column data;
- enable/disable including data of descendant tables;

### 455 SQL Manager for PostgreSQL - User's Manual

- specify the maximum number of records (record limit) for displaying data (in *Table Editor*, *View Editor* only);
- navigate within the dataset using the specified record limit (in *Table Editor*, *View Editor* only).

The **Toolbar** of the <u>Print Data</u> [481] mode allows you to:

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- customize the report using <u>Report Formatter</u> [490] and the <u>Report Options</u> [501] dialog;
- load a report from an external \*.rps file;
- save the current report to an external \*.rps file;
- print the report using the default printer;
- set printing options using the standard Print 506 dialog;
- call the <u>Page Setup</u> [483] dialog;
- show/hide report thumbnails;
- customize the <u>Report Title</u> 501;
- add <u>Date and Time</u> 503, <u>Page Numbering</u> 503, show/hide empty pages;
- shrink the report to the page;
- specify background color;
- zoom in/out, setup zoom 504, zoom page width, whole page, two/four/multiple pages;
- select the active page of the report;
- go to first/previous/next/last page of the report.

The **Toolbar** of the <u>BLOB View</u> [507] mode allows you to:

🔋 DESCRIPTION 🔹 💽 🖪 🖓 🖓 🖓 🟠 🟠 🥎 🦉 🚰 Arial Unicode M: 🔹 🖇 🌲 🚺 🖳 🖳 🚍 🚍 🚍

- select a BLOB column;
- select encoding (ANSI, UTF-8, UNICODE-16);
- load BLOB content from an external file;
- save the BLOB column content to an external file;
- cut/copy/paste selected text to/from clipboard (enabled for the Text and Rich Text tabs only);
- undo changes;
- print the text (enabled for the Text, Rich Text and HTML tabs only);
- select font to be applied to the selected text (enabled for the Rich Text tab only);
- select font size to be applied to the selected text (enabled for the Rich Text tab only);
- make the selected text bold/italic/underlined (enabled for the Rich Text tab only);
- align left/center/right (enabled for the Rich Text tab only);
- add/remove list bullets (enabled for the Rich Text tab only).

### See also:

<u>Grid View</u> 457 <u>Form View</u> 479 <u>Print Data</u> 481 <u>BLOB View</u> 507 <u>Applying changes</u> <u>Customize toolbars and menus</u> शिक्ष

## 8.1.2 Grid View

By default, data returned by a query is displayed as a grid. It is indicated by the **Grid View** tab selected on the View mode panel at the bottom of the **Results** area of the window.

When in the **Grid View** mode, the columns correspond to the columns and the rows correspond to the records.

If more convenient, you can <u>change the order</u> 45 of the columns by dragging their headers horizontally. Clicking the column caption sorts data by the values of this column in the ascending or the descending mode. The <u>navigation pane</u> 454 at the top of the grid allows you to browse the data quickly, to insert, update and delete records, and to set a <u>filter</u> 463 for the records using the <u>Filter Builder</u> 524 dialog and other tools.

The <u>Navigation bar</u>[454] of the parent window, <u>toolbars</u>[455] and the <u>context menu</u>[466] of the grid provide you with a number of data management functions: <u>Export Data</u>[536], <u>Import</u> <u>Data</u>[582], <u>Export as SQL Script</u>[608] and more.

- <u>Customizing columns</u> 459
- Grouping and sorting data within the grid 460
- Filtering records 463
- Using the context menu 466
- Working in multi-level mode 468
- Browsing data in card view 476
- <u>Column Summary</u> 477
- <u>Copying records</u>
   478

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	Drag a column							^							
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3	3	13.10.2010	6	261,54	Regular Air	-213,25	38,94	Muhammed							
	6	20.02.2012	2	6,93	Regular Air	-4,64	2,08	Ruben Dartt							
n [	32	15.07.2011	26	2 808,08	Regular Air	1 054,82	107,53	Liz Pelletier							
	32	15.07.2011	24	1 761,4	Delivery Truck	-1 748,56	70,89	Liz Pelletier							
	32	15.07.2011	23	160,2335	Regular Air	-85,129	7,99	Liz Pelletier							
	32	15.07.2011	15	140,56	Regular Air	-128,38	8,46	Liz Pelletier							
>	35	22.10.2011	30	288,56	Regular Air	60,72	9,11	Julie Creight							
	35	22.10.2011	14	1 892,848	Regular Air	48,987	155,99	Julie Creight							
	36	02.11.2011	46	2 484,7455	Regular Air	657,477	65,99	Sample Corr							
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	32	15.07.2008	26	Null	Regular Air	Null	107,53	Liz Pelletier							
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	32	15.07.2008	15	Null	Regular Air	Null	8,46	Liz Pelletier							
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**Hint:** To increase the speed of opening tables and views with extremely large number of records, you can use options of the **Limit options in table and view editors** group available in the <u>Grid | Data Options and view editors</u> section of the <u>Environment Options and views</u> dialog.

# See also: Using Navigation bar and Toolbars 45 में Form View 47 जे Print Data 48 गे BLOB View 507 Applying changes 52 गे

### 8.1.2.1 Customizing columns

## Selecting visible columns

When working in the **Grid View** mode, you can specify which columns of the current dataset will be visible. Click the <sup>II</sup> button available in the top left corner of the data grid and select/deselect columns in the drop-down list to specify their visibility/invisibility.

3
EMPLOYEE_ID
FIRST_NAME
LAST_NAME
EMAIL
PHONE_NUMBER
HIRE_DATE
JOB_ID
SALARY
COMMISSION_PCT
MANAGER_ID
DEPARTMENT_ID

### Changing columns order

For your convenience the possibility to *change the order* of the columns in the data grid is available. To reorder columns, drag a column header horizontally to a place in between two other column headers indicated with green arrows.

	FIRST_NAME LAST_NAME	POSITION	- €	BIRTH_DATE
See also:				
<u>Grouping data</u> 460				
Filtering records 463				
Working in multi-level mod	<u>e</u> 468			
Working in card view mode	e 476			
Column Summary 477				

### 8.1.2.2 Grouping and sorting data

In order to **sort data**, do the following:

open data at the **Data** or **Results** tab, choose the column by which you need to sort data and click the column title.

If the column was not sorted, the first click will sort it in the ascending order and the second one - in the descending order.

### **Clear Sorting**

To cancel the sorting, open the context menu by right-clicking the necessary column and choose the **Clear Sorting** item, or press the *Ctrl* button and click the column title.

If necessary, you can group the data in grid by any of the columns.

This operation is performed by dragging the column header to the gray "**Group by**" **box** area at the top. In order to display this area, select the  $\boxed{\ }$  **Show** "**Group by**" **box** option available in the <u>Grid</u> section of the <u>Environment Options</u> [871] dialog.

When grouping by a column is applied to the grid, all the records are displayed as subnodes to the grouping row value as displayed in the screenshot below. The grouping row can contain the column summary information specified in the **Group header** group of the <u>Column Summary</u> [477] dialog.

To reverse grouping, just drag the column header back.

Hint: While dragging the column header back, you can also change the column position 459

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Research and Innovation	750 000,00	000	4	4 Kuaui	(808) 555-1235	
Pacific Rim Headquarters	600 000,00	100	3	4 Kuaui	(808) 555-1234	
dept_no : 115		^				
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dept_no : 116		-				
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☐ dept_no : 120	-					
European Headquarters	700 000,00	100	3	6 London	71 235-4400	
☐ dept_no : 121						
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dept_no : 125						~
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If necessary, you can group data by two or more columns. In this case column headers are displayed hierarchically, and data are grouped by these columns in the order the column headers appear in the **"Group by"** area.

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Research and Innovation	750 000,00	44	Kuaui	(808) 555-123	5		
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Pacific Rim Headquarters	600 000,00	34	Kuaui	(808) 555-123	4		
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# See also:

<u>Customizing columns</u>45ର୍ଶ <u>Filtering records</u>46ର୍ଶ <u>Working in multi-level mode</u>46ର୍ଶ <u>Working in card view mode</u>47ର୍ଶ <u>Column Summary</u>477

### 8.1.2.3 Filtering records

A number of **filtering** facilities are implemented in the grid for your convenience. You can filter records in the grid in either of the following ways:

• right-click a row and select the **Quick Filter** context menu item to filter records by the current value of the selected column;

С	olu <u>n</u>	ns	Pro	pe	rties	Fo	reig	n <u>K</u>	eys	s <u>C</u> hecks		Indice	s	T <u>r</u> iggers	Rules	Policies	s D	epende	encies	D <u>a</u> ta	D <u>e</u> scription	DD <u>L</u>	$\langle \cdot \rangle$	
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				6 2	20.02.2	201	12					2			6,93	Regular	Regular Air		-4,64		2,08	Ruben D	artt	
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								Gr	rid <u>M</u> od	е			•											
											썆	Pr	opertie	s										

 click the Arrow-Down button next to the column caption to display the drop-down list and select any of the column values to filter records by this value of the selected column;

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Drag a o	column head	er here to group	by that co	lumn							^
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≥	2	(All)	Nelson		250		28.12	2.1988 0:00:0	600	VP	
	4		Young		233		28.12	2.1988 0:00:0	621	Eng	
	5	Ashok	Lambe	rt	22		06.02	2.1989 0:00:0	130	Eng	
	8	Bill	Johnso	n	410		05.04	4.1989 0:00:0	180	Mktg	
	9	Bruce	Forest		229		17.04	4.1989 0:00:0	622	Mngr	
	11	Carol	Westo	n	34		17.01	1.1990 0:00:0	130	SRep	
	12	Chris	Lee		256		01.0	5.1990 0:00:0	0	Admin	
	14	Dana	Hall		227		04.06	6.1990 0:00:0	900	Finan	
	15	Jacques	Young		231		14.00	6.1990 0:00:0	623	Mngr	
	20	Janet	Papade	opoulos	887		01.01	1.1990 0:00:0	671	Mngr	
	24	Jennifer M.	Fisher		888		12.09	9.1990 0:00:0	671	Eng	
	28	John	Benne	t	5		01.02	2.1991 0:00:0	120	Admin	
	29	_K.J.	De Sou	Iza	288		18.02	2.1991 0:00:0	623	Eng	
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	36 R	oaer	Reeve	s	6		25.04	4.1991 0:00:0	120	Sales	~
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Grid Viev	W Form Vie	w Print Data									
Fetched: 4	42/42					ex	ec: 15 ms;	total: 63 ms	LIMIT 1000	OFFSET 0	

or

- click the Arrow-Down button next to the column caption to display the drop-down list, then select the **Custom** item and build a simple filter using the <u>Custom Filter</u> [522] dialog;
- use the **Set filter** button on the <u>navigation pane</u> 454 to invoke the <u>Filter Builder</u> 524 dialog and create a composite filter using the dialog.

After the filter is set, the gray **filtering panel** becomes visible at the bottom of the grid. This panel allows you to see the active filtering condition and easily enable or disable it using the checkbox on the left. The Arrow-down button opens the drop-down menu which allows you to browse the filter history for this dataset.

If necessary, you can click the **Customize...** button on the right to customize your filter and add more complicated filtering conditions within the Filter Builder 524 dialog.



To remove the current filter, click the **Close b**utton.

See also: <u>Customizing columns</u>45୭ <u>Grouping and sorting data</u>460 <u>Custom Filter</u>ाइट्ये <u>Filter Builder dialog</u>इट्ये

### 8.1.2.4 Using the context menu

466

The **context menu** of the grid is aimed at facilitating your work with data: you can perform a variety of operations using the context menu items:

- copy the selected cell value to Windows clipboard;
- paste the clipboard content to the currently selected cell;
- copy/paste multiple records;
- data manipulation: <u>Export Data</u> 536 from the table, <u>Import Data</u> 582 to the table, <u>Export</u> <u>Data as SQL Script</u> 608, <u>Save Data</u> 617, <u>Load Data</u> 626;
- set/disable <u>Quick Filter</u>463;
- clear sorting;
- set a value for the selected cell: *NULL*, *Empty string* (for string columns), *Now* (for TIME columns), *"Zero"* (for DATE columns);
- edit the BLOB value or save the BLOB to file using BLOB viewer/editor 507;
- expand/collapse grid levels 4681 and navigate within the tabs;
- manage grid levels: <u>add a new grid level</u>[463], delete the current grid level (this item is enabled only when the detail level exists and is currently focused);
- switch to the <u>Card View</u> [476] mode;
- view <u>Column Summary</u> 4771;
- select visible/invisible columns of the dataset;
- fit column width for better representation;
- specify the grid mode: Load All Rows, Load Visible Rows, Default;
- view/edit grid properties pool.



**Note:** If the Show editor immediately and Always show editor options on the Environment options | Grid (1909) tab are checked then the context menu of a grid can be evoked by selecting the necessary cell and right-clicking the table header. Otherwise, right-clicking the cell evokes the cell editing menu.

### 8.1.2.5 Working in multi-level mode

One of unique features of SQL Manager for PostgreSQL is the ability to work with data in multi-level mode to view and modify data in several related tables simultaneously.

To manage grid levels, right-click the grid and select the **Grid Levels**  $\frac{\text{context menu}}{\text{group.}}$  Items of this group allow you to:

- add a new grid level using Create Grid Level Wizard 469;
- delete the current grid level;
- switch between the ordinary *Table View* and the <u>Card View</u> 476 modes.

Colu	ı <u>m</u> ns	Properties	Foreign <u>K</u> ey	s <u>C</u> hecks	Indices	T <u>r</u> iggers	R <u>u</u> les	Policies [	Dependencies	D <u>a</u> t	ta D <u>e</u> s	cription	DE <
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## See also:

<u>Using the context menu</u> 46ते <u>Create Grid Level wizard</u> 469
#### 8.1.2.5.1 Create Grid Level wizard

**Create Grid Level Wizard** allows you to add a new detail level to the grid in order to get master-detail representation of your data.

To start the wizard, right-click the grid, select the **Grid Levels** <u>context menu</u> and proceed to the **Add Grid Level...** item within this group.

- <u>Specifying master level</u>469
- <u>Selecting source table</u> 470
- Binding master and detail levels 472
- Query parameterization 473
- Setting additional parameters 474

	Grid <u>L</u> evels	•		Add Grid Level
	Column S <u>u</u> mmary			Delete Grid Level
	Visible <u>C</u> olumns	•	~	Table View
	Fit Columns Widths Ctrl+Alt+W			Card View
	Grid <u>M</u> ode	+		
4	Properties			

#### 8.1.2.5.1.1 Specifying master level

Use the drop-down list to select the table of the **master level** to which a new level will be added.

#### Source of new level data

Select the source type of the new level data: 

Table or
Query.

Create Grid Level Wizard									
Create Grid Level Wizard									
Specify master level and t	e data source of new level								
SQL Manager for PostgreSQL	Welcome to Create Grid Level Wizard! This wizard allows you to add a new detail level to a grid in order to get master-detail representation of your data. This wizard will guide you through the process of choosing destination (master) level to which a new level will be added, specifying source of the new level data and binding the created level to the existing ones. Select master level to which a new level will be added public.Department Source of new level data Query								
<u>H</u> elp	< <u>B</u> ack <u>Next</u> > Cancel								

Click the **Next** button to proceed to the <u>Defining source for detail level</u> [470] step to select a table for the detail level or input a query, depending on whether the **Stable** or the **Query** option has been selected.

# 8.1.2.5.1.2 Defining source for detail level

If the **Table** option has been selected at the previous step 463, you should now specify a table for the detail view using the **Table name** drop-down list. Set the **Show tables** related by foreign keys only option to narrow the list of tables by including only tables linked by Foreign keys.



If the **Query** option has been selected at the <u>previous step</u> 469, you should now enter a query that will be used as the source of the new grid level. If necessary, you can use <u>Design Query</u> 431 to build the SQL query visually.

Create Grid Level Wizard	
Create Grid Level Wizar	rd
Input query text	
	Input SQL query that will be a data source of new grid level. NOTE that the query should be ordered by columns that will be bound to columns of the master level plus any other columns.
SQL Manager for PostgreSQL	<pre>2 public. "Employees". "EMP_ID", 3 public. "Employees". "POSITION", 4 public. "Employees". "FIRST_NAME", 5 public. "Employees". "LAST_NAME", 6 public. "Employees". "GENDER", 7 public. "Employees". "GENDER", 8 public. "Employees". "BIRTH_DATE", 9 public. "Employees". "HIRE_DATE", 10 public. "Employees". "IS_ACTIVE", 11 public. "Employees". "SALARY",</pre>
	12 public. <u>"Employees"</u> ."DETAILS", •
Help	< <u>B</u> ack <u>N</u> ext > Cancel

Click the **Next** button to proceed to the <u>Binding master and detail levels</u> [472] step of the wizard.

8.1.2.5.1.3 Binding master and detail levels

Define pairs of columns to link the Master Level and the Detail Level data sources:

- select a column in the Master Level Key Columns list;
- select a corresponding column in the Detail Level Key Columns list;
- click Add to set correspondence between the selected columns.

The newly created correspondences are listed in the **Links Between Master and Detail Levels** area. If necessary, you can delete any correspondence using the **Remove** button.

The **From Foreign Key...** menu is available if the  $\boxed{}$  **Show tables related by foreign keys only** option has been selected at the <u>previous step</u>  $\boxed{470}$ . This menu allows you to select the <u>foreign key</u>  $\boxed{212}$  to be used for identifying master-detail levels (if the table has more than one foreign key relation).

Create Grid Level Wizard		×
Create Grid Level Wizard		
Bind master and detail leve	els	
	Master Level Key Columns  department_id  department_name manager_id location_id	Detail Level Key Columns  job_id salary commission_pct manager_id
SQL Manager for PostgreSQL	Add Links Between Mas department id	Remove
Help	<	Back Next > Cancel

Click the **Next** button to proceed to the <u>Setting additional parameters</u> 474 step or to the <u>Query parameterization</u> 473 step of the wizard if **Query** was selected at the <u>Specifying</u> <u>master level</u> 469 step of the wizard.

8.1.2.5.1.4 Query parameterization

If **Query** was selected at the <u>Specifying master level</u> [469] step of the wizard, you should now transform the query to a parameterized form that will be used in the 'Load visible rows' Grid Mode (see the <u>Grid | Data Options</u> [912] section of the <u>Environment Options</u> [871] dialog to get more information about grid modes offered by SQL Manager).

Create Grid Level Wizard		٢.								
Create Grid Level Wizar	d									
Make parameterized form of the query										
	At this step you need to transform your query to a parameterized form. It will be used when Grid Mode is 'Load Visible Rows'. NOTE that you need to add conditions to WHERE parts of the query that bind the query columns to the columns of the master level. The master column names should be written as query parameters (started with ':' symbol). Please correct the WHERE part that is added to the end of the query. Also you can edit or remove ORDER BY clause.	1								
SQL Manager for PostgreSQL	<pre>SELECT public."Employees"."EMP_ID", public."Employees"."POSITION", public."Employees"."FIRST_NAME", public."Employees"."LAST_NAME", public."Employees"."GENDER", public."Employees"."MARITAL_STATUS", public."Employees"."BIRTH_DATE", public."Employees"."HIRE_DATE",</pre>									
	10   public."Employees"."IS ACTIVE".									
Help	< <u>B</u> ack <u>N</u> ext > Cancel									

Click the **Next** button to proceed to the <u>Setting additional parameters</u> [474] step of the wizard.

#### 8.1.2.5.1.5 Setting additional parameters

### Level caption

Set the caption to be used for the new level in the grid.

### Level type

Select the type of view you wish to be applied to the grid level: 

Table view or
Card view.

Create Grid Level Wizard										
Create Grid Level Wizard										
Enter level caption and set its type										
	You have completed the steps required to create a grid level. Now set caption of the level that will be displayed at the top of the level data if the corresponding option is on. Also select a type of the level: table or card view.									
	Level caption public.Employees									
SQL Manager for PostgreSQL	<ul> <li>Level type</li> <li>Table view</li> <li>Card view</li> </ul>									
	Click "Run" to create new grid level.									
Help	< <u>B</u> ack <u>Finish</u> Cancel									

When you are done, click the  ${\bf Run}$  button to complete the operation.

# 8.1.2.6 Working in card view mode

Depending on your preferences, you can represent data in the **Table View** or in the **Card View** modes.

To switch to the **Card View** mode of data representation, right-click the grid, expand the **Grid Levels** context menu 466 group and select the **Card View** item within this group.

Columns Properties	Foreign Keys Check	s Indices Triggers	Rules Policies	Dependencies D <u>a</u> ta	Description DDL	<u>P</u> < >
	× × <mark>+ − +</mark> ×	🛥 米 🐂 💡 Find:		🔊 💂 🔣 🤇 20	00 🌲 🔪 🚬	
Order ID:	3	Order ID:	32	Order ID:	32	Order
Order Date:	13.10.2010	Order Date:	15.07.2011	Order Date:	15.07.2011	Order
Order Quantity:	6	Order Quantity:	26	Order Quantity:	23	Order
Sales:	261,54	Sales:	2 808,08	Sales:	160,2335	Sales
Ship Mode:	Regular Air	Ship Mode:	Regular Air	Ship Mode:	Regular Air	Ship N
Profit:	-213,25	Profit:	1 054,82	Profit:	-85,129	Profit:
Unit Price:	38,94	Unit Price:	107,53	Unit Price:	7,99	Unit P
Customer Name:	Muhammed Macinty	Customer Name:	Liz Pelletier	Customer Name:	Liz Pelletier	Custo
Customer Segment:	Small Business	Customer Segment:	Corporate	Customer Segment:	Corporate	Custo
Product Category:	Office Supplies	Product Category:	Furniture	Product Category:	Technology	Produ
Order ID:	6	Order ID:	32	Order ID:	32	Order
Order Date:	20.02.2012	Order Date:	15.07.2011	Order Date:	15.07.2011	Order
Order Quantity:	2	Order Quantity:	24	Order Quantity:	15	Order
Sales:	6,93	Sales:	1 761,4	Sales:	140,56	Sales
Ship Mode:	Regular Air	Ship Mode:	Delivery Truck	Ship Mode:	Regular Air	Ship N
Pro fit:	-4,64	Profit:	-1 748,56	Profit:	-128,38	Profit:
Unit Price:	2,08	Unit Price:	70,89	Unit Price:	8,46	Unit P
Customer Name:	Ruben Dartt	Customer Name:	Liz Pelletier	Customer Name:	Liz Pelletier	Custo
Customer Segment:	Corporate	Customer Segment:	Corporate	Customer Segment:	Corporate	Custo
Product Category: Office Supplies		Product Category:	Furniture	Product Category:	Technology	Produ
<						>
Grid View Form Vie	w Print Data					
Fetched: 2000/3951			00:12:	05	LIMIT 2000 OFFSET 0	

# See also:

Using the context menu 466

### 8.1.2.7 Column Summary

If necessary, you can select the **Column Summary...** <u>context menu</u> [466] item to open the **Column Summary** dialog which allows you to set the summary for each particular column that will be displayed in the grid *footer*, *group header* and *group footer* areas.

Column Summary			<b>×</b>									
Column	Summary	Summary										
DepartmentID Name GroupName	Group header None	Group footer None	<ul> <li>Footer summary</li> <li>None</li> </ul>									
	⊚ Sum	⊚ Sum	⊚ Sum									
ModifiedDate	O Minimum	O Minimum	O Minimum									
	Maximum	Maximum	Maximum									
	Count	Count	Count									
	Average	Average	Average									
	Number format	Number format	Number format									
			ancel <u>H</u> elp									

The **Column** list displays all columns of the dataset. Select a column and specify which information should be displayed in the grid as summary for this column:

- 💿 None
- Sum (for numeric types only)
- Minimum (for numeric and date/time types only)
- Maximum (for numeric and date/time types only)
- 🖲 Count
- Average (for numeric types only)

Use the **Number format** edit boxes in each group to specify the preferable format [978] for summary info representation.

See also: Using the context menu 468

### 8.1.2.8 Copying records

When you copy several records to clipboard and paste them into the grid, you are offered to set correspondence between columns of the clipboard and columns of the target PostgreSQL table using the **Associate Columns** dialog.

Associate Columns			×				
Clipboard Columns		Grid Columns					
EMP_ID	Ξ	EMP_ID	=				
POSITION		POSITION					
FIRST_NAME		FIRST_NAME					
LAST_NAME		LAST_NAME					
I GENDER	-	GENDER	-				
Add Add Al		Remove Remove All					
Links between Cli	pboa	rd and Grid Columns	-				
EMP_	ID =	EMP_ID	=				
POSITIC	)N =	POSITION					
FIRST_NAM	/E =	FIRST_NAME					
LAST_NAM	/E =	LAST_NAME	-				
First row is a header							
<u>Q</u> K <u>Cancel H</u> elp							

The **Clipboard Columns** and **Grid Columns** lists display the source and target dataset columns respectively. Set correspondence between the source clipboard columns and the table columns:

- select a source clipboard column in the Clipboard Columns list;
- select the corresponding column the target table in the **Grid Columns** list;
- click the Add button to set correspondence between the selected columns;
- the pair of columns appears in the Links between... list below;
- repeat the operation for all the columns you need copy.

Use the **Add All** button to add all columns to the **Links between...** list on the basis of their order.

To remove a correspondence, select the pair of columns in the **Links between...** list and press the **Remove** button.

To remove all correspondences, press the **Remove All** button.

### First row is a header

This option specifies that the first row of the associated columns will be taken as the column header.

# 8.1.3 Form View

The **Form View** tab allows you to view data as a form. To activate this type of data view, select the **Form View** tab on the View mode panel at the bottom of the window.

The form displays the current record: field names on the left and the corresponding values on the right. If the fields are available for editing, you can edit the record directly on this form. The <u>navigation pane</u> 454 at the top of the form allows you to browse the data quickly, to insert, update and delete records, and to set a filter for the records using the <u>Filter Builder</u> 524 dialog.

Columns Properties F	oreign <u>K</u> eys <u>C</u> hecks	Indices	T <u>r</u> iggers	Rules	Policies	Depe	ndencies	D <u>a</u> ta	Description	DD <u>L</u>	<u>P</u> i <	>
	• <b>-</b> • • × • *	<b>!</b> ₩ <b>₽</b>   f	Find:		0	Ŧ	< <	2000	\$ > »	÷		
Order ID	integer	Null			3	<b></b>						
Order Date	date	Null	13.10.20	)10								
Order Quantity	integer	Null			6	•						
Sales	double precision	Null			261,54	•						
Ship Mode	varchar(14)	Null	Regular	Air								
Profit	double precision	Null			-213,25	*						
Unit Price	double precision	Null			38,94	•						
Customer Name	varchar(18)	Null	Muhamm	ned Maclr	ntyre							
Customer Segment	varchar(14)	Null	Small Bu	isiness								
Product Category	varchar(15)	Null	Office S	upplies								
			L									
Grid View Form View	Pri <u>n</u> t Data											
Fetched: 2000/3951									LIMIT 2000 O	FFSET 0		

Each field has a  $\blacksquare$  **Null** checkbox which allows you to clear the field value and set it to NULL (if the field is nullable).

See also: Using Navigation bar and Toolbars Grid View Ison Print Data BLOB View 507 Applying changes 521

480	SQL Manager for PostgreSQL - User's Manual
100	

# 8.1.4 Print Data

Using the **Print Data** tab you can view data in the way they are printed, in WYSIWYG mode.

When in **Print Data** mode, you are provided with a powerful *context menu* and <u>toolbar</u>[455] allowing you to design a report, change the view scope, save reports and load previously saved ones, set <u>report options</u>[50<sup>1</sup>], and specify a number of <u>printing</u>[50<sup>6</sup>] parameters using <u>Report Formatter</u>[490] and the <u>Page Setup</u>[483] dialog.

Colum	ns Propertie	es Foreign <u>K</u> eys	<u>C</u> h	ecks	Ind	lices T <u>r</u> iggers R	ules	Policies D	ependencie	s D <u>a</u> ta	D	escri	iption	DD <u>L</u>	<u></u> <b>P</b> <	>
业	- 📔 🔒	e e 🕫 🗅 📲	::::		P	5 🔊   🗉 📲		H 🗐 100	% 🔹 🛛	⊢ ← 1	1	÷	+	→> =		
Marg	Margins         Left:         12,7 mm         Top:         12,7 mm         Right:         12,7 mm         Bottom:         12,7 mm         Header:         6,4 mm         Fc															
<b></b>																
	public.Orders															
	Order ID	Order Date	Or Qu	der Jantity		Sales	Ship M	lode	Profit	I	Unit					
	3	13.10.2010			6	261,54	Regula	ar Air	-	-213,25						
	6	20.02.2012			2	6,93	Regula	ar Air		-4,64						
	31	15.07.2011			26	2 808,08	Regula	ar Air	1	054,82	_	Π		3	٦.	
	32	15.07.2011			24	1 761,4	Delive	ry Truck	-1	748,56						
	33	15.07.2011			23	160,2335	Regula	ar Air	-	-85,129	_	>				
	34	15.07.2011			15	140.56	Denuls	r Air	-	-128,38	_					
	35	22.10.2011		\$	De	sign Report Ctrl+	Đ	r Air		60,72						
	36	22.10.2011			Pag	ge Setup		r Air		48,987		Ч				
	37	02.11.2011		1	Shr	rink To Page		r Air	e	657,477					5	
	65	17.03.2011			-	2		r Air		1 470,3						
	38	15.07.2008		]	20	om	•	r Air						<b>~~</b>		
	39	15.07.2008		]	Firs	st Page Ctrl+Hor	ne	y Truck						~		
	40	15.07.2008		]	Pre	evious Page Ctrl+l	Jp	r Air			•	-			~	1
<				-	Ne	xt Page Ctrl+Dov	vn				>		<		>	
Pa	ige: 1	Of 90	Pag	<b>-&gt;&gt;</b>	Las	st Page Ctrl+E	nd	) mm x 297	mm St	atus: Re	ady					]
<u>G</u> rid	View Form	View Print Data		_	_											
Fetche	ed: 2000/3951							00:26:20			LIN	IIT 2	000 OF	FSET 0		

Availability:

**Full** version (for Windows) **Yes Lite** version (for Windows) **No Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

### See also:

<u>Using Navigation bar and Toolbars</u> 4ি54 <u>Grid View</u> 457 Form View 479 <u>BLOB View</u> इ०गे <u>Applying changes</u> इ२१

# 8.1.4.1 Page Setup

The **Page Setup** dialog allows you to specify a number of settings pertaining to the report page.

To open the dialog, use the Decision available on the toolbar [455].

Use the following tabs of the **Page Setup** dialog:

- <u>Page</u> 484
- Margins 486
- Header/Footer 487
- <u>Scaling</u> 489

When you are done, you can click the **Print...** button at the bottom to call the  $\frac{Print}{100}$  dialog.

# See also:

<u>Report Formatter</u>490 <u>Setting report options</u>501 Print dialog 508

#### 8.1.4.1.1 Page

The **Page** tab of the **Page Setup** dialog allows you to specify the *paper*, page *orientation*, *print order* and *shading* settings.

📭 Page Setup	
Page Margins Header/Footer Scaling	
Paper Type Type 11x17 Elegal Executive A5 A4 A4	Orientation Portrait <u>Landscape</u>
Dimension <u>W</u> idth: 215,90 mm Height: 279,40 mm ▼	Print Order  Print Order  Down, then over  Over, then down
Paper so <u>u</u> rce	Snading
Print	OK Cancel

# Paper

Select one of the standard paper types in the **Type** list, or specify custom *width* and *height* using the **Dimension** group (in inches or millimeters, depending on the *unit of measure* specified in the <u>Options</u> [50<sup>†</sup>] dialog).

Use the **Paper source** drop-down list to select the paper feed type.

### Orientation

Select the preferable page orientation (your selection is illustrated in the chart on the left):

```
Portrait
```

Landscape

# **Print Order**

Select the preferable order for printing report pages (your selection is illustrated in the chart on the left):

- Down, then over
- Over, then down

# Shading

# Print using gray shading

If this option is selected, gray shading (along with black and white) will be used for printing the report.

#### 8.1.4.1.2 Margins

The **Margins** tab of the **Page Setup** dialog allows you to specify the size of the *margins* and *running titles*.

📭 Page Setup		
Page Margins	Header Footer Scaling	
		Preview
Top:	12,70 mm	
Bottom:	12,70 mm	
Left:	12,70 mm	
Right:	12,70 mm	
Header:	6,35 mm	
Footer:	6,35 mm	
Eix	Restore <u>O</u> riginal	
Center on page		
Horizontally	<u>V</u> ertically	
Print	]	OK Cancel

Use the spinner controls to specify the size of **top** / **bottom** / **left** / **right** margins and **header** / **footer** (in inches or millimeters, depending on the *unit of measure* specified in the <u>Options</u> [50] dialog). The **Preview** area on the right illustrates the changes you have made.

If you have specified an improper value, you can click the **Fix** button to correct it. To restore the default size values, click the **Restore Original** button.

#### **Center on page**

This group allows you to specify whether the text should be centered **horizontally** and/ or **vertically** on the page.

#### 8.1.4.1.3 Header/Footer

The **Header/Footer** tab of the **Page Setup** dialog allows you to specify properties of the *header* and *footer* running titles.

📭 Page Setup		<b>—</b> ×-
Page Margins Header For	oter <u>S</u> caling	
Header		
Eont 8 pt. Tahoma	Background [No Fill]	
Header text	*	A A
	*	т. Т
Footer		
Font 8 pt. Tahoma		Background [No Fill]
[Machine name] [User name]	<ul> <li>[Date printed]</li> <li>[Time printed]</li> </ul>	[Page # of Pages #] A
	-	v v
Vertical Alignment Pro	edefined Functions	
	9 9 6	💁 🗗 🖸 🛲
Reverse on even pages		
Print		OK Cancel

# Header / Footer

Click the **Font...** button to specify font properties using the standard **Font** dialog. The font name and size are displayed in the gray area next to the **Font...** button. Use the **Background** drop-down list to select the background color that will be applied to the page header/footer, or to customize the color using the **Color** and **Fill Effects** dialogs.

For each of the running titles you are provided with three separate text editing fields. You can use any, all or none of the fields to enter the header and footer text.

The **Vertical Alignment** group allows you to specify vertical alignment for the header/ footer text according to any of the three available patterns.

## **Predefined Functions**

This group allows you to add the following standard functions to the header and footer: [Machine Name] [User Name] [Time Printed] [Date Printed] [Date & Time Printed] [Page # of Pages #] [Total Pages] [Page #]

# Reverse on even pages

If this option is selected, the header and footer text will be reversed on even pages of the printing report.

8.1.4.1.4 Scaling

The **Scaling** tab of the **Page Setup** dialog allows you to specify the page *scaling* options.

D Page Setup	×
Page Margins Header\Footer Scaling	
<ul> <li>▲djust To:</li> <li>100 ▲ % normal size</li> <li>● Fit To:</li> <li>1 ▲ page(s) wide by</li> </ul>	1 <u>t</u> all
Print	OK Cancel

Select the preferable scaling mode:

Adjust to ... % normal size

Use the spinner control to set the percentage of the regular page size to which the page size will be adjusted.

Fit to ... page(s) wide by ... tall

Use the spinner controls to set the maximum number of pages (by width and by height) on one page to fit its size.

## 8.1.4.2 Report Formatter

**Report Formatter** allows you to specify a number of settings pertaining to the printing form of the report.

To open the tool, click the 45 **Design Report** button available on the <u>toolbar</u> 45, or use the *Ctrl+D* <u>shortcut</u> 100.

Use the following tabs of the **Format Report** dialog:

- <u>View</u> 491
- Behaviors 492
- Formatting 493
- <u>Styles</u>495
- Preview 497
- <u>Cards</u>498
- Charts 500

The **Title Properties...** button allows you to customize the report title using the <u>Report</u> Title sold dialog.

#### See also:

<u>Page Setup</u>म्बिजे <u>Setting report options</u> <u>Print dialog</u>ब्लि 8.1.4.2.1 View

The <b>View</b> tab	of the	Format I	Report	dialog	allows	you t	o specify	report	elements	to	show
in the report.											

🚱 Form	iat Repor	t								×
View	Behavio	rs Formatting	Styles	Preview	Cards	Char	ts			
Show							Preview			
		Caption					Cars			
		<u>√</u> Bands					M	lanufacturer Data	Car Data	a
		Headers					Name	Logo	Model	SUV
		Footers					BMW		X5 4.8is	
		Group Foot	ers							
		Expand But	tons				German	iy	<b>P</b>	
On Eve	rv Page	V Filter Bar				_	roid	Time	Excursion	
	ry ruge	Caption					United	States		
		√ Bands					Audi	0000	SS Quattro	
		Headers					German	ıy		·
		Footers Filter Bar					Land Rover	LAND- -ROVER	G4 Challenge	
							United	Kingdom		
							Count = 4			
							<filter e<="" is="" td=""><td>/mpty&gt;</td><td></td><td></td></filter>	/mpty>		
Title Pr	roperties.							ОК	Cancel	Apply

Tick off the elements to **show** in the report (*caption*, *bands*, *headers*, *footers*, *group footers*, *expand buttons*, *filter bar*) and **on every page** of the report (*caption*, *bands*, *headers*, *footers*, *filter bar*).

8.1.4.2.2 Behaviors

The **Behaviors** tab of the **Format Report** dialog allows you to specify the way (behavior) the report elements will appear on the printing form.

Ø Format Report					×			
View Behaviors Formatting Styles Preview Cards Charts	Preview							
Selection	Cars							
	Manufac	cturer Data	Car Data					
	Name	Logo	Model	SUV	Speed Count			
Process Exact Selection	BMW	٢	X5 4.8is	☑	5			
Expanding	Germany							
Groups	Ford	Tirrd	Excursion	☑	6			
	United States							
Size	Audi	œ	SS Quattro		5			
Auto Width	Germany							
	Land Rover	-ROVER	G4 Challenge	☑	5			
	United Kingdon	m						
	Count = 4 <filter empty="" is=""></filter>	]						
Title Properties Footnote Properties			ОК С	ancel	Apply			

# Selection

# ✓ Process selection / ✓ Process exact selection

Specify whether the text selection should or should not be processed (precisely) for the printing form.

# Expanding

Tick off the elements to expand in the report: groups, details, cards.

# Size

# 🗹 Auto Width

If this option is selected, the table will be resized automatically to fit the page by width.

#### 8.1.4.2.3 Formatting

The **Formatting** tab of the **Format Report** dialog allows you to specify *Look and Feel*, *Refinements* and *Pagination* options.

View Behavio	ors Formatting	Styles	Preview	Cards	Char	rts						
Look and Feel						Preview						
	UltraFlat				.	Cars						
					"	Manufacturer Data Car Data						
Refinements -					_	Name	Logo	Model	SUV			
	Transparen	t Graphic	s			BMW	õ	X5 4.8is				
	📃 Display Grap	ohic As T	ext			Germany						
	🔽 Flat CheckM	larks				Ford	(Flind)	Excursion				
	Suppress Ba	ackaroun	d Textures			United States						
	Consume Se	election S	tyle			Audi	0000	S8 Quattro				
Pagination —					-	Germany						
	By TopLevel	l Groups				Land Rover	LAND- -ROVER	G4 Challenge				
		crruge				United Ki	ngdom					
						Count = 4						
						< Filter is Em	ette)					
						stiner is Lin	prys					

### Look and Feel

This setting determines the manner in which the cells are painted. Use the drop-down list to select the painting style that will be applied to the cells on the printing form: Flat

Standard UltraFlat

# Refinements

Options of this group allow you to reduce the report size.

### Transparent graphics

If this option is selected, the images will be drawn transparent in the report.

### Display graphic as text

If this option is selected, text will be displayed instead of the images.

#### Flat CheckMarks

If this option is selected, the checkboxes will be drawn flat.

#### Pagination

Specify the way pagination will be performed for the report: **By TopLevel groups** or **One group per page**.

#### 8.1.4.2.4 Styles

The **Styles** tab of the **Format Report** dialog allows you to specify styles to be applied to the report elements.

View	Behaviors	Formatting	Styles	Preview	Cards	Char	rts			
🔽 Us	e Native Styl	es				_	Preview			
						_	Cars			
Band	Header		8 pt. T	<u> </u>	Font		Ma	aufacturar Data	Car Data	
Card	Caption Row		8 pt. T	im [	Color		Name		Model	SUV
Card	Row Caption		8 pt. T	im			DANU		V5 4 9:	001
Conte	ent		8 pt. T	im	Texture		DIVIW		AJ 4.015	
Conte	ent Even Row	/S	8 pt. T	im≣	class	5	Germany	v		
Conte	ent Odd Rows	S	_ 8 pt. T	im L	Clear		Ford		Excursion	
Eoote	Ddi vr		8 pt. 1	im				(Hord)		
Group	)		8 pt. T	im			United S	tates		
Head	er		8 pt. T	im			Audi	0000	S8 Quattro	
Previe	ew		8 pt. T	im 👻				au		
<b>₹</b>				Þ			Germany	¥		
Res	store Default	s Sa	ave <u>A</u> s				Land Rover	LAND- -ROVER	G4 Challenge	☑
Style S	Sheets					_	United K	lingdom		
						•	Count = 4			
Ne	ew	<u>C</u> opy	Delete	R	ename		<filter er<="" is="" td=""><td>mpty&gt;</td><td></td><td></td></filter>	mpty>		

## Use native styles

This option determines whether the native Windows style will be applied to the report elements.

**Note:** The **Native style** option is currently supported for the Windows® XP operating system only.

The elements list displays the names of all report elements, with background color and font properties specified by default. You can **Use native styles** for them or customize them according to your preferences.

To edit an element, select it in the list and use the buttons to the right to edit the style for it.

Click the **Font...** button to specify font properties using the standard **Font** dialog. Click the **Color...** button to customize the background color using the standard **Color** dialog.

Click the **Texture...** button to load an image that will be used as the texture for the element.

To rollback the changes, click the **Clear** button.

To restore the default stylesheet properties, click the **Restore Defaults** button. If you need to save the current style sheet, you can click the **Save as...** button.

These items are also available through the **context menu** of the elements list.

## **Style Sheets**

Use the drop-down menu to select the style sheet you need. To manage the style sheets, use the corresponding buttons below: **New..., Copy..., Delete..., Rename...** 

8.1.4.2.5 Preview

The **Preview** tab of the **Format Report** dialog allows you to specify report preview options.

View	Behaviors	Formatting	Styles	Preview	Cards	Char	ts			
Options				_			Preview			
		<u>V</u> isible					Cars			
		Auto Height 🛛					Manuf	facturer Data	Car Data	1
	M	ax Line Couni	t:	0	*		Name	Logo	Model	SUV
						, 	BMW	Ö	X5 4.8is	
							Germany			
							Ford	Tird	Excursion	
							United State	25		
							Audi	CODO	SS Quattro	
							Germany			
							Land Rover	LAND- -ROVER	G4 Challenge	
							United King	dom		
							Count = 4			
							<filter empt<="" is="" td=""><td>y&gt;</td><td></td><td></td></filter>	y>		

### 🗹 Visible

This option specifies visibility of the grouping rows.

# Auto height

If this option is selected, the table will be resized automatically to fit the page by height.

# Max line count

Use the spinner control to specify the maximum possible number of lines.

8.1.4.2.6 Cards

The **Cards** tab of the **Format Report** dialog allows you to specify properties for the card view.

View Behav	iors Formatting Styles	Preview	Cards	Chart	s			
Sizes				Pr	review			
	Auto <u>W</u> idth				Cars			
	√ <u>K</u> eep Same Width				Name:	BMW	Name:	Ford
	📝 Keep Same <u>H</u> eight				Logo:		Logo:	Thread
Spacing —				_	0		0	Line A Shahar
	H <u>o</u> rizontal:	4			Model:	X5 4.8is	Model:	Excursion
<del>7   4</del>	Vertical:	4			SUV:	✓	SUV:	
Framing —				_				
	✓ Border				Name:	Audi	Name:	Land Rover
	Horizontal Lines				Logo:	œ	Logo:	-ROVER
	Vertical Lines				Country:	Germany	Country	: United Kingdom
Shadow —				_	Model:	S8 Quattro	Model:	G4 Challenge
	Color:	Custom		-	5UV:		80V:	<u>₹</u>
	Depth: 4							
					≪Filter <u>is I</u>	Empty>		

# Sizes

# 🗹 Auto Width

If this option is selected, the cards will be resized automatically to fit the page by width.

### Keep same width

Select this option to keep the card width fixed.

### Keep same height

Select this option to keep the card height fixed.

# Spacing

This group allows you to specify **horizontal** and **vertical** spacing between cards.

# Framing

# Border

This option specifies visibility of the card borders.

# Horizontal lines

This option specifies visibility of the horizontal lines (row delimiters) within cards.

# Vertical lines

This option specifies visibility of the vertical lines (column delimiters) within cards.

# Shadow

Use the **Color** drop-down list to select the color that will be applied to the card shadows. If necessary, specify the color **depth** using the corresponding spinner control.

8.1.4.2.7 Charts

The **Charts** tab of the **Format Report** dialog allows you to specify options for the charts used in the report.

View	Behaviors	Formatting	Styles	Preview	Cards	Char	rts			
Option							Preview			
		<u>T</u> ransparent	t				Cars			
							Ma	nufacturer Data	Car Data	1
							Name	Logo	Model	SUV
							BMW	õ	X5 4.8is	
							Germany	,		·
							Ford	Fired	Excursion	☑
							United St	tates		·
							Audi	0000	S8 Quattro	
							Germany	,		
							Land Rover	LAND- -ROVER	G4 Challenge	
							United K	ingdom	-	
							Count = 4			
							<filter err<="" is="" td=""><td>npty&gt;</td><td></td><td></td></filter>	npty>		

## **Transparent**

If this option is selected, the charts will be drawn transparent in the report.

# 8.1.4.3 Setting report options

# **Options dialog**

The **Options** dialog allows you to specify a number of settings pertaining to the printing report.

To open the dialog, open the **Design Report**  $45^{\circ}$  menu available on the <u>toolbar</u> and select the **Preferences** item.

Options	<b>X</b>	
General		
Show	Zoom Parameters	
✓ Margins	Zoom on roll with IntelliMouse	
Margins <u>H</u> ints	Zoom Step: 10 %	
Margins Hints While Dragging		
Measurement <u>U</u> nits:	Margins <u>C</u> olor:	
Default	Auto 👻	
	OK Cancel	

# Show

Tick off the elements to **show** in the printing report (*margins*, *margins* hints, *margins* hints while dragging).

Use the **Measurement Units** drop-down list to select the unit of measure that will be used in report settings: *default*, *inches*, or *millimeters*.

# **Zoom Parameters**

#### Zoom on roll with IntelliMouse

If this option is selected, you can zoom in/out by scrolling up/down (with a Microsoft® mouse or a compatible mouse used).

### **Zoom Step**

Use the spinner control to specify the percentage of the original page size to be considered as one zoom step.

Use the **Margins Color** drop-down list to select the color that will be applied to the report margins.

### **Report Title dialog**

The **Report Title** dialog allows you to specify the report title text and properties.

Report Title		
Mode: On Every Top Page		
Text Properties		
✓ <u>T</u> ransparent		
Color: Auto -		
Thr		
Font 14 pt. Times New Roman [Bold]		
Alignment		
Horizontally: $\equiv$ Center $\checkmark$ <u>V</u> ertically: $\stackrel{+}{\downarrow}$ Center $\checkmark$		
Restore Defaults		
OK Cancel		

To open the dialog, use the **Title...** button available on the <u>toolbar</u>[455].

## Mode

Use the drop-down list to select where the report title should be displayed on the first page, on every top page, or not displayed at all.

# Text

Use the edit box to enter the text of the report title.

### Properties

# **Transparent**

If this option is selected, the report title will be drawn transparent.

Use the **Color** drop-down list to select the color that will be applied to the report title (enabled if the  $\square$  **Transparent** option is not selected).

Click the **Font...** button to specify title font properties using the standard **Font** dialog. The font name and size are displayed in the gray area next to the **Font...** button.

### Adjust on scale

If this option is selected, the title can be adjusted on scale.

### Alignment

Use the **Horizontally** drop-down list to select the type of horizontal alignment to be applied to the report title: *Left, Center,* or *Right*.

Use the **Vertically** drop-down list to select the type of vertical alignment to be applied to the report title: *Top*, *Center*, or *Bottom*.

To restore the default title properties, click the **Restore Defaults** button.

### Date and Time dialog

The **Date and Time** dialog allows you to specify the date/time formats to be used in the report.

To open the dialog, open the **Title...** menu available on the <u>toolbar</u> and select the **Date and Time...** item.

Date and Time	<b>—</b> ×-
Available Date Formats:	
7/26/2012	
Thursday, July 26, 2012 July 26, 2012	
2012-07-26	
26-Jul-12	
7.26.2012	
26 July 2012	
July 12	
Jul-12	
Available <u>Time</u> Formats:	
9:46 AM	
9:46	
9:46:52	
Update Automatically	Default
	K Cancel

Select the preferable values from the **Available Date Formats** and the **Available Time Formats** lists. If necessary, you can specify that the date/time will be *updated automatically*.

To apply the default date/time format, click the **Default...** button.

## Page Number Format dialog

The **Page Number Format** dialog allows you to specify the formats for page numbers to be used in the report.

To open the dialog, open the **Title... menu** available on the **toolbar** (455) and select the **Page Numbering...** item.

Page Number Form	nat	<b>—</b>
Number <u>F</u> ormat:	1, 2,	3, 4, 5, 🔻
Page Numbering —		
Continue from Previous Section		
Start <u>A</u> t:	1	
		Default
C	ОК	Cancel

Select the preferable number format from the **Number Format** drop-down list.

Use the **Page Numbering** section to specify whether page numbering should *continue from the previous section* (if any) or *start at the specified number*.

To set the default numbering values, click the **Default...** button.

# Zoom dialog

The **Zoom** dialog allows you to zoom the report page more better representation.

To open the dialog, open the **Zoom**  $\blacksquare$  menu available on the <u>toolbar</u> 455 and select the **Setup zoom...** item.


Select the preferable percentage of zoom value (500%, 200%, 150%, 100%, 75%, 50%, 25%, 10%) or specify one of frequently used values:

- Page Width
- Whole Page
- Two Pages
- Four Pages
- Many Pages (click the chart below and select the item you need)

If necessary, you can set a custom percent value using the **Percent** spinner control below.

The **Preview** area on the right illustrates the changes you have made.

See also: <u>Page Setup</u>483 <u>Report Formatter</u>490 <u>Print dialog</u>508

### 8.1.4.4 Print dialog

The standard **Print** dialog allows you to specify printing settings for the report in groups: *printer, page range, copies.* 

To open the dialog, click the **Print dialog**  $\stackrel{\text{dialog}}{=}$  button available on the <u>toolbar</u> (455), or use the Ctrl+P <u>shortcut</u> [1004].

🖨 Print	
Printer Name: Microsoft XPS Document Writer	✓ P <u>r</u> operties
Status: Status Type: Type Where: Where Comment: Comment Print to File	Net <u>w</u> ork ▼ <u>B</u> rowse
Page range All Current Page Pages: 1-2 Enter page number and/or page ranges separated by commas. For example: 1,3,5-12.	Copies Number of Pages: All Number of Copies: 1 Collate Copies 1 2 3 3
Page Setup	Print Close

When you are done, click the **Print** button to start printing.

If you need to change any page settings before printing, you can click the **Page Setup**... button at the bottom to call the <u>Page Setup</u> [483] dialog.

See also: <u>Page Setup</u>483 <u>Report Formatter</u>490 <u>Setting report options</u>50गी

## 8.1.5 BLOB View

SQL Manager for PostgreSQL provides BLOB Viewer/Editor to view and edit BLOB (Binary Large Object) columns content. The BLOB Viewer/Editor can be invoked from the data grid within <u>Table Editor</u> (177), <u>Query Data</u> (415), <u>Visual Design Query</u> (431), etc.

- Navigation within the BLOB Viewer/Editor
- <u>Viewing/Editing BLOB column as Hexadecimal dump</u>510
- Viewing/Editing BLOB column as plain Text 511
- Viewing/Editing BLOB column as Rich Text (RTF) 512
- <u>Viewing/Editing BLOB column as Image</u> 513
- Viewing/Editing BLOB column as HTML 515
- Viewing/Editing BLOB column as XML 516
- Viewing/Editing BLOB column as PDF 518
- Viewing/Editing BLOB column as JSON 519

📑 Table - [public.details] - [EMS on ayz]
🗄 🛢 Databases 🔻 🌾 🚍 🔁 🖶 😧 🖃 🚸 🔚 details 🔹 🧧
Columns Properties Foreign Keys Checks Indices Triggers Rules Policies Dependencies Data Description DDL <>
i H4 4 4 → → → H +
SQL Manager 🔹 🚰 🔚 🕹 🖓 🖓 🖓 🥱 🖓 🖶
Hexadecimal Text Rich text Image HTML XML PDF JSON
<image/>
V
Orid View Form View Print Date on the r
Grid view         Print Data         Blob View           Fetched: 0/0         78 ms         LIMIT 2000 OFFSET 0

 Availability:

 Full version (for Windows)
 Yes

 Lite version (for Windows)
 No

 Note: To compare all features of the Full and the Lite versions of SQL Manager, refer to the Feature Matrix [22] page.

### See also:

<u>Using Navigation bar and Toolbars</u> 45मे <u>Grid View</u> 457े <u>Form View</u> 479े <u>Print Data</u> 481े <u>Applying changes</u> 521े

#### 8.1.5.1 Navigation within BLOB Editor

The **BLOB Viewer/Editor** provides an ability to navigate within the records using **DB Navigation** buttons on the <u>navigation pane</u> 454 at the top of the viewer window.

Using items of the <u>navigation pane 454</u> and the drop-down menu you can browse the data quickly, insert, update and delete records, set a filter for the records using the <u>Filter</u> <u>Builder 524</u> dialog, load new BLOB content and save the current content to files.

The <u>toolbar</u>[455] allows you to switch the columns and perform a number of editing operations. The set of toolbar items depends on the current selection and view mode.



## See also:

Editing as Hexadecimal Editing as Text Editing as Rich Text Editing as Image For the second second second Editing as HTML Editing as XML Editing as PDF Editing as JSON Editing as JSON

## 8.1.5.2 Editing as Hexadecimal

The **Hexadecimal** tab allows you to view/edit the BLOB data as hexadecimal.

The <u>toolbar [455]</u> provides additional functionality for BLOB Viewer/Editor: use the **Save to file** and the **Load from file**  $\stackrel{>}{>}$  toolbar buttons to save the hexadecimal data to a file, or load data from a file.

Use the Ins key to switch between the Insert and Overwrite modes.

Colu <u>m</u> ns	Prope	rties	For	eign (	<u>K</u> eys	<u>C</u> h	ecks	Ind	lices	T <u>r</u> ig	ggers	R	ules	Pol	icies	Dep	endencies	D <u>a</u> ta	Description	DD <u>L</u>	Permissions
<b>HI 41</b>	• •	₩	HH .	+ -	-	< 2	×	*	*	7	Find	i:				5	à 📕 i 🗷	< 20	00 🗘 🖻		
SQL Ma	nagei			•	Ē		Ж				冒	Ŧ									
Hexadeci	imal	Text	R	lich te	ext	Image	e H	TML	X	ML	PD	F	JSON	1							
0x000:	3C	70	3E	0A	20	20	20	20	3C	73	70	61	6E	20	73	74		<sp< th=""><th>an st</th><th></th><th>~</th></sp<>	an st		~
0x010:	79	6C	65	3D	22	66	6F	6E	74	2D	66	61	6D	69	6C	79	yle="f	ont-f	amily		
0x020:	ЗA	20	27	56	65	72	64	61	6E	61	27	ЗB	20	66	6F	6E	: 'Ver	'dana	; fon		
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# See also:

<u>Navigation within BLOB Editor</u> <u>Editing as Text</u> <u>Editing as Rich Text</u> <u>Editing as Image</u> <u>Editing as HTML</u> <u>Editing as HTML</u> <u>Editing as XML</u> <u>Editing as PDF</u> <u>Editing as JSON</u> <u>Editing as JSON</u> <u>Editing as JSON</u> Editing as JSON

### 8.1.5.3 Editing as Text

The **Text** tab allows you to view/edit the BLOB data as plain text.

The toolbar [455] provides additional functionality for BLOB Viewer/Editor: use the **Save to file** and the **Load from file** is toolbar buttons to save the text to a \*.txt file, or load text from a file. Additionally, you can use the *Cut*, *Copy*, *Paste*, *Select All*, *Undo*, *Word Wrap* context menu items for editing the text efficiently, and the **Print** context menu item to print the content of the **Text** tab.

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# See also:

<u>Navigation within BLOB Editor</u> Editing as Hexadecimal Editing as Rich Text Editing as Image Editing as Image Editing as HTML Editing as ATML Editing as PDF Editing as JSON Editing as JSON Editing as JSON

### 8.1.5.4 Editing as Rich Text

The **Rich Text** tab allows you to view/edit the BLOB data in Rich Text format (RTF).

The <u>toolbar</u> [455] provides additional functionality for BLOB Viewer/Editor: use the **Save to file** and the **Context** to a **to file** toolbar buttons to save the Rich Text to a **to file**, or load text from a file. Additionally, you can use the *Cut, Copy, Paste, Select All, Undo* context menu items for editing the text efficiently, and the **Print** context menu item to print the content of the **Rich Text** tab.

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#### See also:

<u>Navigation within BLOB Editor</u> <u>Editing as Hexadecimal</u> <u>Editing as Text</u> <u>Editing as Image</u> <u>Editing as HTML</u> <u>Editing as HTML</u> <u>Editing as PDF</u> <u>Editing as JSON</u> <u>Editing as JSON</u>

### 8.1.5.5 Editing as Image

The **Image** tab allows you to view the BLOB data as image.

The <u>toolbar</u> [455] provides additional functionality for BLOB Viewer/Editor: use the **Save** to file and the **b** Load from file toolbar buttons to save the image to a \*.png, \*.wmf, \*. ico or \*.jpg file, or load an image from a file.



# See also:

<u>Na vigation within BLOB Editor</u> <u>Editing as Hexadecimal</u> <u>Editing as Text</u> <u>Editing as Rich Text</u> <u>Editing as HTML</u> <u>Editing as XML</u> <u>Editing as PDF</u> <u>Editing as JSON</u> <u>Editi</u>

#### 8.1.5.6 Editing as HTML

The **HTML** tab allows you to view the BLOB data as HTML (Hyper-Text Markup Language format) - in the way this data would be displayed by your Internet browser.

The <u>toolbar</u> [455] provides additional functionality for BLOB Viewer/Editor: use the **Save to file** and the **Load from file** P toolbar buttons to save the content as a \*.html, or \*. htm file, or load content from a file.

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See also: Navigation within BLOB Editor Editing as Hexadecimal Editing as Text STN Editing as Rich Text Editing as Image STA Editing as XML ETB Editing as PDF STA Editing as JSON STA

#### 8.1.5.7 Editing as XML

The **XML** tab allows you to view/edit the XML (eXtensible Markup Language) data.

The <u>toolbar</u> [455] provides additional functionality for BLOB Viewer/Editor: use the **Save to** file  $\boxed{1}$  and the **Load from file**  $\boxed{2}$  toolbar buttons to save the content as \*.xml or load XML content from a file.



The XML content is represented as a tree-like structure consisting four editable fields: **Name, Unique, Attributes** and **Value**. You can edit data and modify the structure using drag-n-drop operations and items of the context menu.

**Hint:** Hold the **Shift** key when you drag-and-drop a node to insert it as a child one.

The **context menu** allows you to:

- add a node (a child node relatively to the selected one);
- remove the selected node;
- copy the selected node source to clipboard;
- cut the selected node;
- copy the selected node;
- paste a node from clipboard.

Press the **Item attributes** item to add or edit attributes.

Item attributes									
Attribute	Value								
FieldName	EMP_ID								
DisplayLabel	EMP_ID								
FieldType	Integer								
FieldClass	TField								
+	OK Cancel								

Use the 🛨 🚍 buttons to add or remove an attribute. Click the required attribute name or value to edit.

# See also:

Navigation within BLOB Editor Editing as Hexadecimal চিগ্ Editing as Text চিগ Editing as Rich Text চিগ্ Editing as Image চিগ্ Editing as HTML চিগ্ Editing as PDF চিগ Editing as JSON চিগ

#### 8.1.5.8 Editing as PDF

The **PDF** tab allows you to view the BLOB data as PDF.

The <u>toolbar</u> [455] provides additional functionality for PDF Viewer/Editor: use the **J** Save to file and the **D** Load from file toolbar buttons to save the image to a \*.pdf file, or load file.



## See also:

Navigation within BLOB Editor 509 Editing as Hexadecimal 510 Editing as Text 511 Editing as Rich Text 512 Editing as Image 513 Editing as HTML 515 Editing as XML 516 Editing as JSON 519

#### 8.1.5.9 Editing as JSON

The **JSON** tab allows you to view the BLOB data as JSON.

The toolbar [455] provides additional functionality for BLOB Viewer/Editor: use the **Save** to file and the **Save from file** toolbar buttons to save the Rich Text to a \*.txt file, or load text from a file. Additionally, you can use the *Cut*, *Copy*, *Paste*, *Select All*, *Undo* context menu items for editing the text efficiently, and the **Print** context menu item to print the content of the **JSON** tab.

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### See also:

<u>Navigation within BLOB Editor</u> <u>Editing as Hexadecimal</u> <u>Editing as Text</u> <u>Editing as Rich Text</u> <u>Editing as Image</u> <u>Editing as HTML</u> <u>Edi</u> <u>Editing as XML</u>हाही <u>Editing as PDF</u> 518

# 8.1.6 Applying changes

After changes are done, click the **Post Edit**  $\checkmark$  button on the <u>navigation pane</u> to apply the changes or the **Cancel Edit**  $\checkmark$  button to discard the changes.



See also: Using Navigation bar and Toolbars Grid View बिउने Form View बिन्ने Print Data बिठी BLOB View बिठने

# 8.2 Custom Filter

The **Custom Filter** dialog is one of the <u>filtering</u> [463] facilities implemented in <u>Data View</u> [453] for your convenience.

To open the dialog, click the Arrow-Down button next to the column caption, and select the **Custom** item from the drop-down list.

Select a logical operator for checking the column values (*like*, *is less than*, *is greater than*, etc.) and set a value to be checked by this operator in the corresponding box on the right.

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If necessary, you can set the second condition and specify the relation between the two conditions: whether both of them should be satisfied (*AND*) or just any of them (*OR*). Use the '\_' character to represent any single symbol, and use the '%' character to represent any series of symbols in the condition string.

See also: Data View बिठ्ये Filter Builder dialog ब्रि2मे

# 8.3 Filter Builder dialog

The **Filter Builder** dialog is a powerful <u>filtering</u> [463] tool implemented in <u>Data View</u> [453] for your convenience.

The dialog is aimed at facilitating the procedure of creating and applying complex filter criteria for data. In addition, the tool allows you to save filter criteria to an external \*.flt file for future use.

To open the **Filter Builder** dialog, use the  $\square$  **Set filter** button on the navigation pane available within the <u>Data</u> 194 tab of <u>Table Editor</u> 177 and the **Result(s)** tabs of <u>Query Data</u> 415 and <u>Design Query</u> 431.

- Invoking the Filter Builder dialog 525
- Adding a new condition to the filter 527
- <u>Setting filter criteria</u> 528
- <u>Setting filter operator</u> 529
- <u>Setting filter criteria values</u>
- Adding a new group 531
- <u>Setting group operator</u> 532
- Applying filter conditions 533

See also: <u>Data View</u> 453 Custom Filter 522

# 8.3.1 Invoking the Filter Builder dialog

The **Filter Builder** dialog can be invoked in either of the following ways:

• if a <u>simple filter</u><sup>[463]</sup> or the <u>Custom Filter</u><sup>[522]</sup> is being used, click the **Customize...** button on the gray **filtering panel**;

Co	lu <u>m</u> ns Pr	operties	Foreign <u>K</u> ey	vs <u>C</u> hecks	Indices Triggers	Rules Policies	Dependencies	Data Description	DDL <u>P</u> <
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	2	58 28.12	2.2010	7	201,36	Delivery Truck	-284,4	20,98	Liz Willingham
	2	93 01.10	0.2012	49	10 123,02	Delivery Truck	457,81	208,16	Barry French
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	3	59 18.12	2.2009	30	3 659,66	Delivery Truck	-500,38	124,49	Cari Sayre
	3	34 02.03	3.2012	50	7 666,04	Delivery Truck	-1 820,84	146,05	Sonia Cooley
	4	17 05.02	2.2009	39	15 260,78	Delivery Truck	8 734,88	500,98	Robert Barros
	5	13 30.04	4.2011	33	5 437,92	Delivery Truck	-684,57	150,89	Arthur Priche
	6	14 30.11	1.2012	24	3 366,1	Delivery Truck	-335,317125	138,75	Dave Hallsten
	6	40 22.01	1.2010	39	4 913,69	Delivery Truck	-1 153,9	120,98	Tamara Chan
	6	44 30.04	4.2012	5	1 679,58	Delivery Truck	-171,92	320,98	Bill Eplett
	7	10 01.01	1.2010	29	4 192,88	Delivery Truck	731,32	145,45	Susan MacKe
	7	69 01.06	5.2010	37	4 261,94	Delivery Truck	4,15	115,99	Roy French
	8	34 22.05	5.2009	15	1 813,04	Delivery Truck	-164,3952	115,99	Eugene Morei
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• use the **Set filter ▽** button on the <u>navigation pane</u> 454 and create a composite filter using the dialog.

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The succeeding pages of this chapter are intended to illustrate usage of the **Filter Builder** dialog. Please see the instructions below to learn how to perform various operations in the easiest way.

See also: <u>Adding a new condition</u> <u>Setting filter criteria</u> <u>Setting filter operator</u> <u>Setting filter criteria values</u> <u>Setting filter criteria values</u> <u>53</u>0 Adding a new group 531 Setting group operator 532 Applying filter conditions 533

## 8.3.2 Adding a new condition

Suppose we need to select data from the sample table Employee to view the list of male engineers belonging to the *Engineering* and *Tool Design* departments that were hired after 10/1/2007. These criteria are applied to the *Gender*, *HireDate*, *Position* and the *DepID* columns.

Click **press the button to add a new condition** - this will add a new condition to the criteria. Alternatively, you can click the **Filter** button and select the **Add Condition** popup menu item.

Filter builder - [untitled.flt]	×
Filter AND <root></root>	
press the button to add a new condition	
OK Cancel Apply	

### See also:

<u>Invoking the Filter Builder dialog</u> [525] <u>Setting filter criteria</u> [528] <u>Setting filter operator</u> 529] <u>Setting filter criteria values</u> [530] <u>Adding a new group</u> [531] <u>Setting group operator</u> [532] <u>Applying filter conditions</u> [533]

# 8.3.3 Setting filter criteria

As we need to apply the filter criteria to the *HireDate* column, we click the column box (next to the ellipsis button) to open the drop-down list displaying the available column names and select the *HireDate* item.

Filter builder - [untitled.flt]	
Filter AND <root></root>	
HIRE DATE equals <empty></empty>	
Pres POSITION new condition	
FIRST_NAME	
LAST_NAME GENDER	
MARITAL_STATUS	
IS_ACTIVE	
SALARY	
MANAGER_ID	
Open         Save As         OK         Cancel         Apply	

# See also:

Invoking the Filter Builder dialog [523] Adding a new condition [527] Setting filter operator [529] Setting filter criteria values [530] Adding a new group [531] Setting group operator [532] Applying filter conditions [533]

# 8.3.4 Setting filter operator

Since we need the list of employees hired after 10/1/2007, we need to select the *IS* GREATER THAN operator from the corresponding drop-down list.

Filter builder - [untitled.flt]			<b>—</b>
Filter AND <root> HIRE DATE equals press the button to does no is less is less is great is blank is not b betwee not bett in not in</root>	<empty></empty>		
<u>Open</u>	ave As	OK Cancel	

## See also:

Invoking the Filter Builder dialog (528) Adding a new condition (527) Setting filter criteria (528) Setting filter criteria values (530) Adding a new group (531) Setting group operator (532) Applying filter conditions (533)

# 8.3.5 Setting filter criteria values

Next, we need to specify value '10/1/2007' for the IS GREATER THAN operator.

Similarly, if, for example, we need to get the list of employees hired during the 9/1/2007 - 10/1/2007 term, we set the BETWEEN filter operator [529] (this will add two empty value boxes to specify the inclusive range for the BETWEEN condition) and specify the range for the operator, i.e. the '9/1/2007' and the '10/1/2007' values in the corresponding value boxes.

It is possible to set the date value **manually** by typing it in, or using the **date editor** which is activated when you click the value box.

Filter builder - [untitled.flt]		×
Filter AND <root></root>		
HIRE DATE is greater than		
press the button to add a new cond		
	30 1 2 3 4 5 6	
	7 8 9 10 11 12 13	
	21 22 23 24 25 26 27	
	28 29 30 31 1 2 3	
	Today Clear	
Open Save As	OK Cancel <u>Apply</u>	

Editors used in value boxes are determined by the **data type** assigned to the corresponding columns.

# See also:

Invoking the Filter Builder dialog [525] Adding a new condition [527] Setting filter criteria [528] Setting filter operator [529] Adding a new group [531] Setting group operator [532] Applying filter conditions [533]

# 8.3.6 Adding a new group

Since we also need to get the list of male specialists-engineers (i.e. those registered in the *Engineering* and *Tool Design* departments and having an engineering-oriented position), we can add a complex filter condition combining simple conditions with the *AND* operator. (However, in this particular case we can just add them at the same root level as for the existing condition).

If you need to add a group of conditions, click the ellipsis button for the *HIRE\_DATE* condition and select the **Add Group** popup menu item.

Filter builder - [untitled.flt]	×
Filter AND <root></root>	
HIRE DATE is greater than 10/1/2007	
Add Condition Idition	
Add Group	
Remove Row	
Open Save As OK Cancel Apply	

# See also:

Invoking the Filter Builder dialog [528] Adding a new condition [527] Setting filter criteria [528] Setting filter operator [529] Setting filter criteria values [530] Setting group operator [532] Applying filter conditions [533]

# 8.3.7 Setting group operator

Conditions of complex criteria can be combined with any of the four logical operators used: *AND*, *OR*, *NOT AND*, *NOT OR*.

In our case it is enough to click the **group operator** box and select the *AND* item from the drop-down menu.

Filter builder - [untitled.flt]	x
Filter AND <root> HIRE DATE is greater than 10/1/2007 AND applies to the following conditions AND D equals <empty> NOT AND putton to add a new condition NOT OR</empty></root>	
Open         Save As         OK         Cancel         Apply	

## See also:

Invoking the Filter Builder dialog 528 Adding a new condition 527 Setting filter criteria 528 Setting filter operator 529 Setting filter criteria values 530 Adding a new group 531 Applying filter conditions 533

## 8.3.8 Applying filter conditions

Suppose we have created a condition within the new group. If we need, we can <u>add more</u> <u>conditions</u> at the same level and specify the required values using the value boxes. When the operation is completed, the **Filter Builder** dialog will look like in the screenshot below.

Click the **Apply** button to see the result of the filtering you have made, and click **OK** or **Cancel** to close the dialog with or without saving your filter conditions respectively.

Filter builder - [untitled.flt]	×
Filter AND <root></root>	
HIRE DATE is greater than 10/1/2007	
AND applies to the following conditions	
GENDER equals M	
POSITION like %Engineer%	
<u>DEPT ID</u> <u>in</u> (1, 2) +	
press the button to add a new condition	
Open Save As OK Cancel Apply	

The **Filter Builder** dialog allows you to save filter criteria to and load them from external files. Clicking the **Save As...** or the **Open...** buttons activates the corresponding dialogs. Filter settings are stored in \*.*flt* files.

Please be informed that a column in the file is referenced by its position within a view, hence filter settings cannot be correctly restored if columns have been deleted from the view after saving the filter to a file.

See also: Invoking the Filter Builder dialog ଜିଅରି Adding a new condition ଜିଅମି Setting filter criteria ଜିଅଷି Setting filter operator ଜିଅଷି Setting filter criteria values ଜିଅଷି Adding a new group ଜିଅମି Setting group operator ଜିଅଅ



# 9 Import/Export Tools

Using SQL Manager for PostgreSQL you are provided with powerful tools to import and export data to/from your PostgreSQL database.

### Export Data Wizard 536

Exports data to various supported formats including *MS Excel*, *MS Access*, *RTF*, *HTML*, *PDF*, *CSV*, *XML* and more.

### Import Data Wizard 582

Imports data from any of supported formats: *MS Excel, MS Access, DBF, TXT, CSV, XML* and more.

### Export Data as SQL Script 608

Exports data to an SQL script as a number of INSERT statements.

### Save Data Wizard 617

Saves data to an external file with the COPY statement used.

### Load Data Wizard 626

Loads data from an external file with the COPY FROM statement used.

### Using templates 982

Facilitates using import/export wizards.

## See also:

<u>Getting Started</u> 39 <u>Database Explorer</u> 65 <u>Database Management</u> 87 <u>Database Objects Management</u> 175 <u>Change Management</u> 344 <u>Query Management Tools</u> 413 <u>Data Management</u> 452 <u>Database Tools</u> 638 <u>Services</u> 77 <u>1</u> <u>Options</u> 870 How To... 1008

# 9.1 Export Data Wizard

**Export Data Wizard** allows you to export data from a <u>table</u> real / <u>view</u> 22 of from a query result to any of supported formats (*MS Excel, MS Access, MS Word, RTF, HTML, PDF, TXT, CSV, XML, DBF,* etc.). You can save your settings as a <u>template</u> any time for future use.

To start the wizard, right-click the object in <u>DB Explorer</u> [65] and select the **Data Manipulation** | **Export Data...** context menu [57] item.

Alternatively, you can open the **Data** tab of <u>Table Editor</u> (77) / <u>View Editor</u> (22) or the **Result** (s) tab of <u>Query Data (415)</u> / <u>Design Query</u> (31), right-click the <u>grid</u> (457) there and select the **Data Manipulation** (**Section 2**) tab of **Context menu** (466) item.



- Setting name and format for the destination file 538
- <u>Selecting columns for export</u> 539
- Adjusting formats applied to exported data 540
- Setting header and footer text for the destination file 541
- <u>Setting format-specific options</u> 542
- <u>Setting common export options</u> 579
- Exporting data 581

### Availability:

Full	version	(for	Windows)	Yes
Lite	version	(for	Windows)	No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

# See also:

<u>Import Data Wizard</u> हिन्दी <u>Export as SQL Script</u> हिण्डे <u>Save Data Wizard</u> हिन्दी <u>Load Data Wizard</u> हिन्दी <u>Using templates</u> हिन्दी

## 9.1.1 Setting destination file name and format

This step of the wizard allows you to select the destination file format you need to export data into.

### **Destination format**

Specify the format of the destination file. For details refer to Supported file formats [983].

Click the **Next** button to proceed to the <u>Selecting columns for export</u> and step of the wizard.

Export Data Wizard - [DVDRENT on localhost:54396(1)] - 🗆 🗙				
Data Wizard - Export Data				
Specify destination file na	ame and format for exporting	g your data		
<u>7</u>	Welcome to the Export Da This wizard allows you to Excel, MS Access, HTML, Destination format	ta Wizard! export table data to most p XML, PDF and much more.	opular data formats, such as MS	
	O MS Excel	• Text file	O MS Excel 97-2003	
901	O MS Word	◯ CSV file	O MS Word 97-2003	
Manager	○ MS Access	○ RTF	O MS Access 97-2003	
for	ODF Spreadsheets	○ HTML	O DIF file	
PostgreSQL	ODF Text		O SYLK file	
	ODBF	◯ XML	◯LaTeX	
	Destination file name			
	C:\Users\nb\Documents\SQL Manager for PostgreSQL\Exports\DVDRENT on loca			
Help Templates	▼< <u>B</u> a	ack <u>N</u> ext >	Run Cancel	

## **Destination file name**

Type in or use the button to specify the path to the file using the **Save as...** dialog. The file name extension changes automatically according to the selected **Destination** format.

**Note:** If the target file already exists, the application will show a <u>warning</u> dialog where you can choose the action you need.

# 9.1.2 Selecting columns for export

This step of the wizard allows you to select the table column(s) to be exported. To select a column, you need to move it from the **Available columns** list to the **Selected columns** list. Use the **Selected columns** list to move the columns from one list to another.

Export Data Wizard - [EM	S on ayz]		_		×
Data Wizard - Export Data					
Select columns for expor	ting. If none of columns are selected, all	of then	n except BLOBs wil	l be exported	
	<u>C</u> olumns for exporting				
	Available columns	]	Selected columns		^
	id		customer_nun	nber	
	auto_increment		first_name		
SOL		»	last_name		
Manager			company		
for			legacy password	vord	
PostgreSQL		$\leq$	legacy_passi	er	
		<b>«</b>	email		
			title		
			active		
			doubleoptinreg	gistration	~
Allow captions					
Help Templates	▼ < <u>B</u> ack	<u>N</u> ext :	> <u>R</u> un	Can	cel

If you leave all the columns in the **Available columns** list, all columns of the table (except BLOBs) will be exported.

## Allow captions

Check this option if you need to export the column captions as well.

Click the **Next** button to proceed to the <u>Adjusting data formats</u> [540] step of the wizard.

# 9.1.3 Adjusting data formats

This step allows you to customize formats applied to exported data.

### **Data formats**

Edit the format masks to adjust the result format in the way you need: Integer, Float, Date, Time, DateTime, Currency, Boolean True, Boolean False, NULL string, Decimal separator, Thousand separator, Date separator, Time separator.

Export Data Wizard - [TestDB on ayz2:54383]					
Data Wizard - Export Da	Data Wizard - Export Data				
Adjust formats for exported	d data if necessary				
	Data formats	]			
	Integer format	# ### ##0			
	Float format				
	Date format	dd.MM.yyyy			
801	Time format	h:mm			
Manager	DateTime format	dd.MM.yyyyy h:mm			
for	Currency format				
PostgreSQL	Boolean True	true			
	Boolean False	false			
	Null string	nul			
	Decimal Separator	Thousand Separator			
	Date Separator	Time Separator			
<u>H</u> elp <u>T</u> emplates ▼ < <u>B</u> ack <u>N</u> ext > <u>R</u> un Close					

**Hint:** The formats used by default are specified in the <u>Data Export</u> [506] section of the <u>Environment Options</u> [371] dialog.

For more details refer to Format specifiers 978.

Click the **Next** button to proceed to the <u>Setting header and footer</u> step of the wizard.
# 9.1.4 Setting header and footer

Set **Header text** and **Footer text** for the result file. This text will appear at the beginning and at the end of the result file respectively.

📑 Export Data Wizard - [TestDB on ayz2:54383]				
Data Wizard - Export Da	ta			
Define headers and foote	rs for the result files			
	Header text			
SQL	Export from Country	*		
Manager	4	4		
PostgreSQL	Footer text			
	SQL Manager for PostgreSQL	<u></u>		
	•	- F		
Help Templates	I < <u>Back</u> <u>Next</u> > <u>Run</u>	Close		

Click the **Next** button to proceed to <u>Setting format-specific options</u> 542.

# 9.1.5 Setting format-specific options

This step of the wizard allows you to customize Format-specific options:

- Excel 97-2003 options 543
- Access options 558
- <u>RTF options</u> 559
- HTML options 562
- PDF options 568
- TXT options 570
- CSV options 571
- XML options 572
- MS Excel / ODS options 573
- MS Word / ODT options

To get more information about the file formats, see the <u>Supported file formats</u> page.

## 9.1.5.1 Excel 97-2003 options

This step allows you to set options for the target **MS Excel 97-2003** (\*.xls) file.

You can customize **Data format**, **Extensions** and set **Advanced** options available within the corresponding tabs:

- Data format 544
- Extensions 548
- Advanced 557

Export Data Wizard - [EM	🕆 Export Data Wizard - [EMS on ayz] — 🗌 🗙						
Data Wizard - Export Data	003 export options						
Customize mo Excerbir-z	ous export options.						
	Data format Extensions Ad	vanced	d				
	Columns Options Styles		Eont Borders Fill Aggregate				
	customer_number	^	Foot				
	first_name		Anal V				
	last_name		Size 10 V				
SQL	company		A B I S U U V V				
Manager	password						
Tor PostareSQI	legacy_password						
. congreed	legacy_encoder						
	active						
	doubleoptinregistration		Aa Zz				
	doubleoptinemailsentdate		Depart Ham Depart All				
	doubleontinconfirmdate	¥	Reset item Reset All				
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack		Next > Run Cancel				

9.1.5.1.1 Data format

The **Data Format** tab contains general options which allow you to adjust the format for each kind of Excel cells. This means that you can specify such parameters as *font*, *borders*, *filling color* and *method*, etc. for each entity (such as *data column*, *header*, *footer*, *caption*, *data*, *hyperlink* and so on) separately. Also it is possible to create styles to make the target Excel file striped by columns or rows.

- Columns 544
- Options 546
- <u>Styles</u> 547

For your convenience the previews illustrating the changes are displayed in the **Sample Group** area on each page of **Data Format** tab.

9.1.5.1.1.1 Columns

Using the **Columns** tab you can set *font* options, *border* and *fill* options and *aggregate functions* for all the **columns** you want to export.

The **Font** tab allows you to specify properties of the font that will be used in the output Excel file cells.

Use the **Font** and **Size** drop-down lists to select the *font* and *size* to be applied to the output text.

Use the buttons below to set *font color*, make text *bold*, *italicized*, *strikethrough* text, set *underline* effects, specify text *horizontal* and *vertical align*.

<u>D</u> ata forma	t E <u>x</u> tens	sions	Advanced						
Columns	Options	Styles	3	<u>F</u> ont	Borde	rs	F <u>i</u> ll	Aggregate	
custor first_n last_na compa	ner_numb ame ame Iny vord	er	^	Font Size A	B I	74 An	rial	¥ ¥	≻
legacy email title	_pussific								
double	optinregis optinemai	stration Isentda	ite 🗸	Aa Z	Z Reset Ite	em		Reset	All

The **Borders** tab allows you to specify properties of the borders of the output Excel file cells.

Press the 🔳 🗒 🗒 buttons on the left to show/hide the borders they indicate.

Use the drop-down list for each border to select the *line type* and the  $\rightarrow$  button on the right to select the *line color* for each border.

<u>F</u> ont	Borders	Fill	Aggregate	•
l I IAa Zz				
R	eset Item		Rese	t All

The **Fill** tab allows you to specify the fill pattern for the output Excel file cells.

Use the drop-down list to select the preferable fill pattern type.

Press the <sup>2</sup>/<sub>2</sub> button on the left to set the background color for the fill pattern. Press the <sup>2</sup>/<sub>2</sub> button on the right to set the foreground color for the fill pattern.

<u>F</u> ont	Borders	Fill	Aggregate	
	10000000000			
				1 <b>                                    </b>
				ļ
Aa Zz				
R	eset Item		Reset	Al

The **Aggregate** tab allows you to specify an aggregate function for the field in the output Excel file.

Select a **function** that will be applied to the field: **Output Output Output
<b>Output
<b>Output
<b>Output
<b>Output Output Output
<b>Output Output Output<** 

- AVG
- MAX
- SUM
- MIN

<u>F</u> ont	Borders	Fill	Aggregate	L
Fund	tion			
© N	one	O AVG	© MA	x
S	UM	© MIN		
1				
<mark>i</mark> Aa Zz				
R	eset Item		Reset	Al

You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

## 9.1.5.1.1.2 Options

Using the **Options** tab you can set *font* options, *border* and *fill* options for all **elements** of the Excel sheet (*header*, *caption*, *footer*, *aggregates* and *hyperlinks*).

Data format Extensions Advan	ced
Columns Options Styles	Font Borders Fill
HEADER CAPTION AGGREGATE FOOTER HYPERLINK	Font     The Arial       Size     10       A     B       I     S       U     U       U     U       U     U       U     U       U     U       U     U       U     U       U     U
	Aa Zz Reset Item Reset All

The **font**, **borders** and **fill** options are specified in the same way as for output **Columns**. For details refer to the <u>Columns</u> [544] page.

You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

9.1.5.1.1.3 Styles

Using the **Styles** tab you can make a style template: set *font* options, *border* and *fill* options and save them.

To add a style template, click the **Plus** + button. To delete a style template, select it and click the **Minus** - button. To reorder style templates in the list, use the • • buttons. To load a style template, click the <sup>D</sup> button. To save the current style template, click the <sup>J</sup> button.

If you have created or loaded more than one style template, they can be ignored, or used *column-by-column* or *row-by-row* (it depends on the **Strip type** selection).

<u>D</u> ata format	E <u>x</u> tens	ions	Advanced							
Columns (	Options	Style	s	<u>F</u> ont	Bord	ers	F <u>i</u> ll			
+ - (				Font Size A	B	<b>T</b> 10 I	Arial	¥ (	<u>Y</u> <u>Y</u>	~
Strip style	9 () Col	0	Row	Aa Z	Z Reset II	tem		Res	set All	

The **font**, **borders** and **fill** options are specified in the same way as for output **Columns**. For details refer to the <u>Columns</u> [544] page.

You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

#### 9.1.5.1.2 Extensions

The **Extensions** tab provides an ability to add <u>hyperlinks</u> and <u>notes</u> and to any cell of the target file, to specify a value of a cell, to create a <u>chart</u> and to <u>merge cells</u> and to <u>merge cells</u>.

Click the **+ Plus** button to add an element; click the **- Minus** button to delete an element.

- Hyperlinks 548
- <u>Notes</u>549
- Charts 551
- <u>Cells</u>554
- Merged Cells 555

#### 9.1.5.1.2.1 Hyperlinks

If you need to create a **hyperlink**:

- set the cell coordinates (Col and Row);
- specify whether this is a *local* link or URL;
- enter the *title* of the hyperlink;
- specify the *target* file location or address.

Data format Extensions	Advanced
Data format Extensions	Advanced Col 0 VRL Row 0 VRL Col 1 O V Col 0 VRL Col 1 O V Col 1 O V C

Use the **Col** and **Row** spinner controls to specify the column and row for the hyperlink in the output file.

The **Style** group allows you to select the preferable hyperlink style: **URL** 

Iccal file (i.e. the file is located on your local machine or on a machine in the LAN)

Use the **Title** box to specify the hyperlink name.

The **Target** box lets you enter the path to the target file or URL. Use the 🙆 button to

check whether the specified location is available.

9.1.5.1.2.2 Notes

If you need to create a **note**:

- set the cell coordinates (*Col* and *Row*);
- enter *text* of a note for the cell;
- set the *font* and *fill* properties using the corresponding tabs.

The **Base** tab allows you to specify basic properties of the note to be added to the output Excel file.

Use the **Col** and **Row** spinner controls to specify the column and row for the note in the file.

Use the edit-box below to enter the text of the note.

Data format Extensions Adva	anced
+ -	Base Font Fill
W Hyperlinks     W Hyperlink_1     W Hyperlink_2	Col 0 💌 Row 0 💌
Dotes	Text
Note_1 Note_2 Charts Cells Merged Cells	Text of a note

The **Font** tab allows you to specify properties of the font that will be used for the note.

Use the **Font** and **Size** drop-down lists to select the *font* and *size* to be applied to the output text.

Use the buttons below to set *font color*, make text *bold*, *italicized*, *strikethrough* text, set *underline* effects, specify text *horizontal* and *vertical align*.

The **Orientation** group allows you to select the note text orientation:

- No rotation
- Top to bottom
- Counterclockwise
- Clockwise



The **Fill** tab allows you to specify the fill type and transparency for the note.

The **Fill Type** group allows you to select whether the fill color will be **solid** or **gradient**: Interpretation

- Vertical
- Diagonal up
- Diagonal down
- From corner
- From center

Press the 🅍 button to set the background color for the fill pattern.

Press the 🎽 button to set the foreground color for the fill pattern.

The **Transparency** control allows you to set the transparency degree for the note. Move the slider between the **0%** and **100%** threshold values to select the required transparency value within this scope.



#### 9.1.5.1.2.3 Charts

If you need to create a **chart**:

- enter the chart *title*;
- select the chart style;
- set the legend position;
- specify if you want to show the legend;
- specify if you want to set the chart color automatically;
- define the chart *position* and *category labels* using the corresponding tabs.

The **Base** tab allows you to specify basic properties of the chart to be added to the output Excel file.

Use the **Title** box to specify the chart name.

Use the **Style** drop-down list to select the preferable chart style (*Column, Column 3D, Bar, Bar 3D, Line, Line Mark, Line 3D*, etc.).

The **Legend position** group allows you to specify position of the chart legend:

- Bottom
- 🖲 Тор
- 🧿 Left
- Orner
- Right

#### Show legend

This options specifies whether the chart legend will be visible or not.

## Auto color

If this option is selected, each series will be automatically differentiated with different colors on the chart, otherwise one color will be applied for all series.



The **Position** tab allows you to specify properties pertaining to the chart position on the output file sheet.

#### 💿 Auto

Specifies automatic position of the chart.

The **Placement** group allows you to specify the chart position relative to the data:

- Bottom
- 🧕 Right

Use the **Left** and **Top** spinner controls to specify the spacing between the chart and data at the left and at the top respectively.

Use the **Height** and **Width** spinner controls to specify the chart *height* and *width* respectively.

### 🖲 Custom

Specifies absolute position of the chart (irrelative to the data). Use the spinner controls to set the coordinates you need.



The **Category Labels** tab allows you to specify in which rows and columns the chart will be built.

## 🖲 Colum n

Use the drop-down list to select the column that will be used to take values for x-axis.

#### 💿 Custom

Specify the range of cells from which x-axis values will be taken. Use the spinner controls to set the range you need.



To build a chart, you also need to create series that will be used to take values for y-

axis. To add **series** for the chart:

- add one or more series using the + button;
- enter the *titles*;
- set data ranges (select a column from the drop-down list or set the custom range);
- define colors for all the graphs.

Use the **Title** box to specify the series name.

### Data range

```
Column
```

Use the drop-down list to select the column that will be used to take values for the series.

Custom

Specify the range of cells from which the series will be formed. Use the spinner controls to set the range you need.

Press the 🕍 button to set the color for the series.

Data format Extensions Adva	nced
+ -	Title Series_1
Hyperlinks	Data range
I ⊕ I lotes	Olumn
🖻 🋄 Charts	DEPT_ID 💌
🖻 🛄 Chart_1	Custom
🖻 🔝 Series	Col 1 0 🔶 Col 2 0 🔶
Series_1	Row 1 0 🚔 Row 2 0 🚔
merged Cells	ab/

#### 9.1.5.1.2.4 Cells

If you need to add a value in a specific cell:

- set the cell coordinates (Col and Row);
- select the cell type;
- enter a value;
- if you are adding a numeric or a date/time value, you can set the cell format;
- set the *font*, *borders* and *fill* properties using the corresponding tabs.

Data format Extensions Advan	nced	
+ -	Base <u>F</u> ont	Borders Fill
🗄 🕅 Hyperlinks	Col	1 - Row 1 -
Notes	Cell type	Numeric
en Cells	Value	47
	- Formats	
	Date time	dd.MM.yyyy n:mm:ss
Merged Cells	Numeric	###,###,#0.00
	Aa Zz	

The **Base** tab allows you to specify basic properties of the cell.

Use the **Col** and **Row** spinner controls to specify the column and row denoting the cell. Use the **Cell type** drop-down list to select the data type for the cell (*Boolean*, *DateTime*, *Numeric* or *String*).

Set the required value in the **Value** edit box.

The **Formats** group allows you to specify data format for numeric or a date/time types.

The **font**, **borders** and **fill** options are specified in the same way as for output **Columns**. For details refer to the <u>Columns</u> [544] page.

#### 9.1.5.1.2.5 Merged Cells

If you want to merge two or more cells, set the range of cell coordinates: *First col, Last col, First row, Last row*. Use the spinner controls to set the range you need.

Data format Extensions Adva	nced	
+ -		
🗄 🕅 Hyperlinks	First col	0
Notes	Last col	0
E El Cells	First row	0
Merged Cells		
Merged Cells 1	Last row	0
Merged Cells 2		

#### 9.1.5.1.3 Advanced

The **Advanced** tab allows you to set a number of advanced options to be applied to the result MS Excel file.

### Page header

If necessary, enter some text for the page header.

### Page footer

If necessary, enter some text for the page footer.

**Hint:** It is also possible to set macros in the **Page header** and **Page footer** fields: *&N* stands for the quantity of pages; *&P* - the number of the current page.

### Sheet title

Specify the sheet title for the target file.

## Page background

If necessary, use the **Ellipsis** button to browse for a graphical file to be applied as the page background.

Data format Extensions A	dvanced				
Page header	Export data				
Page footer	Page &P of &N				
Sheet title	Sheet 1				
Page background					
Calculate column width a	utomatically				

## Calculate column width automatically

This option allows the wizard to determine column width in the target file automatically according to column size.

## 9.1.5.2 Access options

This step allows you to set options for the target **MS Access** (\*.*mdb*, \*.*accdb*) file.

Set the name for the target table and specify whether the wizard should **create a new table** in the MS Access database if it does not exist yet, or use the existing table to export data into.

📑 Export Data Wizard - [TestE	🕆 Export Data Wizard - [TestDB on ayz2:54383]				
Data Wizard - Export Da	Data Wizard - Export Data				
Customize MS Access exp	ort options.				
SQL Manager for PostgreSQL	Table options Table name EXPORT_TABLE Create new table if it does not exist				
Help Templates	▼ < <u>B</u> ack <u>N</u> ext > <u>R</u> u	n Close			

## 9.1.5.3 RTF options

This step allows you to set options for the target **Rich Text Format** (\*.*rtf*) files.

- Base Styles 560
- Strip Styles 561

For your convenience the previews illustrating the changes are displayed in the **Sample Group** area within the *Base Styles* and the *Strip Styles* tabs.

📑 Export Data Wizard - [TestDB o	n ayz2:54383]					
Data Wizard - Export Data	Data Wizard - Export Data					
Customize MS Word (RTF) exp	port options.					
E SQL Manager for PostgreSQL	Base Styles Strip Styles	Font The Arial   Size 10     Image: State of the				
		Aa Zz				
	Page orientation					
	Portrait () Landscape	Reset Item Reset All				
Help Templates	< <u>B</u> ack	Next > Run Close				

#### 9.1.5.3.1 Base Styles

The **Base Styles** tab contains the list of target file entities: HEADER, CAPTION, DATA, FOOTER. You can customize style options, such as font and size, background and foreground colors, text alignment, etc. for each of them by clicking the corresponding item in the list and setting the options in the right-side panel. You can also switch page **orientation** for the target Word/RTF file using this tab.

Base Styles Strip Styles HEADER CAPTION DATA FOOTER	Font The Arial   Size 10     A B   B S   U E     B   V   Highlight   Background
Page orientation     Portrait     Candscape	Aa Zz Reset Item Reset All

Use the **Font** and **Size** drop-down lists to select the *font* and *size* to be applied to the text.

Use the buttons below to set font color, make text bold, italicized, underlined, strikethrough text, specify horizontal align.

## Highlight

Enables/disables text highlight.

### Background

Enables/disables background for text.

Press the 🎽 button to set the background color for the text.

Press the 🕍 button to set the highlight color for the text.

You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

9.1.5.3.2 Strip Styles

Using the **Strip Styles** tab you can create a style template: set *font*, *size*, *background* and *foreground colors*, *text alignment*, *highlight* and save them.

To add a style template, click the **Plus** + button.

To delete a style template, select it and click the **Minus** – button.

To reorder style templates in the list, use the 0 0 buttons.

To load a style template, click the 🏓 button.

To save the current style template, click the 🖬 button.

If you have created or loaded more than one style template, they can be ignored, or used *column-by-column* or *row-by-row* (it depends on the **Strip type** selection).

Base Styles Strip Styles	Font The Broadway   Size 14     A B   B S   U E     M     V   Highlight   Background
Strip type	Aa Zz
None Col Row	Reset Item Reset All

You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

## 9.1.5.4 HTML options

This step allows you to set options for the target **HTML** (\*.*html*) file.

- Preview 563
- Basic 564
  Multi-file 565
- Advanced 567

🗣 Export Data Wizard - [TestDB on ayz2:54383]					
Data Wizard - Export Data	I.				
Customize HTML export opt	ions.				
	Preview Basic	Multi-file <u>A</u> dva	anced		
20	Default text			Template	
	Num	Name	Age	Classic	
801	1	John	34		
Manager	2	Marcella	27	Save template	
for	3	Alex	25	Load template	
PostgreSQL	4	Julia	48		
	Non-visited	link Visited	link Active lini	c	
<u>H</u> elp <u>T</u> emplates ▼ < <u>B</u> ack <u>N</u> ext > <u>R</u> un Close					

9.1.5.4.1 Preview

The **Preview** tab allows you to customize the style that will be applied to the target HTML file using a number of built-in templates provided in the **Templates** drop-down list.

<u>P</u> review	<u>B</u> asic	Multi-file	Advance	ed		
Defau	ilt text					Template
Nu	IM	Nam	e		Age	Olive 💌
1		John		34		
2		Marcella		27		Save template
3		Alex		25		Load template
4		Julia		48		
Non-v	/isited l	ink Vis	sited link	k	Active link	

You can select any of the pre-defined templates and customize it by clicking objects in the preview panel, and save the settings as a custom template using the **Save template...** button. Use the **Load template...** button to load a previously saved custom template from your hard disk.

Click on an element of the table to select the color that will be applied for this element ( background, font, header row, odd row, even row, non-visited link, visited link, active link ). 9.1.5.4.2 Basic

The **Basic** tab allows you to specify the basic parameters of target HTML file:

- specify the title of the result file;
- select whether the cascade style sheet (CSS) should be internal or external (the Ellipsis button to browse for a \*.css file);
  determine whether boolean columns of the table should be exported as HTML check
- boxes.

Preview Basic Multi-file	Advanced			
Title Film Cascade style sheet opt	ions			
CSS file name	Export.css			
Export boolean fields as HTML check boxes				

#### 9.1.5.4.3 Multi-file

The **Multi-file** tab provides you with an ability to split the target HTML file into several separate files. This tab allows you to specify the *record count* for a single file, set an option *to generate an index HTML file*, and add an ability to navigate between the exported files.

Preview Basic	Multi-file Advanced						
Multi-file export	evnort						
Record(s) in	Record(s) in a single file						
Cenerate i	ndex	Prefix	Page_				
Navigation							
On top	On bottom	Prior link	Prior				
Index link	Index	Next link	Next				
First link	First	Last link	Last				

### **Multi-file export**

#### Use multi-file export

Enables/disables the multi-file export feature.

### Record(s) in a single file

Use the spinner controls to specify the number of records to be exported into each of the files.

### Generate index

Specifies that an index file containing links to all the data files will be generated. Use the edit-box next to the checkbox to set a name for the index file.

#### Navigation

This group allows you to specify properties for navigation elements, i.e. the elements that provide quick access to pages of the multi-file document. Navigation is implemented as a set of hyperlinks.

#### On top

Specifies that the hyperlinks will be placed at the top of the page.

## On bottom

Specifies that the hyperlinks will be placed at the bottom of the page.

Use the Index link, First link, Prior link, Next link and Last link boxes to specify

captions for the corresponding navigation elements.

#### 9.1.5.4.4 Advanced

The **Advanced** tab allows you to set a number of advanced options to be applied to the result HTML file.

Default font	The Arial
Background	D:\EMS_logo.bmp
Advanced attributes	
Table Options	
Cell padding	4
Cell spacing	1
Border	1
Background	D:\Export_to_HTML_background.jpg
Advanced attributes	

### **Body options**

#### Default font

Use the drop-down list to select the font that will be used in the result file by default.

#### Background

If necessary, use the **Ellipsis** button to browse for a graphical file to be applied as the page background.

## **Table options**

Use the spinner controls to specify common table options: **cell padding**, **cell spacing**, **border**.

## Background

If necessary, use the **Ellipsis** button to browse for a graphical file to be applied as the table background.

It is also possible to define **advanced attributes** for both the HTML body and table.

### 9.1.5.5 PDF options

This step allows you to set options for the target **PDF** (\*.pdf) file.

#### Fonts

This group of options allows you to customize fonts for the *header*, *caption*, *data*, *footer* of the result file.

Use the **Base font name** and **Font encoding** drop-down lists to select the preferable font (*Helvetica, Courier, Times Roman*, etc.) and encoding (*Standard, WinANSI, MacRoman, PDFDoc*) respectively, and the **Font size** spinner control to specify the font size.

Click the **Font color...** button to select the color to be applied to the font.

For your convenience the preview illustrating the changes is displayed in the **Sample** area.

📲 Export Data Wizard - [TestDB on ayz2:54383]					
Data Wizard - Export Da	ta				
Customize PDF export opt	ions.				
	Header Font Caption Font Data Font Footer Font	Base font name Font encoding Font size	Helvetica  WinAnsiEncoding 10 Sample		
SQL Manager for PostgreSQL	Page options Page size Width Height Units Orientation	A4	Margins Left 0 Right 0 Top 0 Bottom 0		
	Grid options Col spacing 3	Row spacing 1	Line width		
<u>H</u> elp <u>T</u> emplates	•	Back Next >	Run Close		

### Page options

Use the **Page size** drop-down list to select one of the standard page formats (*Letter*, *Legal*, *A3*, *A4*, etc.).

Use the **Width** and **Height** spinner controls to specify the page *width* and *height* respectively.

Use the Units drop-down list to select the unit of measure that will be used in report

settings: inches, millimeters, or dots.

Use the **Orientation** drop-down list to select the preferable page orientation: *portrait* or *landscape*.

## Margins

Use the **Left**, **Right**, **Top**, **Bottom** spinner controls to specify the corresponding page margins for the output PDF file.

### **Grid options**

Use the **Col spacing**, **Row spacing**, **Line width** spinner controls to specify spacing for grid columns, rows, and grid line width respectively.

## 9.1.5.6 TXT options

This step allows you to set options for the target **text** (\*.*txt*) file.

Set the **Calculate column width** option on if you want each column of the target file to be adjusted to the maximum number of characters in it. The **Spacing** option specifies the number of spaces between columns in the target file.

Export Data Wizard - [TestDB on ayz2:54383]				
Data Wizard - Export Dat	Data Wizard - Export Data			
Customize TXT export optic	Customize TXT export options.			
	TXT options	Spacing 1		
SQL Manager for PostgreSQL				
Help Templates	▼ < <u>B</u> ack <u>N</u> ext >	Run Close		

## 9.1.5.7 CSV options

This step allows you to set options for the target **CSV** (\*.*csv*) file.

## **Quote strings**

Check this option to apply quoting for string values in the target file.

Specify the column separator using the **Comma** drop-down list and the preferable quote character using the **Quote** drop-down list.

📑 Export Data Wizard - [TestDB on ayz2:54383]			
Data Wizard - Export Data			
Customize CSV export opti	ons.		
	CSV options       Quote strings     Quote captions       Quote     "	Comma ;	
SQL Manager for PostgreSQL			
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>N</u> ext >	Run Close	

### 9.1.5.8 XML options

This step allows you to set options for the target **XML** (\*.*xml*) file.

Specify XML document encoding in the **Encoding** edit box and set the **Standalone** option on if you intend to create a standalone XML document (*standalone="yes"*).

### XML type

Select the type of the result XML document: *Datapacket 2.0* or *Access*. Conversion between generic XML documents and documents of the *XML-Datapacket* (*CDS*) format can be performed with the help of XML Mapper by Borland®.

📑 Export Data Wizard - [TestDB on ayz2:54383]			
Data Wizard - Export Data			
Customize XML export opti	ons.		
	- XML options -	windows-1252  Standalone	
	XML type	Datapacket 2.0	
SQL Manager for PostgreSQL			
Help Templates	•	< <u>Back</u> <u>N</u> ext > <u>R</u> un Close	

### 9.1.5.9 MS Excel / ODS options

This step allows you to set options for the target **MS Excel** (\*.*xlsx*) or **ODF Spreadsheets** (\*.*ods*) file.

Using the **Base Styles** tab you can set *font* and *border* options for all **elements** of the Excel / ODS sheet (*HEADER, CAPTION, DATA, FOOTER*). You can customize style options, such as *font* and *size, background* and *foreground colors, text alignment,* etc. for each of them by clicking the corresponding item in the list and setting the options in the right-side panel.

If necessary, you can also specify the **sheet name** for the target Excel / ODS file.

Use the **Font** and **Size** drop-down lists to select the *font* and *size* to be applied to the text.

Use the buttons below to set font color, make text bold, italicized, underlined, specify horizontal and vertical align.

## Background

Enables/disables background for text.

Press the witton to set the background color for the text. Press the **Wrap Text** button to enable/disable the text wrapping feature.

### 🗹 Use border

Select border location

For your convenience the previews illustrating the changes are displayed in the **Sample Group** area within the *Base Styles* and the *Strip Styles* tabs.

Export Data Wizard - [DemoDB on testing-pg:54160] - 🗆 🗙				
Data Wizard - Export Data				
Customize MS Excel exp	ort options.			
SQL Manager for PostgreSQL	Base Styles Strip Styles	Font The Calibri   Size 11   A B   B I   I I   B I   I		
Help Templates	Sheet Name Export < <u>B</u> ack	Aa Zz       Reset Item       Reset All       Next >       Run       Cancel		

Using the **Strip Styles** tab you can create a style template: set *font*, *size*, *background color*, *text alignment*, *wrap text* options and save them.

To add a style template, click the **Plus** + button. To delete a style template, select it and click the **Minus** - button. To reorder style templates in the list, use the O O buttons. To load a style template, click the button. To save the current style template, click the button.

If you have created or loaded more than one style template, they can be ignored, or used *column-by-column* or *row-by-row* (it depends on the **Strip type** selection).

Base Styles Strip Styles	Font Border
	Font The Calibri IN Size 11 IN B I II B C II Background Wrap Text
Strip type	Aa Zz
None      Col      Row	Reset Item Reset All

You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

The **Border** tab allows you to specify properties of the borders of the output Excel / ODS file cells.

## Use border

Enables/disables borders in the output file.

Press the 🎽 button to set the color to be applied to the borders.

Use the **Border Style** drop-down list to select the preferable style that will be used for borders (*thin*, *dashed*, *dashdot*, *dotted*, etc.).

Font	Border
V Use	e Border
Borde	r Color 🎂
Borde	r Style Thin

When you are done, click the **Next** button to proceed to Setting common export options  $\overline{579}$ .

### 9.1.5.10 MS Word / ODT options

This step allows you to set options for the target **MS Word** (\*.*docx*) or **ODF text** (\*.*odt*) file.

Using the **Base Styles** tab you can set *font* options for all **elements** of the Word / ODT document (*HEADER, CAPTION, DATA, FOOTER*). You can customize style options, such as *font* and *size, background* and *foreground colors, text alignment,* text *highlight,* etc. for each of them by clicking the corresponding item in the list and setting the options in the right-side panel.

Use the **Font** and **Size** drop-down lists to select the *font* and *size* to be applied to the text.

Use the buttons below to set font color, make text bold, italicized, underlined, strikethrough text, specify horizontal align.

### Background

Enables/disables background for text.

Press the 🅍 button to set the background color for the text.

### Highlight

Enables/disables text highlight.

If this option is enabled, you should select the preferable highlight color from the dropdown list.

For your convenience the previews illustrating the changes are displayed in the **Sample Group** area within the *Base Styles* and the *Strip Styles* tabs.
Export Data Wizard - [TestDB on ayz2:54383]	
Data Wizard - Export Data	
Customize MS Word 2007 export options.	
Base Styles Strip Styles	Font The Calibri   Size 11   Image: Size
Page orientation Page orientation Page orientation Candscape	Reset Item Reset All
<u>H</u> elp <u>T</u> emplates ▼ < <u>B</u> ack	<u>N</u> ext > <u>R</u> un Close

Using the **Strip Styles** tab you can create a style template: set *font*, *size*, *background color*, *text alignment*, *highlight* options and save them.

To add a style template, click the **Plus** + button.

To delete a style template, select it and click the **Minus** – button.

To reorder style templates in the list, use the  $\bigcirc \bigcirc$  buttons.

To load a style template, click the 🏓 button.

To save the current style template, click the  $\square$  button.

If you have created or loaded more than one style template, they can be ignored, or used *column-by-column* or *row-by-row* (it depends on the **Strip type** selection).

Strip Styles Border	Font The Calibri   Size 11     Image: Size Image: Size     Image: Background     Image: Highlight     hcNone
⊂ Strip type	Aa Zz
None Col Row	Reset Item Reset All

You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

Using the  ${\bf Border}$  tab you can enable borders in the result Word 2007 / ODT document and customize them.

### **V** Use border

Enables/disables borders in the output file.

Press the 🎽 button to set the color to be applied to the borders.

Use the **Border Style** drop-down list to select the preferable style that will be used for borders (*single, thick, double, hairline,* etc.).



When you are done, click the **Next** button to proceed to <u>Setting common export options</u> [579].

### 9.1.6 Setting common export options

Use this step of the wizard to set common export options. The detailed description of these options is given below.

📑 Export Data Wizard - [Test	DB on ayz2:54383]	
Data Wizard - Export Da	ita	
Specify common export o	ptions	
	Constraints Export empty tables	
	Skip 0 records	d(s)
Manager	Export only	d(s)
for PostgreSQL	<ul> <li>Open files after export</li> <li>Print files after export</li> </ul>	
<u>H</u> elp <u>T</u> emplates	I < Back Next >	Run Close

#### Constraints

#### Export empty tables

If checked, you can export the table even if it does not contain any data.

#### Skip ... record(s)

Specifies the number of records to be skipped before export starts.

#### Export all records

Specifies that all records of the table will be exported.

### Export only ... record(s)

Specifies the number of records to be exported.

### Open files after export

If this option is checked, the result file will be opened with the currently associated program after the export operation is completed.

#### Print files after export

If this option is checked, the result file will be sent to the default printer after the export operation is completed.

When you are done, click the **Next** button to proceed to the last step set of the wizard.

### 9.1.7 Exporting data

This step of the wizard is intended to inform you that all export options have been set, and you can start the export process.

The log area allows you to view the log of operations and errors (if any).

📑 Export Data Wizard - [Test	tDB on ayz2:54383]	- • •
Data Wizard - Export D	ata	
Click "Run" to start expo	rt process	
	Export finished successfully!	
Pin I	Exported	239
	Time	0:00:01
	Speed	154 rows/sec
SQL Manager for PostgreSQL	Preparing to export the data Exporting data Export finished successfully! Skipped records: 0 Exported records: 239	
Help Templates	▼ < <u>B</u> ack <u>N</u> ext > <u>R</u> un	Close

### Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the export process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Finish** button to run the export process.

After the operation is completed, you can view the number of *exported* records, elapsed *time*, estimated export *speed*, and the *log* of operations and errors (if any).

# 9.2 Import Data Wizard

**Import Data Wizard** allows you to import data to a <u>table</u> 1691 / <u>view</u> 2291 from any of supported formats (*MS Excel, MS Access, DBF, XML, TXT, CSV, HTML, ODF*). You can save your settings as a <u>template</u> 19821 any time for future use.

To start the wizard, right-click the table/view in <u>DB Explorer</u> (65), select the **Data Manipulation** | **Import Data...** <u>context menu</u> [57] item.

Alternatively, you can open the **Data** tab of <u>Table Editor</u> 1771 / <u>View Editor</u> 229, right-click the <u>grid</u> 4571 there, then select the **Data Manipulation | Import Data to <object\_name>...** context menu 4681 item.

	New Table Ctrl+N				
	Edit Table 'Country' Ctrl+O				
	Rename Table 'Country' Ctrl+R				
	Drop Table 'Country' Shift+Del				
2	Duplicate Table 'Country'				
	Tasks	►			
	Data Manipulation	•	-	Export Data	Shift+Ctrl+E
<b>*</b>	Table Properties		-	Export Data as SQL Script	Ctrl+Alt+I
۵	Grants for Table 'Country'		-	Import Data	Ctrl+I
	Script to New SQL Editor	•		Save Data	
	Script to Clipboard	•		Load Data	
নি	Refresh Tables F5				
	Database Registration Info				
9					
	Tabs	•			
$\rho$	Find Object Ctrl+F				
A	Find Next Object F3				

- Setting source file name and format 584
- Selecting the source to import data from 585
- <u>Setting correspondence between the source and target columns</u>
- <u>Adjusting common data formats</u>
- <u>Setting advanced column formats</u> 601
- <u>Setting import mode and data write type</u> [603]
- <u>Customizing common import options</u>
- Importing data 607

### <u>Availability</u>:

Full version (for Windows) Yes

Lite version (for Windows) No

Note: To compare all features of the Full and the Lite versions of SQL Manager, refer to

# the Feature Matrix 22 page.

### See also:

<u>Export Data Wizard</u> [53है <u>Export as SQL Script</u> [60है] <u>Save Data Wizard</u> [617] <u>Load Data Wizard</u> [62है] <u>Using templates</u> [982]

### 9.2.1 Selecting source file name and format

This step of the wizard allows you to select the source file format you need to import data from.

### **Import type**

Specify the format of the source file. For details refer to Supported file formats [983].

Import Data Wizard			_		×
Import Data					
Specify import format and	d source file name				
	Welcome to the Data Impor This wizard allows you to such as MS Excel, MS Acc The wizard will guide you Import type	t Wizard! import data into table from m :ess, DBF, XML and more. through the process of impo	ost popular data rting data into the	formats, table.	
SQL Manager for PostgreSQL	MS Excel     OTXT     MS Excel     MS Word     CSV     MS Access     MS Access     ODF Spreadsheets     ODF Text     OXML Datapacket				
	Source file name				
	D:\CurrentTest\Data Import	test_import_files\mydoc.xlsx	t		2
	CSV format parameters Delimiter ;	✓ Quote	* v		
Help Templates	•	< <u>B</u> ack	<u>N</u> ext >	Canc	el

### Source file name

Type in or use the 2 button to specify the path to the file using the **Open file...** dialog. The file name extension changes automatically according to the selected **Import Type**.

### **CSV format parameters**

For <u>CSV</u>[592] import you should define **Delimiter** and **Quote** settings using the corresponding drop-down lists.

Click the **Next** button to proceed to the <u>Setting columns correspondence</u> set at the <u>Selecting data source</u> step of the wizard if you have selected **MS Access** as the source file format.

## 9.2.2 Selecting data source

This step of the wizard is only available when you are importing data from *MS Access*. Select a **table** from the table list or input a **query** in the corresponding text boxes to specify the data source.

If you choose a query as the data source, you also can load a SQL query from a \*.sql file or save the current query text to a file using the **Load from File...** and the **Save to File...** buttons correspondingly.

📑 Import Data Wizard	
Import Data	
Select MS Access table	or create SQL query for import
	I would like to import data from a table
SQL Manager for	○ I would like to import data from a SQL query
PostgreSQL	<ul> <li>I.oad From File</li> </ul>
<u>H</u> elp <u>T</u> emplates	✓ < <u>B</u> ack <u>N</u> ext > Cancel

Click the **Next** button to proceed to the <u>Setting columns correspondence</u> set step of the wizard.

## 9.2.3 Setting columns correspondence

This step of the wizard allows you **to set correspondence** between columns of the source file and columns of the target PostgreSQL table.

- <u>MS Excel 97-2003</u>587
- MS Access, DBF, XML Datapacket
- <u>TXT</u> 591
- <u>CSV</u> 592
- <u>HTML</u>594
- XML Generic 596
- MS Excel/Word, ODF 598

To get more information about the file formats, see the <u>Supported file formats</u> page.

#### 9.2.3.1 Excel 97-2003

Specify ranges in the grid for the target and source columns:

- select a column of the target PostgreSQL table in the **Columns** list;
- proceed to the **Sheet** grid: click a column caption to select the whole column or click the row number to select the whole row;
- the selected column/row of the source file gets green highlight, and a new range indicating the source and target columns correspondence appears in the **Ranges** list;
- repeat the operation for all the columns you need to be included in the import process.

If the source Excel file and the destination PostgreSQL table have the same order of columns or rows, you can use the **Auto Fill Cols** or the **Auto Fill Rows** buttons to set correspondence between them automatically.

If necessary, you can choose to **skip** a defined number of the source file columns and/or rows using the **Col(s)** and **Row(s)** spinner controls of the **Skip** group (e.g. if you need to exclude column headers from the imported data range).

📑 Im	port Data Wizard						_		×
Imp	ort Data								
:	Set the correspondence b	etween source and tar	get ta	ble co	lumns				
	20	Columns Order ID	^		Auto Fill Cols Auto Fill Rows	X Clear F	Ranges C r All R	kip col(s) 0 cow(s) 0	▲ ▼ ●
		Order Quantity		Ord	ers Sheet2	Sheet3			
	801	Sales	v		А	В	С	D	^
	Manager	Panaga		1	Order ID	Order Date	Order	Sales	-
	for	[Orders]C-COLF		2	3	13.10.2010	6	261,54	-
	PostgreSQL			4	32	15.07.2011	26	2808,08	-
				5	32	15.07.2011	24	1761,4	-
				6	32	15.07.2011	23	160,2335	
				7	32	15.07.2011	15	140,56	_
				8	35	22.10.2011	30	288,56	_ ~ [ .
				<				>	
H	elp <u>T</u> emplates	•			< <u>B</u> a	ick	<u>N</u> ext >	Cancel	

To clear ranges for a column, select the column in the **Columns** list and press the  $\times$  **Clear Ranges** button.

To clear all ranges specified for the target table columns, press the **X** Clear All button.

Right-click a range in the **Ranges** list to call its popup menu. Using the popup menu you can *add* or *edit* ranges manually, *remove* them or change their *order*.



The **Range** dialog allows you to edit the data range for import manually.

### Range Type

Use the drop-down list to select whether a *column*, a *row*, or a *cell* of the source Excel file will be mapped to the target table column.

Depending on the selected range type you should specify the column (e.g. B), the row (e. g. 2) or the cell (e.g. A2).

### Start / Finish

These groups allow you to set the precise data range for import: select **Where data started** / **finished** or use the spinner control to specify the **start/finish row** (or **start/finish column**).

### Direction

Use this group to select the direction for importing data of the specified range: Down or Up.

### Sheet

Use this group to define whether the specified range will be taken from the **default** Excel sheet or from a **custom** sheet (select **sheet number** or **sheet name** using the corresponding drop-down lists).

Range	×
Range Type	
Col	Col A
Start	Finish
Where data started	Where data finished
Start Row	Finish Row     10
Direction	
Own	© Up
Sheet	
Default Sheet	
Custom Sheet	
Sheet Number	<b>T</b>
Sheet Name	Sheet 1
	OK Cancel

### 9.2.3.2 Access, DBF, XML Datapacket

Set correspondence between the source MS Access columns and the target PostgreSQL table columns:

- select a column of the target PostgreSQL table in the **Destination Columns** list;
- select the corresponding column of the source MS Access table in the Source Columns list;
- click the + Add button to set correspondence between the selected columns;
- the pair of columns appears in the list below;
- repeat the operation for all the columns you need to be included in the import process.

Use the **Auto Fill** button to set correspondence between the source and target columns automatically on the basis of their order.

📑 Import Data Wizard			×
Import Data			
Set the correspondence	between source and target table	columns	
SQL Manager	Destination Columns Customer Segment Product Category	+ Add     Source Columns       Order ID     Order Date       Order Quantity     Order Quantity       - Remove     Sales       X Clear     Profit	<b>^</b>
PostgreSQL	Destination Columns	Source Columns	^
	Order ID Order Date Order Quantity Sales Ship Mode Profit	<ul> <li>Order ID</li> <li>Order Date</li> <li>Order Quantity</li> <li>Sales</li> <li>Ship Mode</li> <li>Profit</li> </ul>	~
<u>H</u> elp <u>T</u> emplates	T	< Back Next > Cancel	

To remove a correspondence, select the pair of columns in the list below and press the **Remove** button.

To remove all correspondences, press the **X Clear** button.

### 9.2.3.3 TXT

Set correspondence between the source text file columns and the target PostgreSQL table columns:

- select a column of the target PostgreSQL table in the **Columns** list;
- double-click in the text viewer area to add vertical separators delimiting the source column bounds;
- click the area between the separators to assign the column to the selected target table column the selected source column gets black highlight;
- repeat the operation for all the columns you need to be included in the import process.

If necessary, you can choose to **skip** a defined number of the source file lines using the **Skip Lines** spinner control (e.g. if you need to exclude column headers from the imported data range).

📑 Import Data Wizard			- 🗆 X
Import Data			
Set the correspondence b	etween source and ta	irget tab	le columns
SQL Manager for	Columns       P         Order ID       0         Order Date       8         Order Quanti       2         Sales       2         Ship Mode       6         Profit       7         Unit Price       9	S 8 14 2 6 8 32 0 12 2 27 9 0	Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: Skip Lines       Image: Skip Lines       Image: Skip Lines         Image: S
POSIGIEGOUL	Customer Na 9 Customer Se 9 Product Cate 9 Select the target colu separators, delimiting	9 0 9 0 9 0 mn in the	Charset Windows default ~
Help Templates	•		< <u>B</u> ack <u>N</u> ext > Cancel

To clear all correspondences, press the **X Clear** button.

**Note:** if you cannot see the content of the source text file properly, you should select the appropriate **Charset** to be used for processing data.

#### 9.2.3.4 CSV

Set correspondence between the target table columns and the source CSV file columns:

- select a column of the target PostgreSQL table in the Columns list;
- proceed to the source grid viewer area: click a caption to assign the column to the selected target table column;
- the selected column of the source file gets gray highlight;
- repeat the operation for all the columns you need to be included in the import process.

If the source CSV file and the destination PostgreSQL table have the same order of columns, you can use the **Auto Fill** button to set correspondence between them automatically.

Note that the CSV delimiter is specified at the <u>Selecting source file name and format</u> step of the wizard.

The **Col(s)** control indicates the currently selected source file column. You can also use this spinner control for quick column selection.

If necessary, you can choose to **skip** a defined number of the source file rows using the **Row(s)** spinner control of the **Skip** group (e.g. if you need to exclude column headers from the imported data range).

📑 Im	port Data Wizard				_	-	×		
Imp	ort Data								
Set the correspondence between source and target table columns									
		Columns	🚺 Auto <u>F</u> i	ll X Cle	ar All				
	-	Order ID Order Date	Column	1	Skip Row	(s)	1 🚔		
		Order Quantity	Column_1	Column_2	Column_3	Column_4	Colui 🔨		
		Sales	Order ID	Order Date	Order Quant	Sales	Ship		
	SQL	Ship Mode	3	13.10.2010	6	261,54	Regu		
	Manager	Profit	6	20.02.2012	2	6,93	Regu		
	tor PostareSOI	Unit Price	32	15.07.2011	26	2808,08	Regu		
	rostgreode	Customer Name	32	15.07.2011	24	1761,4	Deliv		
		Product Category	32	15.07.2011	15	140.56	Regu		
			35	22.10.2011	30	288,56	Regu		
			<				>		
	Charset Windows default ~								
Н	Help     Templates     ▼      Cancel								

To remove a correspondence, select the column in the **Columns** list and press the  $\times$  **Clear** button.

**Note:** if you cannot see the content of the source text file properly, you should select the appropriate **Charset** to be used for processing data.

#### 9.2.3.5 HTML

Set correspondence between the target table columns and the source HTML file columns:

- select a column of the target PostgreSQL table in the Columns list;
- proceed to the source grid viewer area: select the **Table** from which you intend to import data and click a column to assign the column to the selected target table column;
- the selected column of the source file gets gray highlight;
- repeat the operation for all the columns you need to be included in the import process.

If the source HTML file and the destination PostgreSQL table have the same order of columns, you can use the **I** Auto Fill button to set correspondence between them automatically.

The **Col** control indicates the currently selected source file column. You can also use this spinner control for quick column selection.

If necessary, you can choose to **skip** a defined number of the source file rows using the **Row** spinner control of the **Skip** group (e.g. if you need to exclude column headers from the imported data range).

📑 Im	port Data Wizard				_	-	×		
Imp	ort Data								
	Set the correspondence between source and target table columns								
		Columns	Auto Fi		ear 🏷	Clear All			
		Order ID		···· · · · · · · · · · · · · · · · · ·					
	200	Order Date	Table 1	~ Co	1	Row 1	-		
		Order Quantity	Order ID	Order Date	Order Quant	Sales	Ship 🔺		
		Sales	3	10.13.2010	6	261,54	Regu		
	SQL	Ship Mode	6	2.20.2012	2	6,93	Regu		
	Manager	Profit	32	7.15.2011	26	2 808,08	Regu		
	for	Unit Price	<b>4</b> 32	7.15.2011	24	1 761,40	Deliv		
	PostgreSQL	Customer Name	32	7.15.2011	23	160,23	Regu		
		Customer Segmen	32	7.15.2011	15	140,56	Regu		
		Product Category	35	10.22.2011	30	288,56	Regu		
			35	10.22.2011	14	1 892,85	Regu		
			36	11.2.2011	46	2 484,75	Regu		
			65	3.17.2011	32	3 812.73	Real		
H	<u>H</u> elp <u>T</u> emplates ▼ < <u>B</u> ack <u>N</u> ext > Cancel								

To remove a correspondence, select the column in the **Columns** list and press the  $\times$  **Clear** button.

To remove all correspondences, press the **X Clear All** button.

#### 9.2.3.6 XML Generic

In order to set mapping of a Generic XML document, you should enter the relative **XPath** (the path must be specified in the XPath format). Press the **Fill Grid** button to get the grid filled with text and attribute values of the selected node.

**Note:** if the source XML document contains huge amount of data, building the tree may take a long time.

Set correspondence between the source XML file columns and the target PostgreSQL table columns:

- select a column of the target PostgreSQL table in the Columns list;
- proceed to the source grid viewer area: click a column to assign the column to the selected target table column;
- the selected column of the source file gets gray highlight;
- repeat the operation for all the columns you need to be included in the import process.

You can use the **Auto Fill** button to set correspondence between the source and target columns automatically according to their order (mapping is started from the first attribute value in this case).

The **Col(s)** control indicates the currently selected source file column. You can also use this spinner control for quick column selection.

If necessary, you can choose to **skip** a defined number of the source file lines using the **Row(s)** spinner control of the **Skip** group (e.g. if you need to exclude node headers from the imported data range).

🖺 Import Data Wizard					_		>	<	
Import Data									
Set the correspondence between source and target table columns									
	Columns	I Auto		lear 🎽	ClearA	II			
	🔲 Order ID					_			
	Order Date	Skip	Col(s)	1 🚔	Row(s	) 0	-		
	Order Quantity	XPath	DATAPACKET/	ROWDATA/	ROW/	🚺 Fi	ll Grid	1	
	Sales			Order ID	Orde	- Data	Queda	_	
SQL	Ship Mode	Node nam	s lext	Order_ID	10.1	ar_Date	Orde		
Ivianager	Init Price	< ROW	_3	6	2 20	2012	2		
PostgreSQL	Customer Name	ROW		32	7.15	2011	 26		
	Customer Segment	ROW		32	7.15	2011	24	•	
	Product Category	ROW		32	7.15	2011	23		
		ROW		32	7.15	2011	15		
		ROW		35	10.2	2.2011	30		
		ROW		35	10.2	2.2011	14	~	
							>		
Help Templates	•		< <u>B</u> ack	Next	>	Can	icel		

To remove a correspondence, select the column in the **Columns** list and press the  $\times$  **Clear** button.

To remove all correspondences, press the **X** Clear All button.

#### 9.2.3.7 MS Excel/Word, ODF

598

Specify ranges in the grid for the target and source columns:

- select a column of the target PostgreSQL table in the **Columns** list;
- proceed to the **Sheet** grid: click a column to assign the source column to the selected target table column;
- the selected column of the source file gets gray highlight;
- repeat the operation for all the columns you need to be included in the import process.

If the source file and the destination PostgreSQL table have the same order of columns, you can use the **4 Auto Fill** button to set correspondence between them automatically.

The **Col** control indicates the currently selected source file column. You can also use this control for quick column selection.

If necessary, you can choose to **skip** a defined number of the source file rows using the **Skip** spinner control (e.g. if you need to exclude column headers from the imported data range).

📑 Import Data Wizard		- 🗆 X							
Import Data									
Set the correspondence between source and target table columns									
	Columns	🚺 Auto Fill 🗙 Clear 🍇 Clear All							
	Order ID								
	Order Date								
	Order Quantity	Orders Sheet2 Sheet3							
	Sales	Order ID Order Date Order Quant Sales Shi							
SQL	Ship Mode	3 13.10.2010 6 261,54 Rej							
Manager	Profit	6 20.02.2012 2 6,93 Re							
tor PostareSOI	Unit Price	32 15.07.2011 26 2808,08 Re							
rostgreode		32 15.07.2011 24 1761,4 Del							
	Product Category	32 15.07.2011 23 160,2335 Rei							
		32 15.07.2011 15 140,56 Re							
		35 22.10.2011 30 288,56 Rej							
		35 22.10.2011 14 1892,848 Rei v							
Help     Templates     ▼     < Back									

To remove a correspondence, select the column in the **Columns** list and press the **X Clear** button.

To remove all correspondences, press the 🎇 Clear All button.

### 9.2.4 Adjusting data formats

This step of the wizard provides a number of options for setting common formats for all imported data:

Date & Time formats: Short date, Long date, Short time, Long time;
Separators: Decimal, Thousand, Date, Time;
Boolean True (specify the text that will be displayed for the boolean TRUE values);
Boolean False (specify the text that will be displayed for the boolean FALSE values);
NULL values (specify the text that will be displayed for the NULL values).

📑 Import Data Wizard						• <b>×</b>	
Import Data							
Adjust common data form	ats for import						
	Date & Time forma	ats			Separators		
	Short date	dd.MM	.yyyy		Decimal	,	
	Long date	d MMN	IM уууу 'г.'		Thousand	#160	
	Short time	h:mm			Date		
801	Long time	h:mm:s	S		Time	:	
Manager	Boolean True		Boolean False	Nul	Values		
for	True		False	Nul	111		
PosigreSQL					-		
Help Templates	•		< <u>B</u> ack	<u>N</u> ext	> C	ancel	

For more information refer to the Format specifiers [978] page.

Click the **Next** button to proceed to the <u>Setting advanced column formats</u> and step of the wizard.

# 9.2.5 Setting advanced column formats

This step of the wizard allows you to set **formats** each column separately.

Select a column in the list and adjust **format options** that will be applied to this column only.

Import Data Wizard Import Data Set format for import columns	- 🗆 X
Column Name  Column Name Col	Formats   Generator value   O   Generator value   O   Constant value   Null value   Default value   Left quotation   Quotation action   As Is   Character case   As Is   Character case   As Is   Character case   As Is   Text to find   Replace with   Ignore case
Help Templates -	< <u>B</u> ack <u>N</u> ext > Cancel

Specify **Generator value** and **Generator step** for incremental data generation into the specified column, or enter a **Constant value** which will be set for all records in the column.

Specify the **NULL value** which will be used for the records where the value is NULL.

If necessary, specify the **default value**.

Use the **Left** / **Right quotation** edit boxes to specify left/right quotation marks. Use the **Quotation action** drop-down list to select whether the quotation marks should be *added*, *removed*, or left '*As is*'.

Use the **Character case** drop-down list to select the case that will be used for string values of the column: *Upper, Lower, UpperFirst, UpperFirstWord,* or 'As is'.

Use the **Character set** drop-down list to select which charset will be used for string data in the column: *ANSI*, *OEM*, or *As is*.

The **Replacements** area allows you to set the text you need to be replaced during data import into the selected column. Press the **+ Plus** button to specify a new replacement options using the **Add Replacement** dialog.

Add Replacemen	t 💽
Text to find	1-866-SQL-4-YOU
Replace with	1-866-775-4968
Ignore case	
	OK <u>C</u> ancel

To edit a replacement, click the **Edit** button. To remove a replacement, click the **— Minus** button.

When you are done, click the **Next** button to proceed to the <u>Setting import mode</u> as step of the wizard.

### 9.2.6 Setting import mode

This step of the wizard allows you to define the records processing mode as *Insert All*, *Insert New*, *Update*, *Update or Insert*, *Delete*, *Delete or Insert* mode.

### Import mode

- **Insert all**: all records from the source file are inserted into the tables irrespective of whether any records exist in the destination table or not
- **Insert new**: already existing records are skipped, and new records are inserted into the destination table
- Update: all existing records are updated from the source file
- **Update or insert**: already existing records are updated and new records are inserted into the destination table
- Delete: already existing records are deleted
- **Delete or insert**: existing records are deleted and new records are inserted into the destination table

📑 Import Data Wizard			- • •
Import Data			
Select key columns for pr	ocessing records (except the	e "Insert all" mode)	
Eventski for bostgresQL	Import mode <ul> <li>Insert all</li> <li>Insert new</li> </ul> <li>Import type <ul> <li>Single commands</li> </ul> </li> <li>Key columns <ul> <li>Key columns</li> <li>name</li> <li>continent</li> <li>region</li> <li>surfacearea</li> <li>indepyear</li> <li>total</li> </ul></li>	<ul> <li>Update</li> <li>Update or insert</li> <li>Universal mode</li> <li>Selecte</li> <li>Cool</li> <li>Cool<th><ul> <li>Delete</li> <li>Delete or insert</li> <li>Batch insert</li> </ul></th></li></ul>	<ul> <li>Delete</li> <li>Delete or insert</li> <li>Batch insert</li> </ul>
Help <u>T</u> emplates	•	< <u>B</u> ack	Next > Cancel

Here is an **example** of some import modes offered by Import Data Wizard:

All import modes (except for the **Insert All** mode) are based on key values information. In order to perform import operations with these modes used, you need to have matches between the source file key column(s) and the destination table key column(s). For example, your source file contains three rows with the key values 1, 2, 3, and your destination table contains three rows with the key values 1, 2, 4.

Destination table

### Source file data

:	ID 💌	DATA 💌
۶		а
	2	b
	4	f

	А	В
1	1	с
2	2	d
3	3	e

If you use the **Insert new** import mode, in this case only the row with key value 3 will be inserted into the destination table.

If you use the **Update** import mode, then the rows with key values 1, 2 will be updated. If you use the **Update or insert** import mode, then rows 1, 2 will be updated and the row with key value 3 will be inserted.

It is applied to all other import modes, except for the **Insert all** mode. For all these modes (except for the **Insert all** mode) it is obligatory to select the primary key columns. This column (or columns) is used as key column to identify specific data in the target database.

]	Insert	t ne	ew	U	pdate		U ir	pdate o Isert	or		Delete	2		Dele	te or ins	ert
	∃ ID	-	DATA 💌	:≣	ID 💌	DATA .	•	ID 💌	DATA	•	∃ ID	▼ DATA	•	∃ ID	<b>DATA</b>	-
	>	1	а	₽	1	с	Þ	1	с		≥	4 f		₽	3 e	
		2	b		2	d		2	d						4 f	
		3	e		4	f		3	e							
ľ		4	f					4	f							

The key columns for these operations are defined in the **Key columns** area.

### Import type

#### Single commands / Universal mode / Batch insert type

The *Single commands* import mode is performed with the Single Commands method used and serves to generate and execute single SQL commands on the server, whereas the *Batch insert* mode uses native PostgreSQL commands to import a data set as a batch. With the help of the *Single commands* import mode your data can be imported considerably faster as compared to the *Universal* mode which is used for backward compatibility.

Use **Import mode** to select whether to insert all records, or to update/delete existing ones. Note that for updating/deleting existing records in the target table you should move its key columns from the **Available columns** list to the **Selected columns** list.

#### Key columns

The area allows you to select the columns of the table to be used as the key columns for the import process.

To select a column, you need to move it from the **Available columns** list to the **Selected columns** list. Use the **Selected columns** list. Use the **Selected columns** list to another.

When you are done, click the **Next** button to proceed to the <u>Customizing common options</u> 100 step of the wizard.

### 9.2.7 Customizing common options

Use this step of the wizard to set common import options. The detailed description of these options is given below.

📑 Import Data Wizard		- • •
Import Data		
Customize common import	options	
SQL Manager for PostgreSQL	Commit Commit when done Commit after each block Commit changes manually Block size 100 Record count Import all records Import only Record(s)	
Help Templates	▼ < <u>B</u> ack <u>N</u> ext :	Cancel

### Commit

#### Commit when done

Commits the transaction when all records are imported.

### Commit after each block

Inserts the *COMMIT* statement after a defined number of records.

#### Commit changes manually

Select this option if you intend to commit the transaction manually.

#### **Block size**

Use the spinner control to define the number of records in each committed block.

### **Record count**

#### Import all records

Specifies that all records of the source file will be imported.

#### Import only ... record(s)

Specifies the number of records to be imported.

When you are done, click the **Next** button to proceed to the last step [m] of the wizard.

### 9.2.8 Importing data

This step of the wizard is intended to inform you that all import options have been set, and you can start the import process.

The log area allows you to view the log of operations and errors (if any).

📑 Import Data Wizard				- • -			
Import Data							
Click the Run button to	start Import process						
		Importing	g data				
	Processed:			0			
	Inserted	0	Updated	0			
	Deleted	0	Errors	1			
SQL	Commited	0	Time	0			
Manager		0	%				
for PostgreSQL	19.09.2012 14:24 - Im	porting data					
Close the Wizard after successful completion							
Help Templates		< <u>B</u>	ack Sto	Cancel			

#### Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the import process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to run the import process.

After the operation is completed, you can view the total number of *processed* records, the number of *inserted/updated/deleted* records, the number of *committed* records, the number of *errors*, elapsed *time*, and the *log* of operations and errors (if any).

# 9.3 Export as SQL Script

**Export as SQL Script Wizard** allows you to export data from a <u>table</u> 169 / <u>view</u> 229 or from a query result to SQL script as a number of INSERT statements. You can save your settings as a <u>template</u> 982 any time for future use.

To start the wizard, right-click the object in <u>DB Explorer</u> [65], select the **Data Manipulation** | **Export Data as SQL Script...**<u>context menu</u> [57] item. Alternatively, you can open the **Data** tab of <u>Table Editor</u> [177] / <u>View Editor</u> [229] or the **Result** (s) tab of <u>Query Data</u> [415] / <u>Design Query</u> [431], right-click the <u>grid</u> [457] there, then select the **Data Manipulation** | **Export <object\_name> as SQL Script...** <u>context menu</u> [466] item.



- Selecting destination DBMS 610
- <u>Setting destination file name</u>
- Setting BLOB options 612
- Selecting column to export 613
- Editing the result table definition 615
- <u>Setting export options</u> 614
- Exporting as SQL Script 616

### Availability:

Full versio	n (for Windows)	Yes
Lite versio	n (for Windows)	No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

### See also:

Export Data Wizard 538 Import Data Wizard 582 Save Data Wizard 617 Load Data Wizard 528 Using templates 582

# 9.3.1 Selecting destination DBMS

This step of the wizard allows you to define the **destination server** you need to export data for. The result script will be generated in compliance with the specifications of the selected DBMS:

DB2

- InterBase/Firebird
- Microsoft® SQL Server
- MySQL
- 🖲 Oracle
- PostgreSQL

Export as SQL Script Wizard - [TestDB on ayz2:54383]					
Export as SQL Script					
Choose type of destination server					
SQL Manager for PostgreSQL	Welcome to the Export as SQL Script! This wizard allows you to get a complete data dump of the table or query result in a file as a set of "INSERT" statements. The wizard will guide you through the process of creating the result SQL script file. Destination server DB2 InterBase/Firebird MS SQL MySQL Oracle PostgreSQL Xdd CREATE TABLE statement				
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>N</u> ext > Cancel				

### **Add CREATE TABLE statement**

Check this option to add the CREATE TABLE statement to the result script.

Click the **Next** button to proceed to the <u>Setting destination file name</u> and step of the wizard.

### 9.3.2 Setting destination file name

Specify whether the result script will be loaded to Execute Script Editor 646 or saved to a file.

### File name

Type in or use the  $\blacksquare$  button to specify the path to the file and the file name.

If necessary, select the **File charset** using the corresponding drop-down list.

Enter the **Table name** and the **Schema name** to be included in the result SQL script. Schema name should only be specified for the DBMS in which this object is implemented.

Export as SQL Script Specify the script destin	ation and the table nar	ne			
Ē	Script destination Automatically Save to file File name	load to Execute script			
SQL Manager for PostareSQL	File <u>c</u> harset	iarset cp1250 (Windows Central European) ~			
. cospecal	Sch <u>e</u> ma name (as it will be represented in the SQL script file, if needed)				

Click the **Next** button to proceed to the <u>Setting BLOB options</u> [12] step of the wizard.

# 9.3.3 Setting BLOB options

### **BLOB and arrays options**

In this group of options you can determine processing BLOB values.

Don't extract BLOB fields
BLOB values are not extracted in the script

Extract BLOB fields as strings
 BLOB values are extracted as strings

Export as SQL Script Wizard - [DemoDB on testing-pg:54160] - 🗆 🗙						
Export as SQL Script						
Select BLOB columns extraction method						
	BLOB and arrays options					
	○ Don't extract BLOB fields					
	Extract BLOB fields as strings					
SQL						
Manager						
PostgreSQL						
Help Templates	<ul> <li>&lt; <u>B</u>ack</li> </ul>	<u>N</u> ext >	Can	cel		

Click the **Next** button to proceed to the <u>Selecting columns to export</u> [s13] step of the wizard.
# 9.3.4 Selecting column to export

This step of the wizard allows you to select the table column(s) to be exported to SQL script.

To select a column, you need to move it from the **Available columns** list to the **Selected columns** list. Use the **Selected columns** list. Use the **Selected columns** list to another.

Export as SQL Script Wizard	- [EMS on ayz]				_		×
Export as SQL Script Select columns to export							
Av	vailable columns	> > <	Select ic c c f f l l l l c c f f l l l l l l l	ted column uto_increm ustomer_n rst_name ust_name ompany assword gacy_pase gacy_pase gacy_ence mail tile ctive oubleoptine oubleoptine	ns nent umber sword oder registra emailse confirm	ition intdate	<
Help Templates -		< <u>B</u> acl	k	<u>N</u> ext	>	Cancel	

Click the **Next** button to proceed to the <u>Editing table definition</u> [615] step of the wizard.

### 9.3.5 Setting export options

Specify common export options according to your needs.

If necessary, you can choose to replace non-print characters in strings with spaces.

## **Quote identifiers**

Check this option to apply quoting for identifiers in the destination file.

## 🗹 Use multi insert statements

Check this option to group insert statements.

## Data options

## **Records in block**

Use the spinner control to define the number of records in each committed block.

### Insert COMMIT after each block

Check this option to add the *COMMIT* statement after a defined number of records.

Export as SQL Script Wiza	rd - [DemoDB on testing-pg:54160]	_		×
Export as SQL Script				
Edit the table definition				
SQL Manager for PostgreSQL	Replace non-print characters in strings with spaces         ✓ Quote identifiers         ✓ Use multi insert statements         Data options         Records in a block         500 ➡         Insert COMMIT after each block			
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>N</u> ext >	>	Canc	el

Click the Next button to proceed to Exporting as SQL Script 616.

# 9.3.6 Editing table definition

This step is available only if the **Add CREATE TABLE statement** option was checked on the <u>Selecting destination DBMS</u> [610] step of the wizard. It allows you to view/edit the SQL script for creating the table.

For your convenience the **syntax highlight**, **code folding** and a number of other features for efficient SQL editing are implemented. For details see <u>Working with Query Data area</u> [418] and <u>Using the context menu</u> [420].

Export as SQL Script Wi	zard - [Tes	tDB on ayz2:54383]	- • •
Export as SQL Script	1		
Set export options and	d click the F	lun button	
	2 3	CREATE TABLE [public].[Country] ( [code] NVARCHAR(3), [name] NTEXT,	<b>^</b>
	4 5 6	[continent] NTEXT, [region] NTEXT, [surfacearea] FLOAT,	=
SQL Manager	7 8 9	[indepyear] INT, [population] INT, [LifeExpectancy] FLOAT.	
for PostgreSQL	10 11 12	[gnp] FLOAT, [gnpold] FLOAT, [localpame] NTEXT	
	13 14	[governmentform] NTEXT, [headofstate] NTEXT,	
	15 16 17	[capital] INT, [code2] NVARCHAR(2)	-
<u>H</u> elp <u>T</u> emplat	es 🗸	< <u>B</u> ack Nex	xt > Cancel

Click the **Next** button to proceed to the <u>Setting export options</u> [614] step of the wizard.

616 SQL Manager for PostgreSQL - User's Manual

### 9.3.7 Exporting as SQL Script

This step of the wizard is intended to inform you that all export options have been set, and you can start the export as SQL script process.

The **Operations** tab allows you to view the log of operations and errors (if any).

📑 Export as SQL Script Wizard	I - [TestDB on ayz2:54383]					
Export as SQL Script	Export as SQL Script					
Click "Run" to start Export	process					
	Process completed successfully!					
	100 %					
SQL Manager for PostgreSQL	SQL Manager for PostgreSQL					
Help Templates Close						

#### Load generated script into Script Editor

Check this option to load the result script to Execute Script Editor 646.

#### Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the export process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to run the export as SQL script process.

# 9.4 Save Data Wizard

**Save Data Wizard** allows you to use the *COPY* PostgreSQL statement to copy the contents of a <u>table</u> 169 (or <u>view</u> 229 / <u>query</u> 413 result - for PostgreSQL server 8.2 and higher) to a file at a very high speed. You can save your settings as a <u>template</u> 982 any time for future use.

To start the wizard, right-click the table in <u>DB Explorer</u> [65], select the **Data Manipulation Save Data to File on Server...** <u>context menu</u> [57] item.

Alternatively, you can open the **Data** tab of <u>Table Editor</u> 177 / <u>View Editor</u> 229 or the **Result** (s) tab of <u>Query Data</u> 415 / <u>Design Query</u> 437, right-click the <u>grid</u> 457 there, then select the **Data Manipulation Save Data to File on Server...** <u>context menu</u> 466 item.



- <u>Setting output file name</u>619
- <u>Selecting columns</u> 620
- <u>Specifying type of output file</u> 621
- Setting output file parameters 622
- Saving data 625

<u>Availability</u>:

Full version (for Windows) Yes

Lite version (for Windows) No

Note: To compare all features of the Full and the Lite versions of SQL Manager, refer to

# the Feature Matrix 22 page.

# See also:

Export Data Wizard ସେହି Import Data Wizard ସେଥି Export as SQL Script ଦେଖି Load Data Wizard ସେହି Using templates ଭିଷଥି

# 9.4.1 Setting output file name

This step of the wizard allows you to specify **absolute path and name of the output file** to save the table data into.

The file must be accessible to the server and the name must be specified from the viewpoint of the server. Note that the file will be written directly by the server, not by the client application. Therefore, it must reside on or be accessible to the database server machine, not the client.

📑 Save Data Wizard	
Save Data	
Enter absolute Unix path	and name of the output file
EFFECTION OF CONTROL O	Welcome to the Save Data Wizard! This wizard allows you to save data from existing table into the file on the server. The wizard saves data using PostgreSQL routines. Absolute path and the name of the destination file on the server c:\shared\country.csv
Help Templates	

Click the **Next** button to proceed to the <u>Selecting columns</u> [620] step of the wizard.

# 9.4.2 Selecting columns

In this step of the wizard you are to select the table columns from which the data should be saved.

To select a column, you need to move it from the **Available columns** list to the **Selected columns** list. Use the **Delta Columns** buttons or drag-and-drop operations to move the columns from one list to another.

If you need to copy all available columns, you can select the  $\mathbb{Z}$  All columns option.

😤 Save Data Wizard			
Save Data			
Define columns if necessa	згу		
Contraction of the second seco	All columns          Available columns         capital         code2	Selected colum code name continent region surfacearea indepyear population LifeExpecta gnp gnp gnpold localname government	ns A
Help <u>T</u> emplates		< <u>B</u> ack <u>N</u> ext	> Cancel

Click the **Next** button to proceed to the <u>Specifying type of output file step</u> of the wizard.

# 9.4.3 Specifying type of output file

Use this step of the wizard to select the type of the output file:

CSV
 Specifies CSV as the output file format [983].
 Text
 Specifies TXT as the output file format [983].
 Binary
 Causes all data to be stored in binary format rather than as text. You will not need to specify the DELIMITER or NULL options [622] in binary mode.

### **With OIDs**

This option specifies copying the OID for each row (an error is raised if this option is enabled for a table that does not have OIDs, or in the case of copying a query).

📑 Save Data Wizard			
Save Data			
Select type of output file			
SQL Manager for PostgreSQL	<ul> <li>● CSV</li> <li>● Text</li> <li>● Binary</li> <li>✓ With OIDs</li> </ul>		
Help Templates		< <u>B</u> ack <u>N</u> e	ext > Cancel

Click the **Next** button to proceed to the <u>Setting output file parameters</u> [622] step of the wizard.

### 9.4.4 Setting output file parameters

Define the output file parameters according to the instructions below.

#### **CSV** file parameters

#### Quote

Specify the quotation character to be used in the CSV file. By default, the double-quote is used.

#### Escape

Specify the character that should appear before a *QUOTE* data character value in the CSV file. By default, the same character as for **Quote** is used (double-quote).

#### Delimiters

Specify the single character that separates columns within each row (line) of the file. By default, a comma is used.

#### **NULL** value

Specify the string that represents a NULL value. You might prefer an empty string for cases where you do not want to distinguish nulls from empty strings.

#### Force quote columns

This option forces quoting to be used for all non-NULL values in each column selected below. NULL output is never quoted.

To select a column, you need to move it from the **Available columns** list to the **Selected columns** list. Use the **Selected columns** list. Use the **Selected columns** list to another.



#### **Text file parameters**

#### Delimiters

Specify the single character that separates columns within each row (line) of the file. By default, a tab character is used.

### **NULL** value

Specify the string that represents a NULL value. The default is "N" (backslash-N). You might prefer an empty string for cases where you do not want to distinguish nulls from empty strings.

📲 Save Data Wizard	
Save Data	
Specify some text parameters	
Delimite NULL V SQL Manager for PostgreSQL	s \t alue \N
Help Templates	< <u>B</u> ack <u>N</u> ext > Cancel

When you are done, click the **Next** button to proceed to the last step [625] of the wizard.

### 9.4.5 Saving data

This step of the wizard is intended to inform you that all *COPY* options have been set, and you can start the saving data process itself.

The **Operations** tab allows you to view the log of operations and errors (if any).

📲 Save Data Wizard. Table na	🕆 Save Data Wizard. Table name - [postgres on localhost:54392]			
Save Data				
Click the Run button to sta	art service			
	Process completed successfully!			
	100 %			
SQL Manager for PostgreSQL	====== START OF LOG ====== Data unloading started Unloading data Done Data unloading finished ============ END OF LOG ==========			
Close the Wizard after successful completion				
<u>H</u> elp <u>T</u> emplates	< <u>B</u> ack <u>R</u> un	Close		

# Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the saving data process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to run the saving data process.

# 9.5 Load Data Wizard

**Load Data Wizard** allows you to use the *COPY FROM* PostgreSQL statement to copy data from a standard file-system file to a <u>table</u> 169 at a very high speed. This command copies data from a file to a table, appending the data to whatever is in the table already. The file must be accessible to the server and the name must be specified from the viewpoint of the server. You can save your settings as a <u>template</u> 21 any time for future use.

To start the wizard, right-click the table in <u>DB Explorer</u> [65], select the **Data Manipulation J Context** menu [57] item.

Alternatively, you can open the **Data** tab of <u>Table Editor</u> (<u>View Editor</u> (229), right-click the <u>grid</u> (ما بالله there, then select the **Data Manipulation | الله Load Data...** <u>context menu</u> (ما الله tem.



- <u>Setting input file name</u> 628
- Selecting columns 629
- <u>Specifying type of input file</u> 630
- Specifying input file parameters 631
- Loading data 634

<u>Availability</u>:

Full	version	(for Windows)	Yes
Lite	version	(for Windows)	No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

### See also:

Export Data Wizard 538 Import Data Wizard 582 Export as SQL Script 608 Save Data Wizard 617 Using templates 982

### 9.5.1 Setting input file name

This step of the wizard allows you to specify **absolute path and name of the input file** to load data from.

The file must be accessible to the server and the name must be specified from the viewpoint of the server. Note that the file will be read directly by the server, not by the client application. Therefore, it must reside on or be accessible to the database server machine, not the client.



Click the **Next** button to proceed to the <u>Selecting columns</u> [629] step of the wizard.

# 9.5.2 Selecting columns

In this step of the wizard you are to select the columns into which the data should be loaded.

To select a column, you need to move it from the **Available columns** list to the **Selected columns** list. Use the **Description Description Description Selected columns** list. Use the **Description Description Descript** 

If you need to copy to all available columns, you can select the **I** All columns option.

📑 Load Data Wizard			
Load Data			
Define columns if necessa	ку		
EFFECTION OF CONTRACT OF CONTRACT.	<ul> <li>All columns</li> <li>Available columns</li> <li>localname</li> <li>governmentform</li> <li>headofstate</li> <li>capital</li> <li>code2</li> </ul>	Selected column code name continent continent region surfacearea indepyear population LifeExpecta gnp gnp gnpold	ncy
Help <u>T</u> emplates		< <u>B</u> ack <u>N</u> ext	> Cancel

Click the **Next** button to proceed to the <u>Specifying type of input file</u> and step of the wizard.

# 9.5.3 Specifying type of input file

Use this step of the wizard to select the type of the input file:

CSV
 Specifies CSV as the input file <u>format</u>[983].
 *Text* Specifies TXT as the input file <u>format</u>[983].
 *Binary* Causes all data to be read in binary format rather than as text. You will not need to specify the *DELIMITER* or *NULL* <u>options</u>[631] in binary mode.

### With OIDs

Specifies copying the OID for each row (an error is raised if this option is enabled for a table that does not have OIDs, or in the case of copying a query).

🗟 Load Data Wizard			- • -
Load Data			
Select type of the input file	•		
SQL Manager for PostgreSQL	<ul> <li>CSV</li> <li>Text</li> <li>Binary</li> <li>With OIDs</li> </ul>		
Help <u>T</u> emplates	<b>.</b>	< <u>B</u> ack <u>N</u> e	xt > Cancel

Click the **Next** button to proceed to the <u>Specifying input file parameters</u> and step of the wizard.

### 9.5.4 Specifying input file parameters

Define the source (input) file parameters according to the instructions below.

#### **CSV** file parameters

#### Quote

Specify the quotation character used in the CSV file. By default, the double-quote is used.

#### Escape

Specify the character that appears before a *QUOTE* data character value in the CSV file. By default, the same character as for **Quote** is used (double-quote).

#### Delimiters

Specify the single character that separates columns within each row (line) of the file. By default, a comma is used.

### **NULL** value

Specify the string that represents a NULL value. Note that any data item that matches this string will be stored as a null value, so you should make sure that you use the same string as you used with <u>Save Data Wizard</u> [17].

#### Force not null

If this option is selected, each column selected below will be processed as though it were quoted and hence not a NULL value.

To select a column, you need to move it from the **Available columns** list to the **Selected columns** list. Use the **D G G** buttons or drag-and-drop operations to move the columns from one list to another.



#### **Text file parameters**

#### Delimiters

Specify the single character that separates columns within each row (line) of the file. By default, a tab character is used.

### **NULL** value

Specify the string that represents a NULL value. The default is "N" (backslash-N). You might prefer an empty string for cases where you do not want to distinguish nulls from empty strings.

🖹 Load Data Wizard			- • •
Load Data			
Specify some output text param	eters		
Del Inu SQL Manager for PostgreSQL	miters \t _L Value \N		
Help Templates		< <u>B</u> ack <u>N</u> ext >	Cancel

When you are done, click the **Next** button to proceed to the <u>last step</u> [634] of the wizard.

# 9.5.5 Loading data

This step of the wizard is intended to inform you that all *COPY FROM* options have been set, and you can start the loading data process itself.

The **Operations** tab allows you to view the log of operations and errors (if any).

🖹 Load Data Wizard. Table name - [postgres on localhost:54392]				
Load Data				
Click the Run button to sta	art service			
	Process completed successfully!			
	100 %			
SQL Manager for PostgreSQL	======================================			
	Close the Wizard after successful completion			
Help Templates V Close Close				

#### Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the loading data process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to run the loading data process.



# 10 Tools

The following *database tools* are available in SQL Manager for PostgreSQL:

### Dependency Tree बिउरी

Allows you to view all the object dependencies in one diagram.

### Database Designer 720

Allows you to lay out your database schema visually.

### Execute Script Editor 646

Executes SQL scripts in the database.

### Extract Database Wizard 653

Extracts the table metadata and/or data to an SQL script which can be executed later on another machine to restore the database structure and/or data.

### Copy Database Wizard 663

Allows you to copy database objects and/or data from one database to another.

### Print Metadata 680

Creates powerful metadata reports in the WYSIWYG mode ready for printing.

### HTML Report 686

Creates powerful metadata reports in the HTML format.

### Reports management 692

Tools for efficient management of reports: creating, editing, viewing, printing.

### SQL Monitor 643

Displays all the SQL statements executed while working in SQL Manager for PostgreSQL.

#### Using templates 982

Facilitates using SQL Manager wizards.

#### See also:

Getting Started39Database Explorer65Database Management87Database Objects Management158Change Management144Query Management144Query Management148Data Management452Import/ExportTools535ServicesServices177Options1870How To...100

507 SQL Manager for PostgreSQL - User's Man	637	QL Manager for PostgreSQL - User's Manual
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# **10.1 Dependency Tree**

The **Dependency Tree** tool allows you to view all the object dependencies in one diagram.

To call the **Dependency Tree** window, select the **Tools | Dependency Tree** <u>main</u> <u>menu</u> (sef) item, or use the **Dependency Tree** button on the main <u>toolbar</u> (sec).

<u>D</u> atabase	<u>V</u> iew	Tools	Services	<u>O</u> ptions	<u>W</u> indows	<u>H</u> elp
		2	Query Data		F12	
		M	Design Query	,		
		ĩų.	SQL Monitor	Sł	nift+Ctrl+M	
		<b>5</b>	Execute Scrip	ot Sł	hift+Ctrl+S	
		<b>-</b> }	Extract Datab	ase		
		52	Copy Databas	se		
		ețe -	Compare Data	abases		
		8	Print Metadata	a		
		2	Search in Met	tadata	Ctrl+Alt+F	
		₽}	HTML Report			
		<b>1</b>	Report Desigr	ner		
			Dependency <sup>•</sup>	Tree		

- Using Navigation bar and Toolbar
- Viewing dependency tree 641

#### <u>Availability</u>:

Full version (for Windows) Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

# See also:

Database Objects Management 155

### 10.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Dependency Tree**.



### Database

left select a database for browsing object dependencies

## General

- refresh the currently displayed dependency tree
- 📚 print the diagram
- 💐 set printing options using the **Print Setup** dialog
- save the current diagram as a picture
- restore the default size and position of the window

### Object

- navigate by switching to the previous object
- navigate by switching to the next object
- 🖾 show/hide subobjects
- 🚔 <u>select</u> बिभी a root object

### **Diagram Layout**

show all objects
show objects depending on Root

- show Root depends on objects

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

**Hint:** Items of the **Object** pane of the **Navigation bar** are also available in the *context menu* of the **Dependency Tree** area.

# 10.1.2 Viewing dependency tree

To view dependencies of an object, click the **Select object** <u>Navigation bar</u> (39) item. Then select the <u>schema</u> (64) and the required object in the **Select Object** dialog window. The dependency tree will appear in the main area of the window.

Select Object - TestDB on ayz2:54383 [TestDB]						
	Tables	< Al	>			
4	Production.Orders	public.Cust_Hist	public.table13			
- 49	Production.geom	public.Department	public.table14			
6	TEST.inside_forums_topics	public.Departments	public.table15			
22	TEST.inside_forums_topics22	public.Employees	public.table5			
	TEST.inside_forums_topics333	public.Inventory	public.table6			
	TEST.table1	public.Orderlines	public.table7			
1	TEST.table1_	public.Prod_desc	public.table7_new			
	TEST.table3	public.Product	public.table8			
	TEST.table4	public.Products	tests.Account			
	TEST2.table3	public.TypeList	tests.Address			
•	EST2.table4	public.child_feelings_1	tests.Contact			
-	c.table2	public.dummy1	tests.Department			
Σh	public.Account	public.dummy1_new	tests.Person			
	public.Address	public.pgmfavorites				
6	public.Categories	public.pgmreports				
8	public.City	public.table10				
5	public.Country	public.table11				
1	public.CountryLanguage	public.table12				
<b>1</b> 0						
-	•		F			
		<u>о</u> к	Cancel Help			

While the tree of dependencies is being built, the progress bar [BG3] is displayed in the status area at the bottom of the window.

	🗄 Dependency Tree - [Table HR.EMPLOYEE] - [DemoDB on ayz2:54383]
	😝 Databases 🔻 🌦 💐 📰 😥 🖛 🕶 📥 🚺 🔂
100000	Image: space of the state
	Process completed successfully!

The *root* object is marked out with a blue frame.

The objects that the root object depends on are located to the left of the root object.

The objects that *depend on the root object* are located to the right of the root object.

*Object dependencies* are denoted as regular arrows from the left to the right (->). A *cyclic dependency* (i.e. when the object already has some other depending object(s)) is denoted as a line ending with a cross (-x).

You can switch between objects by selecting them in the diagram. The selected object becomes the root object. To make an object root, you can also right-click it in the diagram area and select **Set as Root** from the **context menu**. The context menu of an object also allows you to *edit* it using the corresponding editor.

The history of selected root objects is also available: you can move back and forward through this history using the **Previous object** and the **Next object** links on the <u>Navigation bar</u> and or <u>toolbar</u> and the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links on the <u>Navigation bar</u> and the <u>Next object</u> links and the <u>Next object</u>

Hint: To show/hide subobjects (e.g. table <u>triggers</u> 268), <u>foreign keys</u> 212), click the **Show subobjects** / **Hide subobjects** item on the <u>Navigation bar</u> 639).

See also: Select Object dialog

# 10.2 SQL Monitor

**SQL Monitor** allows you to view the log of all operations performed over databases and database objects in SQL Manager for PostgreSQL. The content of the window is read-only.

To open the **SQL Monitor** window, select the **Tools** |  $\bigcirc$  **SQL Monitor** main menu set item, or use the *Shift+Ctrl+M* shortcut with.



- Using Navigation bar and Toolbar 644
- Working with SQL Monitor 645

### See also:

SQL Monitor options 891

# 10.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **SQL Monitor**.



### General

clear the content of the window

save the content to a \*.txt file using the **Save as...** dialog

🎾 search for a string using the Find Text 🕅 dialog

search again

🧶 configure SQL Monitor using the <u>SQL Monitor</u> छनेsection of the <u>Environment Options</u>छनी dialog

restore the default size and position of the window

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

### 10.2.2 Working with SQL Monitor

The working area of **SQL Monitor** lists the log of database operations and SQL queries as items, each consisting of 3 parts: *Executed* (the date and time of the operation), *Operation* (SQL statement sent to the server), *Result* (the result of the operation).

Items of the **context menu** of SQL Monitor area provide access to various functions for working with the window content. The context menu contains standard text-processing functions (*Copy*, *Select All*), <u>spelling checking</u> [42] and functions for working with the content as a whole, e.g. you can set *markers*, *move the cursor to a particular line*, *save* the content to a file or as a <u>favorite query</u> [85], configure the editor using the <u>properties</u> [926] item or *preview/print* the content. Most of these operations can be also performed with the corresponding <u>hot keys</u> [1007] used.

🚱 SQL Monitor		
🛯 🖻 📮 🔎 🙏 🔒 🍐	9	÷
General	1 2 Context ID : 1 3 Started : 02.09.2015 13:11:39,924	Â
Save <u>     Find</u>	5 SELECT attname AS name, at 6 Duration / Fetch : 0,00	, att
SQL Monitor options Restore default size	7 Result : OK. 8 9 Context ID : 1	
	10 Started     : 02.0     Redo     Shift+Ctrl+Z       11 Operation     :     :     :       12 SELECT     i.indisprimary AS     :     :	cev AS
	13 Duration / Fetch : 0,00       Image: Select All       Ctrl+A         14 Result       : OK.       P         Eind       Ctrl+F	
	16     Context ID     : 1     : Search Next     F3       17     Started     : 02.0     Incremental Search     Ctrl+l	
	18 Operation : 19 SELECT ic.oid, ic.relname 20 Duration / Fetch : 0,03 Save as Eavorite Query Shift+Cirl+Q	ary AS
	21 Result       : OK.         22       Export Data of Selected Query         23 Context ID       : 1	
	24 Started : 02.0 Preview 25 Operation : 26 SELECT c.oid. c.collname A	descri
	27 Duration / Fetch : 0,00 Properties 28 Result : OK.	
	<pre>29 30 Context ID : 1 31 Started : 02.09.2015 13:11:40,049 32 Operation : 33 SELECT c.oid, c.conname AS name, t.relname, ft.relname A</pre>	AS ftblna
	34 Duration / Fetch : 0,016 sec 35 Result : OK. 36	*
23: 4	Insert Highlighting	×

Implementation of the <u>Find Text</u> अनी dialog and <u>Incremental search</u> अत्वे bar contributes to more efficient work with the content of SQL Monitor.

# 10.3 Execute Script Editor

Using Execute Script editor you can view, edit and execute SQL scripts.

To open the editor select the **Tools | Execute Script**  $\underline{\text{main menu}}$  items or use the corresponding  $\frac{1}{2} \underline{\text{toolbar}}$  buttons. You can also use the Shift+Ctrl+S  $\underline{\text{shortcut}}$  for the same purpose.

<u>D</u> atabase	View	Tools	<u>S</u> ervices	<u>O</u> ptions	<u>W</u> indows	<u>H</u> elp
		🖹 🖸	luery Data		F12	
		<b>1</b>	esign Query			
		ច្ចៃ ទ	QL Monitor	Sh	ift+Ctrl+M	
		🍹 Е	xecute Script	t Sł	nift+Ctrl+S	

In the script area you can view and edit the SQL script text. For your convenience syntax highlight and code completion features are implemented.

- Using Navigation bar and Toolbar 647
- Working with Execute Script editor area 649
- Using Script Explorer 651
- <u>Script execution</u>652

**Note: Execute Script Editor** does not show results returned upon SELECT queries execution. Please use <u>Query Data 415</u> for that purpose instead.

See also: Query Data Execute Script options Editor Options 925

# 10.3.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Execute Script Editor**.

Destination	*
🥃 ayz2:54383	•
B DemoDB on ayz2:54383	•
General	*
Execute script	
Execute script from file	
New script	
🦻 Open script	
🚽 Save script	
Save script as	
Save to Shared Scripts as	s
E Disable parsing	
Enable result log	
B Disable all code features	
SQL Script options	
🛃 Restore default size	
Change Managemen	*
Log executed script to VC	
If script changes objects	•
Ask comment before run	
Ask comment after run	
Explorer	*
Tables (1)	
🗄 📴 Indices (3)	

### Destination

select a host
select a database for the script

#### General

- execute 652 the current script
- \$ execute a script from file
- create a new script
- Ioad a script from an \*.sql file using the Open SQL Script dialog
- save the current script

 $\mathbf{k}$  save the current script as <u>Shared Script</u> and using the **Save to Shared Scripts as...** dialog

- dialog save the script to an \*.sql file using the **Save as...** dialog
- enable/disable parsing of SQL code
- enable/disable result log
- 🖲 enable/disable all code features १२२३।
- 🧶 configure Execute Script Editor within the <u>Script Options</u>छित्रे section of the <u>Environment</u> <u>Options</u>छिती dialog
- restore the default size and position of the editor window

#### **Version Control**

This panel is enabled if <u>change management</u> 126 feature is enabled for the database. Use the drop-down list to define whether to add this transaction to version control log *always* or only *if script changes objects*.

- Ask comment before run
- Ask comment after run

#### Explorer

🗄 browse the tree objects used in the script using the Script Explorer 🖾 pane

NB: You can enable\disable Toolbars and Navigation bars at Environment options 877.

### See also:

<u>Working with Execute Script editor area</u> बिभी <u>Using Script Explorer</u> िङी <u>Script execution</u> िङ्ये
## 10.3.2 Working with Execute Script editor area

649

The **Editor area** of Execute Script is provided for efficient working with SQL scripts in text mode.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented:

- using object links [425] allowing you to open the object in the associated editor;
- ability to display line numbers;
- code folding for statements and clauses;
- customizable margins and gutters;
- formatting code for better representation and more.

The **context menu** of Execute Script Editor area contains <u>execution</u> [52] commands, most of the standard text-processing functions (*Cut, Copy, Paste, Select All*), <u>spelling checking</u> [942] and functions for working with the script as a whole, e.g. you can enable/disable *parsing*, toggle *bookmarks* and *comments*, *move the cursor to a particular line, change the case* of selected text, *load/save* the content from/to a file or save as a <u>favorite query</u> [85], <u>configure</u> [926] the editor using the **Properties** item or *preview/print* the text of the script. Most of these operations can be also performed with the corresponding <u>hot keys</u> [100]

Implementation of the Find Text  $[97\hbar]$  / Replace Text  $[97\hbar]$  dialogs and Incremental search  $[96\hbar]$  bar contributes to more efficient work with the SQL code.



**Note:** If a database is selected within the <u>navigation bar [A47]</u>, but script contains the '\connect to database2' statement (where 'database2' differs from the selected one), then the **Reset** button appears. Click this button to ignore this statement. Script will be performed for the database selected within the navigation bar.

Script		
A Current databas	se: TestDB	Reset

See also: Using Navigation bar and Toolbar Using Script Explorer Script execution Script execution Managing Favorite queries Execute Script options 892 651 SQL Manager for PostgreSQL - User's Manual

## 10.3.3 Using Script Explorer

The **Explorer** group on the <u>Navigation bar</u> [647] displays the tree of objects, used in the current script and allows you to get to the required script fragment quickly by clicking the object in the tree.



**Hint:** When you click a node in the **Script Explorer** tree, the corresponding SQL statement is highlighted in the editor area. If you double-click a node, the corresponding SQL statement is highlighted, and the current focus is switched to the editor area (the cursor appears after the highlighted statement).

#### See also:

<u>Using Navigation bar and Toolbar</u>बिये <u>Working with Execute Script editor area</u> बिये <u>Database Objects Management</u> 155

## 10.3.4 Script execution

When all the script parameters are set, you can immediately **execute the script** in **Execute Script Editor**.

To execute a script, click the **Execute script** item of the <u>Navigation bar</u> [647] or <u>toolbar</u> [647]. You can also use the <u>context menu</u> [649] or *F9* hot key for the same purpose.



**Note:** If the **Execute selected text separately** option (see the <u>Tools | Execute</u> <u>Script</u> [892] section of the <u>Environment Options</u> [871] dialog) is enabled (by default) and a text fragment is currently selected, only this fragment is executed when you click *Execute script* on the <u>Navigation bar</u> [647] or press *F9*. If this option is disabled, the whole script is executed, but you can still execute the selected fragment using the corresponding *Execute Selected Only* item of the <u>context menu</u> [649] or by pressing *Ctrl+F9*.

If the SQL syntax is correct, the script is executed and the 'Done!' information message appears.



If the syntax contains errors or script cannot be executed, the corresponding error message is displayed in the status bar area at the bottom of the editor window.

**Hint:** When you select an item from the error list (in the status bar area), the corresponding SQL statement is highlighted in the editor area. If you double-click an item, the corresponding SQL statement is highlighted, and the current focus is switched to the editor area (the cursor appears after the highlighted statement).

**Note: Execute Script Editor** does not show results returned upon SELECT queries execution. Please  $execute_{426}$  such queries in <u>Query Data 415</u> to see the result dataset.

#### See also:

<u>Using Navigation bar and Toolbar</u>ब्यि <u>Working with Execute Script editor area</u>ब्यि <u>Using Script Explorer</u>ब्हिगे

# **10.4 Extract Database**

**Extract Database Wizard** allows you to extract database objects and/or data to an SQL script, e.g. for backup purposes.

To start the wizard, select the **Tools । ि Extract Database...** <u>main menu</u> कि item, or right-click the database alias in the <u>DB Explorer</u> कि tree and select the **Tasks । ि Extract Database...** item from the <u>context menu</u> 54.



- <u>Selecting a database for extraction</u>654
- Specifying destination file name
- <u>Setting extraction mode</u>
- <u>Selecting objects for metadata extraction</u>657
- <u>Selecting objects for data extraction 659</u>
- <u>Customizing script options</u>660
- <u>Start of extraction process</u>
   662

### See also:

<u>Execute Script Editor</u>बिकी <u>Database Objects Management</u> <sup>[158]</sup> <u>Using templates</u>बिठी

## **10.4.1 Selecting source database**

This step of the wizard allows you to select the **source database** from which metadata and/or data are to be extracted.

If necessary, check the  $\blacksquare$  **Extract all metadata and data of the database** option to simplify the wizard.

民 Extract Database Wizar	d		
Extract Database			
Select the source dat	abase		
	Welcome to the Extra This wizard allows yo script.	ct Database Wizard! u to extract the database structure and	table data into SQL
The wizard will guide you through the process of selecting objects to extra structure and data, and setting extract options.			
SQL	Source database	BemoDB on ayz2:54383 [DemoDB	3] 🔹
Manager for			
PostgreSQL			
Help <u>T</u> empla	tes 🗸	< <u>B</u> ack <u>N</u> ext	:> Cancel

Click the **Next** button to proceed to the <u>Specifying destination file name</u> [655] step of the wizard.

## 10.4.2 Specifying destination file name

#### **Script destination**

This group of options allows you to specify whether the result SQL script will be automatically loaded to Execute Script Editor are saved into a file.

### File name

655

Set a name for the result \*.sql file and type in or use the  $\blacksquare$  **Save as...** button to specify the path to this file on your local machine or on a machine in the LAN.

#### File charset

If necessary, use the drop-down list to select the character set to be applied to the output file.

🛃 Extract Database Wizard		
Extract Database		
Select the destination file r	name	
Final Solution of the second s	You can select file to Script destination Automatically los Save to file File name File charset	save script, or load script into Script Editor. ad to <u>Script Editor</u> C:\EMS\SQL Manager for PostgreSQL\Metadata\ayz_m
<u>H</u> elp <u>T</u> emplates		< <u>B</u> ack <u>N</u> ext > Cancel

Depending on whether you have checked the  $\[mathbb{M}\]$  **Extract all metadata and data of the database** option at the <u>Selecting source database</u>  $\[mathbb{hsh}\]$  step, upon pressing the **Next** button you will either proceed to the <u>next step of the wizard</u>  $\[mathbb{hsh}\]$ , or you will be immediately forwarded to the <u>Customizing script options</u>  $\[mathbb{hsh}\]$  step of the wizard.

# 10.4.3 Setting extraction mode

This step allows you to specify the **extraction mode**: choose whether *structure only*, *data only* or *both* are to be extracted.

民 Extract Database Wizard	
Extract Database	
Select database compon	ents to extract
	You can select to extract either database structure, or table data only, or both.
SQL Manager for PostgreSQL	Which components would you like to extract? <ul> <li>Extract both of structure and data</li> <li>Extract structure only</li> <li>Extract data only</li> </ul>
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>Next</u> > Cancel

Click the Next button to proceed to Selecting objects for structure extraction 657.

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### **10.4.4** Selecting objects for structure extraction

This step of the wizard allows you to **select objects for metadata extraction**.

Note that this step is only available if the  $\blacksquare$  **Extract all metadata and data of the database** option was unchecked when <u>selecting the source database</u> [654].

#### Extract all objects

Adds all objects of the database to structure extraction process.

#### Extract all objects of schema...

Adds all objects of a schema to structure extraction process.

#### Schema name

Use the drop-down list to select the schema to extract all objects from.

### Extract selected objects

Adds only selected objects to structure extraction process.

#### **Objects to extract**

Use the drop-down list to select the type of objects to be extracted. To select an object, you need to move it from the **Available** list to the **Selected** list. Use the Discussion of the Discussion of the term of term

🛃 Extract Database Wizard 📃 📼 💌
Extract Database
Select database objects to extract their structure
<ul> <li>Extract all objects</li> <li>Extract all objects of schema</li> <li>Schema name</li> <li>Extract selected objects</li> <li>Objects to extract</li> <li>Tables</li> <li>Available</li> <li>Employee. CountryRegion</li> <li>Employee. Contact/Region</li> <li>Employee. Contact/Region</li> <li>Employee. CurrencyRegion</li> <li>Employee. CurrencyRate</li> <li>Employee. Customer</li> <li>Employee. Customer</li> <li>Employee. Customer Address</li> </ul>

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Click the **Next** button to proceed to <u>Selecting objects for data extraction</u> [659].

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## 10.4.5 Selecting objects for data extraction

This step of the wizard allows you to **select tables for data extraction**.

Note that this step is only available if the  $\blacksquare$  **Extract all metadata and data of the database** option was unchecked when <u>selecting the source database</u> [654].

#### Extract all tables

659

Adds all tables of the database to data extraction process.

#### Extract data of tables selected on the previous step

Adds only the tables <u>selected for metadata extraction</u> [657].

## Extract data of selected tables

Adds only selected tables to data extraction process.

To select a table, you need to move it from the **Available** list to the **Selected** list. Use the **Selected** list or drag-and-drop operations to move the tables from one list to another.

😤 Extract Database Wizard			
Extract Database			
Select database objects to	o extract their data		
	<ul> <li>Extract all tables</li> <li>Extract data of tables selected or</li> <li>Extract selected tables</li> <li>Available</li> </ul>	n previou	is step Selected
SQL Manager for PostgreSQL	Employee.Address Employee.AddressType Employee.BillOfMaterials Employee.COUNTRIES Employee.CountryRegion Employee.CountryRegionCurre Employee.CreditCard Employee.Curture Employee.Currency Employee.Currency Employee.CurrencyRate		Employee.Contact Employee.ContactCreditCard Employee.ContactType
<u>H</u> elp <u>T</u> emplates		< <u>B</u> ac	k <u>N</u> ext > Cancel

Click the **Next** button to proceed to the <u>Customizing script options</u> and step of the wizard.

## 10.4.6 Customizing script options

This step allows you to customize common **script options** and **data options** for the extraction process.

## Script options

## Generate DROP statements

Check the option to add the *DROP* statements for the extracted objects in the result script.

### **With IF statements**

Check this option to add the *IF* keyword to the *DROP* statements in the result script.

### **CHARACTER and CHARACTER VARYING as CHAR and VARCHAR**

This option specifies that the CHARACTER and CHARACTER VARYING columns will be scripted as CHAR and VARCHAR respectively.

#### Add OID into object comments

Enable this option to add object identifier to object comments.

🔮 Extract Database Wizard	
Extract Database	
Select additional options f	or destination script and click the Finish button
SQL Manager for PostgreSQL	Script options         Generate DROP statements         With IF statements (for 8.2 or higher)         CHARACTER and CHARACTER VARYING as CHAR and VARCHAR         Add OID into object comments         Data options         Records in a block         Include each block into BEGINCOMMIT         Extract data as         Insert statements         Copy statements
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>N</u> ext > Cancel

#### **Data options**

## Records in a block / Insert "COMMIT" statement after each block

These controls allow you to define whether the *COMMIT* statement is added to the script or not, and to specify the number of records in each block to be supplemented with this

statement.

### Extract data as

Select the preferable type of extraction statements that will be placed to the result script:

Insert statements

Copy statements

### Abort extraction on error

This option determines whether the extraction process should be stopped or forced to continue if an error occurs.

Click the **Next** button to proceed to the <u>last</u> 662 step of the wizard.

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## 10.4.7 Start of extraction process

This step of the wizard is intended to inform you that all extraction options have been set, and you can start the extraction process.

The **Operations** tab allows you to view the log of operations and errors (if any).

😤 Extract Database Wizard	
Extract Database	
Select additional options f	or destination script and click the Finish button
	Process completed successfully!
	100 %
SQL Manager for PostgreSQL	Completed Extracting definition for "Employee"."PK_ContactCreditCard_ContactID_CreditCardID" Completed Extracting definition for "Employee"."FK_ContactCreditCard_Contact_ContactID" Completed Extracting definition for "Employee"."FK_ContactCreditCard_CreditCardID" Completed Extracting definition for "Employee"."FK_ContactCreditCard_CreditCardID" Completed Extracting definition for
	Close the Wizard after successful completion
<u>H</u> elp <u>T</u> emplates	✓ < <u>B</u> ack <u>R</u> un Close

#### Close the wizard after successful completion

If this option is selected, the wizard is closed automatically when the extraction process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to run the extraction process.

# 10.5 Copy Database

**Copy Database Wizard** allows you to transfer the entire database with its objects and data from one location to another.

To run the wizard, select the **Tools** | **Copy Database...** <u>main menu</u> at item, or rightclick the database alias in the <u>DB Explorer</u> and select the **Tasks** | **Copy Database...** item from the <u>context menu</u> 34.



- Selecting source database 664
- Specifying destination database
- <u>Selecting components to copy</u> 667
- <u>Selecting objects to copy their structure</u>
- <u>Selecting objects to copy their data</u> 670
- Setting additional options 671
- <u>Copying database</u>673

**Full** version (for Windows)

<u>Availability</u>:

Yes No

Lite version (for Windows)

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

## 10.5.1 Selecting source database

This step of the wizard allows you to select the **source database** to copy and specify **destination database** registration status.

📴 Copy Database Wizard			- • •
Copy Database			
Select the source data	base and the destination database	type	
	Welcome to the Copy Database Wizard! This wizard allows you to copy the selected database wholly or partially to a new database or to one of the existing databases.		
SOL	This wizard will guide you through the process of specifying the target database properties, selecting database structure elements for copying and setting other copying options.		
Manager	Source <u>d</u> atabase	EmoDB on ayz2:54383	[DemoDB]
PostgreSQL	Destination database	N	4 4-4-5
	Registered database	Mon-registere	d database
	NOTE! To avoid errors when compatible.	copying make sure that the se	rver versions are
Help		< <u>B</u> ack Ne	d > Cancel

#### Source Database

Use the drop-down list of registered and currently connected databases to select the database to copy.

## **Destination database**

Select 
Registered database if you want to copy the specified database to a registered database, or select 
Non-registered database to copy the specified database to a new (non-registered) database.

Click the **Next** button to proceed to the <u>Specifying destination database</u> [665] step of the wizard.

## 10.5.2 Specifying destination database

Use this step of the wizard to set the **destination database** for copying objects to. If the database is already registered (i.e. **•** *Registered database* was selected at the <u>previous step</u> (**•**), then you just need to select a host and a database that resides on this host. Otherwise you should set all the connection properties using the corresponding boxes and options: *Host name, Port, User name, Password, Database* name.

e Copy Database Wiz	zard	- 🗆 X	
Copy Database			
Specify the destinat	tion database for copying o	bjects to	
	<u>H</u> ost name	ayz2 ~ Port 5432	
	<u>U</u> ser name	postgres	
	Pa <u>s</u> sword	•••••	
SQL Manager	new_database ~		
for PostgreSQL			
	Register destination of	atabase after execution	
<u>H</u> elp		< <u>B</u> ack <u>N</u> ext > Cancel	

Specify the host where the destination database resides: type in the host name in the **Host name** field or select one in the drop-down list.

Enter PostgreSQL port to connect through in the **Port** field and provide *authorization* settings: **User name** and **Password**.

#### Database

Type in the name of the database to copy objects into.

If necessary, check the Create new database option to create a new database for copying objects.

Check the **Register destination database after execution** option to register the newly created database in SQL Manager (the Database Registration Info dialog will be opened after database creation).

Click the **Next** button to proceed to the <u>Selecting components to copy</u> 667 step of the wizard.

## 10.5.3 Selecting components to copy

This step allows you to specify the **components to copy**: choose whether *structure only*, *data only* or *both structure and data* should be copied.

📴 Copy Database Wizard	
Copy Database	
Select database compon	ents to copy
	You can select to copy either database structure, or table data only, or both.
SQL Manager for PostgreSQL	Which components would you like to copy? <ul> <li>Copy both of structure and data</li> <li>Copy structure only</li> <li>Copy data only</li> </ul>
Help	< <u>B</u> ack Cancel

Click the **Next** button to proceed to the <u>Selecting objects to copy their structure</u> **step** of the wizard, or to the <u>Selecting objects to copy their data</u> **step** if you have specified to *copy data only*.

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## 10.5.4 Selecting objects to copy their structure

This step of the wizard allows you to **select objects for copying metadata**.

Note that this step is only available if the O *Copy both structure and data* or O *Copy structure only* mode was specified when <u>Selecting components to copy</u>

#### Copy all objects

Adds all objects of the source database to the Copy Database process.

#### Copy all objects of schema...

Adds all objects of a schema to the Copy Database process.

#### Schema name

Use the drop-down list to select the schema to copy all objects from.

### Copy selected objects

Adds only selected objects to the Copy Database process.

#### **Objects to copy**

Use the drop-down list to select the type of objects to be copied.

To select an object, you need to move it from the **Available** list to the **Selected** list. Use the **Selected** list or drag-and-drop operations to move the objects from one list to another.

🔁 Copy Database Wizard				
Copy Database				
Select database objects to	o copy their structure			
SQL Manager for PostgreSQL	<ul> <li>Copy all objects</li> <li>Copy all objects of schem Schema name</li> <li>Copy selected objects Objects to copy</li> <li>Available</li> <li>Employee.Culture</li> <li>Employee.Currency</li> <li>Employee.Customer</li> <li>Employee.Customer</li> <li>Employee.Customer</li> <li>Employee.Document</li> <li>Employee.Illustration</li> <li>Employee.Individual</li> </ul>	a Table ress	yee s	Selected         Employee.Department         Employee.Employee         Employee.EmployeeAddress         Employee.EmployeeDepartmentHis         Employee.EmployeePayHistory
Help			< <u>B</u> acl	k <u>N</u> ext > Cancel

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Click the **Next** button to proceed to the <u>Selecting objects to copy their data</u> and step of the wizard, or to the <u>Setting additional options</u> of the selecting components to copy for the selectin

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## 10.5.5 Selecting objects to copy their data

This step of the wizard allows you to **select tables for copying data**.

Note that this step is only available if the O Copy both structure and data or O Copy data only mode was specified when <u>Selecting components to copy</u> 667.

#### Copy data of all tables

Adds all tables of the source database to the Copy Database process.

## Copy data of tables selected on the previous step

Adds only the tables selected for copying their structure 668.

#### Copy data of the selected tables

Adds only selected tables to the Copy Database process.

To select a table, you need to move it from the **Available** list to the **Selected** list. Use the **Selected** list or drag-and-drop operations to move the tables from one list to another.

📴 Copy Database Wizard			
Copy Database			
Select database objects to	o copy their data		
SQL Manager for PostgreSQL	<ul> <li>Copy data of all tables</li> <li>Copy data of tables selected on</li> <li>Copy data of the selected tables</li> <li>Available</li> <li>Employee.CountryRegion</li> <li>Employee.CountryRegionCurre</li> <li>Employee.CreditCard</li> <li>Employee.Culture</li> <li>Employee.Currency</li> <li>Employee.CurrencyRate</li> <li>Employee.Customer</li> <li>Employee.CustomerAddress</li> <li>Employee.Illustration</li> </ul>	previous	step Selected Employee.Department Employee.Employee Employee.EmployeeAddress Employee.EmployeeDepartmentHis Employee.EmployeePayHistory
Help	[	< <u>B</u> ac	k <u>N</u> ext > Cancel

Click the **Next** button to proceed to the <u>Setting additional options</u> and step of the wizard.

## 10.5.6 Setting additional options

This step allows you to customize common **copying options** and **data options** for the Copy Database process.

## **Copying Options**

### Abort copying on error

This option determines whether the copying process should be stopped or forced to continue if an error occurs.

## Rollback on abort

Check the option to roll back the transaction when copying is aborted.

#### Copy OID

Check this option to copy object OIDs as well. Note that this option is only available for PostgreSQL 8.1 and higher.

🔒 Copy Database Wizard		
Copy Database		
Set additional options for c	opy process	
Figure 2 and a second s	Copying Options Abort copying on error Copy OlD (8.1 or higher) Data Options Records in a block Commit data after each block	500
Help	< <u>B</u> a	ck <u>N</u> ext > Cancel

## **Data Options**

#### **Records in block**

Use the spinner control to define the number of records in each committed block.

## Commit data after each block

Check this option to add the *COMMIT* statement after a defined number of records.

When you are done, click the **Next** button to proceed to the Copying database 673 step of the wizard.

## 10.5.7 Copying database

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the Copy Database process.

The **Operations** tab allows you to view the log of operations and errors (if any).

🔒 Copy Database Wizard		3
Copy Database		
Click "Run" to copy datab	base	
	Preparing	
	0 %	
SQL Manager for PostgreSQL	====== START OF LOG ===================================	
Help	Close the Wizard after successful completion	

## Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

Click the **Run** button to complete the operation.

# **10.6 Compare Databases**

**Compare Databases Wizard** creates an SQL script that provides database structure synchronization. To launch the wizard use the **Tools | i Compare Databases...** item of the main menu.

<u>D</u> atabase <u>V</u> iew	<u>T</u> ools	Services Options Windows Help	
	1	Show SQL Editor F12	
	🛱 I	New SQL Editor Shift+F12	
	<u>k</u> :	Show Query Builder	
	M I	New Query Builder	
		SQL Monitor Shift+Ctrl+M	
	😽 s	SQL Script Shift+Ctrl+S	
	🔁 I	New SQL Script Shift+F9	
		Extract Database	
	60 (	Copy Database	
	đja (	Compare Databases	

- <u>Selecting source database</u><sup>675</sup>
- <u>Selecting target database</u>676
- <u>Selecting type of the synchronization script</u> [677]
- Defining options for the destination script 678
- Performing operation 679

**Full** version (for Windows)

<u>Availability</u>:

Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u><sup>[22]</sup> page.

## See also:

<u>Copy Database Wizard</u>ରେଏ <u>Backup Database</u>ରେଷ <u>Restore Database</u>ଛେମ <u>Using templates</u>ଭିଥି

# 10.6.1 Selecting source database

Use this step to define source database for comparing.

👘 Database Comparer Wizar	d - [DemoDB on ayz2:54383] - [TestDB on ayz2:54383] 📃 🔲 🛋
Database Comparer	
Select the source databa	se
	Welcome to the Database Comparer Wizard! This wizard allows you to compare databases and create a script to deploy changes from one database into another one. This wizard will guide you through the process of specifying the source/target databases, and selecting the type of synchronization script.
SQL Manager for PostgreSQL	Source <u>h</u> ost Source <u>d</u> atabase
Help Templates	▼ < <u>Back</u> <u>Next</u> > Cancel

### Source host

Defines host where source database is located.

## Source database

Select source database from the drop-down list.

Click the **Next** button to proceed to the <u>Selecting source database</u> जिन्ही step.

## 10.6.2 Selecting target database

Use this step to define target database for comparing.

🗓 Database Comparer Wizar	d - [DemoDB on ayz2:54	1383] - [TestDB on ayz2:54383]
Database Comparer		
Specify the target databa	se	
	At this step you are cho	posing target database
	<u>T</u> arget host	🧟 ayz2:54383 🔹
	Target database	TestDB on ayz2:54383 [TestDB]
SQL Manager for PostgreSQL		
<u>H</u> elp <u>T</u> emplates	•	< <u>B</u> ack <u>N</u> ext > Cancel

## Target host

Defines host where target database is located.

## **Target database**

Select target database from the drop-down list.

Click the **Next** button to proceed to the <u>Selecting type of the synchronization script</u> of the synchronization script of the

## 10.6.3 Selecting type of the syncrhonization script

Specify the direction of comparing selected database.

👸 Database Comparer Wizar	rd - [DemoDB on ayz2:54383] - [TestDB on ayz2:54383]
Database Comparer	
Select the type of synchr	onization script
Image: Constraint of the second sec	<ul> <li>You can modify the target database, i.e. perform source-to-target synchronization, or vice versa.</li> <li>Generate script that transforms <ul> <li>Target database into source database</li> <li>Source database into target database</li> </ul> </li> </ul>
<u>H</u> elp <u>T</u> emplates	✓ < <u>B</u> ack <u>Next</u> Cancel

#### Target database into source database

Enables reverse comparing: the synchronization script will contain statements which make the <u>target</u> or diatabase identical to the <u>source</u> or one.

## Source database into target database.

Enables direct comparing: the synchronization script will contain statements which make the <u>source</u> [675] database identical to the <u>target</u> [676] one.

Click the **Next** button to proceed to the <u>Defining options concerned destination script</u> of step.

## **10.6.4** Defining options for destination script

Use this step to define additional option for destination script.

🗓 Database Comparer Wizard	d - [DemoDB on ayz	2:54383] - [TestDB on ayz2:54383]
Database Comparer		
Select additional options f	or destination script	
Final Solution         SQL         SQL         Manager         for         PostgreSQL	You can select file to Script destination Automatically I Save to file File name File charset	o save script, or load script into Script Editor. oad to Script Editor C:\EMS\SQL Manager for PostgreSQL\Comparing.sql Database default
Help <u>T</u> emplates	ŀ	< Back Next > Cancel

#### Automatically load to Script Editor

With this option enabled, the synchronization script will not be saved. It will be loaded to <u>Script Editor</u> [46].

#### Save to file

Use this option if you need to save the synchronization script to a file.

### File name

Defines the name of the file to save the synchronization script to. Click the  $\blacksquare$  **Save** button to locate file using the standard dialog or type the file name and it's location manually.

#### **File charset**

Specified character set will be used when saving the script to file.

Click the **Next** button to proceed to the <u>final step</u> [79].

## 10.6.5 Performing operation

This step of the wizard is intended to inform you that all necessary options have been set, and you can start comparing databases.

The log area allows you to view the log of operations and errors (if any).

🗓 Database Comparer Wizard	I - [DemoDB on ayz2:54383] - [TestDB on ayz2:54383]
Database Comparer	
Click "Run" to compare d	atabases
	Process completed successfully!
	100 %
SQL Manager for PostgreSQL	====================================
	Close the Wizard after successful completion
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>R</u> un Close

#### Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed. If the option is disabled then you can repeat the operation with the same or redefined parameters.

Click the **Run** button to run the backup database operation.

# 10.7 Print Metadata

680

**Print Metadata** allows you to generate and print metadata reports of any database object(s).

To open the window, select the **Tools |**  $\clubsuit$  **Print Metadata** <u>main menu</u> [961] item, or use the  $\clubsuit$  **Print Metadata** button on the main <u>toolbar</u> [963]. Alternatively, you can right-click the database alias in the <u>DB Explorer</u> [65] tree and select the **Tasks |**  $\clubsuit$  **Print Metadata** item from the <u>context menu</u> [54].



- Using Navigation bar and Toolbar
- Printing options 683

**Full** version (for Windows)

Print Preview 684

<u>Availability</u>:

Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

## See also:

<u>Database Objects Management</u> 158) <u>Print Metadata options</u> 1908

## 10.7.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Print Metadata**.



#### Database

🗄 select a database for the printing report

## General

🛸 print metadata of the selected object(s)

- *preview* <sup>684</sup> the printing report
   *■* restore the default size and position of the window

## Show

✓ filter database objects by type

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

## **10.7.2 Printing options**

The **Print Metadata** window allows you to select the database objects for printing metadata.

To select an object, you need to move it from the **Available objects** list to the **Objects for printing** list. Use the **Delta buttons or drag-and-drop operations to move the objects from one list to another.** 

After you select one or several objects, the **Printing Options** pane appears at the bottom.

#### Printing Options

Select an object in the **Objects for printing** list and specify items to be included into the printing report: *DDL*, *Description* (for all database objects), *Columns/Params*, *Foreign Keys*, *Checks*, *Indexes*, *Triggers*, *Rules* (for tables).

🖶 Print Metadata - [demo on vads	🖶 Print Metadata - [demo on vadsrv]				
🕴 🛢 Databases 🔻 💼 🚺 🛵 🛛	6 🕞 📬 🖄 🐱 🗷 📑 🖬	1	r r · · · · · · · · ·		📬 🔄 🗐 🗗 🖶 🔳 💽 🥊
Tables			Tables for Printing		
Name	Description		Name		Description
bookings.aircrafts_data	Aircrafts (internal data)		📑 bookings.airports_data	а	Airports (internal data)
bookings.boarding_passes	Boarding passes		📑 bookings.bookings		Bookings
bookings.seats	Seats		📑 bookings.flights		Flights
bookings.ticket_flights	Flight segment				
bookings.tickets	Tickets				
		>			
		<			
>					
0					
			Printing Options		
			✓ Columns/Params		DL
			✓ Indices		escr <u>i</u> ption
			Foreign Keys	⊡⊤	riggers
			Checks	R	ules
			Policies		

# See also:

<u>Using Navigation bar and Toolbar</u>ब्झि <u>Print Preview</u>ब्झ्ये

## 10.7.3 Print preview

You can a make a preview of the printing report and a print metadata for objects of the selected type using the corresponding items of the <u>Navigation bar</u>िक्षी (or <u>toolbar</u>िक्षी).

Report Viewer					_	
🚽 🕠 ≽ 🕼 🏦 🔍 100% 🔻 🔍 🔲		4 4 <b>&gt; &gt;</b>				
Date / Time: 20 Март 2023		User: post	gres			
Database: EMS		Table: pub	ic.employe	e		
Table: public.employee	9					
Columns						
Name	Туре	Not Nul	l Unique	P/K	Def Val	]
emp_no	integer	Not Nul	Yes	Yes		1
first_name	varchar(40)	Not Nul				
last_name	varchar(40)	Not Nul				]
phone_ext	varchar(4)					
hire_date	timestamp	Not Nul				
dept_no	integer					
job_code	varchar(5)					
job_grade	integer			_		
job_country	varchar(40)	Not Nul				
salary	integer					
full_name	varchar(40)					J
Indices						
Index Name	On Colum	ו	Unique	Method	function	]
employee_pkey	emp_no		Yes	btree		
Description						
(none)						
4 of 7						
	<u>C</u> lose	<u>H</u> elp				

The toolbar loss of the **Preview** window allows you to:

- start printing the report;
- open a previously saved printing report;
- save the current report to an external \*.fp3 file;
- save the preview content to any of the available formats: HTML file, Excel file, Text file, RTF file, CSV file, HTML file, BMP image, Excel table (OLE), JPEG image, TIFF image (use the **Export** button for this purpose);
- search for text within the printing report;
- adjust zoom options;
- enable/disable printing report outline;
- enable/disable printing report thumbnails;
- specify page settings;
- edit the page using <u>Report Designer</u> [701];
- navigate within the printing report pages;
- close the **Preview** window.
See also: Using Navigation bar and Toolbar Printing options Report Designer गि

# 10.8 HTML Report Wizard

**HTML Report wizard** allows you to generate a detailed HTML report of the selected database objects.

To start **HTML Report Wizard**, select the **Tools** | **\*\* HTML Report** <u>main menu</u> and item, or use the **HTML Report \*\*** button on the main <u>toolbar</u> and the select the **Tasks** | **\*\* HTML Report**... item from the <u>context menu</u> **\***.



- Selecting database and directory 687
- <u>Selecting object types</u> 688
- Specifying CSS for HTML report 689
- <u>Setting additional report options</u>
- Creating HTML report 691

#### <u>Availability</u>:

Full version (for Windows)

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

Yes

See also:

<u>Database Objects Management</u> 15डी <u>Using templates</u> 1982

## 10.8.1 Selecting database and directory

In this step of the wizard you should select the **source database** and **output directory** for the HTML report.

### Source database

Use the drop-down list of <u>registered</u> and <u>connected</u> atabases to select the source database for the report.

### **Output directory**

Type in or use the b button to specify the path to the output directory for the result HTML files using the **Browse for Folder** dialog.



Click the **Next** button to proceed to the <u>Selecting object types</u> as step of the wizard.

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## 10.8.2 Selecting object types

Use this step of the wizard to select *the types of objects* to be included in the result HTML report.

📲 HTML Report Wizard - [demo on vadsrv] — 🗌		
HTML Report		
Select database object	cts to include in report	
SQL Manager for PostgreSQL	Reported objects          Tables         Views         Functions         Procedures         Domains         Rules         Triggers         Indices         Sequences         Composite Types         Enum Types         Range Types         Base Types	<ul> <li>Aggregates</li> <li>Operators</li> <li>Collations</li> <li>Schemas</li> <li>Event Triggers</li> <li>Tablespaces</li> <li>Foreign Servers</li> <li>Foreign Data Wrappers</li> <li>Languages</li> <li>Checks</li> <li>Foreign Keys</li> <li>Policies</li> <li>Statistics</li> </ul>
<u>H</u> elp <u>T</u> emplates	•	< <u>B</u> ack <u>N</u> ext > Cancel

For your convenience the *Select All* and *Unselect All* buttons are implemented at the bottom of the objects list area.

Click the **Next** button to proceed to the <u>Specifying CSS</u> step of the wizard.

## 10.8.3 Specifying CSS

This step of the wizard allows you *to edit the CSS (Cascading Style Sheet) file* that will be used by the result HTML report.

🗳 нт	🕌 HTML Report Wizard - [pg11_testdb on testing-pg 11] — 🗌 🗙							K			
нтм	HTML Report										
:	Specify Cascading Style Sheet (CSS) for HTML report										
		CSS	Previe	ew	CSS Text						
	-		Tem	nplate	Black&Whit	ie 🔨	/				
		Sch	ema user1	a L							^
	SQL Manager	Colu	umn	s							
	PostgreSQL		РК	FK	Name	Data type	Not null	Unique	Inherited	Defau	d
			*		id	<u>serial</u>	*	*		nextva ('user1	
				*	fooid	<u>integer</u>					
				*	foosubid	integer					$\sim$
		<			1		1			>	
H	elp <u>T</u> emplates	•					< <u>B</u> ack	N	lext >	Cancel	

Click the **Next** button to proceed to the <u>Setting additional report options</u> and step of the wizard.

## **10.8.4** Setting additional report options

Use this step of the wizard to set additional HTML report options.

🐴 HTML Report Wizard - [De	emoDB on ayz2:54383]
HTML Report	
Select additional report of	otions
	Report header
SOL	ayz2/DemoDB - DemoDB on ayz2:54383
Manager	Report footer
for PostgreSQL	This file was generated with SQL Manager for Post
	DDL font size small large (size display also depends on browser settings)
Help Templates	▼ < <u>B</u> ack <u>N</u> ext > Cancel

If needed, you can set optional text to **Report header** and **Report footer** of the result HTML report. For your convenience the default header and footer text is already available. If necessary, you can edit this text according to your needs.

#### DDL font size

This control allows you to set the font size for the DDL section. Move the slider between the **small** and **large** threshold values to select the required font size value within this scope. Note that the text size also depends on your browser settings.

Click the Next button to proceed to Creating HTML report [691].

## 10.8.5 Creating HTML report

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the process.

The **Operations** tab allows you to view the log of operations and errors (if any).

🐴 HTML Report Wizard - [De	:moDB on ayz2:54383]	- • •
HTML Report		
Click the Run button for (	creating report	
	Process completed successfully!	
	100 %	
SQL	Generating report for 'language2' Generating report for 'language2' Generating report for 'language3' Generating report for 'language5'	*
Manager for	Generating report for 'plpgsql' Generating report for 'Employee' Generating report for 'HR'	
Postgresul	Generating report for 'Test' Generating report for 'public' Generating report for 'public' Generating report for 'tbsp_temp'	
	Process completed successfully!	<b>T</b>
	Close the Wizard after successful completion	
Help Templates	▼ < <u>B</u> ack <u>R</u> un	Close

## Show report after generating

This option opens the result report in your default browser after generating.

## Close the wizard after successful completion

If this option is selected, the wizard is closed automatically when the creating HTML report process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to run the process.

## **10.9 Reports management**

SQL Manager for PostgreSQL provides several tools for efficient *reports management*:

## Create Report Wizard 693

This tool is used to simplify the process of creating reports.

## Report Designer

It is a basic tool for creating powerful reports.

## Report Viewer 712

Allows you to view created reports.

Reports can be stored either in the database (table pgmreports will be created to store them) or in a directory on your hard drive specified on the <u>Directories registration Info</u> dialog.

## 10.9.1 Create Report Wizard

Using **Create Report Wizard** you can create a report containing required datasets, bands and fields on them, with a definite report style applied.

To start the wizard, select the **Database |**  New Object... <u>main menu</u> with them select **Report** in the <u>Create New Object</u> (157) dialog. Alternatively, you can right-click the **Reports** node of the <u>DB Explorer</u> (65) tree and select the **New Report...** item from the <u>context menu</u> [57].

	New Report	Ctrl+N	
2	Refresh Reports	F5	
8	Database Registrat	ion Info	
	Tabs		×
$\rho$	Find Object	Ctrl+F	
0	Find Next Object	E3	

- Specifying report name and options 694
- Selecting report bands 695
- Selecting report style
- Specifying paper settings 698
- <u>Specifying margins</u> [699]
- Specifying other page settings 700

## <u>Availability</u>:

Full version (for Windows)

**Lite** version (for Windows)

No

Yes

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

#### See also:

<u>Report Designer</u>ग्रिगे <u>Report Viewer</u>ग्रिगे

#### 10.9.1.1 Specifying database name and report options

Select the source **database** for adding a report and choose the action you need to perform: either *create a new report* or *import an existing report from file*.

Set the **name** for the new report and specify the save options for it:

## Save to database

The report will be created on the server inside the database.

## Save to file

If this option is selected, the report will be saved as a \*.fr3 file to the directory specified on the <u>Directories restrict</u> page of the <u>Database Registration Info</u> dialog.

Create Report Wizard	
Create Report Wizard	
Choose your report optior	15
20	Welcome to the Create Report Wizard! This wizard will take you through the steps of creating a "data-aware" report. The finished report will be saved to your database and can be edited later.
SQL Manager for PostgreSQL	Database       ayz on ayz2:54383 [ayz]         Report creation method <ul> <li>New report</li> <li>Import from file</li> </ul> Save options           Report name           newreport           Save to database           Save to file (*.fr3)
Help	< <u>B</u> ack <u>N</u> ext > Cancel

Click the **Next** button to proceed to the <u>Selecting report bands</u> [95] step of the wizard.

## 10.9.1.2 Selecting report bands

This step of the wizard allows you to select the bands to be included in the report. To select a band, you need to move it from the **Available Bands** list to the **Report Bands** list. Use the **Bands** list. Use the **Bands** list to another.

Use the **Edit** button to create datasets for 'data' bands using <u>Design Query</u> बिजी.

Create Report Wizard			<b>×</b>
Create Report Wizard			
Select the bands which yo	u need for your report		
Contraction of the second seco	Available Bands Page header Page footer Master header Detail data Subdetail data Group header Group footer		Report Bands Report_title Master_data Report_summary
Help		< <u>B</u> ack	Next > Cancel

Brief information about bands functionality is listed below. See **FastReport Help** for more information.

Name	Functionality
Report title	Prints once at the beginning of report
Report summary	Prints once at the end of report
Page header	Prints at the top of each page
Page footer	Prints at the bottom of each page
Master header	Prints at the beginning of master list
Master data	Data rows of master list
Master footer	Prints at the end of master list
Detail header	Prints at the beginning of detail list
Detail data	Data rows of detail list

Detail footer	Prints at the end of detail list
Subdetail header	Prints at the beginning of subdetail list
Subdetail data	Data rows of subdetail list
Subdetail footer	Prints at the end of subdetail list
Group header	Prints at the beginning of each group
Group footer	Prints at the end of each group

Click the **Next** button to proceed to the <u>Selecting report style</u> and step of the wizard.

## 10.9.1.3 Selecting report style

Select the report style by clicking one of the images illustrating the styles available for the report.

Create Report Wizard		<b>—</b>
Create Report Wizard		
Select the report style		
Contraction of the second seco		
Help	< <u>B</u> ack	Vext > Cancel

Click the **Next** button to proceed to the <u>Specifying paper settings</u> [698] step of the wizard.

## 10.9.1.4 Specifying page settings

10.9.1.4.1 Specifying paper settings

Specify report options: paper size and orientation, page margins [699], other settings [700].

Create Report Wizard		×
Create Report Wizard		
Choose your page setting	gs and click the Run button.	
	Paper Margins Other	
	Size	ר
	A4 210 x 297 mm   Portrait	
SQL Manager	Width, mm	
for	Height, mm	
POSIGIESQL		
	Open the report after the wizard has finished	
	Click "Run" to create report	
Help	< <u>B</u> ack <u>R</u> un Cancel	

Use the **Margins** tab to <u>specify margins</u> for the result report.

## **Open the report after the wizard has finished**

If this option is checked, the report will be opened in <u>Report Designer</u> after generating.

When you are done, click the **Finish** button to run the report generation process.

#### 10.9.1.4.2 Specifying margins

## Stretch to print area

If this option is checked, the size of report is adjusted to the print area. If this option is unchecked, you can specify the *left*, *right*, *top* and *bottom* margins (in millimeters).

2 🤤
2

Use the **Other** tab to <u>specify other page settings</u> for the result report.

## **Open the report after the wizard has finished**

If this option is checked, the report will be opened in <u>Report Designer</u> after generating.

When you are done, click the **Finish** button to run the report generation process.

10.9.1.4.3 Specifying other page settings

#### **Options**

#### Print to previous page

This option allows to use white space on a previous page. This option can be used in case when a report template consists of several pages or when printing batch (composite) reports.

#### Two-pass report

If this option is selected, report's formation will be performed in two steps. During the first pass, a report is formed, and is divided into pages, but the result is not saved anywhere. During the second pass a standard report formation with saving a result in the stream is performed.

#### Page numbering

This option allows to print a page numbers.

#### Columns

#### Number

This parameter specifies the number of columns for multi-column reports' printing.

## Gap, mm

This parameter specifies the width of the gap between columns.

Paper Margins Other		
Options	Columns	
Print to previous page	Number	0
Two-pass report Page numbering	Gap, mm	0

#### Open the report after the wizard has finished

If this option is checked, the report will be opened in <u>Report Designer</u> after generating.

When you are done, click the **Finish** button to run the report generation process.

## 10.9.2 Report Designer

**Report Designer** allows you to create and edit reports. This tool can be opened after completion of <u>Create Report Wizard</u> [93] to design a new report.

To edit an already existing project, use the appropriate <u>Navigation bar</u> 713 item of <u>Report</u> <u>Viewer</u> 712.



This module is provided by Fast Reports, Inc. (<u>http://www.fast-report.com</u>) and has its own help system. Press **F1** key in the **Report Designer** to call the **FastReport** help.

Please find the instructions on how to create a simple report in the **Report Designer** below:

- Adding dialog form
- Adding database and query components 704
- Adding report data 707
- Viewing the report 709
- Saving the report 711

**Note:** The **Object Inspector** which allows you to edit report object properties, can be shown/hidden by pressing the **F11** key.

#### <u>Availability</u>:

Full version (for Windows) Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

## See also:

<u>Create Report Wizard</u> बिओ <u>Report Viewer</u> गिरी

#### 10.9.2.1 Adding dialog form

To add a dialog form, select the File | New Dialog main menu item in Report Designer.

The new dialog appears within the *DialogPage1* tab of the designer. Use the available RAD tools to add necessary interface elements to the dialog.



To call the dialog, proceed to the **Code** tab and supply the corresponding statement ( *PascalScript*), e.g. *begin* 

DialogPage1.ShowModal; end.

Using the **Language** drop-down list you can select the script language to be used for the event handler: *PascalScript* (by default), *C++Script*, *BasicScript*, *Jscript*.

For instance, the following C++Script code can be used as the handler for the OnClick event of the 'Show' button to open  $\underline{\text{ZeosPgQuery}}$  :

```
{
ZeosPgQuery1.Active = true;
}
```

## See also:

Adding database and query components 704 Adding report data 707 Viewing the report 709 Saving the report 711

## 10.9.2.2 Adding database and query components

## Adding database component

In order to add the Database component:

- proceed to the Data tab of Report Designer;
- pick the ZeosPgSQL Database U component on the toolbar (on the left);
- click within the working area the corresponding ZeosPgDatabase1 icon appears in the area;
- set the database connection and authorization parameters using the **Properties Inspector**.



## Adding query component

In order to add the Query component:

- proceed to the Data tab of Report Designer;
- pick the Zeos PgSQL Query <sup>kp</sup> component on the toolbar (on the left);
- click within the working area the corresponding ZeosPgQuery1 icon appears in the area;
- set the database name and authorization parameters within the  $\ensuremath{\textbf{Properties Inspector}}$  ;
- double-click the ZeosPgQuery1 icon to open the SQL window;

- input the SQL query that returns the required dataset and click the imes button;
- repeat the operation if you wish to add other query components to the report.



**Note:** The **Properties Inspector** panel which allows you to edit report object properties can be shown/hidden by pressing the **F11** key.

Using the above given steps you can create as many queries as you need. In order to select a dataset returned by a query, select the **Report | Data...** main menu item of **Report Designer** to call the **Select Report Datasets** dialog. Pick the required query within the dialog and press **OK**.



## See also:

Adding dialog form 702 Adding report data 707 Viewing the report 709 Saving the report 711

### 10.9.2.3 Adding report data

#### Adding bands

In order to add a band to the report:

- proceed to the Page1 tab of Report Designer;
- pick the Insert Band ➡<sup>E</sup> component on the toolbar (on the left);
- select the band to be added to the report;
- click within the working area the corresponding element appears in the area;
- set element properties within the **Properties Inspector**.



### Adding report data

In order to add data to the report:

- proceed to the Data tab within the panel on the right side of the window;
- pick a column within the I Data tree and drag it to the working area;
- add all necessary elements one by one using drag-and-drop operation for each of them.



**Note:** The **Properties Inspector** panel which allows you to edit report object properties can be shown/hidden by pressing the **F11** key.

#### See also:

<u>Adding dialog form</u>गिथी <u>Adding database and query components</u>गिऔ <u>Viewing the report</u>गिऔ <u>Saving the report</u>गिगी

## 10.9.2.4 Viewing the report

## Viewing the report

To preview the newly created report, select the **File | Preview** main menu item or use the corresponding **Preview** toolbar button. You can also use the Ctrl+P shortcut for the same purpose. This mode allows you to view, edit and print the result report.

To print the report, use the report toolbar button or the corresponding context menu item.

	🚺 Report Viewer				
	🖪 🔒 💪 🖊	p 🗛 🔍	100% - 🔍 📃	) 🖪 🔢 🔎	
I	15	Ms.	Kim		Akers
l	16	Ms.	Lili	J.	Alameda
I	17	Ms.	Amy	E.	Alberts
I	18	Ms.	Anna	A	Albright
I	19	Mr.	Milton	J.	Albury
I	20	Mr.	Paul	L.	Alcorn
I	21	Mr.	Gregory	F.	Alderson
I	22	Mr.	J. Phillip	L.	Alexander
I	23	Ms.	Michelle		Alexander
I	24	Mr.	Sean	P.	Jacobson
I	25	Ms.	Phyllis	A	Allen
	26	Mr.	Marvin	N.	Allen
	(				▼     4
P	age 1 of 769				
					<u>C</u> lose <u>H</u> elp

It is also possible to preview/print the report using <u>Report Viewer</u> [712].

See also:

<u>Adding dialog form</u><sup>702</sup> <u>Adding database and query components</u> <u>Adding report data</u> <u>Saving the report</u> <u>704</u>

#### 10.9.2.5 Saving the report

When all report parameters are set, you can save the report to an external \*.fr3 file on your local machine or on a machine in the LAN.

To save the report, select the **File | Save** main menu item or use the corresponding **Save Report** toolbar button. You can also use the Ctrl+S shortcut from for the same purpose.

If necessary, you can add the report to the database using <u>Create Report Wizard</u> [693] and perform preview/print operations using <u>Report Viewer</u> [712].

#### See also:

<u>Adding dialog form</u>गिर्वे <u>Adding database and query components</u> <u>Adding report data</u> <u>Viewing the report</u> <u>Trosh</u>

## 10.9.3 Report Viewer

Using **Report Viewer** you can view, edit, save and print reports.

Possible report operations are described on the Using Navigation bar and Toolbar 713 page.

📳 Report - [report1] - [ayz on ayz2:54383	]					x
🗄 🔒 Databases 👻 🌇 report1	- 🖻 📙 (	al 🛛 😓 🗖				=
Object <sup>*</sup>	EMS S	QL Manager for PostgreSC	L: DEMC	Report		
📙 ayz on ayz2:54383 [ayz] 💌	Employee ID	Position	First name	Last name	Gender	
📑 report1 🔹	49	Maintenance Supervisor	Cory	Booth	М	=
General â	66	Application Specialist	Karel	Bates	F	
	12	Vice President of Engineering	Terri	Lee	М	
Refresh	46	Marketing Specialist	Walter	Steadman	М	
Edit report	6	Marketing Manager	Frances	Adams	М	
Save report	2	Marketing Assistant	Roberto	Nelson	М	
Save report as	30	Human Resources Manager	Sandra	Altamirano	F	
🔅 Print	35	Shipping and Receiving Clerk	Ramona	Antrim	F	
Restore default size	85	Shipping and Receiving Supervisor	Mary S.	MacDonal	F	
	39	Programmer	Tom	Johnston	М	
	65	Programmer	Sue Anne	O'Brien	F	
	28	Network Administrator	Ann	Bennet	F	
	79	Research and Development	Ido	Ben-Sach	F	
	96	Scheduling Assistant	Mary	Billstrom	F	
	71	Finance Manager	Jennifer	Burbank	F	
						đ

#### Availability:

 Full version (for Windows)
 Yes

 Lite version (for Windows)
 No

 Note: To compare all features of the Full and the Lite versions of SQL Manager, refer to the Feature Matrix [22] page.

## See also:

<u>Create Report Wizard</u> बि93 <u>Report Designer</u> 70नी

## 10.9.3.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Report Viewer**.



## Object

🔒 select a database

『 select a report for viewing

## General

- lateral refresh the content of the window
- 😰 edit report using <u>Report Designer</u>ग्रिगे
- save the current report
- $\mathbf{b}$  save the report to a \*.fr3 file using the **Save as...** dialog
- a print the report
- restore the default size and position of the viewer window

NB: You can enable\disable Toolbars and Navigation bars at Environment options 877.

# 10.10 Search in Metadata

The **Search in Metadata** tool is implemented for quick search within the scope of database metadata. The tools allows you to set various search conditions and view the results.

To launch the **Search in Metadata** tool, select the **Tools |** Search in Metadata main menu [967] item, or use the Ctrl+Alt+F shortcut [1007].



- Using Navigation bar and Toolbar 715
- <u>Setting search conditions</u> 717
- Viewing search results 719

**Full** version (for Windows)

<u>Availability</u>:

Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

#### See also:

Database Objects Management 155

## 10.10.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Search in Metadata**.



The Navigation bar of the Search in Metadata tool allows you to:

#### Database

📙 select a database for searching

#### General

# 🕼 set <u>search conditions</u> 717

restore the default size and position of the window

## Explorer

browse the tree of found database objects

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

## 10.10.2 Setting search conditions

The **Find in metadata** dialog allows you to set search conditions. It opens each time the **Search in Metadata** tool is launched.

Search in Metadata X		
Text to search emp ~		
Database 🧧 server 14 tes	se 🧧 server 14 test_db 🗸 🗸	
Options	Direction	
Search in DDL           Search sensitive	• Forward	
Whole words only           Regular expressions	O Backward	
Display results in separate window		
OK Cancel <u>H</u> elp		

#### Text to search

Enter a search string in this box. The Arrow-Down button which can be found next to the input box allows you to select any of the previously entered search strings.

#### Database

Use the drop-down list to select a database for the search operation.

#### Options

#### Search in DDL

This option includes object definition in search scope.

#### Case sensitive

This option can be used to differentiate uppercase characters from lowercase ones during the search process.

#### Whole words only

Use this option to search for words only (with this option off, the search string might be found within longer words.

#### Regular expressions

Recognizes regular expressions in the **Text to find** field.

For example, you can type "empl\*" to search for metadata containing the "empl" substring; enter "^emp" to search for words starting with "emp" or "^emp|emp\$" to search for the string "emp" at the beginning or at the end of the string. **Note:** The syntax of regular expressions that can be used in the **Text to find** field is similar to that used in Perl regular expressions. Comprehensive information about it can be found at <u>http://perldoc.perl.org/perlre.html#Regular-Expressions</u>.

## Direction

#### Forward

Searches from the current position to the end of the working area.

#### Backward

Searches from the current position to the beginning of the working area.

## Display results in separate window

This option enables displaying results in a separate window. Otherwise search results replace the current search.

#### See also:

Find Text dialog 971

## 10.10.3 Viewing search results

The **Search in Metadata** window allows you to view the search progress and results fetched from the database.



After the search is complete, the **Explorer** group on the <u>Navigation bar</u> aligned displays the tree of database objects in which the search string is found, and allows you to view metadata of the required object or its fragment quickly by clicking enclosed object branches in the tree.

The **Object <object\_name>** area is provided for viewing metadata of the objects, with the search string highlighted.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see <u>Working with Query</u> Data area 418 and <u>Using the context menu</u> 420.

# **10.11 Database Designer**

**Database Designer** is provided for visual presentation of databases, database objects and relations between objects. It also allows you to create, edit and drop tables and table columns, set relations between tables and perform other operations you may need to achieve your purpose.

To open the designer, select the **Tools |**  $\mathbb{H}^{\mathbb{H}}_{\mathbb{H}}$  **Database Designer** <u>main menu</u> (set) item, or use the  $\mathbb{H}^{\mathbb{H}}_{\mathbb{H}}$  **DBD** button on the main <u>toolbar</u> (set).



- Using Navigation bar and Toolbars
   722
- Using Diagram Navigator and DB Objects pane 726
- Using context menus 728
- Adding/removing objects to/from diagram
- Incremental search
- Creating new objects 732
- Creating relations 733
- Working with diagram pages 735
- Reverse engineering 736
- Printing diagram
- Saving/loading diagram 741
- <u>Setting diagram options</u> 742

<u>Availability</u>: **Full** version (for Windows)

Yes
Lite version (for Windows) No Note: To compare all features of the Full and the Lite versions of SQL Manager, refer to the Feature Matrix [22] page.

## See also:

Database Objects Management 155 Database Designer options 100

# 10.11.1 Using Navigation bar and Toolbars

The **Navigation bar** and **Toolbars** provide quick access to tools implemented in **Database Designer**.

Database	*
DemoDB on localhost:54391	•
File	\$
New diagram	
🤔 Open diagram	
📕 Save diagram	
l≕ Save diagram as	
Navigator	*
····	
	-
< Ⅲ I	
General	*
General Undo	*
General Undo Refresh	*
General Control Control Contr	*
General General ↓ Undo Refresh ↓ Print setup ↓ Print	*
General General Control Ondo Control Ond	*
General General Control Undo Control Control Contr	*
General Ceneral Control Control Con	*
General General Constant of the setup Constant	*
General General Solution General Solution General Solution Refresh Frint setup Frint setup Frint preview Restore default size Pages Pages New page	*
General General Ceneral Ceneral Ceneral Ceneral Ceneral Ceneral Ceneral Ceneral Ceneral Ceneral Ceneral Print setup Ceneral Print setup Ceneral Print setup Ceneral Print setup Ceneral Print setup Ceneral Print setup Ceneral Print setup Ceneral Print setup Ceneral Print setup Ceneral Print preview Ceneral Pages Ceneral	*
General General Solution General Solution General Solution Refresh General Print setup Frint setup Frint preview Restore default size Page options Pages Page Delete page Delete all pages	*

## Database

📙 select a database for building the diagram

File group

- create a new diagram;
- 🖻 open 🕬 an existing diagram;
- 🚽 <u>save</u>741 the current diagram to a \*.pgd file;
- 🐱 save the current diagram as a custom file

#### Navigator

🖌 use Diagram Navigator 726

## General group

- cancel latest modification;
- repeat canceled modification;
- refresh objects in the diagram;
- Print setup define printing settings;
- 📚 print 737 the diagram;
- / show <u>Print Preview</u> 738;
- 🧶 edit diagram options 🕫
- restore the default size and position of the window

#### Pages group:

- add a new page;
- delete the current page;
- 😼 delete all pages.

## **Database Objects**



contains the list of objects (tables, views and functions) that can be placed to diagram. Context menu of Database Objects group allows you to:

🔑 <u>search</u>

enable/disable sorting by schema, object name or object name, schema refresh list of objects.

NB: You can enable \disable Toolbars and Navigation bars at Environment options [877].

The **main toolbar** (by default, the toolbar is located at the top of the diagram area) contains a number of tools (including items of the **Navigation bar**, <u>context menu</u> (728), tools for <u>printing diagram</u> (737), etc.) allowing you to:

号 select the database for building the diagram;

- create a new diagram;
- 🙋 open 🕬 an existing diagram;
- 🚽 <u>save</u>हिंसी the current diagram to a \*.pgd file;
- save rail the current diagram as an image;
- 💷 activate the <u>Incremental search</u>त्रिगे panel;
- adjust diagram zoom for optimal representation: 🎤 zoom in, 🎤 zoom out, 🖉 fit model

switch cursor mode: select / select rectangle to fit;

- 💐 open the <u>Print Setup</u>739 dialog;
- کې print الته be diagram;
- / show Print Preview 🖓 हो;
- arrange objects in the diagram;
- sextract metadata of all objects in the diagram and load the script to <u>Execute Script</u> <u>Editor</u>ब्यिहे;
- 😼 perform <u>Reverse Engineering</u> गउहो;
- refresh objects in the diagram;
- wiew/edit <u>diagram options</u> [742];
- specify a predefined zoom value;
- 🛃 restore the default size and position of the window 🕬

**Object Customization** panel allows you to define *font*, *font size*, *font style*, *font color* and *brush color*.

🕴 🕒 Databases 🔹 🖄 🕅 🥰 📄 🤌 🎧 🔹 📰 📰 🎤 🔎 🔎 🖉 👹 🍰 🖗 🍙 🖓 🚱 🧶 100% 📼

The **Pages** toolbar (by default, the toolbar is located at the top of the diagram area) contains tools for working with <u>diagram pages</u> allowing you to:

- 💁 add a new page;
- delete the current page;
- 😼 delete all pages.

Diagram toolbar located on the left allows you to:

switch to object selection mode;

- 🜃 switch to create table mode (enables creating <u>tables</u> विभे on clicking);
- switch to create relation mode;

iswitch to create virtual relation mode;

switch to create comment mode;

- align left edges;
- 🚽 align right edges;
- align tops;

📲 align bottom;

🚽 align horizontal centers;

- align vertical centers;
- ispace equally, horizontal;
- <sup>1</sup>space equally, vertical.

The **New object** toolbar (by default, the toolbar is located on the left side of the diagram area) allows you to:

- set the cursor mode to Select;
- create a <u>new object</u> [732] (a *table* or a *comment*);
- create a new <u>relation</u>733;



#### See also:

Using Diagram Navigator and DB Objects pane 726

Using context menus 728

Adding/removing objects to/from diagram

Incremental search 731

Creating new objects 732

Creating relations 733

Working with diagram pages 735

Reverse engineering 736

Printing diagram

Saving/loading diagram 741

Setting diagram options 742

# 10.11.2 Using Diagram Navigator and DB Objects panel

To navigate within the large diagram, use the **Navigator** tool available on the <u>Navigation</u> <u>bar</u>[722]. It allows you to see the whole diagram in a reduced scale and to perform a number of operations over the diagram objects.



A mouse click in the **Navigator** area sets the center of the visible diagram area. The area currently visible in the main diagram area is outlined in a red bounding rectangle.

Using the **Navigator** you can work with the diagram objects in the same way as in the main diagram area: <u>add</u> [730]/<u>remove</u>[730], <u>create</u>[732] new objects, move objects within the diagram and perform other operations.

The **Database Objects** pane available on the <u>Navigation bar</u> [722] allows you to browse the list of available <u>database objects</u> [155] that can be added to the diagram.

Database Objects	*
Employee.Address	<u> </u>
Employee.Addres	Eind Object in Disgram
Employee.BillOfM	Tind Object in Diagram
📑 Employee.Conta	Add New Objects
Employee.Contac	As Tree
Employee.Contac	
Employee.COUN	Sort by Schema, Name
Employee.Countr	Sort by Name, Schema
Employee.Countr	
Employee.Credit	Refresh

Select and drag an object to the diagram area or double-click it to add 730 the object to the diagram.

Right-click an item within the list to call the **context menu** allowing you to:

 $\swarrow$  find the selected object in the diagram (if the object is found, it will be highlighted in the diagram area);

- + add new objects to the diagram by <u>Reverse engineering</u> [736];
- ✓ toggle objects representation mode: as a tree / as a list;
- select the sorting mode applied to the objects in the list: by schema, name / by

name, schema; ist.

# See also:

Using Navigation bar and ToolbarsAdding/removing objects to/from diagramCreating new objects732Creating relations733Working with diagram pages735

## 10.11.3 Using context menus

The **context menu** of the diagram area contains a number of items available in the <u>Navigation bar</u>  $72^{2}$  and <u>toolbars</u>  $72^{4}$  and allows you to:

- select all objects in the diagram area;
- Select All Headers;
- Select All Columns;
- adjust diagram zoom for optimal representation: zoom in, zoom out, select rectangle to fit, fit model, specify a predefined zoom value;
- set the cursor mode to *Select* or create a new <u>table</u> [732], <u>relation</u> [733], or <u>comment</u> [732];
- configure the grid 742: draw grid, snap to grid;
- adjust the diagram <u>style</u> <sup>742</sup>: draw primary key columns separately, draw entities icons, draw attributes icons, draw only names ofentities, draw foreign key names;
- perform <u>Reverse Engineering</u> [736];
- extract metadata of the diagram objects to Execute Script Editor 646;
- view/edit <u>diagram options</u> 742.



The **context menu** of an entity contains items for working with the object and allows you to:

- <u>edit</u> 155 the object using its editor;
- <u>create</u> 732 a new object using its editor;
- <u>drop</u>1551 the object from the database;
- show/hide object subitems;
- <u>remove</u> 730 the object from the diagram.



The **context menu** of a column contains items for working with the object and its columns and allows you to:

- edit 2001 the selected column using its editor (Column Editor 2009);
- <u>create</u> 208 a new column;
- drop 2081 the selected column;
- <u>edit 155</u> the object using its editor (<u>Table Editor</u> 177);
- create [732] a new object using its editor (<u>New table 170</u>);
- <u>drop</u> dissi the object from the database;
- show/hide object subitems;
- <u>remove</u> [730] the object from the diagram.



## See also:

<u>Using Navigation bar and Toolbars</u> 722ी <u>Adding/removing objects to/from diagram</u>730 <u>Incremental search</u>731 <u>Creating new objects</u> 732 <u>Creating relations</u> 733

## 10.11.4 Working with diagram objects

#### 10.11.4.1 Adding/removing objects to/from diagram

- To *add* an object to the diagram:
  - drag it from the Database Explorer [65] tree to the diagram area
- or
  - drag it from the <u>Database Objects</u> [726] pane (available on the <u>Navigation bar</u> [722]) to the diagram area or simply double-click this object in the list.

To add objects by <u>Reverse engineering</u> (736), you can right-click within the **Database Objects** list and select the **+ Add new objects...** context menu item.

To remove an object from the diagram, select it in the diagram area, then right-click its title and choose the **Remove <object\_name>** item from the <u>context menu</u> [728], or just press the **Del** key.



## See also:

<u>Using Navigation bar and Toolbars</u> गिथ्ये <u>Using Diagram Navigator and DB Objects pane</u> गिथ्वे <u>Using context menus</u> गिथ्वे <u>Creating new objects</u> गिउथे <u>Creating relations</u> गिउथे <u>Reverse engineering</u> गिउँ। <u>Database Objects Management</u> गिउँ।

#### 10.11.4.2 Incremental search

To **search** for an object within the diagram:

- right-click the required object in the <u>Database Objects</u> [726] pane and select the *P* Find **Object in Diagram** item from the context menu
- or
  - click the **Incremental Search** button on the main <u>toolbar</u><sup>724</sup> or use the *Ctrl+F* <u>shortcut</u><sup>1704</sup> to activate the <u>Incremental Search</u><sup>1964</sup> panel in the status bar area of the designer window.

Incremental Search: hr.emp

Type a string in the edit-box, and the object having the name with the closest match will be highlighted in the diagram area.

See also:

Using Diagram Navigator and DB Objects pane 726

## 10.11.4.3 Creating objects

- To <u>create</u> 155 a new object using Database Designer:
  - press the Create table/view/function button on the New object toolbar [725];
  - click the desired point on the diagram to place the new object at;
  - specify object properties using its editor (<u>New table</u> 170).



**Hint:** To create a new object, you can also select the corresponding item from the <u>context menu</u> [728]. The context menus also allow you to <u>edit</u> [155] and <u>drop</u> [155] database objects.

**Note:** Before you press the **Group Compile** button the object is created on the diagram area only but not in the database.

See also: Using Diagram Navigator and DB Objects pane Adding/removing objects to/from diagram Incremental search Creating relations निउडी

## 10.11.4.4 Creating relations

To establish a new relation (which is the foreign key 212 in terms of database management):

- press the **Create relation** button on the <u>New object toolbar</u> [725];
- click the entity where the referential constraint should be created;
- click the referred entity;
- specify new foreign key properties using Foreign key Editor 213.



**Hint:** To create a relation, you can also use the corresponding item of the <u>context menu</u>  $\frac{1}{728}$ .

Once the relation is created, it is displayed as a line between two entities in the diagram area. The style the line is drawn is determined by the diagram *notation*.

The **context menu** of this line allows you to edit [212] the foreign key using Foreign key Editor [213] or drop [212] the foreign key from the database.



#### See also:

<u>Using Diagram Navigator and DB Objects pane</u> निव्ही <u>Adding/removing objects to/from diagram</u> निउणे <u>Incremental search</u> निउगे Creating new objects 732

# 10.11.5 Working with diagram pages

You can create several **pages** in one diagram to split the model into several subject groups, e.g. for better comprehension.

To manage diagram pages, right-click on the tabs at the bottom of the diagram area and select the required popup menu items for *adding*, *deleting* and *renaming* pages.

DemoDB on ay	z2 <sup>.</sup> 543	33 DEMO diagram	7
Faran		New Page	8666666
Errors	<b>.</b>	Delete Page	
	<b>.</b>	Delete All Pages	
		Rename Page	
			-

**Hint:** Page management items are also available on the <u>Pages toolbar</u> [724] of Database Designer.

## See also:

<u>Using Diagram Navigator and DB Objects pane</u> 728 Adding/removing objects to/from diagram 730

## 10.11.6 Reverse engineering

The **reverse engineering** operation builds relationship diagram on the basis of the current database's structure. The objects are arranged automatically within the diagram model.

To start the reverse engineering process, press the **Reverse Engineer button** on the main toolbar  $72^{4}$ , or use the corresponding item of the <u>context menu</u>  $72^{8}$ .

	8	Be	2	٩	100%	Ŧ	2	Ŧ
: :		- 43	Re	verse	e Enginee	r	::	:

The **Preparing Reverse Engineering** dialog allows you to select <u>schemas</u> containing objects to reverse engineer.

Preparing Reverse En	gineering	<b>-X</b>
Select schemas to rev	erse engineer from	
Employee		
	Select All	
Test	Deselect All	
🛄 public		
	OK Can	icel

For your convenience the *Select All* and *Deselect All* items are available in the context menu of the schemas list.

## See also:

<u>Using Navigation bar and Toolbars</u> 722 <u>Using Diagram Navigator and DB Objects pane</u> 728 Adding/removing objects to/from diagram 730

# 10.11.7 Printing diagram

Database Designer allows you to print and preview the diagram.

To preview the diagram:

- press the A **Print Preview** button on the toolbar 724;
- preview the diagram using the Print Preview 738 window.

To setup print options:

- press the setup button on the toolbar [724], or use the corresponding link on the Navigation bar [722];
- set printing options using the Print Setup 739 dialog and press OK.

To print the diagram:

- press the 🌺 **Print** button on the toolbar 724;
- set printing options using the <u>Print Setup</u> <sup>739</sup> dialog and press the **Print** button.

#### 10.11.7.1 Print Preview

The **Print Preview** dialog allows you to see the diagram layout in WYSIWYG mode before it will be printed.

Use the navigation buttons or the spinner control to navigate within the preview pages. Click the **Print options...** button to call the <u>Print Setup</u> dialog.

If necessary, specify the **preview zoom** according to your preferences. Click the **Print all** button to start printing.



See also: Print Setup dialog ମେଣ୍ଡ

#### 10.11.7.2 Print Setup dialog

The **Print Setup** dialog of **Database Designer** provides two tabs for setting printing options: **Printer** and **Page options**.

#### The **Printer** tab of the **Print Setup** dialog allows you to:

- specify the printer (use the Choose printer button to select a printer which is not set by default on your system; the name, driver, port fields display the selected printer details);
- specify print layout: print using a defined *scale factor* or arrange diagram at a defined number of pages horizontally and vertically;
- set other print options.

Print setup
Printer Page options
Printer
Name: \\automation1c\Canon MF3200 Series Choose printer
Driver:
Port:
Print layout
Arrange diagram at
Print options
Skip empty pages V Print page borders
Print only selected objects
All pages
Pages from 0 ➡ to 0 ➡
OK Cancel

The **Page options** tab of the **Print Setup** dialog allows you to:

- specify page margins (in millimeters): Top margin, Bottom margin, Left margin, Right margin;
- specify **Page header** and **Page footer**: enter the header/footer running titles *text*, set left/center/right *align*.

Print setup		<b>—</b> ×	
Printer Page options			
Left margin (mm	Top margin (m 10	n) 10 🚔 Right margin (mm) nm)	
) Left align	Center align	Right align	
Page footer	Page #PAGE of	#PCOUNT	
C Left align	Center align	Right align	
		OK Cancel	J

Hint: It is also possible to set macros in the Page header and Page footer fields:
#PCOUNT stands for the quantity of pages;
#PAGE - the number of the current page;
#DATE denotes the current date;
#TIME denotes the current time.

# See also:

Print Preview 738

# 10.11.8 Saving/loading diagram

Use the **Save Diagram** and the **Open Diagram** buttons on the main toolbar  $72^{3}$  to save the diagram as a \*.pgd file for future use or to load the previously saved diagram.

E Databases - 🖄 🗠 🗋 🤌 💽 🖬 💷 🔎 🖉 🖉

If necessary, you can save the diagram as an image: click the  $\overline{IIII}$  Save as Picture button on the main toolbar  $\overline{1724}$ .

See also: Using Navigation bar and Toolbars 72ଥି Using Diagram Navigator and DB Objects pane 72ଣି Using context menus 72ଥି Adding/removing objects to/from diagram 730

## 10.11.9 Setting diagram options

Using the **Diagram Options** dialog you can setup the behavior and look of each diagram page.

To open this dialog, use the  $\frac{1}{2}$  **Diagram options** item of the <u>Navigation bar</u>  $\frac{1}{72^2}$  or on the <u>main toolbar</u>  $\frac{1}{72^4}$ , or select the corresponding item from the <u>context menu</u>  $\frac{1}{72^8}$ .

See detailed description of each option on the <u>Database Designer</u> and page of the <u>Environment Options</u> dialog.

## Apply changes to all new pages

If this option is selected, the current settings will be applied to all newly created pages of Database Designer.

## See also:

<u>Using Diagram Navigator and DB Objects pane</u> ମିହର Database Designer options ଭାଦ

# **10.12 External Tools**

When using SQL Manager for PostgreSQL, you can add **external Windows applications** to make your work more efficient.

- External Tools dialog 745
- External Tool Info editor 747

<u>D</u> atabase	<u>V</u> iew	<u>T</u> ools	Services	<u>O</u> ptions	<u>W</u> indows	<u>H</u> elp	
		🖹 (	Query Data		F12		
		🔛 C	)esign Query				
		<u>ت</u>	QL Monitor	Sh	ift+Ctrl+M		
		🐺 E	xecute Script	t Sh	ift+Ctrl+S		
		<b>E</b>	xtract Databa	ise			
		<b>i</b>	Copy Databas	e			
		eje o	Compare Data	bases			
		e P	Print Metadata				
		ົ2 ເ	Search in Meta	adata	Ctrl+Alt+F		
		B∳ ⊦	TML Report				
		🔛 F	Report Design	er			
			ependency T	ree			
		<b>å</b> (	lser Manager				
		3 0	Group Manage	er			
		<b>ب</b> ه	Grant Manage	r			
			atabase Des)	igner			
			Change Manag	gement		•	
		E	xternal Tools			٠ 🛃	Extract

#### **Adding External Tools**

- select the **Options | External Tools...** main menu
- click the **Add...** button in the <u>External Tools</u> 745 dialog;
- specify parameters of the new external tool within the External Tool Info 747 editor;
- confirm adding the new external tool by clicking **OK** in the <u>External Tool Info</u> 747 editor and the <u>External Tools</u> 745 dialog.

This adds the icon and the title of the application you have selected to the **Tools** | **External Tools** submenu. Now you can run this tool quickly without closing SQL Manager.

#### **Removing External Tools**

- select the **Options | External Tools...** <u>main menu</u>
- select the tool to be removed in the **Tools** list of the External Tools 745 dialog;

- press the **Del** key or click the **Delete** button within the dialog;
- $\bullet$  click  $\mathbf{OK}$  to confirm removing the tool and closing the dialog.

The selected tool has been removed and is no longer accessible from the **Tools | External Tools** submenu.

See also: <u>Getting Started</u> [39] <u>Database Explorer</u> [65] <u>Database Management</u> [87] <u>Database Objects Management</u> [158] <u>Change Management</u> [344] <u>Query Management</u> [344] <u>Query Management</u> [344] <u>Data Management</u> [452] <u>Import/Export Tools</u> [538] <u>Database Tools</u> [538] <u>Database Tools</u> [538] <u>Services</u> [77] Server Tools <u>Options</u> [870] How To... [108]

# 10.12.1 External Tools dialog

The **External Tools** dialog allows you to manage the list of external applications which can be easily run from within SQL Manager environment.

To open this dialog, select the **Options |** 🖻 **External Tools...** <u>main menu</u> 🕬 item.



## Tools

Lists all added external applications.

## Add...

Opens the <u>External Tool Info</u> editor for adding a new tool to the **Tools | External Tools** submenu.

## Edit...

Opens the External Tool Info 747 editor for editing the title, the hot key, the path to the executable file, the working directory and execution parameters of the tool currently selected in the **Tools** list.

## Delete

Removes the selected tool from the list of SQL Manager for PostgreSQL external tools.



To change the order of tools in the list, use the  $\bigcirc$   $\bigcirc$  arrow buttons at the bottom area of the dialog, or use the Ctrl+Shift+Up / Ctrl+Shift+Down shortcuts  $\bigcirc$ . You can also dragand-drop items within the list box to change their positions.

# See also: External Tool Info editor

## 10.12.2 External Tool Info editor

The **External Tool Info** editor allows you to set common parameters of running added external programs from within SQL Manager environment. This dialog is used both when adding external tools and editing their parameters (see <u>Add External Tool</u> and <u>External Tool</u> and <u>External Tool</u>.

## Title

Enter the title to be displayed in the **Tools | External Tools** submenu of SQL Manager.

#### Hot Key

Press a key or a key combination to set it as a hot key for running the tool.

## Program

Use the B **Explorer** button to specify the path to the \*.exe file of the external program.

## **Working Dir**

Set the default working directory of the program.

## Parameters

This box stores parameters for the program execution (if required).

New External Tool			<b>—</b>
Title	Data Export for PostgreSQL	Hot Key	Ctrl + Alt + E
Program	C:\Program Files\EMS\Data Exp	ort for PostgreSQL\Pg	Export.exe 🚵
Working Dir	C:\Program Files\EMS\Data Exp	ort for PostgreSQL\	
Parameters			
	<u>o</u> ĸ	<u>C</u> ancel	Help

#### See also:

External Tools dialog 745



# 11 Roles and Privileges

PostgreSQL manages database access permissions using the concept of **roles**. A **role** can be either a database user or a group rsh of database users.

Roles can own <u>database objects</u> [155] and can <u>assign privileges</u> [766] on those objects to other roles to control who has access to which objects. Furthermore, it is possible to <u>grant</u> <u>membership</u> [760] in a role to another role, thus allowing the member role use of privileges assigned to the role it is a member of.

**Note:** In PostgreSQL versions before 8.1, <u>users</u>  $75^{-1}$  and <u>groups</u>  $75^{-1}$  were distinct kinds of entities, but now there are only **roles**. Any role can act as a *user*, a *group*, or both.

SQL Manager for PostgreSQL provides tools for efficient management of PostgreSQL database roles and privileges: <u>User Manager</u> [751] Allows you to manage PostgreSQL users. <u>Group Manager</u> [754] Allows you to manage PostgreSQL groups. <u>Role Editor</u> [757] Allows you to create and edit PostgreSQL roles. <u>Grant Manager</u> [762] Allows you to grant/revoke privileges on databases and database objects.

## Adding Users

In order to add a new user/role:

- select the **Tools | User Manager** <u>main menu</u> and item or use the corresponding <u>toolbar</u> button to open <u>User Manager</u> **751**;
- select the Add user... item from the context menu or within the Navigation bar;
- define user/role properties and permissions using <u>Role Editor</u> 757.

## **Editing User Properties**

In order to edit an existing user/role:

- select the **Tools | User Manager** <u>main menu</u>িল্গী item or use the corresponding <u>toolbar</u>জ্জী button to open <u>User Manager</u> চিগী;
- select the Edit user... item from the context menu or within the Navigation bar;
- edit the user/role properties and permissions using <u>Role Editor</u> [757].

## **Deleting Users**

In order to delete an existing user/role:

- select the **Tools | User Manager** <u>main menu</u>িলী item or use the corresponding <u>toolbar</u>জ্ঞি button to open <u>User Manager</u> ফিনী;
- right-click the user/role to delete and select the **Delete User** item from the **context** menu or within the **Navigation bar**;
- confirm deleting in the dialog window.

## **Adding Groups**

In order to add a new group:

- select the **Tools | Group Manager** <u>main menu</u>। कि item or use the corresponding <u>toolbar</u>। button to open <u>Group Manager</u> (754);
- select the Add group... item from the context menu or within the Navigation bar;
- define group properties and permissions using <u>Role Editor</u> 757.

#### **Editing Group Properties**

In order to edit an existing group:

- select the **Tools | Group Manager** <u>main menu</u> [961] item or use the corresponding <u>toolbar</u> [963] button to open <u>Group Manager</u> [754];
- select the Edit group... item from the context menu or within the Navigation bar;
- edit the group properties and permissions using Role Editor 7571.

#### **Deleting Groups**

In order to delete an existing group:

- select the **Tools | Group Manager** <u>main menu</u>िको item or use the corresponding <u>toolbar</u>क्रि button to open <u>Group Manager</u> (754);
- right-click the group to delete and select the **Delete Group** item from the **context** menu or within the **Navigation bar**;
- confirm deleting in the dialog window.

#### **Managing Privileges**

To define grants on database objects:

- select the **Tools | Grant Manager** <u>main menu</u> कि item, or use the corresponding <u>toolbar</u> कि button to open <u>Grant Manager</u> हि ;
- select the object type using the drop-down list on the toolbar real;
- select a **user** or **group** from the **Privileges for** pane of the <u>Navigation bar</u>
- edit user/group privileges using Grant Manager 768

or

- right-click an object in <u>DB Explorer</u> [65] and select the **Grants for <object\_name>** item from the <u>context menu</u> [57];
- edit user/group privileges using Grant Manager 7661.

#### See also:

<u>Getting Started</u> ସେହା <u>Database Explorer</u> (ଚେରି <u>Database Management</u> (ଚେରି) <u>Database Objects Management</u> (ଚେରି) <u>Database Objects Management</u> (ଚେରି) <u>Change Management</u> (ଚେରି) <u>Data Management</u> (ଚେରି) <u>Change Starter</u> (ଚେରି) <u>Change Management</u> (Starter) <u>Changement</u> (S

How To... 1006

# 11.1 User Manager

The **User Manager** allows you to browse the list of existing PostgreSQL users and manage them efficiently.

To launch the tool, select the **Tools | Suser Manager** <u>main menu</u> (Seff) item, or right-click the host alias in the <u>DB Explorer</u> (BSF) tree and select the **Tasks | Manage Users** item from the <u>context menu</u> (S2F).



See also: Group Manager Role Editor Grant Manager 762ी

# 11.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **User Manager**.



The Navigation bar of the User Manager window allows you to:

## General

🧟 select the host to retrieve the list of users

## Actions

- list of users are refresh the currently displayed list of users
- 💑 call <u>Role Editor</u> वित्री to <u>add</u> निक्की a new user
- 都 call <u>Role Editor</u>ग्रिगे to <u>edit</u>ग्रिभे the selected user
- 🍇 delete 749 the selected user
- change owner of objects (for PostgreSQL 8.2 and higher)
- 🚳 show/hide groups
- restore the default size and position of the window

NB: You can enable\disable Toolbars and Navigation bars at Environment options 877.

## 11.1.2 Managing users

If you are not connected to the database server yet, select the host from the drop-down list on the <u>Navigation bar</u> 752 to define <u>connection settings</u> [976].

8 User Manager - [ayz2:54383]										
: 🎭 🏖 🍇 🐗   ayz2:54383 🔹 🔹										
General \$		Us	er Name	System ID	Can Login	Superuser	Can Create DB	Can Create Role	Inherit	Connection Limit
	_	8	DemoUser	26786	<b>V</b>					-1
ayz2:54383	•	8	TEST	62382		<b>V</b>				
Actions	•	8	User	501870	<b>V</b>					-1
Actions	^	8	alex	349677	<b>V</b>					-1
Refresh		8	ma	566530	<b>V</b>					-1
S. Add user		8	role1	79602	<b>V</b>					-1
Se Edit user		8	role2	566528	<b>V</b>					-1
Selete user		8	ayz	18258	<b>V</b>	<b>V</b>	<b>V</b>			-1
Change owner of ot	niacte	8	postgres	10	<b>V</b>	<b>V</b>	<b>V</b>		<b>V</b>	-1
Change owner of or	Jecis	8	root	62395	<b>V</b>	<b>V</b>				-1
Snow groups										
Restore default size	•									
		•			II					۰.

The list displays the existing users as a grid with the following columns: User Name, System ID, Can Login, Superuser, Can Create DB, Can Create Role, Inherit, Connection Limit, Valid Until, Modify Catalog, User Count, Group Count.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Right-click an item within the list to call the **context menu** allowing you to *create* a new user and specify its properties using Role Editor 757, edit, rename, delete the selected user, *change (reassign) owner of objects* (for PostgreSQL 8.2 and higher), *show/hide* groups 754, or show/hide columns of the list.

Users management tools are also available through the <u>Navigation bar</u> 752 and <u>toolbar</u> 752 of the **User Manager**.

# 11.2 Group Manager

The **Group Manager** allows you to browse the list of existing PostgreSQL groups and manage them efficiently.

To launch the tool, select the **Tools | S Group Manager** <u>main menu</u> **b** item, or rightclick the host alias in the <u>DB Explorer</u> **b** tree and select the **Tasks | S Manage Groups** item from the <u>context menu</u> **b**.



See also: <u>User Manager</u> <u>Role Editor</u> <u>Grant Manager</u> 62

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# 11.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Group Manager**.



# General

select the host to retrieve the list of groups

# Actions

- ist of groups are fresh the currently displayed list of groups
- 🚳 call <u>Role Editor</u> िन्ही to <u>add</u> नि49 a new group
- 都 call <u>Role Editor</u> वित्री to <u>edit</u> निज्जी the selected group
- 💑 <u>delete</u>750 the selected group
- change owner of objects (for PostgreSQL 8.2 and higher)
- 🚰 show/hide <u>users</u>751ो
- restore the default size and position of the window

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

# 11.2.2 Managing groups

If you are not connected to the database server yet, select the host from the drop-down list on the <u>Navigation bar</u> to define <u>connection settings</u> [976].



The list displays the existing groups as a grid with the following columns: *Group*, *Object ID*, *Can Login*, *Superuser*, *Can Create DB*, *Can Create Role*, *Inherit*, *Connection Limit*, *Valid Until*, *Modify Catalog*, *User Count*, *Group Count*.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Right-click an item within the list to call the **context menu** allowing you to *create* a new group and specify its properties using <u>Role Editor</u> *fight, edit, rename, delete* the selected group, *show/hide* <u>users</u> *fight,* or show/hide columns of the list.

Groups management tools are also available through the <u>Navigation bar</u> 755 and <u>toolbar</u> 755 of the **Group Manager**.
# 11.3 Role Editor

**Role Editor** allows you to define user/group properties and membership. It opens automatically when you create a new user or group and is available on editing an existing one (see <u>Create user</u>[749], <u>Edit user</u>[749], <u>Create Group</u>[749], <u>Edit Group</u>[750] for details).

To open a user or group in **Role Editor**, right-click it in the <u>User Manager</u> or <u>Group</u> <u>Manager</u> and select the **Edit User.../Edit Group...** context menu item.

- Editing properties 758
- Selecting role members 760
- Defining user/group membership
- <u>Viewing DDL definition</u>

# See also:

<u>User Manager</u> <u>Group Manager</u> Grant Manager 762ी

# 11.3.1 Editing properties

Use the **Properties** tab of **Role Editor** to specify properties of the <u>user</u> rsh being created/edited.

## Name

Specifies the name by which the role is identified in the server.

Edit Role [postgres] on [nb2]									
<u>P</u> roperties	<u>M</u> embers	Memb	er O <u>f</u>	Description	DDL				
<u>N</u> ame			postgr	res					
Object ID			10						
Can login			<b>V</b>		]				
Password			******	*****	**				
Confirm pa	ssword		******	*****	**				
Valid until			✓ Aways						
Connectior	n limit		-1						
Role priv V Inheri V Super V Can c V Can c	ileges ts rights fror user reate datab reate roles eplication rol	n parer ase obj e	nt roles iects	\$					
				<u>о</u> к	<u>C</u> ancel <u>H</u> elp				

### **Object ID**

This field displays the OID of the role being created/edited. This value is read-only.

### Can login

This option specifies whether the role can be used to login (user [75]) or not (role).

#### Password / Confirm password

Enter/confirm a password to identify the role.

#### Valid until

Check Always if you do not want to restrict the role validity term, or set the role expiration date/time (i.e. the date and time after which the role's password is no longer valid) using the corresponding controls. It is possible to set the date value **manually** by typing it in, or using the **date editor** which is activated when you click the value box.

#### **Connection limit**

Specify how many concurrent connections the role can make (the default is -1 indicating

that the number of connections is unlimited).

### **Role privileges**

## Inherits rights from parent roles

This option determines whether the role inherits the privileges of  $\frac{role(s)}{rol}$  it is a member of  $\frac{1}{76}$ 

### Superuser

This option determines whether the role is a superuser, who can override all access restrictions within the database.

## Can create database objects

This option defines the role's ability to <u>create database objects</u> [155].

# Can create roles

This option determines whether the role will be permitted to create new roles (i.e. execute *CREATE ROLE*).

### Is a replication role

This option determines whether a role is allowed to initiate streaming replication or put the system in and out of backup mode.

### Can modify catalog directly

This option determines whether the role can modify system catalog directly or not. **Note:** This option is only available if **Superuser** is specified for the role.

# 11.3.2 Selecting role members

The **Members** tab of **Role Editor** allows you to define which roles belong to the <u>user</u> 751// group 754, i.e. the existing roles which are automatically added as members of the role being created/edited.

Edit Role [User] on [ayz2]	×
Properties Members Member Of Des	cription DDL
Members	Selected Roles
<ul> <li>Admins</li> <li>DemoUser</li> <li>Group1</li> <li>Group2</li> <li>TEST</li> <li>alex</li> <li>ayz</li> <li>ma</li> <li>postgres</li> <li>role1</li> <li>role2</li> </ul>	<ul> <li>root</li> <li>Image: Solution of the second seco</li></ul>
With admin option	<u>O</u> K <u>C</u> ancel <u>H</u> elp

To select a role, you need to move it from the **Available roles** list to the **Selected roles** list. Use the a a a buttons or drag-and-drop operations to move the roles from one list to another.

# 11.3.3 Defining user/group membership

The **Member of** tab of **Role Editor** allows you to define <u>user</u> 751/<u>group</u> 754 membership by selecting the role(s) the user/group will belong to (i.e. to which the user/group will be immediately added as a new member). The selected roles determine the tasks that can be performed through the user or group.

Edit Role [User] on [ay	/z2]	_			×
Properties Members	Member Of	Descriptio	n DD <u>L</u>		
Member of					
Available Roles			Selected	Roles	
S DemoUser			S Admin	IS	
S Group1					
S Group2					
S TEST					
alex 8					
🔓 ayz					
🗧 🖀 ma					
S postgres					
S role1					
S role2					
			L		
		<u> </u>	<u>K</u>	<u>C</u> ancel	<u>H</u> elp

To select a role, you need to move it from the **Available roles** list to the **Selected roles** list. Use the local buttons or drag-and-drop operations to move the roles from one list to another.

# 11.4 Grant Manager

**Grant Manager** allows you to set the user access grants on certain <u>databases</u> [87] and <u>database objects</u> [156]: <u>schemas</u> [164], <u>tables</u> [169], <u>views</u> [229], <u>functions</u> [239], <u>sequences</u> [274], <u>languages</u> [321], <u>tablespaces</u> [318], etc. Granting privileges on the selected database objects allows a user to perform the defined operation over the objects.

To open Grant Manager, select the Tools | 🧦 Grant Manager <u>main menu</u>ाली item.

<u>D</u> atabase	<u>V</u> iew	Tools	Services	<u>O</u> ptions	<u>W</u> indows	<u>H</u> elp
		🖻 (	Query Data		F12	
		🔛 (	Design Query			
		ច្ច ៖	SQL Monitor	Sh	ift+Ctrl+M	
		🐺 E	Execute Scrip	t Sł	nift+Ctrl+S	
		E E	Extract Databa	ase		
		<b>i</b>	Copy Databas	e		
		i i	Compare Data	bases		
		e P	Print Metadata			
		و 🧕	Search in Met	adata	Ctrl+Alt+F	
		B≱ ⊦	ITML Report			
		🔛 F	Report Design	ier		
		38 0	Dependency 7	Free		
		<b>2</b> (	Jser Manager	r		
		3 0	Group Manag	er		
		ې 🍫	Grant Manage	r		

- Using Navigation bar, Toolbar and context menu 763
- Managing database-specific privileges
- Filtering objects in list 769

# See also:

<u>User Manager</u>ग्रिनी <u>Group Manager</u>ग्रिन्मे <u>Role Editor</u>ग्रिनी

# 11.4.1 Using Navigation bar, Toolbar and context menu

The **Navigation bar**, **Toolbar** and **context menu** provide quick access to tools implemented in **Grant Manager**.

Database											
6	Demo	)B on	ayz2:54383 [DemoDB]	•							
	General *										
e	Refresh										
8	🎥 Add user										
<u>گ</u>	Edit use	r									
8,	Delete u	iser									
2	Add gro	up									
2	Extract	role's	grants								
	Extract	all role	es' grants								
	Restore	defa	ult size								
	Restore	uciai	an Size								
	Privileg	es fo	ЭГ	*							
Us	er / Grou	p		Δ 🔺							
8	Admin										
8	Admins	\$₽	Add User								
8	DemoUs	2	Edit User								
8	Group1	2	Delete User								
8	Group2	_									
8	PUBLIC	24	Add Group								
8	TEST	8	Edit Group								
8	User	8.	Delete Group								
8	alex	0	Estrat Balaia Carata								
0	avz	<b>4</b>	Extract Role's Grants								
	-,-										
8	ma		Extract All Roles' Grants	S							

# Database

😑 select a database for grants management

# General

Refresh the content of the window
 call <u>Role Editor</u> ित्री to <u>add</u> त्रिकी a new user
 call <u>Role Editor</u> त्रिती to <u>edit</u> त्रिकी an existing user
 <u>delete</u> त्रिकी a database user

🚳 call <u>Role Editor</u> रिजी to <u>add</u> निभी a new group

- 都 call <u>Role Editor</u> विंगे to <u>edit</u> निज्यो a new group
- 💑 <u>delete</u> हिंगे a group
- selected role's grants
- 穐 extract all roles' grants
- $rac{6}{8}$ / $rac{6}{5}$  show/hide groups in the list

restore the default size and position of the window

#### **Privileges for**

多 select an existing database <u>user</u>ফ孙/<u>group</u>ফ科 to grant privileges to

Right-click an item within the **Privileges for** list to call the **context menu** allowing you to:

- call <u>Role Editor</u> 757 to <u>add</u> 749 a new user;
- call <u>Role Editor</u> 757 to <u>edit</u> 749 the selected user;
- <u>delete</u> 749 the selected user;
- call <u>Role Editor</u> [757] to <u>add</u> [749] a new group;
- call <u>Role Editor</u> [757] to <u>edit</u> [750] the selected group;
- $\underline{\text{delete}}_{750}$  the selected group.

NB: You can enable\disable Toolbars and Navigation bars at Environment options

The **context menu** is aimed at facilitating your work: you can perform a variety of operations using context menu items.

The context menu of Grant Manager allows you to:

- grant a permission on an object to the selected role;
- grant a permission (with Grant Option) on an object to the selected role;
- revoke a previously granted permission;
- grant all permissions on an object to the selected role;
- grant all permissions (with Grant Option) on an object to the selected role;
- revoke all previously granted permissions on an object;
- grant a permission on all objects to the selected role;
- grant a permission (with Grant Option) on all objects to the selected role;
- revoke a previously granted permission on all objects;
- apply sorting of objects in grid (by type, name, schema);
- apply sorting of objects in grid (by name, schema);
- apply sorting of objects in grid (by type, schema, name);
- apply sorting of objects in grid (by schema, name).



## See also:

<u>Managing database-specific privileges</u> <u>Filtering objects in list</u> तिजी

# 11.4.2 Managing database-specific privileges

766

This window allows you to define privileges on database objects and grant privileges to a user[751] or group[754].

To edit the privileges of a <u>user</u>  $75^{-1}$ /<u>group</u>  $75^{-1}$  on an object of a database, select the database using the **Database** pane of the <u>Navigation bar</u>  $76^{-3}$ , then select a *user* or *group* from the **Privileges for** list available within the <u>Navigation bar</u>  $76^{-3}$  or <u>toolbar</u>  $76^{-3}$ . Then select the <u>type of objects</u>  $76^{-3}$  to be displayed in the main working window using the drop-down list at the top.

The **Object Name** column contains the list of objects of the selected type; each subsequent column corresponds to the permission which can be granted on the selected object:

OWN, SEL, INS, UPD, DEL, RULE, REF, TRIG (for tables 168), views 228);SEL, UPD, USG (for sequences 274);OWN, EXEC (for functions 238);OWN, CRT, USG (for schemas 164);USG (for languages 321);OWN, CRT (for tablespaces 318);OWN, CONN, CRT, TMP, TRUN (starting from server version 8.4) (for databases 87).

ی 🕪	🗫 Grant Manager - [ayz on ayz2:54383]														
: 🔒	🗄 Databases 🗸 💲 TEST 🔹 📀 😒 🎭 🎭 🎭 🎭 🎭														
	Database	All objects  Granted only <u>Filter</u>													
	ayz on ayz2:54383 [ayz]	-			Object Name	OWN	SEL	INS	l	UPD	DEL	REF	TRIG	CONN	( ^
	General	*			Employee.Customer				+	15					-8
R	Refresh				Employee.CustomerAddr	•	٨								‡
2	Add User				Employee.Department	•				Grant	t				+
2	Edit User				Employee.Employee					Revol	ke				+
8	Delete User		- 22		Employee.EmployeeAddr						n	_			
2	Add Group		1		Employee.EmployeeDep: 🔒 🗭 Grant All										
	Restore default size		1	10	Employee.EmployeePayl		2	•	•	Revoke All					
	Drivilagoo for	•	- 2	Ð	Employee.Illustration		8		9	Grant	t All with	Grant O	ption		
			1		Employee.Individual	•	8		2	Grant					_
0s	Demol Iser	ĥ	2		Employee.JobCandidate		8			Dovol	ko on Al				+
l s	TEST				Employee.Location	•				Revo	KE ON A				+
	User	=			Employee.Product			×	š,	Grant	with Gr	ant Optic	on on All	_	+
8	alex				Employee.ProductCatego	•				Sort b	у Туре,	Name, S	Schema		+
8	ayz				Employee.ProductCostHi					Sort b	y Name	, Schema	3		$\perp$
8	ma				Employee.ProductDescri				~	Sort b	y Type.	Schema	. Name		+
8	postgres				Employee.ProductDocum		8			Sorth	w Scher	na Name			$\downarrow$
8	role1	-			Employee.ProductInvent	•				Sont	y Scher	na, Name	-		-
				•		1	11								Þ

The list of objects can be configured in several ways: you can specify that <u>only granted</u> <u>objects</u>  $\overline{reg}$  are displayed in the grid, or define an object name to <u>filter</u>  $\overline{reg}$  the objects by that name.

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Right-click a cell to grant a specific permission on a certain object. To grant a permission on an object, you should find the object in the **Object Name** list and the column with the corresponding permission. Note that the cells that are highlighted gray do not admit to setting grants for an obvious reason (e.g. you cannot execute a table). The <u>context</u> menu real of a cell contains possible permissions that can be granted:

- 🔵 Grant
- 悬 Grant with Grant Option
- *Revoke* (removes a previously granted permission)
- 🥯 Grant All
- 🥏 Grant All with Grant Option
- 🛑 Revoke All
- 🎖 Grant on All
- a Grant on All with Grant Option
- Revoke on All

**Note:** When the *Grant on all / Grant on All with Grant Option / Revoke on All* items are used, the *OWN* privilege can be granted/revoked on all objects except *databases*. *OWN* privileges on databases should be assigned separately.

**Hint:** You can also assign privileges by double-clicking the respective cell - in this case the grant status is changed in the following order: *Grant -> Grant with Grant Option -> Revoke*.

The **Column permissions of role**  $< role_name >$  **on table/view**  $< table_name >$  area displays the grid with table/view columns and the privileges that can be granted to the selected role  $\frac{1}{757}$ .

Use items of the <u>context menu</u> to grant/deny/revoke permissions on columns.

All objects	<u>G</u> ranted	only		<u>F</u> il	ter				
Object Name	OWN	SEL	INS		UPD	DEL	TRUN	REF	*
Employee.Address	•	•		▦		]			
Employee.AddressType		•							
Employee.BillOfMaterials		•							
Employee.COUNTRIES		•							Ŧ
•								•	
Column permissions of	role 'ay	z' on ta	ble '	Emp	ployee	.Addres	s'		
Column Name		SELE	ст		INS	ERT	U	PDATI	~
AddressID			)		•				
AddressLine1		•	)					=	
AddressLine2		•	)						
City			)	ľ	•	Grant			
StateProvinceID		0	)		8	Grant w	ith Gran	it Optic	on
٠ [	III				•	Revoke			
					•	Grant A	ı		
					ø	Grant A	II with G	rant O	ption
						Revoke All			
						Grant on All			
						Crant on All with Crant Ontion			
						Grant on Air with Grant Option			
					•	Revoke	on All		

If permissions on a column have been defined (for a *table* or *view*), the corresponding permission cell of the table/view contains a specific icon  $\blacksquare$ .

# See also:

<u>Using Navigation bar, Toolbar and context menu</u>7ଶ୍ର<u>ੈ</u> <u>Filtering objects in list</u> ନିର୍ବେ

# 11.4.3 Filtering objects in list

In large databases with huge amount of objects it may be difficult to find the required object. For this purpose you are provided with several tools for *filtering objects in list*:

- the **Object type** control: select the required object type from the drop-down list (e. g. *Tables*);
- the **Filter** panel: enter a character string to filter the object names by that string (note that the filter is case-sensitive);
- the **Granted only** option: check this option to display objects with at least one granted operation.

All objects 💌 🔲 🧐	only	Filter Employee.A					
Object Name	OWN	SEL	INS	UPD	DEL	REF	TRIG
Employee.Address			•	•	•	•	•
Employee.AddressType							

### See also:

<u>Using Navigation bar, Toolbar and context menu</u> <u>Managing database-specific privileges</u> <u>768</u>



# 12 Services

SQL Manager for PostgreSQL provides graphical interface for a number of database maintenance operations. The following *services* are available in SQL Manager:

## Analyze Tables 773

Collects statistics about the contents of tables in the database.

# Vacuum Tables

Reclaims storage occupied by deleted tuples.

## Reindex 782

Allows you to rebuild corrupted indexes.

**Download Files** 788 Allows you to save and load files directly to/from the server machine.

### Database Statistics 794

A tool for browsing and reporting information about database activity.

**Backup Database Wizard** 808 A tool for creating database backups.

**<u>Restore Database Wizard</u>** R21 A tool for restoring databases from previously created backups.

#### **Compare Databases Wizard** 674 Creates an SQL Script providing databases synchronization.

Instance Manager A tool for checking PostgreSQL service status.

# <u>Server status</u> Provides a convenient Server Status viewer.

<u>Server logs</u> ८४४। Provides a convenient Server Log SQL Parser.

### Server Configuration 852 Provides a convenient Server Configuration manager.

**Extensions** <sup>864</sup> A tool for managing extensions which are packages that contain multiple SQL objects.

### Using templates Facilitates using SQL Manager wizards.

To obtain detailed information concerning specific PostgreSQL database maintenance services, refer to the official PostgreSQL server documentation.

See also: <u>Getting Started</u> [39] <u>Database Explorer</u> [65] <u>Database Management</u> [87] <u>Database Objects Management</u> [158] <u>Change Management</u> [344] <u>Query Management</u> [344] <u>Query Management</u> [452] <u>Import/Export Tools</u> [538] <u>Database Tools</u> [638] <u>Options</u> [870] <u>How To...</u> [1006]

# 12.1 Analyze Tables

**Analyze Tables Wizard** collects statistics about the contents of tables in the database, and stores the results in the system table  $pg\_statistic$  (with PostgreSQL routines used). Subsequently, the query planner uses these statistics to help determine the most efficient execution plans for queries.

Note that **Analyze Tables** service is only available for the versions of PostgreSQL server 7.2 and higher.

To run the wizard, select the **Services | Analyze Tables...** <u>main menu</u> (Sef) item, or right-click the database alias in the <u>DB Explorer</u> (Sef) tree and select the **Tasks | Analyze Tables...** item from the <u>context menu</u> [Sef].



- <u>Selecting database</u> 774
- Selecting tables for analysis 775
- Analyzing tables 776

# <u>Availability</u>:

**Full** version (for Windows) **Lite** version (for Windows) Yes No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u><sup>[22]</sup> page.

See also: Vacuum Tables Reindex 78थी Database Statistics Tables 169 Using templates 98थी

# 12.1.1 Selecting database

This step of the wizard allows you to specify the **host** and the **database** where tables for analysis are stored.

🗃 Analyze Tables Wizard		- • •						
Analyze Tables								
Specify the host and the database to be analyzed								
20	Welcome to the Analyze Table This wizard allows you to anal	Welcome to the Analyze Tables Wizard! This wizard allows you to analyze tables in the specified database.						
SQL	The wizard will analyze tables status of the tables.	using PostgreSQL routines and show the current						
for	Host (7.2 or higher)	🥃 ayz2:54383 💌						
PostgreSQL	<u>D</u> atabase	EmoDB on ayz2:54383 [DemoDB]						
	Show detailed operation re	port ( <u>V</u> ERBOSE)						
Help Templates		< <u>B</u> ack <u>N</u> ext > Cancel						

### Host (7.2 or higher)

Use the drop-down list of registered hosts to select the host where the database resides.

### Database

Use the drop-down list of registered databases to select the database where tables for analysis are stored.

#### Show detailed operation report

Check this option to receive a detailed activity report for each analyzed table (VERBOSE).

Click the **Next** button to proceed to the <u>Selecting tables to be analyzed</u> [775] step of the wizard.

# 12.1.2 Selecting tables to be analyzed

Use this step of the wizard to select the tables to be analyzed using <code>PostgreSQL</code> routines.

To select a table, you need to move it from the **Available** list to the **Selected** list. Use the a a a buttons or drag-and-drop operations to move the tables from one list to another.

📔 Analyze Tables Wizard				- • -
Analyze Tables				
Select tables to be analyze	ed			
	All Tables			
	Available	*		Selected
<u>– 10</u>	Employee.Store			HR.DEPARTMENT
	Employee.StoreContact			HR.EMPLOYEE
	Employee. Transaction History			HR.EmployeeAddress
SQL	Employee.TransactionHistory/			HR.EmployeeDepartmentHistory
Manager	Employee.Unicode			HR.EmployeePayHistory
for	Employee.UnitMeasure			
PostgreSQL	Employee.Vendor			
	Employee.VendorAddress			
	Employee.VendorContact			
	Employee.WorkOrder			
	Employee.WorkOrderRouting	-		
	Production.Address			
	Production.Citv	Ŧ		
<u>H</u> elp <u>T</u> emplates			< <u>B</u> ac	k <u>N</u> ext > Cancel

You can also enable the  $\ensuremath{\mathbb{Z}}$  All Tables option to select all available tables automatically.

When you are done, click the **Next** button to proceed to the <u>Analyzing tables</u> at step of the wizard.

# 12.1.3 Analyzing tables

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the analyze tables process.

The **Operations** tab allows you to view the log of operations and errors (if any).

🙀 Analyze Tables Wizard - [Database: DemoDB on ayz2:54383]								
Analyze Tables								
Click the Run button to st	Click the Run button to start analyze process							
	Process completed successfully!							
	100 %							
SQL Manager for PostgreSQL	Analyzing started Analyzing table 'HR.DEPARTMENT' Done Analyzing table 'HR.EMPLOYEE' Done Analyzing table 'HR.EmployeeAddress' Done Analyzing table 'HR.EmployeeDepartmentHistory' Done Analyzing table 'HR.EmployeePayHistory' Done Analyzing table 'HR.EmployeePayHistory' Done Analyzing table 'HR.EmployeePayHistory' Done Analyzing finished ====== END OF LOG ======	E						
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>R</u> un	Close						

### Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to complete the operation.

# 12.2 Vacuum Tables

**Vacuum Tables Wizard** reclaims storage occupied by deleted tuples (with PostgreSQL routines used).

In normal PostgreSQL operation, tuples that are deleted or obsolete due to an update are not physically removed from their table; they remain present until a *VACUUM* is done. Therefore it is necessary perform this operation periodically, especially on frequently updated tables.

To run the wizard, select the **Services |** 🦀 **Vacuum Tables...** <u>main menu</u> अती item, or right-click the database alias in the DB Explorer</u> ित्ती tree and select the **Tasks |** 🖑 **Vacuum Tables...** item from the <u>context menu</u> जिमी.

<u>D</u> atabase	<u>V</u> iew	<u>T</u> ools	<u>S</u> en	vices	<u>O</u> ptions	<u>W</u> indows	<u>H</u> elp
			æ	Back	up Databas	se	
			<b>(</b>	Restore Database			
				Analy	/ze Tables.		
				Vacu	ium Tables.		

- Selecting database 778
- <u>Setting vacuum parameters</u>
   779
- Selecting tables 780
- Vacuuming tables 781

### <u>Availability</u>:

**Full** version (for Windows) **Lite** version (for Windows) Yes

No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

See also: <u>Analyze Tables</u>773 <u>Reindex</u>782 <u>Tables</u>1ତ୍ରୋ Using templates ୭୫ଥି

# 12.2.1 Selecting database

This step of the wizard allows you to specify the **host** and the **database** where tables for vacuuming are stored.

💭 Vacuum Tables Wizard		
Vacuum Tables		
Specify the host and the	e database to be vac	cuumed
	Welcome to the This wizard allow The wizard will v	Vacuum Tables Wizard! ws you to vacuum specified tables. vacuum tables using PostgreSQL routines.
SQL Manager for PostgreSQL	<u>H</u> ost <u>D</u> atabase	♥ ayz2:54383 ♥ DemoDB on ayz2:54383 [DemoDB] ♥
Help Templates	•	< <u>B</u> ack Cancel Cancel

#### Host

Use the drop-down list of registered hosts to select the host where the database resides.

### Database

Use the drop-down list of registered databases to select the database where tables for vacuuming are stored.

Click the **Next** button to proceed to the <u>Setting vacuum parameters</u> by step of the wizard.

# 12.2.2 Setting vacuum parameters

This step of the wizard allows you to specify basic **vacuum parameters** to be applied to the VACUUM operation.

🚇 Vacuum Tables Wizard	
Vacuum Tables	
Specify vacuum parameters	
EFFE	Vacuum Parameters Show detailed operation report (VERBOSE) Update optimization statistics (ANALYZE) Compact unused space (EULL) - exclusively locks the table! Freeze tuples (FREEZE) - recommended only for read-only databases
Help Templates	▼ < <u>B</u> ack <u>N</u> ext > Cancel

#### Show detailed operation report

Check this option to receive a detailed vacuum activity report for each table (VERBOSE).

### **Update optimization statistics**

This option updates statistics used by the optimizer to determine the most efficient way to execute a query (ANALYZE).

# Compact unused space

This option specifies "full" vacuum which may reclaim more space, but takes much longer and exclusively locks the table (*FULL*).

#### Freeze tuples

This option enforces "freezing" of tuples (*FREEZE*). This option is recommended for readonly databases.

Click the **Next** button to proceed to the <u>Selecting tables</u> step of the wizard.

# 12.2.3 Selecting tables

Use this step of the wizard to select the tables to be vacuumed using <code>PostgreSQL</code> routines.

To select a table, you need to move it from the **Available** list to the **Selected** list. Use the **Selected** list or drag-and-drop operations to move the tables from one list to another.

🚇 Vacuum Tables Wizard				
Vacuum Tables				
Select tables to vacuum				
	All Tables	_		
ED.	Available			Selected
	Employee. I ransaction History			HR.EmployeeAddress
	Employee Unicode			HR EmployeePayHistory
SQL	Employee.UnitMeasure		$\mathbf{N}$	
Manager	Employee.Vendor			
for	Employee.VendorAddress			
PostgreSQL	Employee.VendorContact			
	Employee.WorkOrder			
	Employee.WorkOrderRouting		_	
		=		
	HR.EMPLOYEE			
	Production Address	-		
Help Templates		<	<u>B</u> acl	k <u>N</u> ext > Cancel

You can also enable the  $\ensuremath{\overline{\mathbb{M}}}$  All Tables option to select all available tables automatically.

If necessary, you can save a <u>template</u> [982] for future use.

When you are done, click the **Next** button to proceed to the <u>Vacuuming tables</u> at step of the wizard.

# 12.2.4 Vacuuming tables

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the vacuum tables process.

The **Operations** tab allows you to view the log of operations and errors (if any).

🚇 Vacuum Tables Wizard - [	Database: DemoDB on ayz2:54383]
Vacuum Tables	
Click the Run button to s	art vacuum process
	Process completed successfully!
Pin	100 %
SQL Manager for PostgreSQL	INFO: "EmployeePayHistory": tound U removable, U nonremovable row versions in 0 pages DETAIL: 0 dead row versions cannot be removed yet. There were 0 unused item pointers. 0 pages contain useful free space. 0 pages are entirely empty. CPU 0.00s/0.00u sec elapsed 0.00 sec. INFO: analyzing "HR.EmployeePayHistory" INFO: "EmployeePayHistory": scanned 0 of 0 pages, containing 0 live rows and 0 dead rows; 0 rows in sample, 0 estimated total rows Done
	========== END OF LOG ===================================
	Close the Wizard after successful completion
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>R</u> un Close

### Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to complete the operation.

# 12.3 Reindex

**Reindex wizard** allows you to rebuild corrupted indexes (with PostgreSQL routines used).

In some cases it is worthwhile rebuilding indexes periodically. Also, the contrib/reindexdb routine which can reindex an entire database. However, PostgreSQL has substantially reduced the need for this activity as compared to earlier releases.

To run the wizard, select the **Services | B Reindex...** <u>main menu</u> कि item, or right-click the database alias in the <u>DB Explorer</u> ि tree and select the **Tasks | B Reindex ...** item from the <u>context menu</u> 54.



- <u>Selecting database</u>783
- Setting reindex options 784
- <u>Selecting objects to reindex</u>786
- <u>Reindexing objects</u>

**Full** version (for Windows)

<u>Availability</u>:

Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

### See also:

<u>Analyze Tables</u> <u>Using templates</u> <u>Tables</u> <u>Indexes</u> 219

# 12.3.1 Selecting database

This step of the wizard allows you to specify the **host** and the **database** where objects for reindex are stored.

🔠 Object Reindex Wizard		
Reindex Object		
Select database		
	Welcome to the O This wizard allows The wizard will rei	Object Reindex Wizard! s you to reindex specified database object. index selected objects using PostgreSQL routines.
SQL Manager for PostgreSQL	<u>H</u> ost <u>D</u> atabase	ayz2:54383      ayz2:54383      DemoDB on ayz2:54383 [DemoDB]
<u>H</u> elp <u>T</u> emplates		< <u>B</u> ack <u>N</u> ext > Cancel

#### Host

Use the drop-down list of registered hosts to select the host where the database resides.

### Database

Use the drop-down list of registered databases to select the database where objects for reindex are stored.

Click the **Next** button to proceed to the <u>Setting reindex options</u> step of the wizard.

# 12.3.2 Setting reindex options

This step of the wizard allows you to set up basic **options** pertaining to the reindex operation.

Select the reindex target:

#### Index

Specifies Index as the reindex target object. If selected, you will have to specify the index table using the **Table** box, and select index(-es) in the appropriate boxes at the next step [786] of the wizard.

### Table

Specifies Table as the reindex target object. If selected, you will have to select the table (s) at the <u>next step</u> of the wizard.

### All system indices

Specifies that all system indexes of the selected database should be reindexed. If selected, you will be immediately forwarded to the <u>Reindexing objects</u> step upon pressing the **Next** button.

#### All indices

Specifies that all indexes of the selected database should be reindexed. If selected, you will be immediately forwarded to the <u>Reindexing objects</u> step upon pressing the **Next** button.

退 Object Reindex Wizard	
Reindex Object	
Specify reindex options	
SQL Manager for PostgreSQL	Select reindex options          Reindex         Index         Table         All system indices         All indices
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>N</u> ext > Cancel

Click the **Next** button to proceed to the <u>Selecting objects to reindex</u> step, or to the <u>Reindexing objects</u> step of the wizard if you have specified to reindex *All system indices* or *All indices*.

# 12.3.3 Selecting objects to reindex

Use this step of the wizard to **select the objects** to be reindexed using PostgreSQL routines.

Note that this step is only available if O *Index* or O *Table* was specified when <u>setting</u> reindex options [784].

To select an object, you need to move it from the **Available Objects** list to the **Selected Objects** list. Use the **Selected Objects** list. Use the **Selected Objects** list to another.

🔠 Object Reindex Wizard		- • •
Reindex Object		
Select objects to reindex		
SQL Manager for PostgreSQL	Table       Employee.Address         Available Objects       Selected Objects         AK_Address_rowguid       M         IX_Address_AddressLine1_Addre       M         IX_Address_StateProvinceID       IX         IX_Address_StateProvinceID       IX	essID
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>N</u> ext >	Cancel

When you are done, click the **Next** button to proceed to the <u>Reindexing objects</u> step of the wizard.

# 12.3.4 Reindexing objects

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the reindex process.

The **Operations** tab allows you to view the log of operations and errors (if any).

🔠 Object Reindex Wizard - [Da	tabase: DemoDB on ayz2:54383]
Reindex Object	
Click the Run button to sta	t service
	Process completed successfully!
	100 %
SQL Manager for PostgreSQL	Reindex index 'Employee.PK_Address_AddressID' Done END OF LOG
<u>H</u> elp <u>T</u> emplates	Close the Wizard after successful completion

#### Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to run the reindex object service.

# 12.4 Download Files

**Download File wizard** allows you to save and load files directly to/from the server machine.

In most cases loading data is performed considerably faster with the help of this wizard, especially when dealing with large files, due to using native server file access functions.

To run the wizard, select the Services | 🦃 Download Files... <u>main menu</u>िली item.



- Selecting download method 789
- <u>Selecting database</u>790
- FTP/SFTP connection setup 791
- Specifying operation and selecting files 792

<u>Availability</u>:

**Full** version (for Windows) **Lite** version (for Windows)

Yes No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u><sup>[22]</sup> page.

#### See also:

<u>Extensions</u>864 <u>Using templates</u>982

# 12.4.1 Selecting download method

At this step you should select the download method which will be used for transferring files.

Select the preferable download method:

PostgreSQL server functions

With the native PostgreSQL server file access functions used, files transfer is performed considerably faster in most cases.

### ● FTP

Specifies that the FTP method will be used for the file transfer operation.

SFTP

Specifies that the SecureFTP method will be used for the file transfer operation.

Download File Wizard	
Download File Wizard Select download method	
Contraction of the second seco	Welcome to the Download file Wizard! This wizard allows you to copy files from the server machine to the client machine and vice versa. Download method PostgreSQL server functions FTP SFTP Please note that PostgreSQL functions that allow copying files from/to server are available in the adminpack server extension that may need to be installed separately. The functions only allow copying files which are located in database cluster directory (or its subdirectories).
Help	< <u>B</u> ack <u>N</u> ext > Cancel

Depending on whether you have selected the 
PostgreSQL server functions or 
FTP /
SFTP download methods, upon pressing the **Next** button you will either proceed to the Selecting database real step, or you will be immediately forwarded to the FTP/SFTP connection setup real step of the wizard.

# 12.4.2 Selecting database

This step of the wizard allows you to specify the **database** to copy files.

Note that this step is only available if the PostgreSQL server functions method was specified when selecting download method

Download File Wizard			×
Download File Wizard			
Select a PostgreSQL data	abase		
	Select a databas	e which connection will be used to copy files.	
SQL Manager for PostgreSQL	Database	DemoDB on ayz2:54383 [DemoDB]	
Help		< <u>B</u> ack <u>N</u> ext > Can	cel

#### Database

Use the drop-down list of registered databases to select the database for copying files.

Click the **Next** button to proceed to the <u>Specifying operation and selecting files</u> step of the wizard.

# 12.4.3 FTP/SFTP connection setup

Use this step of the wizard to specify FTP/SFTP connection parameters.

Note that this step is only available if the O *FTP* or O *SFTP* method was specified when <u>selecting download method</u> [789].

Enter valid connection settings in the corresponding fields: *Host*, *Port*, *User name*, *Password*.

Download File Wizard		
Download File Wizard		
FTP/SFTP connection pa	arameters	
	Enter FTP/SF	TP connection parameters
	Host	ftp.sqlmanager.net Port 21
	User name	user
SQL	Password	******
for PostgreSQL		Test Connection
Help		< <u>B</u> ack <u>N</u> ext > Cancel

Once you have specified the connection parameters, you can check whether it is possible to establish connection to the server: click the **Test Connection** button for this purpose. If connection is successful, you will get the 'Connected!' message; otherwise an error message will be returned.

Click the **Next** button to proceed to the <u>Specifying operation and selecting files</u> step of the wizard.

# 12.4.4 Specifying operation and selecting files

At this step you need to specify the desired operation and define the source and destination files.

Select the operation to be performed:

- Load file from server
- Save file to server

Download File Wizard		×
Download File Wizard		
Select the operation and	choose a file	
	Select operation <ul> <li>Load file from server</li> <li>Save file to server</li> </ul>	
for PostgreSQL	Source postgersql.conf.bak	2
	Destination	
	postgersql.conf.bak	
	Rewrite existing file	
	Click "Finish" to download the file	
Help	< <u>B</u> ack <u>F</u> inish Canc	el

# Source

Type in or use the B button to specify the path and name of the source file.
👸 PostgreSQL	Server Files			×
Folder 🔒 🔪			•	👌 🔕
base		hostgresql.conf.bak		
global		hostmaster.bak		
pg_clog		hostmaster.opts		
pg_log		Me postmaster.pid		
pg_multiz	kact	Nostmaster.pid.bak		
pg_subtr	rans			
pg_tblsp	с			
pg_twop	hase			
pg_xlog				
pg_nba.c	cont			
pg_ident	.conf bak			
	SION			
R postares	al conf			
posigros	iqi.com			
File name	postgresql.cor	nf	<b>•</b>	
File type			-	Cancel

# Destination

Type in or use the  $\blacksquare$  Save as... button to specify the path and name of the destination file.

# Rewrite existing file

If this option is selected, existing destination files are replaced with the corresponding source files.

### **Do not close wizard after copying**

If this option is deselected, the wizard will be closed automatically when the process is completed.

Click the **Finish** button to run the file transfer operation.

# 12.5 Database Statistics

The **Database Statistics** service is intended for browsing and reporting information about database activity.

Using the service, you can get count of accesses to tables and indexes. PostgreSQL also supports determining the exact command currently being executed by other server processes. Since collection of statistics adds some overhead to query execution, the system can be configured to collect or not collect information. This is controlled by configuration parameters that can easily can be set up with the help of the corresponding item of the <u>Navigation bar</u>[796].

To open the **Database Statistics** window, select the **Services** | **I Database Statistics** <u>main menu</u> and item, or right-click the database alias in the <u>DB Explorer</u> **DB** tree and select the **Tasks** | **I Database Statistics** item from the <u>context menu</u> **DB**.

<u>D</u> atabase	<u>V</u> iew	<u>T</u> ools	Sen	vices	<u>O</u> ptions	<u>W</u> indows	<u>H</u> elp
			<b>e</b>	Back	tup Databas	se	
			<b>(</b>	Rest	ore Databa	se	
				Analy	/ze Tables.		
				Vacu	ium Tables.		
			8	Rein	dex		
				Dow	nload Files.		
				Insta	nce Manag	er	
			G	Serv	er Status		
				Serv	er Log SQL	Parser	
			Ģ	Serv	er Configur	ation	
			۵.	Data	base Exten	sions	
			4	Data	base Statis	tics	

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   800
- Browsing Object Statistics
   802
- Browsing Column Statistics 798
- Browsing Database Statistics
   804
- Saving/loading statistics
- Statistics Collector options

#### Availability:

Full version (for Windows)

Yes No

Lite version (for Windows) No Note: To compare all features of the Full and the Lite versions of SQL Manager, refer to the Feature Matrix 22 page.

# See also:

<u>Analyze Tables</u> 773 <u>Reindex</u> 782

# 12.5.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Database Statistics**.

Database	\$
🔒 ayz on ayz2:54383 [ayz]	•
General	\$
Refresh	
≽ Print	
Save statistics	
Load statistics	
Compare statistics	
Statistics collector options	
Reset statistics	
🛃 Restore default size	
Object Group	\$
Tables	•
All statistics	•
All objects	•

#### Database

select a database for collecting statistics

# General

- refresh the content of the active tab
- print the content of the active tab
- 🚽 <u>save</u>®® the statistics to an external file or memory
- 🔁 load 🔤 statistics from an external file or memory
- 🖔 compare current statistics data with data of an existing one
- 🖀 set <u>Statistics Collector options</u> छारी
- neset current statistics
- restore the default size and position of the window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with statistics data:

#### **Object**

✓ select the type of objects to collect statistics for (*Tables, Indices, Sequences*)

✓ select whether all statistics, query statistics, data change statistics or cache statistics should be collected

 $\checkmark$  select whether All objects, User objects only or System objects only should be displayed

#### **Diagram Options**

 $\checkmark$  specify the number of objects to be displayed in the diagram

✓ select the diagram **criterion**: Most frequent table scans (sequential and index), Number of scans, Updates, Inserts, Deletes, Most changed tables, Cache efficiency (for **tables**); Most frequently used indices, Most frequent scans, Cache efficiency (for **indexes**); Most frequent scans (for **sequences**).

NB: You can enable disable Toolbars and Navigation bars at Environment options [877].

### See also:

<u>Diagram view</u> ଛ୦୦ <u>Browsing Object Statistics</u> ଛ୦ଅ <u>Browsing Column Statistics</u> ଅତି <u>Browsing Database Statistics</u> ଛ୦୬ <u>Saving/loading statistics</u> ଛ୦୬ <u>Statistics Collector options</u> ଛ୦୦

### 12.5.1.1 Browsing Column Statistics

The **Column Statistics** tab displays statistical data about the contents of the database, as well as statistical data about the values of index expressions. Note that all the statistical data is inherently approximate, even assuming that it is up-to-date.

Object Statistics	Field Statisti	cs Database	Statistics					
Drag a column h	ieader here to	group by that	column					Ê
🗄 Schema 🔎	Table 💌	Column 🖉	Null Fracti 💌	Average V 💌	Distinct 💌	Correlation 👻	Most Common Value	E
Employee	Contact	ModifiedDate	0	8	1048	0,14602	{"2003-09-01 00:00	
Employee	Contact	rowguid	0	39	-1	-0,0046969		
Employee	Contact	EmailPromotic	0	4	3	0,387964	{0,1,2}	
Employee	Contact	NameStyle	0	1	1	1	{f}	-
Employee	Contact	PasswordSal	0	9	-1	0,00539377		-
Employee	Contact	PasswordHa:	0	41	-1	-0,0176711		-
Employee	Contact	Phone	0	16	-0,152564	-0,0942071	{"1 (11) 500 555-01	•
Employee	Contact	EmailAddress	0	28	-1	0,00160904		-
Employee	Contact	Suffix	0,997667	3	3	0,821429		
Employee	Contact	LastName	0	6	444	0,0262794	{Martinez,Hernande	8
Employee	Contact	MiddleName	0,443667	2	45	0,0635552	{A,L,M,C,J,E,R,D}	
Employee	Contact	FirstName	0	6	685	0,00192371	{Julia,Katherine,Eric	5
Employee	Contact	Title	0,949	4	4	0,473748		
Employee	Contact	ContactID	0	4	-1	1		Ŧ
•						_	Þ	

The list displays fields as a grid with the following columns:

Schema, Table, Column, NULL Fraction, Average Width, Distinct, Correlation, Most Common Values, Most Common Frequency, Histogram Bounds.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back. If more convenient, you can <u>change the order 459</u> of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

See also: <u>Using Navigation bar and Toolbar</u> <u>Diagram view</u> <u>Browsing Object Statistics</u> <u>Browsing Database Statistics</u> <u>Saving/loading statistics</u> <u>Statistics Collector options</u> <u>Born</u>

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## 12.5.2 Diagram view

The **Diagram View** tab allows you to view <u>object statistics</u> [802] as a diagram. To activate this type of statistics data view, select the **Diagram View** tab on the View mode panel at the bottom of the working area of the window.



Use the **Object Group** pane of the <u>Navigation bar</u> [796] to select the type of objects to collect statistics for (*Tables, Indices, Sequences*), and whether *All objects, User objects* only or *System objects* only should be displayed.

Use the **Diagram Options** pane of the <u>Navigation bar</u> to specify common diagram options:

#### **Object count**

Use the spinner control to specify the number of objects to be displayed in the diagram.

Use the drop-down list below to select the diagram **criterion**: Most frequent table scans (sequential and index), Number of scans, Updates, Inserts, Deletes, Most changed tables, Cache efficiency (for **tables**); Most frequently used indices, Most frequent scans, Cache efficiency (for **indexes**); Most frequent scans (for **sequences**).

See also:

Using Navigation bar and Toolbar 796

<u>Browsing Object Statistics</u> ८०२ <u>Browsing Column Statistics</u> 798 <u>Browsing Database Statistics</u> ८०२ <u>Saving/loading statistics</u> ८०२ <u>Statistics Collector options</u> ८०७

# 12.5.3 Browsing Object Statistics

The **Object Statistics** tab of the **Database Statistics** window displays statistics for each object of the specified type (*table*, *index*, *sequence*) in the current database.

The list displays the existing database objects as a grid with the following columns: Schema, Table, OID, Sequential Scans, Row Reads by Sequential Scans, Index Scans, Rows Fetched by Index Scans, Rows Inserted, Rows Updated, Rows Deleted, Block Reads from Disk, Block Reads from Cache, Index Block Reads from Disk, Index Block Reads from Cache, Toast Block Reads from Disk, Toast Block Reads from Cache, Toast Index Block Reads from Disk, Toast Index Block Reads from Cache, Live Rows Read, Dead Rows Read (for **tables**);

Schema, Table, Index, OID, Index Scans, Index Tuple Reads, Index Tuple Fetches, Index Block Reads from Disk, Index Block Reads from Cache (for **indexes**); Schema, Sequence, OID, Block Reads from Disk, Block Reads from Cache (for **sequences**).

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back. If more convenient, you can <u>change the order 459</u> of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Statistics data can be also represented as a diagram. See <u>Diagram view</u> and for more information.

Database Statistics - [ayz on ayz2:54383]											
📙 Databases 🔻 🛃 👌 🍃	2 🖻		🐴 🐂 🐴 🛽	M Object T	ype 📑 Table	s 🔹 Alla	statistics	- Al	- Obj	ect Count 7	-
Database	*		Object Statistics	Field Statist	ics Database	e Statistics					
	_		_								-
😸 ayz on ayz2:54383 [ayz]	•			header here to	group by that						
General	\$		🗄 Schema 🖉	Table 💌	OID 👻	Sequential 👻	Row R 🛆 💌	Index Sca 💌	Rows Fet	Rows Inse 💌	Rov
			pg_catalog	pg_tablespac	1213	1323	3290	690	0	0	
Refresh			pg_catalog	pg_trigger	2620	14	5600	42327	42541	0	
🖕 Print			pg_catalog	pg_constraint	2606	54	9015	408	828	1	
Save statistics			pg_catalog	pg_am	2601	14107	14134	381	381	0	
Load statistics			pg_catalog	pg_operator	2617	16	15600	693	3579	0	
Compare statistics		3	pg_catalog	pg_attrdef	2604	82	17831	832	483	1	
Statistics collector options			pg_catalog	pg_namespac	2615	1418	19656	157007	156119	0	
		3	pg_catalog	pg_index	2610	111	31386	14987	15421	2	
		8	Employee	Contact	248736	3	39944	0	0	0	
Restore default size			pg_catalog	pg_attribute	1249	56	71928	31266	161341	36	
Object Group	\$		pg_catalog	pg_type	1247	95	86224	8645	6214	5	
Object Orbup		3	pg_catalog	pg_authid	1260	9555	116116	4245	4245	0	
Tables	•	3	pg_catalog	pg_descriptio	2609	70	148050	968	84	0	
All statistics	-		pg_catalog	pg_proc	1255	70	209720	2370	2519	0	
All altiants			pg_catalog	pg_depend	2608	31	368261	295	3681	15	
All objects	•		pg_catalog	pg_database	1262	77052	5775150	78753	78753	0	
			pg_catalog	pg_class	1259	42431	36623159	39272	38536	5	
			•								•
		ľ	Grid View D	iagram View							
		Ľ		-							
			Statistics: Cu	rrent			Date/Time:	21.09.201	2 09:18:38		

Use the **Object Group** pane of the <u>Navigation bar</u> [796] to select the type of objects to collect statistics for (*Tables, Indices, Sequences*), and whether *All objects, User objects* only or *System objects* only should be displayed.

The status bar at the bottom of the window displays type of **statistics** being currently displayed and the **date/time** they were collected.

#### See also:

<u>Using Navigation bar and Toolbar</u> <u>Diagram view</u> ଛ୦୦ <u>Browsing Column Statistics</u> <u>Browsing Database Statistics</u> <u>Saving/loading statistics</u> <u>Statistics Collector options</u> <u>807</u>

# 12.5.4 Browsing Database Statistics

The **Database Statistics** tab displays statistical data about the specified server databases.

0	bject Statistics	Field Statist	ics Database	Statistics					
(	Drag a column	header here to	group by that	column					^ 
:	OID 💌	Database 👻	Number of 💌	Commited	Rolled Bac 💌	Total C 🛛 🖵	Total Num 👻	Rows Ret 💌	Rov
	35819	TestDB	0	2092	27	3848	2326880	12738805	
	615688	new_db	0	1919	7 5	1342	4294936	25619503	
	615690	Test_DB	0	1918	9 0	1331	4288622	25125061	
	1	template1	0	4347	7 0	570	2605605	15444371	
►	477180	DellStore	0	790	) 0	426	490279	3001314	
	57358	1	0	(	0 0	0	0	0	
	26771	89	0	(	0 0	0	0	0	
	386486	AutoGis3	0	(	0 0	0	0	0	
	615689	Demo_DB	0	(	0 0	0	0	0	-
•							·		•
	Background w	riter statistics							
ſ	Number of scheduled checkpoints: 4484		4484	Number of t stopped a c	imes the back <u>o</u> leaning scan	ground writer	0		
F	equested checkpoints: 11		11	Buffers written by backends:			79		
E	3uffers written by checkpoints: 273		Total buffers allocated:		15945				
E	Buffers cleaning scans: 10			10					

The list displays databases as a grid with the following columns:

OID, Database, Number of Active Server Processes, Committed Transactions, Rolled Back Transactions, Total Disk Block Reads, Total Number of Buffer Hits, Rows Returned, Rows Fetched, Rows Inserted, Rows Updated, Rows Deleted.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back. If more convenient, you can <u>change the order 459</u> of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

#### **Background writer statistics**

This area is available for PostgreSQL 8.3. The following parameters pertaining to the selected database are available: Number of scheduled checkpoints, Requested checkpoints, Buffers written by checkpoints, Buffers cleaning scans, Number of times the background writer stopped a cleaning scan, Buffers written by backends, Total buffers allocated.

See also: <u>Using Navigation bar and Toolbar</u> <u>Diagram view</u> <u>Browsing Object Statistics</u> <u>Browsing Column Statistics</u> <u>Saving/loading statistics</u> <u>Statistics Collector options</u> <u>Brows</u>

# 12.5.5 Saving/loading statistics

Use the  $\boxed{\square}$  Save statistics and the  $\boxed{\square}$  Load statistics items of the Navigation bar  $\boxed{1796}$  to save the statistical data as an external file for future use or to memory, and to load the previously saved statistics data.

You are able to save the statistics to an external \*.*dbs* file for future use, or to memory. Loading the data is performed in the same way.

Select Destination	
Save statistics to	
File	
File name	C:\PostgreSQL\Data\DBStats_Demo.dbs
Memory	
Statistics name	
	<u>O</u> K <u>C</u> ancel

Moreover, you can compare the current statistics data with statistical data that were saved to a file or is stored in memory. In this case the differences will be displayed in the grid.

# See also:

<u>Using Navigation bar and Toolbar</u>୮୨୬ଶି <u>Diagram view</u> ଉ୦ଷି <u>Browsing Object Statistics</u> ଉ୦ଅ <u>Browsing Field Statistics</u> ୮୨୬ଶି <u>Browsing Database Statistics</u> ଉ୦ୟି <u>Statistics Collector options</u> ଉ୦ଅ

# 12.5.6 Statistics Collector options

In order to set the configuration parameters for collecting statistics, please select the **Statistics collector options** item of the <u>Navigation bar</u> 796.

Statistics Options						
Statistic	s monitoring					
Enabled	Parameter	Value				
	log_parser_stats	<b>V</b>				
	log_planner_stats					
	log_executor_stats					
	log_statement_stats					
Query/ir	ndex statistics collector					
Enabled	Parameter	Value				
	track_activities					
	track_counts					
Paramet	er description					
For each query, write performance statistics of the respective module to the server log. This is						
a crude profiling instrument. log statement stats						
reports total statement statistics, while the						
others report per-module statistics.						
		ОК	Cancel			

## See also:

<u>Using Navigation bar and Toolbar</u> <u>Diagram view</u> ଛ୦୦ <u>Browsing Object Statistics</u> <u>Browsing Field Statistics</u> <u>Browsing Database Statistics</u> <u>Baving/loading statistics</u> <u>Bool</u>

# 12.6 Backup Database

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**Backup Database Wizard** allows you to perform the database backup operation on your PostgreSQL system (with the *pg\_dump* utility of PostgreSQL server used).

This operation is used to create a backup copy of a *single database*, an entire *database cluster*, *roles* and/or *tablespaces*.

To run the wizard, select the **Services** | **Packup Database...** <u>main menu and item</u>, or right-click the database alias in the <u>DB Explorer</u> and select the **Tasks** | **Backup Database...** item of the <u>context menu</u> <sup>54</sup>. Alternatively, you can right-click the host alias and select the **Tasks** | **Backup Database...** <u>context menu</u> <sup>52</sup> item.



- Selecting host 809
- Specifying objects to backup 811
- Setting backup options for database objects 814
- <u>Selecting objects to be included</u> 815
- <u>Selecting objects to be excluded</u><sup>816</sup>
- <u>Setting additional backup options</u>
- Running database backup 820

<u>Availability</u>:

Full version (for Windows)YesLite version (for Windows)NoNote: To compare all features of the Full and the Lite versions of SQL Manager, refer to the Feature Matrix [22] page.

# See also: <u>Copy Database Wizard</u> बिढि औ <u>Restore Database</u> बिट गे Using templates बिढ ये

# 12.6.1 Selecting host

This step of the wizard allows you to specify the *host* where the database for backup resides, and to provide *authentication parameters*.

🐖 Backup Database Wizard		
Backup Database		
Select host to backup		
SQL Manager for	Welcome to the Backup This wizard allows you t an SQL script or an arc Select host on which yo parameters. HTTP connection can't i Host	Database Wizard! o backup a PostgreSQL database or a database cluster into hive using pg_dump. u want to backup objects and specify host connection be used!
PostgreSQL	User name	ауг
	Pa <u>s</u> sword	*************
Help Templates		< Back Next > Cancel

#### Host

Use the drop-down list to select the host where the database resides.

## **User name / Password**

Specify valid user name and password to access the selected host.

Click the **Next** button to proceed to the <u>Specifying objects to backup</u> and step of the wizard.

# 12.6.2 Specifying SSH tunneling parameters

This step appears only if you are performing backup operation of the database connected via SSH tunnel.

Here you are to specify the necessary parameters for connection with  $\ensuremath{\textbf{SSH}}$  tunneling used.

Specify **SSH host name**, **SSH port**, **SSH user name**, **SSH password**, the path to the **SSH key file** (if necessary) in the corresponding boxes.

See <u>SSH connection properties</u> [992] for details.

🖗 Backup Database Wizard			
Backup Database			
Set SSH tunneling prope	ties to connect to the hos	t	
Eventski for BostgreSQL	SSH <u>h</u> ost name SSH <u>p</u> ort SSH <u>u</u> ser name SSH pa <u>s</u> sword I Use Private Key for SSH <u>k</u> ey file	vadsrv 22 - testssh ****** authentication C:\SSHKeys\rsa1priv.ppk	
Help <u>T</u> emplates	•	< <u>B</u> ack <u>N</u> ext >	Cancel

Click the **Next** button to proceed to the <u>Specifying objects to backup</u> and step of the wizard.

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# 12.6.3 Specifying objects to backup

This step of the wizard allows you to specify *server objects* for the database backup operation.

嫴 Backup Database Wizard		
Backup Database		
Specify server objects to	backup	
Contraction of the second seco	Select server version for which ou Specify the target you want to back entire database cluster, server ob Server version: 9.2 Output script for server version Backup target (a) Single database Source <u>d</u> atabase C Entire database cluster C Roles only C Tablespaces only C Both of roles and tablespaces	tput script is generated. kup. It is possible to backup: a single database, an jects (roles or tablespaces). 9.1 • example_postgis20 •
<u>H</u> elp <u>T</u> emplates	•	< <u>B</u> ack <u>N</u> ext > Cancel

#### **Server version**

This label displays the current PostgreSQL server version.

#### **Output script for server version**

Use the drop-down list to select the version of PostgreSQL server for the backup script. The output script will be generated in compliance with the specifications of the selected server version: 9.3, 9.2, 9.1, 9.0, 8.4, 8.3, 8.2, 8.1, 8.0 or 7.4.

#### **Backup target**

Use this group to define the backup target:

Single database (use the Source database drop-down list to select the database you need)

- Entire database cluster
- Roles only
- Tablespaces only
- Both roles and tablespaces

Click the **Next** button to proceed to the <u>Setting output format and file name</u> [B12] step of the wizard.

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# 12.6.4 Setting output format and file name

This step allows you to specify the *output format* and *output file* properties.

🖗 Backup Database Wizard			- • •
Backup Database			
Specify output format and	l file name		
SQL Manager for PostgreSQL	Specify output file format Output format Plain-text SQL scrip Compressed plain-t Custom pg_dump at Tar archive	and file name. ot ext SQL script rchive C:\Shared\dvd_dump.sql	
	File encoding	Add date and time into file name UTF8 (Unicode, 8-bit)	
Help Templates		< <u>B</u> ack <u>N</u> ext >	Cancel

#### **Output format**

Use this group to define the output format (**Note:** This group is only available if you selected **Single database** as the *backup target* at the <u>previous step</u> (and ):

- Plain-text SQL script
- Compressed plain-text SQL script
- Custom pg\_dump archive
- Tar archive

#### Output file name

Set a name for the result file and type in or use the  $\blacksquare$  **Save as...** button to specify the path to this file on your local machine or on a machine in the LAN.

### Add date and time into file name

Check this option to add the current timestamp to the generated backup file name.

#### File encoding

If necessary, use the drop-down list to select the encoding to be applied to the output file.

Click the **Next** button to proceed to the <u>Setting backup options for database objects</u> [814] step of the wizard.

# 12.6.5 Setting backup options for database objects

Use this step of the wizard to specify *objects to backup* and *structure/data options* (if available).

🐖 Backup Database Wizard		- • •
Backup Database		
Set backup options for d	atabase objects	
FileSQL Manager for PostgreSQL	You can backup the entire database or specified objects. It is p schemas or tables to backup. Also it is possible to select sche exclude from the backup. As included and excluded objects yo object name or a name mask. You can backup database structure, table data, or the both. Objects to backup <ul> <li>All objects of the database</li> <li>Specified schemas (can be included or excluded)</li> <li>Specified tables (can be included or excluded)</li> </ul> <li>Structure/data options</li> <li>Backup both of structure and data</li>	cossible to select mas or tables to ou can set an exact
	Backup data only	
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>N</u> ext	> Cancel

#### **Objects to backup**

Use this group to specify whether all or specified objects are to be backed up:

- All objects of the database
- Specified schemas
- Specified tables

#### Structure/data options

Use this group to specify whether structure and/or data are to be backed up (**Note:** This group is only available if you selected **Plain-text SQL script** as the *output format* at the previous step[812]):

- Backup both structure and data
- Backup structure only
- Backup data only

Depending on whether you have selected to backup *Specified schemas / Specified tables* or *All objects of the database*, upon pressing the **Next** button you will either proceed to the <u>next step of the wizard</u> [15], or you will be immediately forwarded to the <u>Setting</u> additional backup options [817] step of the wizard.

# 12.6.6 Selecting objects to be included

Use this step of the wizard to specify *objects to be included* into the backup operation.

🐖 Backup Database Wizard		
Backup Database		
Select objects to be inclu	ded into backup	
SQL Manager for PostgreSQL	Select objects to be included into the b If none are selected the all are backed Available Objects Employee HR Test information_schema pg_catalog pg_temp_1 pg_toast pg_toast_temp_1 pg_toast_temp_1 public	Aackup. I up. Selected Objects Production Sales Sales Add Name Mask
Help Templates		< Back Next > Cancel

To select an object, you need to move it from the **Available Objects** list to the **Selected Objects** list. Use the **Selected Objects** list. Use the **Selected Objects** list to another.

If necessary, you can select objects by mask: click the **Add Name Mask** button and specify a string in the **Add Object Name Mask** dialog.

Add Object Name Mask	<b>X</b>
Enter the name mask of objects to include in the backup (* and ? of	an be used)
Product*	
OK Cancel	

Click the **Next** button to proceed to the <u>Selecting objects to be excluded</u> and step of the wizard.

# 12.6.7 Selecting objects to be excluded

Use this step of the wizard to specify *objects to be excluded* from the backup operation.

鐞 Backup Database Wizard		- • ×
Backup Database		
Select objects to be exclu	ded from backup	
SQL         Manager         for         PostgreSQL	Select objects to be excluded from the Available Objects Employee HR Production Sales Test information_schema pg_catalog pg_temp_1 public	backup. Selected Objects pg_toast pg_toast_temp_1 C C C
		Add Name Mask
Help <u>T</u> emplates		< Back Next > Cancel

To select an object, you need to move it from the **Available Objects** list to the **Selected Objects** list. Use the **Selected Objects** list. Use the **Selected Objects** list to another.

If necessary, you can select objects by mask: click the **Add Name Mask** button and specify a string in the **Add Object Name Mask** dialog.

Add Object Name Mask	×
Enter the name mask of objects to exclude from the backup (* and ? can	be used)
&temp*	
OK Cancel	

Click the **Next** button to proceed to the <u>Setting additional backup options</u> and step of the wizard.

# 12.6.8 Setting additional backup options

This step offers some *additional options* that may be useful for the database backup operation.

🔤 Backup Database Wizard		– 🗆 X
Backup Database		
Set backup options		
SOL	Structure options Add create database command Add drop object commands Use IF EXISTS clause Don't use \$ quoting	No privileges Don't set object ownership Use set session authorization
Manager for PostgreSQL	Data options Data as COPY commands Data as INSERT commands Disable triggers	Dump table OIDs
	Advanced options Dump BLOBs Don't add tablespace commands	Compression level 5 ~ Don't add table access commands
<u>H</u> elp <u>T</u> emplates	V	< Back Next > Cancel

#### **Structure options**

#### **Add create database command**

If this option is selected, the CREATE DATABASE statement will be included into the backup script.

#### Add drop object commands

If this option is selected, the DROP statements will be added for database objects.

#### Don't use \$ quoting

This option disables dollar-quoting in the backup script.

#### No privileges

This option disables privilege allocation for database objects in the script.

#### Don't set object ownership

This option disables object ownership statements for database objects in the script.

#### **W** Use set session authorization

If this option is selected, the currently set session authorization is used.

#### **Data options**

Specify the method that will be used to backup data.

- Data as COPY statements
- Data as INSERT statements

#### **Disable triggers**

Select this option to disable triggers for the backup session.

#### Dump table OIDs

If this option is selected, table OIDs (object identifiers) will be dumped as well.

#### **INSERT** with column names

If this option is selected, column names will be included into the INSERT statements.

#### **Advanced options**

### Compress file

If this option is selected, the backup file will be compressed to the extent specified using the **Compress level** control.

#### **Dump BLOBs**

If this option is selected, BLOBs (binary large objects) will be dumped as well.

#### **No setting tablespace commands**

With this option, all objects will be created in whichever tablespace is the default during restore.

### **Don't add table access commands**

This option allows not to output commands to select table access methods. With this option enabled all objects will be created with the default table access method during restore.

#### **Compress level**

This control allows you to set the compression level for the backup file. Move the slider between the **0** and **9** threshold values to select the required compression level value within this scope.

When you are done, click the **Next** button to proceed to the <u>next step</u> [319] of the wizard.

# 12.6.9 Setting backup creation options

This step of the wizard is available only when **Output script for server version** option value is set to 8.4 at the <u>Specifying objects to backup</u> [81] step.

Use this step to manage dump creation options:

### Role to be used to create the dump

This drop-down list allows you to define role that will be used to dump the database.

### Table lock timeout, milliseconds (0- unlimited wait)

Within this increment field you can restrict time to lock a table in milliseconds. By default it is set "0", that is used for to unlimited wait.

鐞 Backup Database Wizard		- • •
Backup Database		
Set backup creation option	8	
Figure Solution of the second	Dump creation options Role to be used to create the dump Table lock timeout, milliseconds (0 - unlimited wait)	S ayz
Help Templates	▼ < <u>B</u> ack	Next > Cancel

When you are done, click the **Next** button to proceed to the <u>last step</u> [820] of the wizard.

# 12.6.10 Running database backup

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the backup database process.

The log area allows you to view the log of operations and errors (if any).

뒏 Backup Database Wizard		x
Backup Database		
Click "Run" to backup th	e database	
	Click "Run" to backup the database.	
SQL Manager for PostgreSQL	pg_dump90: setting owner and privileges for TRIGGER table4_tr pg_dump90: setting owner and privileges for TRIGGER table1_tr pg_dump90: setting owner and privileges for TRIGGER table1_tr1 pg_dump90: setting owner and privileges for TRIGGER table1_tr1 pg_dump90: setting owner and privileges for FK CONSTRAINT table4_fk pg_dump90: setting owner and privileges for FK CONSTRAINT table1_fk pg_dump90: setting owner and privileges for FK CONSTRAINT table1_fk pg_dump90: setting owner and privileges for FK CONSTRAINT table_fk2_fk gg_dump90: setting owner and privileges for FK CONSTRAINT table_fk2_fk Backing up finished Completed	•
		(Ⅲ)
	Verbose mode	
	Close the Wizard after successful completion	
<u>H</u> elp <u>T</u> emplates	<ul> <li>&lt; <u>B</u>ack <u>R</u>un Clos</li> </ul>	e

### Verbose mode

This option specifies verbose mode, i.e. detailed object comments, start/stop times and progress messages to standard error will be written to the dump file and displayed in the log area.

#### Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to run the backup database operation.

# 12.7 Restore Database

821

**Restore Database Wizard** allows you to perform the database restore operation on your PostgreSQL system (with the *pg\_restore* utility of PostgreSQL server used).

This operation is used to rebuild a damaged or corrupted database that has been backed up using <u>Backup Database Wizard</u> [808]. You can restore the backup copy to an existing database, or create a new database and restore the backup copy into the newly created database.

To run the wizard, select the **Services** | **Provide Restore Database...** <u>main menu</u> and item, or right-click the database alias in the <u>DB Explorer</u> and select the **Tasks** | **Provide Restore Database...** item of the <u>context menu</u>. Alternatively, you can right-click the host alias and select the **Tasks** | **Provide Restore Database...** <u>context menu</u>.



- Selecting host 822
- <u>Selecting source file for restoring</u>
- <u>Selecting restore type</u><sup>826</sup>
- Setting restore options for database objects [829]
- <u>Selecting objects to restore</u>
- <u>Setting additional restore options</u><sup>[833]</sup>
- <u>Running database restore</u><sup>836</sup>

**Full** version (for Windows)

<u>Availability</u>:

Yes

Lite version (for Windows) No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u><sup>[22]</sup> page.

#### See also:

<u>Backup Database</u>808 <u>Using templates</u>982

# 12.7.1 Selecting host

This step of the wizard allows you to specify the *host* to restore database onto, and to provide *authentication parameters*.

🕼 Restore Database Wizard			- • •
Restore Database			
Select host to restore da	tabase on		
<b>SQL</b> Manager	Welcome to the Restore This wizard allows you script file or backup arc Select host on which yo parameters. HTTP connection can't	e Database Wizard! to restore a database or an entire databa hive file. ou want to restore objects and specify hos be used!	se cluster from st connection
for PostgreSQL	<u>H</u> ost	SSH)	
	<u>U</u> ser name	ayz	
	Pa <u>s</u> sword	*****	
<u>H</u> elp <u>T</u> emplates		< <u>B</u> ack <u>N</u> ext >	Cancel

#### Host

Use the drop-down list to select the host to restore database onto.

## **User name / Password**

Specify valid user name and password to access the selected host.

Click the **Next** button to proceed to the <u>Selecting source file for restoring</u> step of the wizard.

# 12.7.2 Specifying SSH tunneling parameters

823

This step appears only if you are performing restore operation of the database connected via SSH tunnel.

Here you are to specify the necessary parameters for connection with SSH tunneling used.

Specify SSH host name, SSH port, SSH user name, SSH password, the path to the SSH key file (if necessary) in the corresponding boxes.

See <u>SSH connection properties</u> [992] for details.

摩 Restore Database Wizard			- • •
Restore Database			
Set SSH tunneling prope	ties to connect to the hos	t	
EFFECTION OF CONTROL O	SSH <u>h</u> ost name SSH <u>p</u> ort SSH <u>u</u> ser name SSH pa <u>s</u> sword I Use Private Key for SSH <u>k</u> ey file	vadsrv 22 v testssh ****** authentication C:\SSHKeys\rsa1priv.ppk	
Help <u>T</u> emplates	·	< <u>B</u> ack <u>N</u> ext >	Cancel

Click the Next button to proceed to the <u>Selecting source file for restoring</u> [824] step of the wizard.

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# 12.7.3 Selecting source file for restoring

This step of the wizard allows you to specify the *source dump file* for the database restore operation.

🝺 Restore Database Wizard		
Restore Database		
Select source file for rest	oring	
	Specify source dump file custom pg_dump archive	to restore from. It may be file in plain-text SQL script format, format, tar archive dump format.
SQL Manager for PostgreSQL	Source dump file	C:\backup\ayz_bkp.sql
Help Templates	ŀ	< Back Next > Cancel

#### Source dump file

This control allows you to specify the source dump file for the restore operation. Depending on the specified <u>backup file format [812]</u>, you should select a \**sql*, \*.*dmp* or \*.*tar* file using the B **Explorer** button.

Click the **Next** button to proceed to the <u>Selecting restore type</u> [828] step of the wizard.

**Note:** If you are restoring data from a plain-text SQL script, before you proceed to the next step, you will be offered to  $\frac{\text{specify encoding}}{\text{specify encoding}}$  for the dump script.

#### 12.7.3.1 Script conversion

Before you proceed to the <u>Selecting restore type [B26]</u> step, you can specify encoding for the dump script using the **Script Conversion** dialog.

Select the required encoding:

- Windows default
- Database default (disabled in this case)
- Other encoding (use the list on the right to select the encoding you need)

The **Preview** area allows you to browse the text of the dump script with the selected encoding applied, and edit the script text, if necessary.

Script Conversion					
Select the encoding for script convertion					
<ul> <li>Windows default</li> <li>Database default</li> <li>Other encoding</li> </ul>		latin7 (ISO 8859-13 Baltic) latin8 (ISO 8859-14 Celtic) Unicode (UCS-2) Unicode (UTF-8)			
Prev	iew				
1 2 3	 PostgreSQL database 	dump			
4 5 Dumped from database version 9.0beta2 6 Dumped by pg_dump version 9.0.1 7 Started on 2012-09-24 15:22:55					
8 9 10 ∢ ा	SET statement_timeout = SET client encoding =	= 0; 'UTF8';			
		OK <u>C</u> ancel <u>H</u> el	p		

Click **OK** to apply current settings and proceed to the <u>Selecting restore type</u> [B26] step of the wizard.

# 12.7.4 Selecting restore type

At this step of the wizard you need to select *restoring type*. Note that the set of available options depends on the <u>source dump file</u> 824 format and PostgreSQL version.

穿 Restore Database Wizard						
Restore Database						
Select restoring type						
SQL Manager for PostgreSQL	<ul> <li>Restore into existing database Database name</li> <li>Create a new database and rest Database name</li> <li>Database template</li> <li>Database encoding</li> </ul>	ayz_copied      tore into it      ayz_restored      template0      Coefault >				
	Note that the script may contain CREATE DATABASE and \connect statements that change destination database.  Im Ignore any CREATE DATABASE and \connect statements  Stop if connecting to multiple databases					
<u>H</u> elp <u>T</u> emplates Cancel						

When restoring from a *plain-text SQL script*, set the following options:

#### Restore into existing database

Specifies that the backup copy will be restored into an existing database.

#### **Database name**

Use the drop-down list to select the database into which the backup script will be restored.

#### Oreate a new database and restore into it

Specifies that a new database will be created, and the backup copy will be restored into this database.

### **Database name**

Enter a name for the new database to be created.

#### Database template

Use the drop-down list to select the database that will be used as a template for the new database.

#### **Database encoding**

Use the drop-down list to select the encoding to be applied to the new database.

### **Ignore any CREATE DATABASE and \connect statements**

If this option is selected, the *CREATE DATABASE* and *\connect* statements will be ignored while processing the backup archive.

#### Stop if connecting to multiple databases

If this option is selected, the restore operation will be stopped in case multiple database connections are detected.

摩 Restore Database Wizard				
Restore Database				
Select restoring type				
	Database in the dump: ayz (9.0beta2). Dumped by pg_dump version: 9.0.1. Current server version: 9.0.0.			
	Restore into existing database			
	Database name			
SQL	Drop database objects before recreating			
Manager	Create a new database and restore into it			
for Dectars SOL	Database name			
Posigreade	Database template			
	Database encoding < Default >			
	Create the database that is specified in the dump and restore into it			
	The database must not exist.			
Drop the database if it exists				
Help     Templates      Cancel				

When restoring from a *pg\_dump* archive or a *Tar* archive, set the following options:

#### Restore into existing database

Specifies that the backup copy will be restored into an existing database.

#### Database name

Use the drop-down list to select the database into which the dump archive will be restored.

#### **Drop database objects before recreating**

Select this option to drop objects from the database before restoring.

### Oreate a new database and restore into it

Specifies that a new database will be created, and the backup copy will be restored into this database.

### **Database name**

Enter a name for the new database to be created.

#### Database template

Use the drop-down list to select the database that will be used as a template for the new database.

#### **Database encoding**

Use the drop-down list to select the encoding to be applied to the new database.

### Oreate the database that is specified in the dump and restore into it

The application will create the database that is specified in the dump archive, and the backup copy will be restored into this database.

#### **Drop the database if it exists**

Select this option to drop the existing database (if any).

Click the **Next** button to proceed to the <u>Setting restore options for database objects</u> step of the wizard.
### 12.7.5 Setting restore options for database objects

Use this step of the wizard to specify objects to restore and structure/data options.

**Note:** This step is available if you restore database from a *pg\_dump archive* or a *tar archive*.

🕼 Restore Database Wizard			
Restore Database			
Specify either restore all c	r selected objects. And select what	to restore: structure, data or	both.
SQL Manager for PostgreSQL	Set either to restore all database to restore: structure, data or both Objects to restore Restore all objects Restore specified objects Restore objects from list file List file Structure/data options	objects or only the specifie Generate File	d ones. And select what
	Restore both of structure an     Destare structure only	d data	
	<ul> <li>Restore data only</li> </ul>		
<u>H</u> elp <u>T</u> emplates	•	< <u>B</u> ack Ne	xt > Cancel

#### **Objects to restore**

Use this group to specify whether all or specified objects are to be restored:

- Restore all objects
- Restore specified objects
- Restore objects from list file

#### List file

This box allows you to specify a file containing the list of objects to be restored. Type in or use the **Explorer** button to specify the path to this file on your local machine or on a machine in the LAN. If necessary, you can **Generate** and **Edit** this file using the corresponding buttons.

#### Structure/data options

Use this group to specify whether structure and/or data are to be restored:

- Restore both structure and data
- Restore structure only
- Restore data only

Depending on whether you have selected to *Restore specified objects* or *Restore all objects / Restore objects from list file*, upon pressing the **Next** button you will either proceed to the <u>next step of the wizard</u> [33], or you will be immediately forwarded to the <u>Setting additional restore options</u> [83] step of the wizard.

## 12.7.6 Selecting objects to restore

Use this step of the wizard to specify *objects to be restored*.

**Note:** This step is available if you restore database from a *pg\_dump archive* or a *tar archive*.

🕼 Restore Database Wizard			- • •
Restore Database			
Select objects to restore			
Image: Constraint of the second sec	Select database objects to restore. C Restore entire schemas Object type Available Objects ayz.table1 ayz.table14 ayz.table15 ayz.table5 ayz.table9 ayz.table9 ayz.table_with_exclude_const	ables  Selected Objects  Selected Objects  ayz.COUNT  Selected Objects  Count  Count Count  Count  Count  Count Count Count  Count Count Count Count Count Count Count Count Count Count Count Count Count Count Count Count Count	it. S RY
	ayz.test_table_3	-	
<u>H</u> elp <u>T</u> emplates		< Back Next :	Cancel

#### Restore entire schemas

Adds all objects of a schema to the restore operation.

#### Restore specified objects

Adds only selected objects of specified type to the restore operation.

#### **Object type**

Use the drop-down list to select the type of objects to be restored.

To select an object, you need to move it from the **Available Objects** list to the **Selected Objects** list. Use the **Selected Objects** list. Use the **Selected Objects** list to another.

If necessary, you can change the objects order: use the 💽 💟 buttons or drag-anddrop operations within the **Selected Objects** list.

Click the **Next** button to proceed to the <u>Setting additional restore options</u> [333] step of the wizard.

## 12.7.7 Setting additional restore options

This step allows you to set *additional options* that will be used to restore the database. Note that the set of available options depends on the <u>source dump file 824</u> format and PostgreSQL version.

🔯 Restore Database Wizard		_		×
Restore Database Set restore options				
Figure SQL Manager for PostgreSQL	Specify restoring options. Structure options No privileges Don't set object ownership Use set session authorization statements Ignore setting tablespace commands Use IF EXISTS clause Data options No data for failed tables Advanced options Stop restoring on error Restore in single transaction			
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack	<u>N</u> ext >	C	ancel

#### **Structure options**

#### No privileges

This option disables privilege allocation for database objects during the restore operation.

#### Don't set object ownership

This option disables object ownership statements for database objects during the restore operation.

#### Use set session authorization statements

If this option is selected, the currently set session authorization is used (available if the *Don't set object ownership* option is deselected).

### Ignore settings tablespace commands

With this option, all objects will be created in whichever  $\frac{\text{tablespace}}{\text{stablespace}}$  is the default during restore.

#### **Use IF EXISTS clause**

Add IF EXISTS clause to metadata operations if applied.

#### **Data options**

## No data for failed tables

If this option is selected, table data will not be restored for the tables whose metadata failed to restore.

### **Don't add table access commands**

Do not output commands to select table access methods. With this option, all objects will be created with whichever table access method is the default during restore.

#### **Advanced options**

### Stop restoring on error

If this option is selected, the restore operation will be stopped when an error occurs.

#### **Restore in single transaction**

This option specifies restoring within a single transaction.

### **Don't add table access commands**

This option disables table access method and all tables are created with the default access method.

Click the **Next** button to proceed to the <u>next step</u> [835] of the wizard.

## 12.7.8 Setting restore process options

This step is available when you restore a PostgreSQL 8.4 database from a '.*tar*' or '.*dmp*' file.

#### Role to be used to perform the restore

Use this option to define the role that will be used to perform the restore operation.

### Number of jobs

This option indicates the amount of threads used for the restore operation.

穿 Restore Database Wizard		
Restore Database		
Set restore process options		
Image: Constraint of the second se	Restore process options Role to be used to perform the restore Number of jobs	S ayz
<u>H</u> elp <u>T</u> emplates	< <u>B</u> ack	Next > Cancel

When you are done, click the **Next** button to proceed to the last step and of the wizard.

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## 12.7.9 Running database restore

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the restore database process.

The log area allows you to view the log of operations and errors (if any).

摩 Restore Database Wizard		
Restore Database		
Click "Run" to restore the	database	
	Click "Run" to restore the database.	
SQL Manager for PostgreSQL	Restoring started Creating database ayz_restored Done Executing script C:\backup\ayz_bkp.sql Done Restoring finished	
	Verbose mode	
Help Templates	< <u>B</u> ack <u>R</u> un	Close

#### Verbose mode

This option specifies verbose mode, i.e. detailed object comments, start/stop times and progress messages to standard error will be displayed in the log area.

#### Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

If necessary, you can save a <u>template</u> [982] for future use.

Click the **Run** button to run the restore database operation.

# 12.8 Instance Manager

This tool allows you to check PostgreSQL service status, to stop or start it. To launch this tool use the **Services | Instance Manager** item of main menu

Instance Manager			
icalhost	- {	postgresql-9.2 🔹 🕨 🔳 🔊	
Host	*	Start/Stop Service	
localhost		Server status	
Service	*	Service status: postgresql-9.2 service is running.	
postgresql-9.2	•	To shut down the instance click the Stop Service button. Be aware that	Stop Septice
Service Managment	*	all users connected to the database will be disconnected.	Stop Service
Stop service		Log messages	
Refresh		This log shows all messages during server startup and shutdown.	

You can manage server instance by using navigation bar<sup>[838]</sup>.

To shut down/startup the instance click the **Stop/Start Service** button. Be aware that all users connected to the databases will be disconnected.

#### Log messages

This log shows all messages during server startup and shutdown.

<u>Availability</u>:

Yes

Lite version (for Windows) No

**Full** version (for Windows)

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u><sup>[22]</sup> page.

## 12.8.1 Using Navigation and Toolbar Bar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Instance Manager**.

Host	*
localhost	-
Service	*
Ø postgresql-9.2	•
Service Managment	*
Service Managment Stop service	*

The Navigation bar of the Instance Manager window allows you to:

Select server from the **Host** drop-down list; Select **Service** from the corresponding drop-down list;

Start service;
 Stop service;
 Refresh - get actual statistics.

NB: You can enable\disable Toolbars and Navigation bars at Environment options 877.

# 12.9 Server Status

The **Server Status** viewer allows you to get common information on current connections to the server, locks, prepared transactions, and to view server log files.

To open the **Server Status** viewer window, select the **Services** | 1 **Server Status** <u>main</u> <u>menu</u> (Ref) item, or right-click the host alias in the <u>DB Explorer</u> (Ref) tree and select the **Tasks** | 1 **Server Status** item from the <u>context menu</u> [52].

**Note:** Retrieving server status information is only available on PostgreSQL 7.4 and above.



- Using Navigation bar and Toolbar 840
- Viewing Connections
   841
- Viewing Locks 843
- Managing Prepared Transactions
   844
- Viewing Logfile 846

<u>Availability</u>:

Full version (for Windows)

Lite version (for Windows)

Yes No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

## 12.9.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Server Status**.

Servers	*
aschel:54384	
Refresh Rate	*
	20 🛬
General	*
Refresh	
Cancel execution	
Cancer execution	

The Navigation bar of Server Status allows you to:

#### Servers

Select the registered server to view information about.

#### **Refresh Rate**

Type in or use the spinner controls to define the refresh periodicity (in seconds).

**Log Date** (on Logfile tab only) Use the drop-down list to select the date for displaying logs.

### General

- refresh the content of the active tab
- cancel execution
- rotate log (view the current log)
- b view log options

**NB:** You can enable\disable Toolbars and Navigation bars at Environment options [877].

### 12.9.2 Viewing Connections

The **Connections** tab of the **Server Status** viewer is intended for viewing the current connections to each database on the specified host, the users, processes and other connection information.

Note: If you are not connected to the database server yet, select the host from the drop-down list on the <u>Navigation bar</u> िडी to define <u>connection settings</u> अन्हो.

🗐 Server Status - [ayz2:54	392]
ayz2:54392	🔹 Refresh Rate 20 🗘 Log Date 🗾 🖉 🖉
Servers \$	Connections Locks Prepared Transactions Logfile
ayz2:54392	Drag a column header here to group by that column
Refresh R *	PID 💌 Database 🔍 User 🔍 Client Address 🔍 Application Name 🔍 Query Start 🔍 Query 🔍 Waiti 💌 Process Start
	3196 nb_fromdump ayz 192.168.66.57:5037 EMS SQL Manager 2012-10-30 09:49:3 <idle>: SHOW set 📃 2012-10-30 09:</idle>
20 🗸	4248 ayz ayz 192.168.66.57:5037 EMS SQL Manager 2012-10-30 09:49:5 <idle>: SHOW see 2012-10-30 09:</idle>
General \$	1248 nb ayz 192.168.66.15:4846 2012-10-30 11:25:5 <idle>: SELECT * 🔲 2012-10-30 10:</idle>
	5724 nb ayz 192.168.66.15:5084 EMS SQL Manager 2012-10-30 11:26:1 <idle>: SELECT * 📃 2012-10-30 11:</idle>
Refresh	5188 example_post ayz 192.168.66.63:5446 EMS SQL Manager 2012-10-30 11:18:4 <idle>: SELECT rc 📃 2012-10-30 10:</idle>
Cancel execution	5244 nb ayz 192.168.66.63:5003 EMS SQL Manager 2012-10-30 11:48:1 <idle>: SELECT u 2012-10-29 14:</idle>
	5712 ayz ayz 192.168.66.63:5003 EMS SQL Manager 2012-10-30 10:24:4 <idle>: SELECT o 2012-10-29 14:</idle>
	3240 nb ayz 192.168.66.63:5495 EMS SQL Manager 2012-10-30 12:19:0 <active>: SELEC1 2012-10-30 11:</active>
	<

The list displays the connections as a grid with the following columns: *PID*, *Database*, *User*, *Client Address*, *Application Name*, *Query Start*, *Query*, *Process Start*. If more convenient, you can <u>change the order</u> [459] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *refresh* the list or *cancel execution* of a query.

Connections view tools are also available through the **Navigation bar** and **Toolbar** of the **Server Status** viewer. Using the <u>Navigation bar</u> and <u>toolbar</u> and <u>toolbar</u> you can also set the **Refresh Rate** for the connection list.

See also: Locks<sup>843</sup> Prepared Transactions<sup>844</sup> Logfile<sup>846</sup>

## 12.9.3 Viewing Locks

The **Locks** tab of the **Server Status** viewer displays the current locks outstanding in the PostgreSQL Lock Manager. This information can be useful when attempting to debug or track down deadlocks on your server.

Connections Locks Prepared Transactions Logfile																
Drag	a colu	mn header h	ere to gr	oup by	that column											
PID	-	Database	-	Relation	1 <b>.</b>	- User	•	Transaction	▼ A	ccess Mode	🖵 G	ir 💌	Query	Start	•	Que
	3832	ayz		pg_auti	nid_rolname	ayz			A	ccessShareLo	ck 🛛	1	2012-0	9-21	13:40:0	SEL
	3832	ayz		pg_data	abase_oid_	ir ayz			A	ccessShareLo	ck	1	2012-0	9-21	13:40:0	SEL
	3832	ayz		pg_data	abase_datr	a ayz			A	ccessShareLo	ck	1	2012-0	9-21	13:40:0	SEL
	3832	ayz		pg_clas	s_relname	ayz			A	ccessShareLo	ck	1	2012-0	9-21	13:40:0	SEL
	3832	ayz		p <u>q_auti</u>	nid oid inde	91/7			A	ccessShareLo	ck	V	2012-0	)9-21	13:40:0	SEL
				2	Refresh	F5										
				۲	Cancel E	xecution										
					Export Da	ata										
<							111									÷.

The list displays the locks as a grid with the following columns: *PID*, *Database*, *Relation*, *User*, *Transaction*, *Access Mode*, *Granted*, *Query Start*, *Query*. If more convenient, you can <u>change the order</u> [459] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *refresh* the list or *cancel execution* of a query.

Locks view tools are also available through the **Navigation bar** of the **Server Status** viewer. Using the Navigation bar you can also set the **Refresh Rate** for the lock list.

#### See also:

<u>Connections</u> छिमी <u>Prepared Transactions</u> छिम्मी <u>Logfile</u> छिम्ही

### 12.9.4 Managing Prepared Transactions

The **Prepared Transactions** tab of the **Server Status** viewer allows you to browse the list of outstanding prepared transactions. Prepared transactions are an aspect of Two Phase Commit (2PC), used in distributed transaction managers. Normally, prepared transactions are handled by the transaction manager. In case of a failure, it might be necessary to commit or rollback a transaction manually; use the **Commit transaction** or **Rollback transaction** items on the general bar to do that.

**Note:** This tab is only available for running PostgreSQL server version 8.1 or higher.

Connections	Locks	Prepared	Transactions	Logfile		
Drag a column	header her	re to grou	p by that colum			
Transaction	👻 Global	ID 👻	Prepare Time	V Ow	nei 👻 Database	•
8784	foobar		2012-09-28 10	):01:4 pos	tgres DemoDB	
		2	Refresh		F5	
		<b>~</b>	Commit Transa	ction C	trl+Alt+C	
		×	Rollback Trans	action C	trl+Alt+R	
			Export Data			

The list displays the prepared transactions as a grid with the following columns: *Transaction, Global ID, Prepare Time, Owner, Database.* If more convenient, you can <u>change the order</u> (459) of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *refresh* the list or *commit/rollback* a transaction.

Transaction management tools are also available through the **Navigation bar** of the **Server Status** viewer. Using the Navigation bar you can also set the **Refresh Rate** for the transactions list.

#### See also:

<u>Connections</u> बि4ी <u>Locks</u> बि43 <u>Logfile</u> बि4ही

## 12.9.5 Viewing Logfile

The **Connections** tab of the **Server Status** viewer lists server log files, if configured in *postgresql.conf* (*redirect\_stderr* = true, *log\_destination*='stderr' and *log\_filename* ='postgresql-%Y-%m-%d\_%H%M%S.log'). SQL Manager will also extract a time stamp from the logfile in a separate column, if the *log\_line\_prefix* is configured accordingly.

**Note:** This tab is only available for running PostgreSQL server version 8.1 or higher.

Connections Locks Pre	epared Transactions	ogfile	
Drag a column header here t	o group by that column		^
Time 💌	Level	Entry	
2012-09-24 09:55:04 YEKS	WARNING	there is no transaction in progress	
2012-09-24 09:55:14 YEKS	WARNING	there is no transaction in progress	
2012-09-24 09:55:27 YEKS	WARNING	there is no transaction in progress	
2012-09-24 15:25:08 YEKS	ERROR	operator does not exist: integer ~~ unknown at character 49	
2012-09-24 15:25:08 YEKS	HINT	No operator matches the given name and argument type(s). $\ensuremath{N}$	Ε
2012-09-24 15:25:08 YEKS	STATEMENT	Select * from "public"."Ignacio_table" where f2 like '1%'	
2012-09-24 15:25:19 YEKS	ERROR	column "1%" does not exist at character 54	
2012-09-24 15:25:19 YEKS	STATEMENT	Select * from "public"."Ignacio_table" where f2 like "1%"	
2012-09-24 15:25:26 YEKS	ERROR	column "1" does not exist at character 54	
2012-09-24 15:25:26 YEKS	STATEMENT	Select * from "public". "Ignacio_table" where f2 like "1"	
2012-09-24 15:25:34 YEKS	ERROR	operator does not exist: integer ~~ unknown at character 49	
2012-09-24 15:25:34 YEKS	HINT	No operator matches the given name and argument type(s). N	
2012-09-24 15:25:34 YEKS	STATEMENT	Select * from "public". "Ignacio_table" where f2 like '1'	-

The list displays the log entries as a grid with the following columns: *Time, Level, Entry*. If more convenient, you can change the order 459 of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *refresh* the list or *rotate* the selected log (i.e. start logging to a new log file).

Log management tools are also available through the **Navigation bar** of the **Server Status** viewer. Using the Navigation bar you can also set the **Refresh Rate** for the Logfile list, or filter the list by a time stamp using the **Log Date** drop-down list.

If necessary, you can configure **Log Options** using the corresponding item of the **Navigation bar**.



Select the **Enable SQL logging parameter (log\_statement)** option and specify

which SQL statements will be logged:

- none (don't log SQL statements)
- DDL (logs all data definition commands)
- mod (logs all DDL and data-modifying statements: INSERT, UPDATE, DELETE, etc.)
   all (logs all SQL statements)

#### See also:

<u>Connections</u> छिभी <u>Locks</u> छिमे अ <u>Prepared Transactions</u> छिमेमे

# 12.10 Server Log SQL Parser

**Server Log SQL Parser** allows you to analyze PostgreSQL server logs in a simple way providing the ability to sort, filter and group log statements.

To launch the tool, select the **Services | Server Log SQL Parser** main menu



- Using Navigation bar and Toolbar 849
- Working with Server Log SQL Parser

<u>Availability</u>:

Full version (for Windows) Lite version (for Windows) Yes No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u> [22] page.

## 12.10.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Server** Log SQL Parser.

 General
 \$

 Popen server log file

 Load log file from server

 Open in SQL Editor

 Open in Query Builder

 Open to Cipboard

 Restore default size

The Navigation bar of Server Log SQL Parser allows you to:

### General

- 🤌 open an external server log file
- 尾 load a log file from server using <u>Download File Wizard</u>788
- 📝 open a log entry in <u>Query Data</u>माडी
- 🐱 open a log entry in <u>Design Query</u> बिगी
- copy the selected log entry to clipboard
- restore the default size and position of the window

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

## 12.10.2 Working with Server Log SQL Parser

The **Server Log SQL Parser** window displays the list of server logs as a grid, and allows you to manage them efficiently.

Server Log SQL Parser		×
i 🔗 🔥 📝 🔛 🖒 i 🖃 🚽		=
General \$	Regular Grouped	
🔁 Open server log file	Pid 💌 Duration 💌 Time 🔍 Statement 🔍 Error 🔍 Warning	
Load log file from server	0 0 2012-09-28 10:06:45 SET DateStyle TO 'ISO'	- =
	0 5000 2012-09-28 10:06:45 SELECT * FROM pg_prepared_xacts	
Open in SQL Editor	0 3000 2012-09-28 10:06:45 SELECT oid, typname FROM pg_type WHERE (	
🔛 Open in Query Builder	0 1000 2012-09-28 10:06:59 SET DateStyle TO 'ISO'	
Copy to clipboard	0 3000 2012-09-28 10:06:59 ROLLBACK PREPARED 'foobar'	
Restore default size	0 1000 2012-09-28 10:06:59 SELECT * FROM pg_prepared_xacts	
	17 000	-
		•
	1 SET DateStyle TO 'ISO'	* II
42 lines processed, 18 queries found	< <u> </u>	+ + ::

Only logs containing SQL statements can be opened in **Server Log SQL Parser**. In order SQL statements to be logged to server logs you need to set the following parameters in PostgreSQL configuration file:

- log\_statement = 'all'
- logging\_collector = on
- log\_min\_duration\_statement = 0

The list displays the server logs as a grid with the following columns: *Pid*, *Duration*, *Time*, *Statement*, *Error*, *Warning*. If more convenient, you can <u>change the order</u> [459] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Right-click an item within the list to call the **context menu** allowing you to *open* a log in <u>Query Data</u> [415] and copy the selected log to Windows clipboard.

Server logs management tools are also available through the <u>Navigation bar</u> [849] of **Server** Log SQL Parser.

For your convenience several navigation and filtering facilities are implemented: you can navigate and filter log entries in grid using the corresponding buttons below. For details see <u>Filtering records</u>[463].

The lower area displays the full statement for the currently selected log entry.

For your convenience the **Grouped** tab of the **Server Log SQL Parser** provides all statements grouped by the template. That is the default grouping and you can change it if you want.

F	Regular	Grouped							
Т	Template 🛆 💌								
Pic	d 🔽	Duration		Time	-	Statement 💌	Error 💌	Warning 💌	
Ξ	Template	: SELECT	* FR	OM pg_prep	ared_xacts				
	0	6	5000	2012-09-28	10:06:45	SELECT * FROM pg_prepared_xa	1		
	0	1	1000	2012-09-28	10:06:59	SELECT * FROM pg_prepared_xa	1		
		6	000						=
÷	Template	: SELECT	SES	SION_USER					
+	Template	: SELECT	oid, t	typname FRC	M pg_type	WHERE oid </td <td></td> <td></td> <td></td>			
÷	Template	: SET Date	eStyl	e TO ?					
		17	000						÷
H	<b>(4   )</b>	<b>       </b>	<b>]</b> *[	<b>7</b>	•			4	
	1 SETE	ст *			*********				
	1 SELE				_				£.
	2 FROM pg_prepared_xacts								
									-
٠	III							+	

# **12.11 Server Configuration**

SQL Manager for PostgreSQL provides a useful and effective service - the ability to view and change server configuration. There are many configuration parameters that affect the behavior of the database system which can be set up via **Server Configuration** manager.

Using the tabs of the **Server Configuration** manager you can view/edit a number of server parameters and options which can be changed to optimize PostgreSQL server performance.

To launch the tool, select the **Services |** कि **Server Configuration** <u>main menu</u>ि item, or right-click the host alias in the <u>DB Explorer</u> ि tree and select the **Server Configuration** item from the <u>context menu</u> <u>5</u>2.



- Viewing Parameters 853
- Modifying Role Settings
   855
- <u>Setting up Configuration Files</u>
- <u>Changing Host-Based Authentication File</u> ৪59
- <u>Changing Ident File</u>

<u>Availability</u>:

Full version (for Windows)YLite version (for Windows)N

Yes No

**Note:** To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the <u>Feature Matrix</u><sup>[22]</sup> page.

### 12.11.1 Viewing Parameters

The **Parameter List** tab of the **Server Configuration** manager allows you to view current parameters of your PostgreSQL. It displays a number of configuration parameters that affect the behavior of the database system. To obtain more information on specific parameters, refer to PostgreSQL documentation.

**Note:** If you are not connected to the database server yet, select the host from the drop-down list on the <u>Navigation bar</u> to define <u>connection settings</u> [976].

🖟 Server Configu	uration - [a	ayz2:54383]			x
Servers ayz2:54	4383	🔹 Roles 💽 🔹 🍓 🧤 🦓 🦧 🗙		🌜 🖣 🐌 🛛 🗖 🗖 🗖	Ŧ
Servers	*	Parameter List Role Settings Configuration File Host-Based Authenticat	ion File	Ident File	
ayz2:54383	•	Drag a column header here to group by that column			-
General	*	🗄 Parameter Group 💌 Parameter Name 💌 Value	👻 Sh	ort Description	
		Version and Platform Compatit add_missing_from off	Au	tomatically adds missing table	
2 Refresh		Developer Options allow_system_table_mods off	All	ows modifications of the struct	
		Write-Ahead Log / Settings archive_command (disabled	l) Se	ets the shell command that will t	
		Write-Ahead Log / Settings archive_mode off	All	ows archiving of WAL files usir	
		Write-Ahead Log / Settings archive_timeout 0	Fo	orces a switch to the next xlog	Ť
		Version and Platform Compatit array_nulls on	En	able input of NULL elements in	Ť
		Connections and Authenticatic authentication_timeout 60	Se	ets the maximum allowed time to	ŧ.
		Autovacuum on	Sta	arts the autovacuum subproce	†
	1	Autovacuum autovacuum_analyze_scale_factor 0.1	Nu	umber of tuple inserts, updates	†
		Autovacuum autovacuum_analyze_threshold 50	Mi	nimum number of tuple inserts,	†
		Autovacuum autovacuum_freeze_max_age 2000000	00 Ag	e at which to autovacuum a tal	†
		Autovacuum autovacuum_max_workers 3	Se	ets the maximum number of sim	† I
		Autovacuum autovacuum naptime 60	Tir	me to sleep between autovacu	
		Autovacuum autovacuum vacuum cost delay 20	Va	cuum cost delay in millisecond	t
		Autovacuum autovacuum vacuum cost limit -1	Va	cuum cost amount available be	-
		✓		•	

The **Parameter List** displays the parameters as a grid with the following columns: Parameter Name, Value, Short Description, Extra Description, Context, Type, Source, Minimum, Maximum, Parameter Group. If more convenient, you can <u>change the order</u> 459 of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

**Note:** Only parameters with "user" or "superuser" values of the *Context* field can be redefined.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *refresh* the list.

## See also:

<u>Modifying Role Settings</u> <u>Setting up Configuration Files</u> <u>Changing Host-Based Authentication File</u> <u>Changing Ident File</u> <u>B62</u>

## 12.11.2 Modifying Role Settings

The **Role Settings** tab of the **Server Configuration** manager provides the ability to define specific server parameters for a role according to your needs. To obtain more information on specific parameters, refer to PostgreSQL documentation.

Use the **Roles** pane on the **Navigation bar** to select the PostgreSQL role 75th.



The **Role Settings** list displays the parameters as a grid with the following columns: *Parameter Name, Role Setting.* If more convenient, you can <u>change the order</u> 459 of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *refresh* the list, *add/edit/remove* a parameter, *copy* parameters from one role to another, *delete all* parameters, *save* the settings.

Role tools are also available through the **Navigation bar** of the **Server Configuration** manager.

#### See also:

<u>Viewing Parameters</u> <u>Setting up Configuration Files</u> <u>Changing Host-Based Authentication File</u> <u>Changing Ident File</u> <u>Base</u>

## 12.11.3 Setting up Configuration Files

The **Configuration File** tab of the **Server Configuration** manager allows you to edit parameters set starting and run-time parameters.

Common PostgreSQL configuration information is typically stored in *postgresql.conf* file. Each parameter can be edited and enabled for the database system to take effect. To obtain more information on specific parameters, refer to PostgreSQL documentation.

😼 Server Configuration - [ayz2:54383]								x	
Servers ayz2:54383	3		Roles ayz		- 2	*	• 🎭 🐀 🛪 🗙	1 No. No. 1 4. 40	** 7
Servers	*	Parameter List Role Settings Configuration File				Hos	t-Based Authenticat	tion File Ident File	
ayz2:54383	•	Drag a columr							
General	*	Enabled -	Parameter Name		-	Par	rameterSetting 💌	Current Setting	
			data_directory			Co	nfigDir	C:/Program Files/Postg	
Refresh			hba_file			Co	nfigDir/pg_hba.conf	C:/Program Files/Postg	
Hoit parameter	- 3		ident_file			Co	nfigDir/pg_ident.con	C:/Program Files/Postg	
			external_pid_file			(no	ne)		
	- 8	<b>V</b>	listen_addresses			*		*	
	- 8	▶ 🛛	port	<b>i</b> ta	Edit Parameter		383	54383	
	2		max_connection		-	)	100		
			superuser_rese	Save Settings			3		
			unix_socket_dir	e	Refresh F5				
			unix_socket_gro						
		unix_socket_pe		7	77	511			
			bonjour_name						
			authentication_time	eout		1mi	in	60	-

The **Configuration File** displays the configuration parameters as a grid with the following columns: *Enabled*, *Parameter Name*, *Parameter Setting*, *Current Setting*. If more convenient, you can <u>change the order</u> [459] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *refresh* the list, *edit* a parameter, or *save* current settings.

Configuration file management tools are also available through the **Navigation bar** of the **Server Configuration** manager.

The Edit Parameter dialog allows you to change the parameter name, set its value,

Edit Parameter 'max_co	nnections'	×
Parameter name Value	max_connections	
Parameter Info		
Туре	integer	
Context	postmaster	
Source	configuration file	
Minimum value	1	
Maximum value	536870911	
Description		_
Sets the maxim connections.	num number of concurrent	*
		Ŧ
(	<u>O</u> K <u>C</u> ancel <u>H</u> elp	

browse parameter info and supply a description, if necessary.

#### See also:

<u>Viewing Parameters</u> <u>Modifying Role Settings</u> <u>Changing Host-Based Authentication File</u> <u>Changing Ident File</u> <u>Base</u>

## 12.11.4 Changing HBA File

The **Host-Based Authentication File** tab of the **Server Configuration** manager allows you to set parameters for Host-Based authentication.

In addition to the *postgresql.conf* file already mentioned, PostgreSQL uses two other configuration files which control client authentication - *pg\_hba.conf* and *pg\_ident.conf*. Each parameter can be edited and enabled for the database system to take effect. To obtain more information on specific parameters, refer to PostgreSQL documentation.



The **Host-Based Authentication File** list displays the parameters as a grid with the following columns: *Enabled*, *Delete*, *Type*, *Database*, *User*, *Address*, *Crypt Method*, *Option*. If more convenient, you can <u>change the order</u> 459 of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *refresh* the list, *add/edit* a connection, or *save* current settings.

With the help of General bar you can **Add** or **Edit** selected connections; to edit an existing connection simply double-click it.

Edit Client Authentic	ation 💌
Type Database	host
<ul> <li>From List</li> <li>All</li> <li>SameRole</li> <li>SameGroup</li> <li>From file</li> </ul>	Databases
User	Roles
From List	Admins DemoUser Group1 Group2 TEST
From file	
Address	::1/128
Method Options	md5
	Ok Cancel Help

## Туре

local

This record matches connection attempts using Unix-domain sockets.

host

This record matches connection attempts made using TCP/IP. Host records match either SSL or non-SSL connection attempts.

hostssl

This record matches connection attempts made using TCP/IP, but only when the connection is made with SSL encryption.

hostnossl

This record type has the opposite logic to *hostssl*: it only matches connection attempts made over TCP/IP that do not use SSL.

## Database

Specifies which database names this record matches.

#### User

Specifies which database <u>role</u> rsi names this record matches.

#### Address

Specifies the client machine IP address range that this record matches.

#### Method

Specifies the authentication method to use when connecting via this record.

#### trust

Allow the connection unconditionally. This method allows anyone that can connect to the PostgreSQL database server to login as any PostgreSQL user they like, without the need for a password.

#### reject

Reject the connection unconditionally. This is useful for "filtering out" certain hosts from a group.

#### md5

Require the client to supply an MD5-encrypted password for authentication.

#### crypt

Require the client to supply a crypt()-encrypted password for authentication. Note: this option is recommended only for communicating with pre-7.2 clients.

#### password

Require the client to supply an unencrypted password for authentication.

#### krb5

Use Kerberos V5 to authenticate the user. This is only available for TCP/IP connections.

#### ident

Obtain the operating system user name of the client and check if the user is allowed to connect as the requested database user by consulting the map specified after the ident key word.

#### pam

Authenticate using the Pluggable Authentication Modules (PAM) service provided by the operating system.

To obtain more information on specific parameters, refer to PostgreSQL documentation.

#### See also:

<u>Viewing Parameters</u> छउँजे <u>Modifying Role Settings</u> छिड्छे <u>Setting up Configuration Files</u> छिज् <u>Changing Ident File</u> छिठ्ये

## 12.11.5 Changing Ident File

The **Ident File** tab of the **Server Configuration** manager allows you to configure identbased authentication.

In addition to the *postgresql.conf* file already mentioned, PostgreSQL uses two other configuration files which control client authentication - *pg\_hba.conf* and *pg\_ident.conf*. Each parameter can be edited and enabled for the database system to take effect. To obtain more information on specific parameters, refer to PostgreSQL documentation.

Using of Ident method on editing client authentication means to obtain the operating system user name of the client (for TCP/IP connections by contacting the ident server on the client, for local connections by getting it from the operating system) and check if the user is allowed to connect as the requested database  $user^{751}$  by consulting the map specified after the ident key word.

When using ident-based authentication, after having determined the name of the operating system user that initiated the connection, PostgreSQL checks whether that user is allowed to connect as the database user he is requesting to connect as. This is controlled by the ident map argument that follows the ident key word in the  $pg_hba.conf$  file.

🔂 Server Configu	uration -	[ayz2:54383]
Servers ayz2:5	4383	🖌 Roles ayz 🚽 😢 🗰 🧤 🦗 🦗 🙀 📴
Servers	*	Parameter List Role Settings Configuration File Host-Based Authentication File Ident File
ayz2:54383	•	Drag a column header here to group by that column
General	*	Enabled Delete Map Name Ident Name (OS Name) Role Name
☑ Refresh ♣ Add Map ♣ Edit Map		Ident Editor       Map name       Ident name (OS user)       Ss       Role name       OK       Cancel       Help

The **Ident File** displays the parameters as a grid with the following columns: *Enabled*, *Delete*, *Map Name*, *Ident Name* (*OS Name*), *Role Name*. If more convenient, you can <u>change the order</u> (459) of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can group the data in grid by any of the columns. This operation is

performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *refresh* the list, *add/edit* map, or *save* current settings.

See also: <u>Viewing Parameters</u> <u>Modifying Role Settings</u> <u>Setting up Configuration Files</u> <u>Changing Host-Based Authentication File</u> 859

## **12.12 Extensions**

**Extensions** are packages, which contain multiple SQL objects.

An extension to PostgreSQL typically includes multiple SQL objects: a new data type will require new functions, new operators, and probably new index operator classes. It is convenient to collect all these objects into a single package to simplify database management.

This tool is available only for Postgres SQL Server ver. 9.1 and above. To open the **Extensions** window, select the **Services | a Database Extensions** <u>main</u> <u>menu</u> **b b i** tem, or right-click the database alias in the <u>DB Explorer</u> **b b tree** and select the **Tasks | a Database Extensions** item from the <u>context menu</u> **b b**.

<u>D</u> atabase	<u>V</u> iew	<u>T</u> ools	Sen	vices	<u>O</u> ptions	<u>W</u> indows	<u>H</u> elp
			<b>e</b>	Back	up Databa	se	
			<b>P</b>	Restore Database			
				Analyze Tables		1	
				Vacu	ium Tables.		
			2	Rein	dex		
				Dow	nload Files.		
				Insta	ince Manag	er	1
			G	Serv	er Status		
				Serv	er Log SQL	. Parser	
			Ģ	Serv	er Configur	ation	
			di d	Data	base Exten	sions	]

All available extensions are displayed in this dialog.

You can manage server extensions by using <u>navigation bar</u><sup>B66</sup> or context menu.
🔹 Extensions - [postg	gres on loca	lhost:54392]								_		
🗧 🖯 Databases 🔻 😞	1 🗸 🥐	×										Ŧ
Database	\$	Extension Name	Default Version	on I	nstalled	Installed Vers	sion Object Sc	hema	Relocatable	Owner	Description -	^
Dulubuou		adminpack	1.0		1	1.0	pg_catalog	g		postgres	administrat	
🔒 postgres on loca	alhost 💌	autoinc 📽	1.0								functions fe	
		d btree_gin	1.0		1	1.0	public		<b>V</b>	postgres	support for	-
General	\$	👛 btree_gist	1.0			10	nublic		<b>V</b>	postgres	support for	
Refresh		d chkpass	1.0	~	Install						data type f	
		🕍 📽 citext	1.0	1	Update	to New Versio	n				data type f	
Opdate to new ve	rsion	🤹 cube	1.0	~	Uninst						data type f	
X Uninstall		dblink	1.0	^	oninat				1	postgres	connect to	
Relocate to anoth	er sche	dict_int	1.0		Reloca	te to Another S	Schema				text search	
		dict_xsyn	1.0		Export	Data					text search	
		arthdistance	1.0	_							calculate g	
		file_fdw	1.0								foreign-dat	
		diversion and a second strength and a second	1.0								determine :	
		a hstore	1.1								data type f	
		🔹 insert_username	1.0								functions fe	-
		•	III								•	

## Extension properties:

Extension Name Default version Installed Installed version Object Schema Relocatable Owner Description Config Tables

## 12.12.1 Using Navigation and Toolbar Bar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Extensions**.



## Database

🔒 select a database for extension installing

## General

Refresh the extensions list

- ✓ Install 867 selected extension This item is only available for non-installed extensions.
- 📌 Update छिन्ने to new version
- X Uninstall selected extension
- Relocate to another schema

NB: You can enable\disable Toolbars and Navigation bars at Environment options [877].

## 12.12.2 Install/Update Extensions

Install Extension	×
Extension name	dict_int
Version to install	
Version name	1.0 💌
Need superuser to install	Yes
Relocatable to other schema	Yes
Required schema	
Prerequisite extensions	(none)
Schema to install objects to	
Default schema for current	user
Schema name	public
<u>o</u> k	<u>C</u> ancel <u>H</u> elp

On **Install/Update** of the extension the following dialog is open.

**Extension name** is a name of the extension to install.

## Version to install

Default version - default version of the extension wil be installed

**Version name** - if you need another version of this extension select it from the drop down list. The **Default version** options is supposed to be unchecked.

#### Need superuser to install

## **Relocatable to other schema**

**Required schema** - name of the schema that the extension must be installed into.

**Prerequisite extensions** - names of prerequisite extensions.

#### Schema to install objects to

**Default schema for current user**. This option is available when you are installing the extension.

Move objects to another schema. This option is available when you are updating the extension.

#### Schema name

To install the extension to schema different from the default user scheme select it from

this drop down list.



# 13 Options

SQL Manager for PostgreSQL provides you with capabilities for flexible personalization of the application.

Please see the chapters below to learn how to use personalization tools effectively.

- Environment Options 871
- Editor Options
   925
- Save Settings 945
- Localization 950
- Keyboard Templates 953
- Object Templates 956
- Find Option dialog 958

The **Options** menu allows you to export all program settings to a \*.*reg* file for future use, e.g. when you need to move the settings to another machine (see <u>Save Settings</u> [945] for details).

**Hint:** Each of the SQL Manager Options dialogs is provided with the **Reset to defaults button**. You can use it either to **Reset current category** or to **Reset all categories**.

## See also:

Getting Started39Database Explorer65Database Management87Database Objects ManagementImage ManagementImage ManagementImage ManagementImage ManagementImport/ExportToolsImport/ExportImage ToolsImport/ExportImport/ExportImport<t

# **13.1 Environment Options**

**Environment Options** allow you to customize general options of the SQL Manager application.

To open the **Environment Options** window, select the **Options | Environment Options...** <u>main menu</u> **Bet** item, or use the **Environment Options** button on the main <u>toolbar</u>

	<u>D</u> atabase	<u>V</u> iew	<u>T</u> ools	Services	<u>O</u> ptions	<u>W</u> indows	<u>H</u> elp	
					😃 Env	ironment Op	tions	
Preferences Full mode ac Confirmation Appearance Tools Timeouts B DB Explorer Search B Object Edito Query Data	872) <u>stivation</u> 1 <u>5</u> 875) 877) 882) 1 882 1 0 <u>075</u> 886) 888]	74)						
SQL Monitor Execute Scr Design Quer Style & Colo Database De Print Metada Data Export Fonts	:1891) tipt (892) y (894) or (896) e <b>signer</b> (90 ata (905) (906)	টা						
Data Options Print Data Color & Form Advanced Column Optic Localization Global Shorto Find Option	<u>s</u> [912] मे <u>nats</u> [915] ) <u>ons</u> [913] 927] <mark>cuts</mark> [923] 124]							

## See also:

Editor Options

## 13.1.1 Preferences

#### Show splash screen at startup

Displays the splash screen of SQL Manager for PostgreSQL at the application startup.

## **Restore desktop on connect**

This option determines whether the previously opened windows and their positions should be restored upon connection to the database.

# **I** Do not restore if 'Refresh objects on connection' database registration option is off

Check this option to perform restoring desktop operation if the 'Refresh objects on connection' option of the Database registration info

#### Disable multiple instances

Checking this option prevents one from running multiple instances of SQL Manager for PostgreSQL.

## Show desktop panel (for MDI Environment style only)

Displays <u>Desktop Panel</u><sup>[45]</sup> when no child windows are open.

## Show Full Version features

This option is available in the Lite version of SQL Manager. When selected, a 30-day period of fully-functional usage is <u>activated</u> [874].

Environment Options	×
Preferences	Preferences
Appearance Tools Grid Confirmations Grid Confirmations Grid Confirmations Grid Confirmations Grid Confirmations Co	<ul> <li>Show splash screen at startup</li> <li>Restore desktop on connection to database</li> <li>Do not restore if 'Refresh objects on connection' database registration option is off</li> <li>Disable multiple instances</li> <li>Show desktop panel (for MDI environment only)</li> </ul>
	Reset all toolbars and menus
<u>R</u> eset to Defaults ▼	<u>Q</u> K <u>C</u> ancel <u>H</u> elp <u>A</u> pply

If necessary, you can **reset all toolbars and menus** of the application using the corresponding button.

**Hint:** The **Reset to Defaults** button which is common for all sections of the **Environment Options** dialog opens a menu with items allowing you to discard all changes and reset options of the *current category* or of *all categories* to their defaults.

#### 13.1.1.1 Full mode activation

Note that when using **the FREE Lite version of SQL Manager for PostgreSQL** (which contains functional limitations) you can activate a 30-day period of fully-functional usage. During this period you will get the splash screen displaying the number of days left every time you start the application. After the period expires, you will be able to continue using the Lite version.



To activate the 30-day Full version mode, please enable the  $\boxed{V}$  Show Full Version features option available on the <u>Preferences</u> [872] page of the **Environment Options** dialog (note that this option is only available in the Lite version of SQL Manager).

## 13.1.2 Confirmations

#### Confirm saving the object (or document) upon closing the editor

If this option is selected, the program requires confirmation each time you want to save changes in a database object or document.

## Confirm dropping of object

If this option is selected, the program requires confirmation of <u>dropping</u> [155] a database object.

#### Confirm exit from SQL Manager

If this option is selected, you are prompted for confirmation each time when you exit the application.

Preferences	Confirmations	
Confirmations Confirmations Confirmations Confirmations Confirmation C	<ul> <li>Confirm saving the object (or document) upon close</li> <li>Confirm gropping of object</li> <li>Confirm transaction commit</li> <li>Confirm transaction rollback</li> <li>Confirm deleting records</li> <li>Confirm deleting records</li> <li>Confirm transformation of misprint into substitution</li> <li>Confirm metadata changing (Changing Metadata w</li> <li>Confirm transaction commit on closing data in obje</li> <li>Transaction confirmation in Query Data and Design</li> <li>Disable transaction confirmation on closing the editor</li> <li>Table altering operations performed via recreation</li> </ul>	sing the editor vindow) ct editors Query editor Commit Commit Enabled, show warning V
Reset to Defaults		Capcal Hain Annhy

## Confirm deleting records

This option enables/disables a confirmation dialog for deleting records.

#### Confirm metadata changing (Changing Metadata Window)

This option enables/disables the <u>Changing Metadata and window</u>.

## Confirm addition into spell checking dictionary

Enable this option if you wish to be prompted for adding a word to the dictionary which is used for checking words spelling (see <u>Spell Checking</u> [942]).

## Confirm transformation of misprint into substitution

If this option is selected, you need to confirm replacing a misprinted word with a corresponding substitution word (see <u>Spell Checking</u> [942]).

## Confirm transaction commit

If this option is selected, the program requires confirmation on attempt to commit a transaction.

#### Confirm transaction rollback

If this option is selected, the program requires confirmation on attempt to rollback a transaction.

#### Confirm transaction commit on closing data in object editors

If this option is selected, the program prompts to commit the transaction upon closing the 'Data' tab in object editors.

#### **Transaction confirmation in Query Data and Design Query**

#### **W** Disable transaction confirmation on closing the editor

If this option is checked, no transaction confirmation will be required on closing Query Data [415] and Design Query [431].

## Default action on closing the editor

Specify the default action (*Commit* or *Rollback*) and this action will be performed automatically each time when you exit Design Query or Query Data.

## Table altering operations performed via recreation

This option defines SQL Manager for PostgreSQL behavior when it is necessary to recreate a table to perform requested changes over it:

Enabled - such operations will be performed without warnings;

*Enabled, show warning* - the warning window will appear if an operation requires table recreation;

Disabled - denies operations of this type.

## 13.1.3 Appearance

#### Theme

Select the main color theme for the application: Light, Blue or Dark.

#### **Environment style**

This group allows you to define the basic window environment - 
• MDI (like Microsoft®)
Office) or 
• Floating windows (like Borland® Delphi IDE).

#### **Windows restrictions**

This option allows you to set the number of editors (<u>Table Editor</u> 177), <u>SQL Query</u> 415 etc.) that can be opened simultaneously.

#### **Zoom options**

This group of options is only available if **Environment Style** is set to *Floating windows environment*. It allows you to set maximization size for child windows:

- Full screen
- Restricted by Main Form
- Restricted by Main Form and DB Explorer
- Justified my Main Form and DB Explorer

Appearance
Theme       Blue       (* restart required         Environment style <ul> <li>MDI environment (like Microsoft Office applications)</li> <li>Floating windows environment (like Borland Delphi IDE)</li> </ul> Windows restrictions <ul> <li>Number of open editors is restricted</li> <li>10</li> <li>10</li> <li>10</li> </ul> <ul> <li>Image: State Stat</li></ul>
Zoom options <ul> <li>Full screen</li> <li>Restricted by Main Form</li> <li>Restricted by Main Form and DB Explorer</li> <li>Justified by Main Form and DB Explorer</li> </ul>
Bar style for child forms          Navigation bar         Toolbar         Both         Enable floating toolbars

#### **Bar style for child forms**

Here you can define the location of action buttons: 
within the *Navigation bar* (on the left) and/or 
within the *Toolbar*.

If necessary, you can also **I Enable floating toolbars** for your application.

## 13.1.4 Tools

#### Show only connected databases in drop-down menu

If this option is checked, only <u>connected</u> बिशे databases are displayed in drop-down menus of such tools as <u>Design Query</u> विशे, <u>Execute Script</u> बिक्षे, etc.

#### Allow using parameters in query text

This feature allows you to specify different values within a query in a popup dialog 450 just before the query execution.

You can set the character to specify a parameter within the query in the **Parameter sign char** field.

## Use transactions in Data tab of object editors, Query Data and Design Query\*

If this option is enabled, a transaction is active until the 'Data' tab is closed or the 'Commit' button is pressed; all edited records are blocked until the transaction is committed. If this option is disabled, the transaction starts and is immediately committed (autocommit) on saving each record which is blocked only for a short period of time.

Preferences	Tools
Confirmations	
Mearance	Show only connected databases in drop-down menu
Tools	Allow using parameters in query text
Timeouts	Parameter sign char :
Diject Editors	Use transactions in Data tab of object editors, Query Data and Query Builder *
Query Data	Asynchronous query execution *
📲 SQL Monitor	Use separate connections for each data view within a database *
🐺 Execute Script	Convert line and to Linux style in string constants of executed SQL statements
🕀 🔛 Design Query	
····티입 Visual Database Designer	New tool form should be opened for
Print Metadata	O Database currently selected in DB Explorer
Data Export	
TI Fonts	Database selected in currently tocused form
Grid Grid	
📲 Localization	
🗝 🛃 Global Shortcuts	
Find Option	Note: Changing the options marked with the asterisk (*) symbol does not influence the way data are viewed in currently opened windows. These options are used as default values for Data Options parameters for newly registered databases. To change the options for registered databases please use Database Registration Info dialog.
Reset to Defaults	OK Cancel Help Apply

#### Asynchronous query execution\*

Check this option to allow executing queries in background mode (asynchronously).

## Use separate connection for each data view within a database\*

Uncheck this option to use separate connection for each data view within a database. Note that this option is only available when the *Use transactions in Data tab of object editors, Query Data and Design Query* option is enabled. Convert line end to Linux style in string constants of executed SQL statements Check this option to transform all the multi-line literals to Linux-like form, using one-byte line breaking term.

## New tool form should be opened for

This option defines which database should be selected in the launched tool. • Database currently selected in DB Explorer Tool will be ground with the database forward in the DB Furthern colored

Tool will be opened with the database focused in the DB Explorer selected.

## Database selected in currently focused form

Tool will be opened with the database which is selected in the current form.

#### 13.1.4.1 Timeouts

This page allows you to set timeouts for some operations performed in SQL Manager. Timeouts are necessary for preventing program hang-up upon execution of a SQL statement due to transaction interlocking. You can set timeouts for *changing metadata*, *recreating tables* and *data tabs*.



Refresh of objects can also be terminated after *timeout expiration* if there is an active transaction that has made any changes to metadata.

## 13.1.4.2 DB Explorer

882

## **General options**

## Show hosts in DB Explorer

Shows/hides database hosts in the <u>DB Explorer</u> [65] tree.

## Show table subobjects

Shows/hides table 169 subobjects (columns, indexes, etc.) in the <u>DB Explorer</u> 165 tree.

## Sort by aliases

Use this option to apply sorting registered hosts and databases by their aliases in the  $\underline{DB}$   $\underline{Explorer}$  tree.

## Rename objects by editing in place

Allows you to edit object names in <u>DB Explorer</u> [65] by selecting any object and clicking its alias one more time.

## Refresh objects on showing in SQL Assistant

This option enables/disables refreshing objects each time they are displayed in  $\underline{SQL}$  Assistant [81].

## Auto expand navigation pane

If this option is checked, the list of <u>navigation tabs in DB Explorer</u> automatically on program launch.

## Show hint

The option enables/disables hints for objects in the <u>DB Explorer</u> [65] tree.

Environment Options			×
Preferences	^	DB Explorer	
Confirmations Co		General options Show hosts in DB Explorer Show table subobjects Sort by aliases Rename objects by editing in place Auto expand navigation pane Show hint Recent objects count 10 Function list appearance	Expand after connection
Database Designer     Print Metadata     Data Export     Data Export     Grid     Data Options     Print Data     Color & Formats     Advanced     Column Options	*	Show arguments list as part of function name     Show arguments as child nodes     Group functions by names Table details in SQL Assistant     Columns	Aggregates Operators Collations Event Triggers Foreign Servers Foreign Data Wrappers Languages Reports Favorite Queries Favorite Objects
<u>R</u> eset to Defaults ▼		<u>O</u> K <u>C</u> ancel	<u>H</u> elp <u>A</u> pply

#### Recent objects count

Defines the number of objects displayed within the Recent 77 menu of the DB Explorer 65.

#### **Function list appearance**

This option defines appearance of functions in the <u>DB Explorer</u> [65] tree.

Show arguments list as part of function name

If selected, <u>function</u> nodes do not contain any child nodes and look like "function\_name (argument\_list)"

Show arguments as child nodes

If selected, <u>function</u> and a contain "Arguments" node, which contains argument nodes. Group functions by names

If selected, overloaded functions 239 are grouped, having lists of arguments as child nodes.

#### **Table details in SQL Assistant**

These options switch the <u>SQL Assistant</u> [81] mode for displaying <u>table</u> ात्छो details (columns, indexes, Foreign keys, checks, triggers, rules, table info, description or definition).

#### **Expand after connection**

This group of options allows you to specify the node(s) indicating type(s) of objects that will be expanded within <u>DB Explorer</u> approximation by the database.

#### See also:

Database Explorer 65

#### 13.1.4.2.1 Search

Here you can set search options for DB Explorer search string:



#### **Search options**

## Search by categories

This option determines the search scope when the Find Item 78 feature is used: if this option is selected, the search is performed within the currently selected category (node in the tree) only.

## **Use case sensitive search**

If this option is selected, the search string case is considered when using the <u>Search</u> Panel [78].

	7
Preferences	Search
	Search ontions
Appearance	
Tools	Search by categories
H→B Timeouts	Use case sensitive search
B B Explorer	Don't search in collapsed nodes
Search	
Dbject Editors	
Query Data	
SQL Monitor	
Fxecute Script	
Design Query	
En Database Designer	
Print Metadata	
Data Export	
TI Fonts	
Grid	
Global Shortcuts	
Find Option	
Depart to Defaulte	OK Cancel Help Apply

## Use Case Sensitive search

If this option is selected, the search string case is considered when using the <u>Search</u> Panel [78].

## **Don't search in collapsed nodes**

Enable the option to search within the expanded nodes only.

## Start-with search

Check this option to search for objects those names begin with the defined searched string.

## 13.1.4.3 Object Editors

#### All

## Convert created objects' names to lower case

Enable this option if you need to convert the names of all newly created objects to the lower case automatically.

## Show OWNER on DDL tab

With this option enabled OWNER statement is generated for the objects on the DDL tab, otherwise it's removed from the object definition.

#### Always open the first tab

If this option is checked, the first tab is activated by default on opening an object in its editor.

#### **Table editor**

## Show Object Explorer

Enables/disables the Object Explorer panel within the Navigation bar 178 of Table Editor 1771.

## Do not retrieve record count for a table

Check this option to disable retrieving record count for tables (with this feature enabled, opening large tables may take much time).

## Serial columns as integer

With this option enabled, 'serial' type columns will be displayed as 'integer'.

Environment Options		×
Preferences	^	Object Editors
Confirmations		- 41
Appearance		
Tools		
∏ P Timeouts		Show OWNER on DDL tab
DB Explorer		Always open the first tab
Search		Table editor
Object Editors		Show Object Explorer
Query Data		Do not retrieve record count for a table
SQL Monitor		Serial columns as integer
Execute Script		
Design Query		Function editor
Style & Color		Dollar-quoted function body on server 8.0 and higher
Database Designer		Split function options into several lines in DDL
Print Metadata		Check syntax after compilation
		Execute with definer's privileges as default
		Object list style
Data Ontione		
Color & Formats		Ust, sorted by namespace
Advanced		List, sorted by name
Column Options	4	✓ Ignore case
Reset to Defaults		OK <u>C</u> ancel <u>H</u> elp <u>Apply</u>

#### **Function editor**

**Dollar-quoted function body on server 8.0 and higher** 

This option allows dollar-quoted function body definition.

#### Split function options into several lines in DDL

Use this option to define whether to split function options into several lines in DDL of or to display all options in one line.

#### Execute with definer's privileges as default

This option specifies that the function is to be executed with the privileges of the user  $\overline{r_51}$  that created it. Otherwise, the function is to be executed with the privileges of the user that calls it. If this option is enabled then the  $\overline{\mathbf{W}}$  **Execute with definer's privileges** option in the Function Editor when creating a new function will be checked automatically.

#### **Object list style**

These options allow you to define the style of the combo-boxes used to select database objects (e.g. *Table or view* in <u>Trigger Editor</u> 268). Objects can be represented as a *tree*, a *list sorted by namespace* or a *list sorted by name*. Use the **Ignore case** option to enable/disable case sensitive sorting.

#### See also:

Database Objects Management 155

## 13.1.4.4 Query Data

## **Query results**

## 🗹 Fetch all data

If this option is checked, all the records according to the *SELECT* query are extracted from the tables, otherwise - only those displayed within the **Results** tab of <u>Query Data 415</u>

## Show result for each query

With this option checked, when you <u>execute</u> [426] two or more queries, the result of each query will be displayed one by one. Otherwise, only the result of the last query will be displayed.

## Show results on Edit tab

If this option is checked, the **Results** tab is displayed as a separate tab.

## Advanced

## Execute selected text separately

Check this option to allow <u>execution</u> [426] of the selected statement separately.

## Write only successfully executed queries to database SQL log file

If this option is checked, unsuccessful queries will not be saved to the Query Data log file (see <u>Setting log options 117</u>) in the <u>Database Registration Info</u> 108 dialog).

## **I** Don't save queries automatically for the next session

If this option is checked, the SQL query text will not be saved. Otherwise, it will be saved in Windows registry and will be therefore available in the next application sessions.

## Same queries for all databases

## **Refresh DB Explorer upon successful DDL statement execution**

If this option is selected, the content of  $\underline{DB \text{ Explorer}}$  is refreshed each time a DDL statement is  $\underline{\text{executed}}$  successfully in  $\underline{\text{Query Data}}$  .



## **Execution plan**

#### Explain query on execution

If this option is checked, the <u>query plan</u> 422 is displayed automatically upon query execution in <u>Query Data</u> 415.

## Explain with verbose (showing execution plan as text only)

Check this option to display additional information regarding the plan. Specifically, include the output column list for each node in the plan tree, schema-qualify table and function names, always label variables in expressions with their range table alias, and always print the name of each trigger for which statistics are displayed.

#### Explain with analyze

Check this option to show the full internal representation of the plan[422] tree, rather than just a summary while displaying query plan.

#### Explain buffer usage (PostgreSQL 9.0 and higher)

Check this option to include information on buffer usage. Specifically, include the number of shared blocks hits, reads, and writes, the number of local blocks hits, reads, and writes, and the number of temp blocks reads and writes.

#### Display execution plan as text in addition to representation as schema

If this option is checked, the execution plan is represented both as a tree and text.

See also: Query Data 415

#### 13.1.4.5 SQL Monitor

#### **Operations**

Specify the operations to be logged in <u>SQL Monitor</u> 643: Connect, Start of transaction, Commit, Rollback, Execute query.

## SQL log

This group of options allows you to enable logging of all <u>SQL Monitor</u> [43] events to a file. Check the **Log SQL Monitor events to file** option, specify the path to the log file using the  $\blacksquare$  button, and enter a name for the \*.*sql* file. To clear the log file after it reaches some definite size, check the **Clear log file when it is greater than...** option and set the maximum file size (in Kilobytes).

invironment Options	×
Preferences Confirmations Appearance Tools DB Explorer DB Explorer Deject Editors Deject Editor Deject Edit	SQL Monitor         Operations         Connect         Start of transaction         Commit         Rollback         Execute query         SQL log         SQL Monitor events to file         P://CurrentTest/Pg Manager/script.sql         Clear log file when it is greater than (KB)         Show time of operation         Always show on top
<u>R</u> eset to Defaults ▼	<u>O</u> K <u>C</u> ancel <u>H</u> elp <u>Apply</u>

## Show time of operation

If this option is checked, the execution time of logged operations is added.

## Always show on top

Select this option if you want to display the <u>SQL Monitor</u> [443] window in the foreground permanently.

See also: SOL Monitor 643ी

## 13.1.4.6 Execute Script

#### Abort script execution on error

If this option is checked, script execution is aborted if an error occurs.

#### Execute in transaction, rollback on error

This option is only available if the **Abort script on error** option is checked. This option evokes automatic rollback when script execution is aborted.

#### Enable parsing

With this option checked, <u>Execute Script Editor</u> बिकी parses the loaded script to enable fast navigation in the <u>Script Explorer</u> बिनी tool.

## Show message when done

Displays a message box on finishing script execution.

#### **Execute selected text separately**

Check this option to allow <u>execution</u> 652 of the selected statement separately.

## **Don't clear error list on selected text execution**

If this option is checked, the error list is not cleared upon execution of the selected statement.

## Show notices in error list

Select this option to enable information messages when working with scripts.

#### Register newly created databases

If the option is enabled, the <u>Register Database</u> ाजी dialog will appear when a database is created using <u>Execute Script</u> बिकी.

#### **Disable all code features in Execute Script**

This option disables code completion, code folding, highlight and all options that are set on the <u>Code completion</u> page. For options that are set on the <u>Color Scheme</u> page, the defaults will be applied.

•		$\cap$
Preferences	Execute Script	
Confirmations		
Appearance	Abort script execution on error	
Tools	Execute in transaction, rollback on error	
Timeouts	Show statements explorer	
	Show message when done	
Object Editors		
	Execute selected text separately	
Execute Script	Don't clear error list on selected text execution	
Design Query	Register newly created databases	
	Disable all code features in Execute Script	
Data Export		
TI Fonts		
🔲 🥅 Grid		
Localization		
Global Shortcuts		
Find Option		
Reset to Defaults	OK Cancel Help Apply	

# See also:

Execute Script Editor 646

## 13.1.4.7 Design Query

## **General options**

## Allow SELECT queries only

When this option is checked, the INSERT, UPDATE and DELETE statements are not allowed in Design Query 431.

## Select condition row

Displays the selected condition in different rows on the **Criteria** and **Grouping Criteria** tabs of <u>Design Query</u> [43].

## **Drag column name**

Displays the dragged column name in the **Builder** area.

## **W** Hide selection when inactive

Hides the selection when the <u>Design Query</u> [431] window is inactive.

## Show columns types

Displays columns types additionally to their names.

## Union all by default

Check this option to use the UNION ALL expression in <u>Design Query</u> विजेष by default. The UNION keyword allows you to include the results of two SELECT statements in one resulting table.

The *ALL* parameter incorporates all rows into the results, including duplicates. If not specified, duplicate rows are removed.

Environment Options			×
Preferences	~	Design Query	
Confirmations Appearance Tools B DB Explorer Search Object Editors Query Data SQL Monitor E Frecute Script		General options Allow SELECT queries only Select condition row Drag column name Hide selection when inactive Show column types Union all by default Show system columns Add foreign key links by default	
Column Options	~	Visible tabs Criteria Selection Group criteria Sorting	Script format Keywords format As is ~ Functions format As is ~
<u>R</u> eset to Defaults ▼		<u>о</u> к	Cancel Help Apply

#### Visible tabs

These options specify which  $\underline{\text{Design Query}}_{[43]}$  tabs are available and which are not. Use the check boxes to make the corresponding tabs visible/invisible.

## Script format

These options specify case formatting of keywords and functions in query text within the <u>Edit</u> 444 tab: As is keeps the original case, Uppercase sets all the keywords/functions to the upper case, Lowercase sets all the keywords/functions to the lower case, and First upper sets the first letters of all keywords/functions to the upper case.

Additionally, you can set styles and color for all **Design Query** objects by using  $\frac{Style \&}{Color Palette^{[896]}}$ .

See also: Design Query 431 13.1.4.7.1 Style & Color

#### Style

These options specify the way various <u>Design Query</u> [431] elements look: the **Condition button**: *Flat*, *3DLook*, *Raised*; **object borders**: *Bump*, *Etched*, *Raised*, *Sunken*. If necessary, you can also specify **flatness** for objects and buttons using the corresponding options.

## Flat objects

This option sets the flat appearance of objects in Design Query 431.

## Windows style of tables

This option determines the appearance of tables in the Builder tab.

## Show icons on tabs

With this option selected, you can see icons next to the tab names in Design Query 431.

Environment Options	×
Preferences ^	Query Data
Confirmations	Eetch all data
Tools	Explain query on execution
Timeouts	☑ <u>S</u> how result for each query
🖻 🖥 DB Explorer	Execute selected text separately
Search	Write only successfully executed queries to database SQL log file
Object Editors	
Query Data	
SQL Monitor	
	Always save changes in Favorite Queries before closing
E Style & Color	□ Same queries for all databases
Database Designer	□ <u>R</u> efresh DB Explorer upon successful DDL statement execution
Print Metadata	Multiple tab rows
Data Export	Explain with verbose (showing execution plan as text only)
TI Fonts	Explain with analyze
🖶 🎹 Grid	Explain buffer usage (PostgreSOL 9.0 and bigher)
Data Options	
Print Data	Display execution plan as text in addition to representation as schema
Color & Formats	
Advanced	
Column Options	
Reset to Defaults	<u>O</u> K <u>C</u> ancel <u>H</u> elp <u>A</u> pply

#### **Color palette**

These options define the colors of various <u>Design Query</u> [431] elements.

Active condition row (at the <u>Criteria</u> [438] and <u>Grouping criteria</u> [442] tabs):

]	All	of the following are met		
	1.	HR.DEPARTMENT.DEPARTMENTID	=	HR.EMPLOYEE.DEPT_ID
R I	2.	<u>HR.EMPLOYEE.IS ACTIVE</u> = <u>1</u>		

Condition text (at the Criteria 438 and Grouping criteria 442 tabs):



Condition item text (at the Criteria 438) and Grouping criteria 442) tabs):

All of the following are met	
1 HR.DEPARTMENT.DEPARTMENTID	= <u>HR.EMPLOYEE.DEPT_ID</u>
$2.\sqrt[5]{HR.EMPLOYEE.IS ACTIVE} = 1$	

Table client area (in the diagram area [434]):



Active table caption (in the diagram area [434]):



Inactive table caption (in the diagram area [434]):

HR.EMPLOYEE	7
EMP_ID	
POSITION	
FIRST_NAME	
LAST_NAME	
GENDER	
MARITAL_STATUS	
BIRTH_DATE	DEPARTMENTID
HIRE_DATE	I I NAME
✓ IS_ACTIVE	∫ GROUPNAME
SALARY SALARY	/ MANAGERID
✓ DETAILS	/ DEPT_PHONE
DEPT_ID	DEPT_ROOM
MANAGER_ID	DEPT_ADDRESS

Column text (in the diagram area [434]):



Selected column text (in the diagram area 434):



*Work space* (in the <u>diagram area</u>[434]):

IS_ACTIVE	DEPT_PHONE
SALARY SALARY	DEPT_ROOM
✓ DETAILS	DEPT_ADDRESS
DEPT_ID	<b>↓</b> ا
MANAGER_ID	4

Column (at the Criteria 438) and Grouping criteria 442 tabs):

All of the following are met	
1.     HR.DEPARTMENT DEPARTMENTID       2.     HR.EMPLOYEE.IS       ACTIVE     =	= <u>HR.EMPLOYEE.DEPT ID</u>

Operation (at the Criteria 438 and Grouping criteria 442 tabs):

<u>A</u>	II of the following are met			
1	. HR.DEPARTMENT.DEPARTMEN	TID	=	HR.EMPLOYEE.DEPT ID
2	HR.EMPLOYEE.IS ACTIVE	1. 1		

Group (at the Grouping criteria 442 tab):

<u>All</u> of th	he following are met
1. MA	X     HR.EMPLOYEE.SALARY     =

Predicate (at the <u>Criteria</u> 438) and <u>Grouping criteria</u> 442) tabs when a <u>subquery</u> 435) is used):

	All of the following are met		
	1. <u>HR.DEPARTMENT.DEPARTMENTID</u>	>= <u>ALL</u> 신파	(SELECT HR.DEPARTMENT.
٠	III		4

Subquery (at the Criteria 438) and Grouping criteria 442 tabs when a subquery 433 is used):

	All of the following are met		
	1. <u>HR.DEPARTMENT.DEPARTMENTID</u>	>= <u>ALL</u>	<u>(SELECT HR.DEPARTMENT.</u> প্ <sup>দ</sup> ্য
•	III		F.

Click an item to select a color for the corresponding element using the **Color** dialog where you can specify the required color from the palette.

#### 13.1.4.8 Database Designer

## Automatically open last diagram file

With this option enabled the designer is opened with the last diagram edited.

## Visual settings

Model notation

When you work in <u>Database Designer</u> you can choose one of the following modeling notations:

- Integration DEFinition for Information Modeling (IDEF1X);
- Information Engineering (IE).

The *IDEF1X* and *IE* notations use different symbols to represent relationships between entities (and tables).

Environment Options		×			
Preferences	Database Designer				
Confirmations	Automatically open last diagram file				
Appearance	Visual settings				
Tools	Model notation IDEF1x (Integration DEFinition for information modeling)				
P_ Timeouts					
回 聞 DB Explorer					
Search	Draw entities icons     Draw autoble information     Draw page borders	1			
Object Editors	Draw all lottes cons				
🛛 📄 🖓 Query Data					
SQL Monitor	Grid options	10			
🐺 Execute Script	Show grid Grid size X 10 V	10 -			
🖻 🔛 Design Query					
III Style & Color	Style & Color				
····티 Database Designer	Element Font name Tr Verdana	$\sim$			
Print Metadata	Workspace	Font style			
Data Export	Table	Bold			
T] Fonts	View Font color Black View				
	Function Belation Brush color White	Italic			
Data Options	Column	Underline			
Print Data	Primary key				
Color & Formats		Apply to All			
Advanced					
Column Options					
<u>R</u> eset to Defaults ▼	<u>Q</u> K <u>Cancel H</u> elp	Apply			

## **Draw PRIMARY KEY columns separately**

Separates Primary key columns from other columns with a horizontal line.

public.Departments	• •	•	•	
DEPT_ID: integer     DEPARTMENT_NAME: varchar(20)     MANAGER_ID: integer     DEPT_ID				
		•	•	Type: integer Primary key Not Null
## Draw entities icons

Displays icons at the left of each entity header according to its type.

	public.Departments	· ·	:	i	:	:
	ǿBPT_ID: integer	1	-	.!	:	:
-	DEPARTMENT_NAME: varchar(20)	Ŀ				•
	♦ MANAGER_ID: integer	1	:	:	:	:

# Draw attributes icons

Displays icons at the left of each attribute according to its type (Primary key, Foreign key, ordinary column).

	public.Departments			Ì	÷
:	DEPT_ID: integer	-	-	-!	÷
	A DEPARTMENT_NAME: varchar(20)	·			
:	MANAGER_ID: integer			:	:
•	DEPARTMENT NAME	Ι.	•	·	•
:	Type: varchar(20)	•••		:	:

## **Draw only names of entities**

Displays only entity headers, columns are hidden.

•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•			_			-		-	_				•	•	•	·	•	·	•	·	·				-		-			_	т
·		Θ	P	u	bI	IC		0	u	n	tr	Y.	0	-		_	• -	_	_	•••	_		e	P	u	Ы	ю		- II	y	ł
•	-	•	•	•	•	•	•	•	•	•	•	13	2	•	•	•	•	•	•	·	•		•	•	•	•	•	•	•	•	۰.
												n	γ.																		

# **Draw FOREIGN KEY name**

Displays foreign key names for the corresponding relations.

♦ capital: integer	
code2: char(2)	····· ♦ district: text
* couczi cilui (2)	◆ population: i
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
public.	Country country capital fkey
	· · · · · <u>·</u> · · · · <del>·</del> · · · · · · · · · · · · · ·
	MC

#### **Draw attribute information**

Display attribute properties (optionality, keys, etc.) in parentheses after the attribute

name and type.

ļ.	Employee.Address	· · ·
:	AddressID: integer	
:	AddressLine1: varchar(60) (AK2.1)	
:	AddressLine2: varchar(60) (0 KAK2.2)	
۵	Þ City: varchar(30) (AK2.3)	<u> </u>

#### Draw page borders

Displays borders on the diagram page which are the borders used when printing pages with the diagram.

#### **Grid options**

#### Show grid

Displays dots in the diagram area to make the grid visible.

#### Snap to grid

Automatically aligns entities on the form with the nearest grid line. You cannot place an entity in between grid lines.

#### Grid size

Sets grid spacing in pixels along the x- and y-axes. Specify a higher number to increase grid spacing.

#### **Entity header font**

Select a font type and size to display entity headers.

#### **Attributes font**

Select a font type and size to display attributes.

Additionally, you can set color for all  $\underline{VDBD}$  diagram objects using the **Style and Color** section.

This section allows you to customize the default appearance of the diagram.

Select a diagram element from the list:

Workspace Selected item Table Relation Column Primary key Unique column Foreign key Autoincrement column Not null column Comment

Work area

MANAGER\_ID: integer 

Entity

:	:	:	public.Departments	•	:	:	i	:	:	:
·	:	:	DEPT_ID: integer	-		<u> </u>	!	÷	÷	:
•		•	<ul> <li>DEPARTMENT_NAME: varchar(20)</li> </ul>	1	·				•	
:	:	:	♦ MANAGER_ID: integer		:	:	:	:	:	:
:	:	:	<u> </u>		:	:	:	:	:	:

# Entity caption text

÷	:	ł	public.Departments			:	i	:	:	:
÷	÷	:[	Ø DEPT_ID: integer	-		<u> </u>	!	:	:	:
		·	DEPARTMENT_NAME: varchar(20)	1	•					
:	:	:	MANAGER_ID: integer		:	:	:	:	:	:
		. L								

#### Attribute text

:	:	:	:	📑 public.Departme	nts	· · ·	
:	:	:	:	DEPT_ID: intege	r	<u>⊢: !</u>	
•			•	DEPARTMENT_NAM	IF; varchar(20)		
:	:	:	:	MANAGER_ID: inte	de la companya de la comp		
					DEPARTMENT_NA	ME .	
·	·	·	·		<ul> <li>Type: varchar(20</li> </ul>	) ·	• •
•	•	•	•			· · ·	

# Selection

:	:	public.Departments	] [	:	i	:	:	:
·	:	DEPT_ID: integer	Ŀ.	-	!	:	:	:
•		DEPARTMENT_NAME: varchar(20)	ſ.					•
:	:	♦ MANAGER_ID: integer	1	:	:	:	:	:
:	:		<u>.</u>	:	:	:	:	:

# Selected entity caption text

public.Departments	<b>P</b> ]		i	:	:	
DEPT_ID: integer	<u>]</u> -	. <u> </u>	. !	:	:	
↓ DEPARTMENT_NAME: varchar(20)	Ϋ́					
AMANAGER_ID: integer			:	:	:	
· Ó	Ō١	• •	·	·	•	•
	• •					

# Selected attribute text

public.Departments	<b>—</b>	:	:	: I	•	•	:
DEPT_ID: integer	ŀ		<u> </u>	!	:	:	•
DEPARTMENT_NAME: varchar(20)	Υ		•				•
AMANAGER_ID: integer		:	:		:	:	:
· d	Ö.				•	•	•

Click an item to select a color for the corresponding element using the **Color** dialog where you can specify the required color from the palette.

See also: Database Designer 720

# 13.1.4.9 Print Metadata

# **Default paper size**

Define the default paper size for reports created with the Print Metadata [680] tool used:

- A4 (210 x 297 mm)
- Letter (8 1/2 x 11 ")

Preferences	Print Metadata	
Confirmations Appearance Tools Timeouts DB Explorer Object Editors Cuery Data SQL Monitor Execute Script Database Designer Print Metadata Data Export Tools Grid Localization Global Shortcuts Find Option	Default paper size	
<u>R</u> eset to Defaults <b>▼</b>	<u>O</u> K <u>Cancel H</u> elp	Apply

See also: Print Metadata

#### 13.1.4.10 Data Export

Preferences	Data Export	
Confirmations Co	Data formats Integer format Float format Date format Time format DateTime format Currency format Boolean True Boolean False Null string	dd.MM.yyyy h:mm dd.MM.yyyy h:mm true false null
Data Export  Data Export  Contemporal  Grid  Contemporal	Auto save format strings	

This page allows you to customize formats applied to <u>exported</u> [536] data.

#### **Data formats**

Edit the format masks to adjust the result format in the way you need: Integer format, Float format, Date format, Time format, DateTime format, Currency format, Boolean True, Boolean False, Null string.

#### Auto save format strings

Select this option to save specified format strings automatically.

These settings can also be specified at the <u>Adjusting data formats</u>চি40 step of <u>Export Data</u> <u>Wizard</u>চি38.

Fore more details see <u>Format specifiers</u> 978.

See also: Export Data Wizard

# 13.1.5 Fonts

This section of the **Environment Options** dialog allows you to specify fonts used in the application.

The box below displays the *sample text* with the selected font applied.

···· 🛃 Preferences	Fo	onts						
Confirmations				_	_			
	Sy	stem font name						
- 🍖 Tools	Ŧ	Arial						``
T] Fonts	Sy	stem font size	8 🗸	·				
Localization			Samp	le Text 1234	5			
··· ≩¥ Find Option	Gri	d font name						
	Ŧ	Arial						`
	Gri	d font size	8 ~	·				
	D	rag a column header	here to group by that co	lumn				
	ID	FIRST_NAME	LAST_NAME	GENDER	IS_ACTIV	SALARY	BIRTH_DATE	_
		1 Gustavo	Achong	м		14500,35	15/05/1972	
		2 Roberto	Nelson	М		14000	03/06/1977	
		3 Margaret	Smith	F	$\checkmark$	15030,99	16/02/1986	
		4 Leslie	Johnson	F		13000,01	29/10/1972	
				·				

# System font name

Defines the font used by SQL Manager for PostgreSQL. Select the font name from the drop-down list of available system fonts.

Syst	em font name	
Ŧ	Arial Unicode MS	•
	Arial Rounded MT Bold	S
Ŧ	Arabic Typesetting	*
Ŧ	Arial	
Ŧ	Arial Black	=1
Ŧ	Arial Narrow	=
Ŧ	Arial Rounded MT Bold	
Ŧ	Arial Unicode MS	
Ŧ	Baskerville Old Face	
Ŧ	Batang	
Tr	BatangChe	
Ŧ	Bauhaus 93	
Ŧ	Bell MT	
Ŧ	Berlin Sans FB	
Ŧ	Berlin Sans FB Demi	
Ŧ	Bernard MT Condensed	Ŧ

#### System font size

Defines the font size used by SQL Manager for PostgreSQL. Type in or use the drop-down list to select the required value.

## Grid font name

Defines the font used for displaying data in the <u>Data Grid</u> 457. Select the font name from the drop-down list of available system fonts.

## Grid font size

Defines the font size used for displaying data in the <u>Data Grid</u> 457. Type in or use the dropdown list to select the required value.

In the sample grid you can view how the data grid will look like with the configured font.

# 13.1.6 Grid

# **General options**

# Striped grids

Displays the odd grid rows in a different color defined by the **Strip** option available on the <u>Color & Formats</u> [915] page.

# Show editor immediately

Allows editing the cell value right after the cell is clicked.

# Always show editor

Set this option to make the cell editors always active.

# Enable auto-search in grid

If this option is checked, the cursor is automatically forwarded to the closest match when you start typing.

# Row multi-selection

With this option set, multiple rows can be selected in  $\frac{\text{grid}}{457}$ .

# Invert selection

Determines whether a single cell within the focused row or the entire row is highlighted when focused.

# Column auto-width

With this option set, column widths are changed in order to display all columns without using the horizontal scroll bar. If the content a column is still too large to display without a need to resize the grid, then the column values are truncated and the hidden characters are replaced with an ellipsis at the end.

# Cell auto-height

If the widths of the columns are insufficient to display the full content, then text clipping occurs. Set this option to prevent this. If this option is set, the cell content is displayed in multiple lines where necessary. You can set the number of lines to display using the **Cell max line count** option.

Environment Options		×
Preferences	Grid	
Confirmations  Appearance  Grid  Grid  Gold  Gold  Find Option  Find Option	General options          General options         Striped grids         Show editor immediately         Always show editor         Enable auto-search in grid         Column auto-width         Restore layout and sorting         Cell auto-height         Cell max line count	Root level options Show "Group By" box Show indicator Show navigator Show "New Item Row" Selection Row selection Cell selection Row/cell multi-selection
	Detail level options Show "Group By" box Show indicator Show navigator Show "New Item Row" Hide tabs for single detail	
Reset to Defaults	<u>O</u> K	<u>Cancel</u> <u>H</u> elp <u>A</u> pply

#### **Grid layout preference**

#### Autofit column widths

Use this option to shrink the grid columns so that the longest visible column value fits.

#### Save and restore layout

Use this option to keep the original grid width. Check the **Restore sorting** option to apply defaults to sorting (except for SQL sorting) as well.

#### **Root level options**

These options are applied to the main view 468 of the grid. See Grid View 457 for details.

# **Detail level options**

These options are applied to the detail view 468 of the grid. See Grid View 457 for details.

#### Show "Group by" box

Displays the gray area above the column caption allowing one to group and area above the column caption allowing one to <math>group and area above the column caption allowing one to <math>group area above the column caption allowing one to group and group area above the column caption allowing one to group and group area above the column caption allowing one to group area above the column caption allowing one to group and group area above the column caption allowing one to group and group area above the column caption allowing one to group and group area above the column caption allowing one to group area above the column caption allowing one to group and group area above the column caption allowing one to group and group area above the column caption allowing one to group area above the column caption allowing one to group area above the column caption allowing one to group area above the column caption allowing one caption allowing one to group and group area above

# Show indicator

Activates/deactivates the row indicator pane at the left.

	DEPAR -	NAME 💌	GROUPNAME 💌	MANAG 👻
	1	Administration	Executive General and Administration	4
1	2	Marketing	Sales and Marketing	
	र्छ 3	Purchasing	Sales and Marketing	12
	4	Human Resources	Executive General and Administration	35

# Show navigator

Activates/deactivates the data navigator similar to the <u>navigation pane</u> at the top of the grid. The navigator is available at the bottom of detail level view.

:≣	DEPAR 👻	NAME 💌	GROUPNAME	MANAG 👻
	1	Administration	Executive General and Administration	4
▶	2	Marketing	Sales and Marketing	7
	3	Purchasing	Sales and Marketing	12
	4	Human Resources	Executive General and Administration	35
H		▶ <b>₩ +</b> —▲/<>		4

#### Show "New item row"

Displays an empty row at the bottom of a view which is a convenient way for adding data to the grid.

## Hide tabs for single detail

This option is useful when only one view is present on the detail level. When the option is enabled, the view tab is hidden.

#### Selection

If the **O Row selection** is selected then the whole record in the table is selected in the table on clicking the cell. Otherwise, only the clicked cell is selected (**O Cell selection** option).

Check the  $\mathbb{Z}$  **Row/cell multi-selection** option to enable the selection of multiple cells or rows in the grid with the *Shift* button.

See also:

Grid View 457

#### 13.1.6.1 Data Options

#### Limit options in table and view editors

Define the number of records to be selected on opening the **Data** tab of <u>Table Editor</u>  $\overline{177}$  and <u>View Editor</u>  $\overline{1229}$ :

Select all records from a table\*

Select only ... records\* (you should set the number of records using the corresponding spinner control)

# Advanced

#### OID columns as BLOB\*

Enable this option if you want the OID column to be displayed as a BLOB (OID - object ID - the object identifier of a row).

#### **IIMESTAMP** columns as string

Use this option to select display of TIMESTAMP and TIMESTAMPTZ data.

# Load visible rows mode if records more than...\*

Set this option to switch to the **Load visible rows** mode when the number of records in the dataset exceeds the specified value.

#### String columns width (chars)

Using this option you can limit string columns width that may improve performance on large datasets.

Environment Options				×
🖶 🎭 Tools	^	Data Options		
- ♣ Timeouts		Limit options in table and ○ Select all records from Advanced ☑ OID columns as BLOB □ TIMESTAMP columns as	a table * <ul> <li>Select only</li> <li>100 records *</li> </ul> * s string	<
Execute Script		Load visible rows mode if String columns width (ch	ars) 3000 +	
Database Designer		<ul> <li>Default grid mode</li> <li>I Load all rows *</li> <li>I Load visible rows *</li> </ul>	Locating record on update or delete         O Use all columns         O Use key and changed columns	
Grid  Grid  Grid  Color & Formats  Glubal Shortcuts  Glubal Shortcuts		Note: Changing the option way data are viewed in cur	s marked with the asterisk (*) symbol does not influence the rently opened windows. These options are used as default	e
Find Option	~	values for Data Options pa options for registered data	Image: Second state of the second s	

#### Locating record on update or delete

Specify the method of the WHERE clause generation for UPDATE and DELETE SQL statements:

- Use all columns
- Use key and changed columns
- Use key columns only

#### **Default grid mode**

#### Load all rows\*

The grid loads all records from a dataset. This option increases the grid performance by reloading only changed dataset records when updating. In this mode all features (automatic sorting, filtering and summary calculations) are available.

#### Load visible rows\*

The grid loads only a fixed number of dataset records into memory. This option minimizes dataset loading time. Automatic sorting, filtering, summary calculations are not available in this mode.

The **Default grid mode** options allow you to define the grid mode which will be used by default.

With the **Load all rows** option enabled, when loading data, all the records are loaded into grid buffers. In this mode opening the tables with many records may take a considerable amount of time. But in this case you can make use of some advantages: in the filter drop-down list the column headers are displayed with the values for quick filtering; it is possible to open several sub-levels at the same time when viewing data in master-detail view, etc. In case opening and other operations with an object consisting of many records takes sufficient time, the **Load visible rows** mode should be used instead. It can be set individually for each table and saved between sessions (can be set through the <u>context</u> menu [466] of the grid).

**Note:** Changing the options marked with the asterisk (\*) sign does not affect the way data are viewed in currently opened windows. These options are used as default values for Data Options parameters for newly registered databases. To change the options for registered databases, please use the <u>Database Registration Info</u> [124] dialog.

See also: EMS SQL Manager FAQ 🐼 ୀ

# 13.1.6.2 Print Data

## Save/restore following print data properties

These options specify which <u>Print Data</u> [481] properties will be saved between work sessions (e.g. if you tick off the *Page settings* item, those settings will be saved and stored between the sessions).

You can save/restore the following **Print Data properties**: Card view representation, Detail view representation, Expanding, Formatting, Level options, "On every page" options, Pagination, Preview options, Image options, Selection options, Report size options, Showing grid elements, Page number format, Page settings, Report title.

	Print Data		
······································	Save/restore following print data prope	rties	
Tools	Card view representation	Image options (refinements)	
TI Fonts	Detail view representation	Selection options	
Grid	Expanding	Report size options	
Data Options	Formatting	Showing grid elements	
Print Data	Level options	Page number format	
Color & Formats	"On every page" options	✓ Page settings	
Advanced	Pagination	Report title	
Column Options	Preview options		
Localization			
Global Shortcuts			
Find Option			

#### 13.1.6.3 Color & Formats

#### **Display formats**

#### Integer columns

Defines the format for displaying INTEGER columns.

## Float columns

Defines the format for displaying NUMERIC and DOUBLE PRECISION columns.

#### Date / Time columns

Defines the format for displaying DATE / TIME columns.

For more information refer to the Format specifiers [978] page.

Environment Options		×
Preferences	Color & Formats	
Confirmations	Display formats	
Tools	Integer columns	#,##0 ~
TI Fonts	Float columns	#,##0.000 ~
Grid	Datetime columns	dd.MM.yyyy h:mm:ss,zzz 🗸
Print Data	Date columns	dd.MM.yyyy
Color & Formats	Time columns	h:mm:ss,zzz 🗸
Column Options	Colors	NULL values
Global Shortcuts	Row \$00D77800	··· Font color
	Strip \$00E1FFFF	
Reset to Defaults	<u>о</u> к	Cancel <u>H</u> elp <u>A</u> pply

# Colors

Options of this group allow you to set colors for basic  $\frac{\text{grid}}{457}$  elements. Use the ellipsis button to open the **Color** dialog allowing you to select the required color from the palette.

## Grid

Defines the background color of the data grid.

#### Row

Defines the color of the selected row in the data grid.

#### Strip

Defines the color of the odd rows (applied if the **Striped grids** option is set on the Grid way page).

# **NULL values**

# Text

Defines the text that stands for NULL values in  $\frac{\text{grid}}{457}$ .

#### Font color

Defines the font color for displaying NULL values in the  $grid_{457}$ . Use the ellipsis button to open the **Color** dialog allowing you to select the required color from the palette.

# 13.1.6.4 Advanced

#### **Advanced options**

#### Cell hints for clipped text

Indicates whether a hint box is displayed when hovering over a cell containing clipped text.

#### Focus cell on cycle

Determines whether the focus moves to the next row after it reaches the right-most cell within the current row.

# **Focus first cell on new record**

Determines whether the focus moves to the first cell of a newly created row.

## Next cell on pressing Enter

Determines whether the current view columns can be navigated by using the **Enter** key.

# Show navigator hints

Indicates whether a hint box is displayed when hovering over navigation buttons.

# MRU list in column filter

Enables showing of *Most Recently Used* items when filtering columns

# Card width

Defines the width of the card used in Card View 476 mode.

Confirmations     Advanced options     Grid lines     Grid lines     Grid lines     Grid lines     Grid lines	
Image: Second secon	

#### **Form view**

#### Large memo editor

Sets the number of lines for text-typed columns when viewing data in Form view 479.

#### Word wrap in memo editor

Determines whether long strings are wrapped within the memo editor area.

#### Word wrap in string editor

Determines whether long strings are wrapped within the string editor area.

# **Grid lines**

Determines whether to display *vertical* and *horizontal* lines between cells.

#### **Detail tabs position**

Specifies the position of the tabs in detail level views: *top* or *left*.

#### **Card layout direction**

Specifies the direction of cards in Card View mode: horizontal or vertical.

#### Show edit buttons

Indicates when the edit buttons are displayed: never, for focused record or always.

## 13.1.6.5 Column Options

#### **Common options**

#### Auto-select text

Determines whether all text within an editor is automatically selected when the editor gets focus.

## Hide selection on losing focus

Determines whether the visual indication of the selected text remains when the editor loses focus.

#### **Memo editor options**

## Inserting Return characters

Specifies whether a user can insert return characters into text.

#### Inserting Tab characters

Specifies whether a user can insert tab characters into text.

## Word wrap in grid

Determines whether long strings are wrapped in grid.

#### Popup memo editors

Turns on popup memo editors for text BLOB type columns.

Preferences	Column Ontione
Preferences Confirmations Appearance Tools Tools Grid Data Options Print Data Color & Formats Color & Formats Column Options Column Options Global Shortcuts Find Option	Column Options         Auto-select text         Hide selection on losing focus         Memo editor options         Inserting Return characters         Inserting Tab characters         Word wrap in grid         Popup memo editors         Spin editor options         Use Ctrl+Up instead of Up to increase value         Increment       1         Show large increment buttons         Large increment       10         Vertical       Horizontal / left and right         Horizontal / right
Reset to Defaults	<u>O</u> K <u>C</u> ancel <u>H</u> elp <u>A</u> pply

#### Spin editor options

#### Use Ctrl+Up instead of Up to increase value

Allows you to use Ctrl+Up and Ctrl+Down key combinations for editing spinner values (for

INTEGER column values).

#### Show large increment buttons

Determines whether fast buttons (for large increment) are visible within the editor.

#### Increment

Specifies the increment value for the spin editor (spinner control).

#### Large increment

Specifies the large increment value for the spin editor (spinner control).

## Spin editor buttons' position

Specifies the position of spin editor (spinner control) buttons: vertical, horizontal / left and right or horizontal / right.

# 13.1.7 Localization

The **Localization** section of the **Environment Options** dialog is provided for managing the localization files of SQL Manager for PostgreSQL.

You can create your own \*.*Ing* files similar to those available in the *%program\_directory %\Languages* folder, add them to the list of available languages and set the new language as the program interface language.

# **Default directory**

Use the **Explorer** button to specify the directory where the \*.*lng* files are to be stored by default.

#### Choose program language

Use the drop-down list of available languages to select the interface language to be applied to the application.

# Auto scan languages on startup

When checked, the directory with localization files will be scanned automatically at the application startup; all the languages found will be added to the list of available languages.

# Available Languages

Lists all the languages available for localization and the corresponding \*.lng files. Doubleclick a language in the list to edit its name or the \*.lng file.

# **Add Defaults**

This button is used to search for \*. *Ing* files in the **Default directory** and add all of them to the **Available Languages** list.

#### Add

Opens the <u>Add language</u> dialog where you can specify your own localization file and set the language name.

#### Edit

Opens the <u>Edit language</u> dialog where you can change the language name or select another localization file for the specified language.

#### Delete

Removes the selected language from the **Available languages** list (without confirmation).

Preferences	Localization		
Confirmations     Appearance	Default directory		C:\Program Files (x86)\EMS\SQL Manager for PostgreSQL\Language
Tools	Choose program lan	guage	Default
···· T] Fonts ]·· 🎹 Grid	Auto scan langua	ages on sta	artup
Localization	Available Languages	ŝ	
Global Shortcuts	Language Name	Langua	age File
	Default	(none)	;)
	English	C:\Prog	gram Files (x86)\EMS\SQL Manager for PostgreSQL\Languages\english.
	French	C:\Prog	gram Files (x86)\EMS\SQL Manager for PostgreSQL\Languages\french.I
	German	C:\Prog	gram Files (x86)\EMS\SQL Manager for PostgreSQL\Languages\german
	Russian	C:\Prog	gram Files (x86)\EMS\SQL Manager for PostgreSQL\Languages\russian.

# See also:

Localization 950

# 13.1.8 Global Shortcuts

This section allows you to view/edit shortcuts most needed actions when working with SQL Manager for PostgreSQL.

Preferences	Global Shortcuts	
Confirmations		
- Z Appearance	Shortcut Name	Shortcut
🛯 🍖 Tools		
TI Fonts	·· Window List	Ctrl+Alt+0
Grid Grid	Next Window	F6
Localization	··· Previous Window	Ctrl+F6
Global Shortcuts	Set Defaults to All Windows	Ctrl+Alt+D
💥 Find Option	DB Explorer	
	Connect to Database	Shift+Ctrl+C
	Disconnect from Database	Shift+Ctrl+D
	···· Register Database	Shift+Alt+R
	··· Unregister Database	Shift+Alt+U
	Refresh	F5
	- Find Object	Ctrl+F
	Find Next Object	F3
	New Object	Ctrl+N
	Edit Object	Ctrl+O
	··· Drop Object	Shift+Del
	··· Rename Object	Ctrl+R
	New Sub Folder	Shift+Ctrl+F
	Tools	
	Query Data	F12

To edit shortcut, select the required action click the ellipsis button and press the preferred key combination to assign it with the action.

Edit S	Shortcut		×
Shift	t+Alt+R		
	<u>о</u> к	Cancel	Help

# 13.1.9 Find Option

The **Find Option** section allows you to search for options available within the **Environment Options** dialog easily and quickly.

#### Option

In this field you can enter the name of the option to search for within SQL Manager *Environment Options*.



The **Available options** area lists all options of the *Environment Options* category according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location.

Select the required option in the list and click  $\swarrow$  **Show Option** to open the corresponding section where you can view/edit the value of this option. For your convenience the required option is marked with an animated  $\aleph$  icon.

# 13.2 Editor Options

**Editor Options** allow you to set the parameters of viewing and editing SQL statements within <u>Query Data and</u> other SQL editing tools of the SQL Manager application.

To open the **Editor Options** window, select the **Options | Editor Options...** <u>main menu</u> अंधे item, or use the **Editor Options** ा button on the main toolbar

<u>D</u> atabase	<u>V</u> iew	<u>T</u> ools	Services	<u>O</u> pti	ons	<u>W</u> indows	<u>H</u> elp
				Environment Options			ions
				Editor Options			

<u>General</u> ହେଁ <u>Display</u> [୨३୦ <u>SQL Formatter</u> ୨୬୯ <u>Key Mapping</u> ହିଏଠି <u>Spell Checking</u> ୨4ଏ <u>Find Option</u> ୭44

See also: Environment Options Save Settings विरी

# 13.2.1 General

# Editor options

# 🗹 Auto indent

If this option is checked, each new indention is the same as the previous one when editing SQL text.

Indents and outdents are used in the process of text editing to make the source code easier to read.

# Insert mode

If this option is checked, the insert symbols mode is on by default.

# Find text from cursor

If this option is checked, the From Cursor mode will be set in the Find Text prh and Replace Text pr3 dialog.

# Always show hyperlinks

If this option is checked, hyperlinks are displayed in the editor window. To open a link, click it with the *Ctrl* key pressed.

# Double click line

If this option is checked, double-clicking the line on which the cursor is set selects the whole line.

# Trim trailing spaces

If this option is checked, all spaces after the last symbol in line will be trimmed.

#### Fixed line height

Prevents line height calculation. If this option is checked, the default line height is taken.

# Persistent blocks

Keeps marked blocks selected even when the cursor is moved with the arrow keys used, unless a new block is selected.

## Fixed column move

If this option is checked, the caret keeps its horizontal position when moved between lines.

# Optimal fill

Check this option to enable optimal algorithm of filling text content in the working area of the editor.

#### **Unindent keep align**

Keeps align for the lines that are not indented.

#### Smart caret

This option determines the caret movement (up, down, line start, line end). The caret is moved to the nearest position on the screen.

# Resolve aliases

Enables/disables the syntax highlight and code completion features for aliases.

Editor Options			×	
General	General			
Display     Display     SQL Formatter     Key Mapping     Spell Checking     Find Option	Editor options Auto indent Insert mode Find text from cursor Always show hyperlinks Double click line	<ul> <li>✓ Overwrite blocks</li> <li>✓ Show caret in read only me</li> <li>Copy to clipboard as RTF</li> <li>✓ Drag and drop text</li> <li>Group undo</li> </ul>	<ul> <li>✓ Word wrap</li> <li>○ Variable horizontal scrollbai</li> <li>○ Float markers</li> <li>○ Undo after save</li> <li>○ Disable selection</li> </ul>	
	Trim trailing spaces Cursor beyond EOL Persistent blocks Fixed column move Hide dynamic (no focus) Collapse empty lines Scroll last line Persolve aliases	□ Group redo □ Fixed line height □ Enable column selection □ Hide cursor on type □ Optimal fill □ Unindent keep align □ Smart caret □ Seek variables	<ul> <li>Draw current line focus</li> <li>Hide selection (no focus)</li> <li>Greedy selection</li> <li>Keep selection mode</li> <li>Select search result</li> <li>Smart paste</li> <li>Disable all code features</li> </ul>	
Reset to Defaults	Collapse lev 0 Tab	o mode Use Tab characte ∨ o stops 4 <u></u>	Comment symbol /**/ v Block indent 2	

## **Overwrite blocks**

Replaces a marked block of text with whatever is typed next. If **Persistent Blocks** is also selected, the text you enter is appended to the currently selected block.

## Show caret in read only mode

Displays/hides the caret in read-only mode.

#### Copy to clipboard as RTF

If this option is checked, the selected text is copied in RTF format.

# Drag and drop text

This option allows to drag and drop selected text.

#### Group undo

This option allows you to undo multiple actions of the same kind.

#### Group redo

This option allows you to redo multiple actions of the same kind.

#### Cursor beyond EOL

If this option is checked, the horizontal position of a cursor is kept. If you move the cursor (using the *Up* and *Down* arrow keys) onto a line having length less than the current cursor horizontal position, it will be positioned after the last symbol of the line.

# **Enable column selection**

Enables/disables column selection mode.

#### Hide cursor on type

Hides/displays mouse cursor within the working area while a user is typing some text.

#### **W** Hide dynamic (no focus)

Hides dynamic highlights when an editor is not focused.

#### Collapse empty lines

Collapses empty lines after a text range when this range has been collapsed.

## Scroll last line

When the option is enabled, you can scroll to the last line of the text only, otherwise you can scroll to the end of the page.

#### Seek variables

Disables code completion feature for variables.

#### Word wrap

When on, text is wrapped at the right margin of the editor area to fit in the visible area.

# Variable horizontal scrollbar

If this option is checked, the horizontal scrollbar varies according to the current content of the editor.

## Float markers

When enabled, markers are linked to the text, and they will move with the text while the text is being edited; otherwise the markers are linked to the caret position, and stay unchanged while the text is being edited.

#### 🗹 Undo after save

Keeps undo buffer unchanged after saving.

# Disable selection

Disables any selection when editing.

# Draw current line focus

Draws the focus rectangle around the current line when the editor has focus.

#### Hide selection (no focus)

Hides the selection when the editor loses focus.

#### Greedy selection

Selects an extra column/line in column/line selection modes.

#### Keep selection mode

Enables selection for caret movement commands (like in BRIEF).

## Select search result

Determines whether the search result should be selected.

#### Smart paste

When this option is enabled, the editor gets both Unicode and ANSI content from the clipboard, converts them using the selected character set and selects the best text to be

pasted. This allows getting correct text copied from both ANSI and Unicode applications disregarding the currently selected keyboard language.

# **Disable all code features**

This option disables code completion, code folding, highlight and all options that are set on the <u>Quick Code ash</u> page. For options that are set on the <u>Highlight and all options</u> the defaults will be applied.

#### Collapse level

Specifies the level of text ranges that will be affected by the "Collapse all" command.

#### Undo limit

Defines the maximum number of changes possible to be undone.

#### Tab mode

Specifies the way the TAB key is processed. Possible values are: *Use tab character* (inserts a tab character); *Insert spaces* (inserts space characters); *Dialog behaviour* (when the edit control is in a dialog, the focus is switched to the next control); *Smart tab* (tabs to the first non-white space character in the preceding line).

## Tab stops

Defines the tab length used when editing a text.

#### **Comment symbols**

Defines the symbols which will be used to comment code fragments.

#### Block indent

Specify the number of spaces to indent a marked block.

**Hint:** The **Reset to Defaults** button which is common for all sections of the **Editor Options** dialog opens a menu with items allowing you to discard all changes and reset options of the *current category* or of *all categories* to their defaults.

# 13.2.2 Display

## **Default editor fonts**

Use these options to set the *font* and *size* used in the editor.

#### Show only fixed-width fonts

Use this option to display only fonts with fixed width in the **Font** dialog.

#### Gutter

#### Show line numbers

If this option is checked, line numbers are displayed in the SQL text editor window.

#### Gutter auto width

Enable this option to specify that the gutter width will be adjusted automatically.

#### **Display line state**

If this option is checked, a colored line indicating the state of all altered lines in the text is displayed at the gutter of the editor window.

#### Use code folding

Check this option to enable to code folding feature of Query data.

#### Width

Defines the gutter width in the editor window.

Use these options to set the *Font*, *Size* and *Numbering style* used in the gutter.

#### Show only fixed-width fonts

Use this option to display only fonts with fixed width in the **Font** dialog.

Editor Options			×
General	Display		
Color Scheme Code Completion Code Completion SQL Words Key Mapping Spell Checking	Default editor fonts Font <b>Tr</b> Courier Ne Size 10	w v Show only fix	ed-width fonts
	Gutter       Show line numbers       Gutter auto width   Use code folding		Width 30 🔺
	Font Tr Courier Ne	w v Show only fix	ed-width fonts
	Size 8	Numbering style	Default $\lor$
	Right margin Visible Position Word break	Code staples 80 ▲ ✓ Visible ✓ Single color	Offset 2
	1 2 3	Sample Text 12345	
Reset to Defaults		<u>O</u> K <u>C</u> ancel	Help Apply

# **Right margin**

🗹 Visible

Makes the right text margin visible.

#### Word break

Allows breaking the words at the right margin.

#### Position

Defines the position of the right text margin in the editor window.

# Color

Defines the color of the right margin in the editor window. Select an item from the dropdown list or click the ellipsis button to select a color using the **Color** dialog where you can specify the required color from the palette.

## **Code staples**

## Visible

Makes the code staples visible in the editor window.

# Single color

Check the option to apply a single color for code staples.

#### Offset

Specify the offset value for code staples.

#### Color

Defines the code staples color in the editor window (if the **Single color** option is deselected). Select an item from the drop-down list or click the ellipsis button to select a color using the **Color** dialog where you can specify the required color from the palette.

# Fonts

Use these options to set the *fonts*, *style*, *size* and *color* used in the editor. If the **Show only fixed-width fonts** option is checked, only fonts with fixed width are displayed in the **Font** dialog.

## 13.2.2.1 Color Scheme

#### Scheme

Select the default color scheme for all editors: Default (Light) or Dark.

Editor Options	×
💬 🛃 General	Color Scheme
□··· ☑ Display ···· Ⅲ Color Scheme	Scheme Light V
Code Completion	Editor  Default text  Current line  Gutter background  Line number  Block staple  Right margin Selected text
	<pre>CREATE TABLE pgsql_table( int_field INTEGER NOT NULL default 0, char_field CHAR(25) NOT NULL default 'ABC' ) WITH OIDS; /* comment */ 7 CREATE INDEX int_field ON pgsql_table (int_field);</pre>
Reset to Defaults	<u>Q</u> K <u>C</u> ancel <u>H</u> elp <u>Apply</u>

The **Element** list contains all elements available in SQL editors of the program. For your convenience the preview area (located below the **Element** list) illustrates the changes being made to each of the elements

Controls for changing the properties of the item selected in the **Element** list are located on the right. Use the following instructions for each of the elements.

# Bold

Highlights the element with bold.

# 🗹 Italic

Makes the element text cursive.

#### Foreground

Select the foreground color for the element.

#### Background

Select the background color for the element.

# Effects

Enables additional effects for the element text.

See also:

Code Completion 935

#### 13.2.2.2 Code Completion

The **Code Completion** section of the **Editor Options** dialog allows you to specify the **automatic features**, **fonts**, **styles**, **foreground** and **background colors**, **borders** and other attributes of the text used by the editor to display objects for 'quick code': *tables*, *UDFs*, *indices*, *columns*, *foreign keys*, *procedures*, *functions*, *views*, *triggers*, *scheduled events*, *SQL keywords*, *SQL functions*.

# **Automatic features**

#### Code completion

If this option is checked, then on typing the first word characters in the SQL text editor you will be offered some variants for the word completion in a popup list (an analogue of the **Code Insight** feature in **Delphi IDE**). The popup list will appear after a period of time defined by the **Delay** option.

#### Delay

Using this option you can change the time after which completion variants popup.

#### Sensitivity

This option allows you to set the number of characters to be typed before code completion is activated.

#### Parameters completion

If this option is checked, the Delphi-like hint for key words is enabled.

#### Group by type

If enabled, the items in the code completion list are sorted by type, otherwise they are sorted by name.

#### Sort column names

Enable this option to force sorting for column names.

#### Show information hints

This option enables/disables information hints for variants offered by *code completion* feature.

#### Auto launch keyboard templates

Allows you to use keyboard templates for faster typing frequently used expressions (see <u>Keyboard Templates</u> [953]).

## Accept by Space key too

Enables selecting the completion item with Space key.

Editor Options			×
General Display Color Scheme Code Completion SQL Formatter Key Mapping	Code Completion          Automatic features         Code completion         Parameters completion         Group by type	Sensitivity (char) 2 • Delay (sec) 1 •	Tables
Spell Checking	Sort column names Show information hints	Auto launch <u>k</u> eyboard templates	Views Base Types Aggregates Languages
	Tables     A       Indices     Columns       Procedures     Functions       Functions     Views       Base Types     Aggregates       Languages     Operators       Sequences     Y	Bold     Italic       Foreground     #000000       Background	<ul> <li>Operators</li> <li>Sequences</li> <li>Triggers</li> <li>Schemas</li> <li>Domains</li> <li>Tablespaces</li> <li>Event</li> <li>Triggers</li> <li>Composite</li> <li>Types</li> <li>Enum Types</li> </ul>
<u>R</u> eset to Defaults ▼	]	<u>O</u> K <u>C</u> ancel	Help Apply

## **Completion list object**

The list contains all objects for which you can set quick code parameters. For your convenience the preview area (located to the right of the **Completion list object** list) illustrates the changes being made to each of the objects.

If you press the **Disable element** button, the standard settings will be applied to this object; the button text will change to **Enable element**. If you press this button, you will be able to change font and color attributes for this object.

Controls for changing the properties of the item selected in the **Completion list object** list are located on the right.

See also: <u>Highlight</u> <sub>93</sub> औ
# 13.2.3 SQL Formatter

**SQL Formatter** is a feature implemented in SQL Manager for PostgreSQL and is a useful tool for formatting SQL queries and scripts, making SQL statements easy to read. SQL Formatter is introduced in <u>Query Data 415</u>, <u>Execute Script 646</u> and some object editors.

The **Settings** tab of the **SQL Formatter** section allows you to enable this feature and apply SQL formatting to subqueries, if necessary.

### Format SQL query

Check this option to enable SQL formatting.

# Format subquery

Enables SQL formatting for subqueries.

Editor Options	
General	SQL Formatter
Certeral Construction Const	Image: SqL point         Image: SqL point
Reset to Defaults	<u>OK</u> <u>Cancel</u> <u>H</u> elp

# See also: Query Data 415ी

### 13.2.3.1 SQL Words

The **SQL words** page of the **SQL Formatter** section allows you to select the key words for each action of SQL formatter and to set formatting parameters.

#### Wrap first element

Wraps the selected text at a specific column. Select the SQL key words after which formatting should be applied.

#### Params in line/list

Allows you to display the parameters followed by the defined key words in list or in line.

Editor Options			
General	SQL Words		
General Display SQL Formatter SQL Words Key Mapping Spell Checking Find Option	SQL Words Wrap first element SELECT FROM WHERE GROUP BY HAVING ORDER BY INTO INSERT VALUES VALUES UPDATE SET DELETE EXECUTE Space before bracket	Params in line/list SELECT FROM WHERE GROUP BY HAVING ORDER BY INTO INSERT VALUES UPDATE SET DELETE EXECUTE	OR - AND  Left Separate Right Keywords case Default Upper Lower Capitalize Identifiers case Default Upper Lower Capitalize Identifiers case Default Upper Lower Capitalize Identin list 2
	Space into brackets		
Reset to Defaults		<u>O</u> K	Cancel Help Apply

#### OR - AND

Set the placement of the AND an OR operators according to the operands followed by them. See the example below.

#### Left

WHERE

AND ... AND ... AND ...

Separate

WHERE

AND

. . .

... AND

### Right

WHERE

... AND ... AND ... AND

The **Keywords case** / **Identifiers case** options allow you to define the case of the corresponding items.

You can choose UPPER, lower, Capitalize. Default case means that the name of the identifier/keyword remains "AS IS".

### Space before bracket

Adds a "space" character before the opening bracket and after the closing one.

### Space into brackets

Adds a "space" character after the opening bracket and before the closing one.

#### Indent in list

Sets the size of indent relatively to the previous string.

# 13.2.4 Key Mapping

For your convenience **key mapping** is provided in SQL Manager for PostgreSQL. On this page you can set the <u>shortcuts</u> for various commands/operations according to your needs.

Use the **Commands** list on the right to select the command for which you need to make a shortcut, then place cursor into the **Key** editor and press the key combination you find useful (use *Ctrl Alt Shift* buttons). After setting the shortcut, press the **New** button to add it to the list of existing **Key combinations**. If the specified shortcut is already assigned to another command/operation, an error message with the command/operation will be returned.

Editor Options						<b>—</b> ×-
General	Key Mapping					
	Scheme name	Default		•	Save As	Delete
ABC Spell Checking	Commands		-	Кеу		
Find Option	<ul> <li>Cursor moving</li> <li>Text selection</li> <li>Page scrolling</li> <li>Editor modes</li> <li>Set insert modes</li> <li>Set overwrite</li> <li>Toggle insert/</li> <li>Normal select</li> </ul>	je mode overwrite mode ion mode	E	New Key combinat Delete	Add	Clear
	Column select Line selection Show/Hide no Toggle Word Case Folding Text navigation	tion mode mode on printed text/characters Wrap	•			
<u>R</u> eset to Defaults ▼			<u>о</u> к	Cancel	<u>H</u> elp	Apply

**Note:** It is possible to set more than one key combination for the same command/ operation (e.g. *Ctrl+K*, *Ctrl+H*) using the **Add** button.

If necessary, you can export the current Key mapping list to an external file by pressing the **Export** button.

Manage the shortcuts within the Key combinations list using the **Delete** (to remove the selected item) and the **Clear** (to remove all shortcuts for this command/operation) buttons.

It is also possible to save a custom key mapping scheme, if necessary:

- set the shortcuts for the appropriate commands/operations;
- click the **Save As...** button;
- input the new scheme name in the corresponding dialog.

To delete a scheme, select it in the Scheme name drop-down list and press the Delete

button.

# See also:

<u>Query Data</u>41ଶ <u>SQL Manager shortcuts</u>Iመୀ

## 13.2.5 Spell Checking

**Spell checking** is a new feature implemented in SQL Manager for PostgreSQL for your convenience.

Set the necessary Spell checker mode:

#### Highlighting

In this mode incorrectly spelled and misprinted words are highlighted in the editor.

#### Autocorrection

In this mode incorrectly spelled and misprinted words are replaced with the corresponding words from the **Substitutions** list automatically.

#### None

In this mode the spelling checker is disabled.

Use the **Add...** button to add a new item to the **Substitutions** list, the **Edit...** button to alter the selected substitution, and the **Delete** button to remove the selected substitution from the spelling checker vocabulary.

Editor Options		
Editor Options General Display SQL Formatter Key Mapping Spell Checking Find Option	Spell Checking	Spell checker mode Highlighting Autocorrection None Add Case sensitivity Support case consistency with substitution Edit Ignore case while spell checking Delete V Keep the misprint case when replacing Misprints Add Auto Edit Delete Clear Check Ignore alert alter alter alter alter Check Ignore alert
	]	OK Cancel Help Apply

# Case sensitivity

### Support case consistency with substitution

If this option is selected, the spelling checker uses the case of words-substitutions when performing a replacement.

#### Ignore case while spell checking

Check this option to disable case checking.

# Keep the misprint case when replacing

Check this option if you do not wish to change the case of the replaced word.

#### Misprints

Controls of this group allow you to manage the spelling checker vocabulary: use the **Add...** button to add a new misprint to the vocabulary, the **Auto** button to use the default list of misprints, the **Edit...** button to change the selected misprint, the **Delete** button to remove the selected misprint from the vocabulary, and the **Clear** button to empty the list of misprints for the currently selected substitution.

It is also possible to exclude a misprint from spell checking without deleting the misprint. This misprint will therefore remain in the vocabulary, but it will be ignored by the spelling checker.

To mark a misprint as excluded, you need to move it from the **Check** list to the **Ignore** list. Use the a a b buttons or drag-and-drop operations to move the misprints from one list to another.

## 13.2.6 Find Option

The **Find Option** section allows you to search for options available within the **Editor Options** dialog easily and quickly.

#### Option

In this field you can enter the name of the option to search for within SQL Manager *Editor Options*.



The **Available options** area lists all options of the *Editor Options* category according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location.

Select the required option in the list and click  $\swarrow$  **Show Option** to open the corresponding section where you can view/edit the value of this option. For your convenience the required option is marked with an animated  $\aleph$  icon.

# 13.3 Save Settings

**Save Settings Wizard** allows you to export the settings of SQL Manager for PostgreSQL - wholly or partially - to a single *\*.reg* file which can be applied afterwards to SQL Manager for PostgreSQL installed on another machine, or it can be used to backup previous settings.

To start the wizard, select the **Options | Save Settings** <u>main menu</u> [961] item.



- Specifying destination file 946
- <u>Selecting settings</u>
- <u>Selecting databases</u>
- <u>Saving settings</u> 949

To apply saved settings you need to open the created \*.reg file, then press the OK button in the window appeared. All settings will be applied automatically (they will be added in the Windows Registry).

# 13.3.1 Specifying destination file

This step of the wizard allows you to specify the location of the destination file.

# Filename

Use the  $\blacksquare$  button to set the path to the \*.*reg* file where the application settings are to be saved.

**Note:** If the target file already exists, the application will show a <u>warning</u> dialog where you can choose the action you need.

🔂 Save Settings Wizard		
Save Settings		
Select the file name a	nd location	
	Welcome to th This wizard al The wizard wi	e Save Settings Wizard! lows you to save program settings into a file. Il help you to select file name and settings to save.
SQL Manager for PostgreSQL	Filename	C:\EMS\SQL Manager for PostgreSQL\PgManagerSettings.r
<u>H</u> elp <u>T</u> emplat	ies 🔻	< <u>B</u> ack <u>N</u> ext > Cancel

Press the **Next** button to proceed to the <u>next step</u> [947] of the wizard.

# 13.3.2 Selecting settings

This step of the wizard allows you to specify the information you need to be saved to the result file: Database registration info, Database projects, Tabs, Environment options, Editor options, Visual options, Keyboard templates, External tools list, Form placements, MRU lists.

Save Settings Wizard Save Settings Select settings to save			×
SQL Manager for PostgreSQL	Settings to save Database registration info Favorite objects Tabs Environment options Editor options Keyboard templates Object templates External tools list Form placements MRU lists	☑ Favorite queries stored in registry	
Help Templates	•	< Back Next > Cancel	

Press the **Next** button to proceed to the <u>next step</u> [948] of the wizard.

# 13.3.3 Selecting databases

This step of the wizard allows you to select the database(s) to save the registration settings.

To select a database, you need to move its alias from the **Available Databases** list to the **Selected Databases** list. Use the **Selected Databases** list. Use the **Selected Databases** list to another.

न्ति Save Settings Wizard		
Save Settings		
Select databases and click	the Next button	
SQL Manager for PostgreSQL	Available Databases new_base on aschel:5490 [new_b pegas_copy on ayz2:54390 [pega TestDB on aschel:5490 [TestDB] new_db on ayz2:54383 [new_db] ayz on ayz2:54383 [ayz] pegas on userver:54391 [pegas] ayz on VADSRV:5474 [ayz]	Selected Databases DemoDB on ayz2:54383 [DemoDE TestDB on ayz2:54383 [TestDB] TestDB on ayz2:54383 [TestDB]
Help Templates		< Back Next > Cancel

Press the **Next** button to proceed to the <u>next step</u> [949] of the wizard.

# 13.3.4 Saving settings

After the saving settings operation has been configured, you can immediately start the process.

If all the settings are saved correctly, you will get the following message:

🕞 Save Settings Wizard		- • -
Save Settings		
Click the Run button to sa	ave settings	
	Process completed successfully!	
	100 %	
SQL Manager	Saving visual options Done! Saving keyboard templates Done! Saving object templates	
PostgreSQL	Done! Saving external tools list Done! Saving form placements Done! Saving MRU lists Done!	E
	Close the Wizard after successful completion	<b>v</b>
<u>H</u> elp <u>T</u> emplates	▼ < <u>B</u> ack <u>R</u> un	Close

Click the **Run** button to run the restore database operation.

If necessary, you can click **Details** to display/hide extended information about the operation.

# 13.4 Localization

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When using SQL Manager for PostgreSQL, your are provided with multi-language interface support. You can change the program language, specify the directories for your localization files easily, edit existing localizations and create your own localization files.

#### **Changing Program Language**

- select the Options | Select Program Language ... main menu 961 item;
- select the interface language in the <u>Select Language</u> [952] dialog;
- click **OK** to apply the language and close the dialog.

### **Editing Program Localization**

- open one of the program windows (e.g. <u>Table Editor</u> <u>177</u>), <u>Query Data</u> <u>415</u>) where you wish to edit the localization of captions and hints;
- use the *Shift+Ctrl+L* keyboard <u>shortcut</u> [1001] to open the <u>Localization Editor</u>[951] window;
- edit window captions and hints as necessary;
- click the 🖬 Save button on the toolbar 🕬 .

**Note:** The <u>Localization Editor</u> window is only available if the currently selected language is different from the default.

### **Creating New Localization Files**

- create a new localization file similar to those located in the %program\_directory% \Languages folder;
- select the Options | Environment Options main menu
- proceed to the Localization section of the Environment Options dialog;
- click the Add button;
- set the language name and the path to the new \*.*lng* file within the <u>Language Info</u> Editor[981] dialog.

The new language is added to the list of available languages. Now you can set it as the interface language using the <u>Select Program Language and Localization and Localization and Localization</u> and the <u>Localization of the Environment Options</u> of the <u>Environment Options</u> of

#### See also:

<u>Localization</u> छिरी Language Info Editor छिरी

# 13.4.1 Localization Editor

The **Localization Editor** window allows you to edit the captions and hints of any SQL Manager window, if the selected program language is different from the default one.

To call this window, use the Shift+Ctrl+L shortcut in any child window of SQL Manager for PostgreSQL.

The working area of the window contains the element names and the corresponding strings divided by the "=" character. These strings are what you see in the program as menu items, window captions, button hints, etc. Edit them to change the program appearance. Be careful and do not edit the identifiers that stand before the "=" character - this will not produce any effect.

For your convenience the **Find** and **Replace** features are provided - the corresponding  $\swarrow$  and  $\stackrel{\frown}{\underset{i=1}{lag}} \frac{1}{1000}$  buttons are used to call the Find Text [971] dialog or the Replace Text [973] dialog respectively. The **Search Again**  $\swarrow$  button enables the repeated search for the text that was last searched.

🛅 Localization Editor - [fmMain]					
	-				
Caption=EMS SQL Manager for PostgreSQL					
bbSQLReference.Caption=PostgreSQL Reference					
bbManagerHome.Caption=SQL Manager Home Page					
bbManagerHome.Hint=SQL Manager Home Page					
bbRegisterNow.Caption=Register SQL Manager					
bbRegisterNow.Hint=Register SQL Manager					
bbManagerDirect.Caption=SQL Manager Direct					
bbManagerDirect.Hint=SQL Manager Direct					
bbBuyNow.Caption=Purchase SQL Manager					
bbBuyNow.Hint=Purchase SQL Manager					
bbCloseFunctions.Caption=&Functions					
bbCloseViews.Caption=&Views					
bbCloseDomains.Caption=&Domains					
bbCloseRules.Caption=&Rules					
bbCloseTriggers.Caption=Tri&ggers					
bbCloseIndices.Caption=&Indices					
bb <u>Close</u> Seguences.Caption=&Seguences					
1: 1 Insert	.::				

When you are done with editing, click the  $\boxed{P}$  Save button on the <u>toolbar</u> best to apply the changes you have made.

## 13.4.2 Select Program Language

The **Select Language** dialog allows you to select a language for SQL Manager for PostgreSQL localization.

To open this dialog, select the **Options । 🔚 Select Program Language...** <u>main menu</u>िकी item.



The dialog displays the list of available languages configured on the <u>Environment Options</u> | <u>Localization</u> [921] page. Select a language from the list and click **OK** to confirm your choice and close the dialog.

Select Language	×
Default - no localization (English)	
English	
French	
German	
Russian	
OK Cancel Hel	p

# 13.5 Keyboard Templates

The **Keyboard Templates** window allows you to create new keyboard templates for quicker typing regularly used expressions and to edit the existing ones.

To open this window, select the **Options | Explored Templates...** <u>main menu</u> अती item.



To add a new keyboard template, click the **Add Template...** button, set the template name and define the template expression. In the upper right area of the window you can change the **case** of the template expression (*As is, Uppercase, Lowercase, First upper*).

You can deactivate an existing template by selecting it from the list on the left and removing the **Active** flag of the template.

Keyboard Temp	olates						<b>-X</b>
Ac Template		Add Templa	te	Case of Templates			
* (*		Edit Tompla		As is			
<b>V</b> ••		Edit Tempia		O Uppercase			
/*	E	Delete Temp	late	Lowercase			
✓ // ▼ ALT		V Old style		First upper			
ANT		Expansion					
J BAT		Cursor	Author	Time	Date	Clipboard	Marker
CD		1 CHECK T	ABLE				
CFI							
CFI							
CFR							
CFR							
CFS							
CFS							=
CHT	Add T	amplata					
	7001	emplate					
	Edit T	emplate F2					
	Delete	e Template Del					
			_				
							<b>T</b>
	*	<					4
Reset to de	efaults				<u>о</u> к	Cancel	Help

If necessary, you can also edit the template name using the **Edit Template...** button, delete the template using the **Delete Template** button or edit the template expression within the **Expansion** area of the window. For faster editing you can use the *Cursor*, *Author*, *Time*, *Date*, *Clipboard*, *Marker* buttons.

**Hint:** Add/edit/delete template items are also available in the *context menu* of the template list on the right.

#### **Old style**

This option specifies whether the selected keyboard template expansion should conform to the template specifications used in the earlier versions of SQL Manager for PostgreSQL.

Once you have defined the templates, you can use them in <u>Query Data 415</u>. First of all, make sure that the **Auto launch keyboard templates** option is selected on the <u>Quick</u> <u>Code</u> [935] page of the <u>Editor Options</u> [925] dialog. When <u>editing SQL text</u> [418] in Query Data, type a template name and use the Ctrl+J <u>shortcut</u> [1001]: the text associated with the template (**Expansion**) will be inserted automatically.

**Hint:** The **Reset to defaults** button which is available at the bottom of the **Keyboard Templates** dialog allows you to discard all changes and restore the settings to their defaults.

See also: Code Completion SQL Manager shortcuts

# 13.6 Object Templates

The **Object Templates** window allows you to preset the definition template for the name and/or body of an object to be created.

To open this window, select the **Options |** 월 **Object Templates...** main menu जिने item.



Select an object in the tree (*View*, *Function*: *SQL*, *C*, *PL/pgSQL*, *PL/Tcl*, *PL/Perl*, *PL/Python*) and set its template using the editor area.



# 13.7 Find Option dialog

The **Find Option** dialog allows you to search for SQL Manager options easily.

To open this dialog, select the **Options | 💥 Find Option** <u>main menu</u>िकी item.



### Option

In this field you can enter the name of the option to search for within the entire set of SQL Manager options.

💥 Find Object				(	- • •
i 🖬 🔎	_				-
General	*	Option time			
Show option	size	Available Options Show time of operation DateTime format Time format Datetime fields Time fields	Option Kind Environment option Environment option Environment option Environment option Environment option	Category SQL Monitor Data Export Data Export Color & Format Color & Format	Group Data formats Data formats ts Display formats ts Display formats

The **Available options** area lists all options by categories according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location. Select the required option in the list and click  $\checkmark$  **Show Option** to open the corresponding

dialog where you can view/edit the value of this option. For your convenience the required option is marked with an animated  $\frac{1}{20}$  icon.



# 14 Appendix

# **14.1 Program interface**

### Main menu

The main menu allows you to perform various **Database** operations, open <u>To-Do List</u> [985] and activate/deactivate <u>Database Explorer</u> [65], <u>SQL Assistant</u> [81] and various <u>toolbars</u> [963] within the **View** menu, manage your databases using items of the **Tools** and **Services** menus, <u>customize</u> [970] the application using the **Options** menu, manage SQL Manager **Windows** using <u>Window List</u> [987] and other tools and access <u>Registration</u> [24] information and product documentation, <u>update</u> [995] the product to the latest version using the corresponding items available within the **Help** menu.



**Note:** To learn how to configure SQL Manager menus, refer to the <u>Customize toolbars and</u> <u>menus</u> [988] page.

## Navigation bars in object editors and program tools

**Navigation bars** are interface elements that enable users to quickly locate tools they need. Navigation bar items are displayed within a group with the help of links. A typical Navigation bar of SQL Manager contains links to commonly accessed tools (*refresh*, *print*, *restore default size* of the window), *options* pertaining to the editor or tool, and specific tools.

Object	*
BemoDB on localhost:54391 [DemoDB]	] 💌
EMPLOYEE	•
General	*
Refresh	
凝 Print	
🛃 Restore default size	
Table Editor options	
Tools	*
Talyze & vacuum	
ਗ਼ Cluster table	
Fruncate table	
Reindex table	
Create view on table	
Dependency tree	
Fields	*
🙀 New field	
Edit field 'EMP_ID'	
Drop field 'EMP_ID'	
Explorer	*
Fields (13)	
EMP_ID [integer]	E
POSITION [varchar(40)]	
FIRST_NAME [varchar(30)]	
LAST_NAME [varchar(30)]	
GENDER [char(1)]	
MARITAL_STATUS [char(1)]	-
BIDTH DATE [date]	

Navigation bar panes (groups) can be **expanded**/**collapsed**. When expanded, a pane provides access to its links; when collapsed, panes are displayed as headers only. To expand/collapse a pane, click the pane header. The 🎽 🖄 icons indicate the current pane state (collapsed/expanded respectively).



**Note:** Depending on the current tab selection, Navigation bars in most of the program tools expand to one or more additional panes with tab-specific actions that can be useful for working with the object or service.

Hint: Most items of the Navigation bars are also available on the Toolbars 963.

#### Toolbars in the main program window, object editors and program tools

A **toolbar** is a horizontal row or vertical column of selectable image buttons that give the user a constantly visible reminder of and an easy way to select certain application functions. Most SQL Manager editors and tools are supplemented with toolbars.

```
🗄 🖯 Databases 🗸 🐬 🐘 🖻 🌦 🗃 🦺 EMPLOYEE 🛛 🔹 🖓 🖓 🖓 🖓 🚱 👹 😻
```

To enable the **toolbars** in SQL Manager for PostgreSQL, open the Environment Options [B71] dialog, proceed to the Windows [B77] section there and select () *Toolbar* (if you need the toolbar only) or () *Both* (if you need both the toolbar and the Navigation bar [B61]) in the **Bar style for child forms** group.

**Hint:** Most SQL Manager toolbars are dockable, i.e. you can place a toolbar to any available location within the parent window.

To learn how to configure toolbar items, refer to the <u>Customize toolbars and menus</u> [988] page.

#### **Progress bars**

A **progress bar** is an interface element that conveys the progress of a task or service. Several SQL Manager editors (e.g. <u>Execute Script</u> 646),tools (e.g. <u>Dependency Tree</u> 638) and wizards (e.g. <u>Import Data Wizard</u> 582) are supplemented with progress bars indicating the progress of lengthy operations.

	69	%	

The graphic of SQL Manager progress bars is accompanied by a textual representation of the progress in the percent format.

#### Splitters

**Splitter** controls are used to resize docked controls at run time. In SQL Manager for PostgreSQL the splitter controls are used on the main form, <u>DB Explorer</u> [65], and in program

tools and editors as a separator between the working area and  $\underline{Navigation \ bars}$  bars, etc.



### **Incremental Search bar**

**Incremental search** bar is the tool which is available in the status bar area of some SQL Manager tools. The bar is normally called through the Ctrl+I shortcut with Type in the first letters of the search string, and the corresponding string will be highlighted in the search scope.

Search:

# 14.2 Viewing object DDL structure

The **DDL** (Data Definition Language) tab displays the SQL statement for creating the object with all its subobjects, if any. This text is read-only. If you want to change the object definition, use the appropriate editor tabs instead, or copy the text to the Windows Clipboard to paste it in the <u>Query Data 415</u> or <u>Execute Script Editor</u> 646.

Fiel	ds Foreign Keys Checks Indices Triggers Rules Properties Dependencies Data Description DDL Permissions											
	CREATE TABLE "HR". "EMPLOYEE" (											
2	"EMP_ID" INTEGER NOT NULL,											
з	"POSITION" VARCHAR (40) NOT NULL,											
4	"FIRST_NAME" VARCHAR(30) NOT NULL,											
5	"LAST_NAME" VARCHAR (30) NOT NULL,									=		
6	"GENDER"	CHAR (	1),									
7	"MARITAL	STATU	S" CHAI	R(1),								
8	"BIRTH_D	ATE" D	ATE,									
9	"HIRE_DA	TE" DA	TE,									
10	"IS_ACTI	VE" BO	OLEAN I	DEFAULT	' true	,						
11	"SALARY"	DOUBL	E PREC	ISION,								
12	"DETAILS	BYTE	Α,									
13	"DEPT_ID	" INTE	GER,									
14	"MANAGER	_ID" <u>I</u>	NTEGER	,								
15	CONSTRAI	NT "Em	ployee	s_pkey"	PRIM	ARY KEY (	"EMP_ID"),					
16	CONSTRAINT "Employees_fk" FOREIGN KEY ("DEPT_ID")											
17	REFERE	REFERENCES "HR". "DEPARTMENT" ("DEPT_ID")										
18	ON DEL	ETE NO	ACTIO	N								
19	ON UPD	ON UPDATE NO ACTION										
20	NOT DEFERRABLE											
21	) WITHOUT	OIDS;										
22												
	COMMENT ON	COLUM	N <u>"HR"</u>	. "EMPLC	YEE".	"EMP_ID"						
24	IS 'Employ	ee ID.	Prima	ry key	colum	n';						-
25											÷.	

**Hint:** If more convenient, you can use the **Save DDL to file** and **Open DDL in Query Data** items available on the DDL pane within the <u>Navigation bar</u> of object editors.

# 14.3 Editing object description

The **Description** tab allows you to view and edit the comment for the object (optional).

Schema	Depend	den <u>c</u> ies	Description	DD <u>L</u>	<u>P</u> ermissi	ons		
Any op	tiona	l tex	t can be	added	here	to	comment	*
on cur	rent	objec	t					
								E
								_
<								•
	21:	2	Modifie	d	Insert			

You can save changes made in this area by clicking the **Save Description** item on the <u>Navigation bar</u>ban.

If the changes have not been saved, on attempt to select another tab of the editor you will be prompted for an action whether changes in the object description should be saved or discarded.

# 14.4 Browsing object dependencies

The **Dependencies** tab allows you to view objects that depend on the object being edited, and the objects that the edited object depends on.

While the tree of dependencies is built, the progress bar [963] is displayed in the status area of the editor window.



**Hint:** To open a dependent object or a depending object in its editor, you can simply double-click the object alias in the **Objects that <object\_name> depends on** and **Objects that depend on <object\_name>** lists.

# See also:

<u>Dependency Tree</u> बिउक्षे

# 14.5 Setting object permissions

The **Permissions** tab allows you to view the permissions currently allocated for this object, and to  $\frac{\text{grant permissions}}{166}$  on the object to any of the existing principals.

Schema	Dependencies	D <u>e</u> scriptio	n DD <u>L</u>	<u>P</u> ermis	ssions		
Grantee			0WN	CRT	USG	ì	
👩 Group	os						
😹 Ac	Imins						
😽 Gr	oup1						
<u> </u> Gr	oup2						
😽 PL	JBLIC						
🙆 Users	:	-		•	Grant		
🙁 😤 De	emoUser			8	Grant with Grant Option		
🙁 TE	EST				Revoke		
🙎 Us	ser						
🙎 ale	ех			$\odot$	Grant All		
ay	z		•	9	Grant All with Grant Option		
🙎 ma	3				Bevoke All		
🙎 po	ostgres						
lor 🔗	e1			8	Grant on All		
lor 😤	e2			2	Grant	on All with Grant Option	
sor 😤	ot				Devola	a On All	
				•	Revok	e Ult All	

For details see Grant Manager 762.

# 14.6 Changing Metadata window

The **Changing Metadata** window is used to trace the errors and edit SQL statements during their compilation. The compilation window appears each time metadata is changed, both when the compilation is successful and when there are compilation errors. To hide this window for successful metadata changes, select the **Don't show this window on success** option.

**Note:** This option is unavailable for changing metadata of database with <u>Change</u> <u>Management</u> [126] enabled.

If <u>Change Management</u> [126] is enabled for database whose metadata is being changed, the following features become available:

#### **Comment for Change Management**

Use this field to comment transaction to ease finding it when browsing history.

#### Log to VC

Use the drop-down list to define whether to add this transaction to version control log *always*, only *if script changes objects* or to *log only statements that change objects*.

## **Compile SQL**

This area displays the SQL statement pending to be executed to perform metadata changing. In this area you can view and edit the SQL statement. In case of a compilation error the **Error** tab also becomes visible - here you can view the error description returned by the server.

#### Commit

This button starts execution of the statement(s). Click it to commit the current transaction. This button is available only if there were no errors in compilation.

### Rollback

This button cancels the script execution and allows you to return to the previous stage (editor window or  $\overline{\text{DB Explorer}}$  [65]).

#### **Rollback and Recompile**

This button calls for recompilation with the changes you made in the **Compile SQL** area. Use this button after correcting the SQL statement.

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If script execution was stopped due to timeout limit exceeding, you can **recompile it with double** or **unlimited timeout** using corresponding buttons.

If necessary, you can **copy information to clipboard** and save it in a text editor afterwards (the button is only enabled when a compilation error occurs).

If you want this window to appear only in case of an error, uncheck the  $\mathbb{Z}$  **Confirm metadata changing (Changing Metadata Window)** option (checked by default) available within the **Confirmations** section of the Environment Options<sup>[871]</sup> dialog.

# 14.7 Find Text dialog

The **Find Text** dialog is provided for quick and flexible searching for specified text within the working area of SQL Manager editors.

#### **Text to find**

Enter a search string in this box. The Arrow-Down button which can be found next to the input box allows you to select any of the previously entered search strings.

### Options

### Case sensitive

This option can be used to differentiate uppercase characters from lowercase ones during the search process.

#### Whole words only

Use this option to search for words only (with this option off, the search string might be found within longer words.)

#### Regular expressions

Recognizes regular expressions in the **Text to find** field.

For example, you can type "empl\*" to search for metadata containing the "empl" substring; enter "^emp" to search for words starting with "emp" or "^emp|emp\$" to search for the string "emp" at the beginning or at the end of the string.

**Note:** The syntax of regular expressions that can be used in the **Text to find** field is similar to that used in Perl regular expressions. Comprehensive information about it can be found at <u>http://perldoc.perl.org/perlre.html#Regular-Expressions</u>.

Find Text	<b>—</b> ×-					
Find Find in metadata						
Text to find Employee	•					
Options	Direction					
Case sensitive	Eorward					
<u>w</u> noie words only <u>R</u> egular expressions	Backward					
Scope	Origin					
<ul> <li>Global</li> </ul>	<u>From cursor</u>					
Selected text	© Entire scope					
Mark search result with stack marker						
OK Show <u>A</u> ll Cancel <u>H</u> elp						

# Direction

## Forward

Searches from the current position to the end of the working area.

#### Backward

Searches from the current position to the beginning of the working area.

# Scope

#### 🧕 Global

Searches within the entire working area, in the direction specified by the *Direction* setting.

#### Selected text

Searches only within the currently selected text, in the direction specified by the *Direction* setting. You can use the mouse or block commands to select a block of text.

### Origin

# From cursor

The search starts at the cursor's current position, and then proceeds either forward to the end of the scope, or backward to the beginning of the scope depending on the *Direction* setting.

#### Entire scope

The search covers either the entire block of selected text or the entire script (no matter where the cursor is in the Editor area) depending upon the *Scope* options.

### Mark search result with stack marker

The option toggles marking search results. If this option is selected, stack markers are set at all search positions - this makes it possible to jump from one marker (search result) to another within the text.

Click the **Show All** button to highlight every occurrence of the search string.
# 14.8 Replace Text dialog

The **Replace Text** dialog is provided for searching and replacing text within the working area of SQL Manager editors.

## Text to find

Enter a search string in this box. The Arrow-Down button which can be found next to the input box allows you to select any of the previously entered search strings.

## Text to replace

This box allows you to enter a string to replace the search string. The Arrow-Down button which can be found next to the input box allows you to select any of the previously entered strings. To replace the search string with an empty string, leave this input box blank.

# **Options**

## Case sensitive

This option can be used to differentiate uppercase characters from lowercase ones during the search process.

## Whole words only

Use this option to search for words only (with this option off, the search string might be found within longer words.)

## Regular expressions

Recognizes regular expressions in the **Text to find** field.

# **Replace with template**

This option requires the **Regular expressions** option selection.

Enable this option to use regular expressions in the **Text to replace** field. Expression used in this field will be applied to each string that matches the **Text to find** expression.

**Note:** The syntax of regular expressions that can be used in the **Text to find** and the **Text to replace** fields is similar to that used in Perl regular expressions. Comprehensive information about it can be found at <a href="http://perldoc.perl.org/perlre.html#Regular-Expressions">http://perldoc.perl.org/perlre.html#Regular-Expressions</a>.

### Prompt on replace

Check this option if you wish to be prompted before replacing upon each occurrence of the search string. When this option is off, the search string is replaced automatically.

Replace Text			×
Text to find	Bill		•
Text to replace	William		•
Options <u>C</u> ase sensitive <u>W</u> hole words o <u>Regular expre</u> <u>Replace with to</u> <u>P</u> rompt on repl	e only ssions emplate lace	Direction         Image: Eorward         Image: Eorward         Image: Eorward         Image: Eorward         Image: Eorward	
Scope Global Selected text Mark search res	ult with stack mark	Origin © <u>F</u> rom cursor © <u>E</u> ntire scope ker	
ОК	Replace A	Cancel <u>H</u> elp	

# Direction

#### Forward

Searches and replaces from the current position to the end of the working area.

#### Backward

Searches and replaces from the current position to the beginning of the working area.

## Scope

#### Iobal

Searches and replaces within the entire working area, in the direction specified by the *Direction* setting.

#### Selected text

Searches and replaces only within the currently selected text, in the direction specified by the *Direction* setting. You can use the mouse or block commands to select a block of text.

#### Origin

## From cursor

The search and replace process starts at the cursor's current position, and then proceeds either forward to the end of the scope, or backward to the beginning of the scope depending on the *Direction* setting.

#### Entire scope

The search and replace process covers either the entire block of selected text or the entire script (no matter where the cursor is in the Editor area) depending upon the *Scope* options.

## Mark search result with stack marker

The option toggles marking search results. If this option is selected, stack markers are set at all search positions - this makes it possible to jump from one marker (search result) to another within the text.

Click the **Replace All** button to replace every occurrence of the search string. If you have checked the **Prompt on replace** option, the confirmation dialog box appears upon each occurrence of the search string.

# 14.9 Host Login dialog

This form appears when selecting a host without active database connections in the navigation bar. Services where this dialog can be called from are: <u>User Manager</u> **A**, <u>Group</u> <u>Manager</u> **A**, <u>Server Status</u> and <u>Server Configuration</u> **B**52.

Host Login	
Host	userver:54391
<u>U</u> ser name Pa <u>s</u> sword	tester
SSL mode	Prefer
SSH Tunneling	HTTP Tunneling
Connect th	rough the Secure SHell (SSH) tunnel
SSH <u>h</u> ost nam	e localhost 💌
SSH port	22 -
SSH <u>u</u> ser nam	e
SSH password	
Use Private	e Key for authentication
SSH <u>k</u> ey file	
	Test Connection
	Load connection info
	OK Cancel Help

This form contains all necessary options to define settings for connecting to host.

Provide *authorization* settings: **User name** and **Password**.

If tunneling required proceed to the respective tab to define tunneling parameters. You can get sufficient information about tunneling here: <u>SSH tunneling options</u>[992], <u>HTTP</u> <u>tunneling options</u>[994].

Click the **Test Connection** button to check whether define settings are valid.

You can also get the connection information from <u>database registration info</u> [108]. For this pick a database from the drop-down list in the bottom area of the window and click the **Load connection info** button.

# 14.10 Add parameter

The following dialog appears on adding or editing parameters.

## Parameter name

Select the parameter from the dropdown list.

### Value

View the current value and edit if necessary.

#### **Parameter info**

Here you can see the additional info about the parameter.

## Description

Input the comments on the selected parameter.

Parameter name	client_encoding	~
Value	UTF8	
Parameter Info		
Туре	string	
Context	user	
Source	default	
Minimum value		
Maximum value		
Description		
Sets the client's ch	aracter set encoding.	^
		$\sim$

To obtain more information on specific parameters, refer to PostgreSQL documentation.

# 14.11 Format specifiers

The following format specifiers are supported in the format string:

### Float/Integer format

# 0

Digit place holder. If the value being formatted has a digit in the position where the '0' appears in the format string, then that digit is copied to the output string. Otherwise, a '0' is stored in that position in the output string.

### #

Digit placeholder. If the value being formatted has a digit in the position where the '#' appears in the format string, then that digit is copied to the output string. Otherwise, nothing is stored in that position in the output string.

•

Decimal point. The first '.' character in the format string determines the location of the decimal separator in the formatted value; any additional '.' characters are ignored.

Thousand separator. If the format string contains one or more ',' characters, the output will have thousand separators inserted between each group of three digits to the left of the decimal point. The placement and number of ',' characters in the format string does not affect the output, except to indicate that thousand separators are wanted.

### E+

Scientific notation. If any of the strings 'E+', 'E-', 'e+', or 'e-' are contained in the format string, the number is formatted using scientific notation. A group of up to four '0' characters can immediately follow the 'E+', 'E-', 'e+', or 'e-' to determine the minimum number of digits in the exponent. The 'E+' and 'e+' formats cause a plus sign to be output for positive exponents and a minus sign to be output for negative exponents. The 'E-' and 'e-' formats output a sign character only for negative exponents.

# Date/Time format

### С

Displays the date using the format using the Short Date Format, followed by the time using the Long Time Format. The time is not displayed if the date-time value indicates midnight precisely.

# d

Displays the day as a number without a leading zero (1-31).

# dd

Displays the day as a number with a leading zero (01-31).

### ddd

Displays the day as an abbreviation (Sun-Sat) using the strings of the Short Day Names.

### dddd

Displays the day as a full name (Sunday-Saturday) using the strings of the Long Day

Names.

## ddddd

Displays the date using the Short Date Format.

### ddddd

Displays the date using the Long Date Format.

#### е

Displays the year in the current period/era as a number without a leading zero (Japanese, Korean and Taiwanese locales only).

#### ee

Displays the year in the current period/era as a number with a leading zero (Japanese, Korean and Taiwanese locales only).

## g

Displays the period/era as an abbreviation (Japanese and Taiwanese locales only).

### gg

Displays the period/era as a full name. (Japanese and Taiwanese locales only).

#### m

Displays the month as a number without a leading zero (1-12). If the m specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.

#### mm

Displays the month as a number with a leading zero (01-12). If the mm specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.

#### mmm

Displays the month as an abbreviation (Jan-Dec) using the strings given of the Short Month Names.

#### mmmm

Displays the month as a full name (January-December) using the strings of the Long Month Names.

### уу

Displays the year as a two-digit number (00-99).

### уууу

Displays the year as a four-digit number (0000-9999).

### h

Displays the hour without a leading zero (0-23).

### hh

Displays the hour with a leading zero (00-23).

### n

Displays the minute without a leading zero (0-59).

#### nn

Displays the minute with a leading zero (00-59).

#### S

Displays the second without a leading zero (0-59).

### SS

Displays the second with a leading zero (00-59).

# z

Displays the millisecond without a leading zero (0-999).

### zzz

Displays the millisecond with a leading zero (000-999).

### t

Displays the time using the Short Time Format.

## tt

Displays the time using the Long Time Format.

### am/pm

Uses the 12-hour clock for the preceding h or hh specifier, and displays 'am' for any hour before noon, and 'pm' for any hour after noon. The am/pm specifier can use lower, upper, or mixed case, and the result is displayed accordingly.

### a/p

Uses the 12-hour clock for the preceding h or hh specifier, and displays 'a' for any hour before noon, and 'p' for any hour after noon. The a/p specifier can use lower, upper, or mixed case, and the result is displayed accordingly.

### ampm

Uses the 12-hour clock for the preceding h or hh specifier, and displays the contents of the TimeAMString global variable for any hour before noon, and the contents of the TimePMString global variable for any hour after noon.

# /

Displays the date separator character using the Date Separator.

### :

Displays the time separator character using the Time Separator.

# 'xx'/"xx"

Characters enclosed in single or double quotes are displayed as-is, and do not affect formatting.

# 14.12 Language Info Editor

The **Language Info Editor** dialog allows you to set the language name and specify the corresponding \*.*lng* localization file. This dialog is opened when you add or edit a language (see Environment Options | Localization [921]).

### Language Name

The name of the language that is displayed in the <u>Select Program Language</u> [952] dialog and within the **Available Languages** list of the <u>Environment Options</u> | <u>Localization</u> [921] section.

#### Language File

The \*.*lng* file containing the translated string resources. See the %*program\_directory*% \*Languages* folder to find already existing localization files.

#### Adding a language

The *Add language* dialog allows you to specify your own localization file and set the language name.

Add Language		<b>-</b> ×-
Language Name	French	
Language File	C:\SQL Manager\French.Ing	2
	<u>O</u> K <u>C</u> ancel	<u>H</u> elp

### Editing a language

The *Edit language* dialog allows you to change the language name or select another localization file for the specified language.

Edit 'English' Languag	e	×
Language Name	English	
Language File	C:\SQL Manager\English.Ing	2
	OK <u>C</u> ancel <u>H</u> elp	

# 14.13 Using templates

982

For your convenience the ability to use templates is provided by SQL Manager for PostgreSQL. A template is a named collection of wizard options stored in a file.

Instead of performing a long chain of routine steps all the time you can save all the options of the wizard for future use as a template file. Select the **Templates | Save Template** drop-down menu item, specify the template file name and set an optional comment for the template file.

When starting the wizard next time, you can load the template by selecting the **Templates | Load Template** drop-down menu item.

Note that saving/loading of templates is possible at any step of the wizard.

# 14.14 Supported file formats

## MS Excel 97-2003

The most popular e-table format used by Microsoft® Excel (\*.*xls*). The result files are fully compatible with Microsoft® Excel versions 97-2000, 2003 and XP.

### MS Access

File of Microsoft® Access format (\*.*mdb*, \*.*accdb*) with an ADO connection used.

### MS Word 97-2003

One of the most popular text processing formats used by Microsoft® Word (\*.*doc*). The result files are fully compatible with Microsoft® Word versions 97-2000, 2003 and XP.

#### RTF

Rich Text Format (\*.rtf) supported by many text processing programs (e.g. WordPad).

#### ITML

Hyper Text Markup Language file format (\*.*html*, \*.*htm*), complete compatibility with HTML 4.0 specification.

#### PDF

A standard format in electronic publishing (\*.pdf).

# Iext file

Plain text file format (\*.txt).

### CSV file

Comma-Separated Value file format (\*.csv).

### OIF file

Data Interchange File (\*. dif) format.

### SYLK

Symbolic Links (\*.slk) file format.

**Note:** all the text formats including *Text file*, *CSV*, *DIF*, *SYLK* are usually used as working or interchange formats.

### LaTeX

A specific file format (\*.tex) which is a popular (especially among mathematicians and physicists) macroextension of TeX pack developed by D.Knut.

### XML

A markup language for documents containing structured information (\*.xml).

### OBF

Database file format (\*.*dbf*) used by dBASE and a number of xBASE applications.

### MS Excel

The contemporary e-table format used by Microsoft Excel (\*.*xlsx*). The result files are fully compatible with Microsoft Excel 2007.

### MS Word

The contemporary text processing format used by Microsoft Word (\*.*docx*). The result files are fully compatible with Microsoft Word 2007.

## ODF Spreadsheets

OASIS Open Document Format for Office Applications - open document file format for spreadsheets (\*.ods) used by a number of applications including OpenOffice.org and KOffice.

### ODF text

OASIS Open Document Format for Office Applications - open document file format for word processing (\*.odt) documents used by a number of applications including OpenOffice.org and KOffice.

# 14.15 To-Do List

The **To-Do List** window allows you to make up a list of tasks for the database.

To call this window, select the **View | To-Do List** <u>main menu</u>िकी item, or use the *Shift+Ctrl+T* <u>shortcut</u> किंगे.



The task list is displayed in a form of a grid. Its columns (*Action, Priority, User, Category*) correspond to the task parameters. Click the column caption to sort the task list by the current parameter or change the sorting direction. Use the Navigation bar and context menu to *add*, *edit*, and *delete* to-do items.

📰 To-Do Items - [DemoDB on ayz2:54383]							
🗄 🖯 Databases 🔻 🖬 📝 🔩 🚳		2					-
Database *		Action			Priority	User	Category
		Export table public.Orders	s		2	root	Data manipulation
🔒 DemoDB on ayz2:54383 [D 💌		Backup database DellSto	re2	(TAR)	5	postgres	DB backup
		Update table public.Emplo	oyee	s	3	manager	Data manipulation
General *	- 3	Reindex all tables of sche	ema	UserData	3	postgres	Maintenance
🛱 Add item		6	ŧ	Add Item	Ins		
📝 Edit item		6	<b>/</b>	Edit Item	Enter		
😼 Delete item				Delete Iten	n Del		
Delete all		l i i	4	Delete All	Ctrl+Del		
Restore default size							

#### Database

Select the database to apply the task list to. When switching between the databases you can view different task lists.

*To add a task* to this list, click the **Add Item** link on the Navigation bar, or select **Add Item** from the context menu. You can also use the *Ins* key for the same purpose. Define the task parameters and click **OK** to add the new task to the list.



### Text

Optional text to describe the task.

### **Priority**

Set a numeric value to indicate the priority of the task.

### **User Name**

The database User name this task is applied to.

### Category

Set a category for the task. Using categories may be useful for grouping tasks.

To modify a task, select the task in the list and click the **Edit Item** link of the Navigation bar, or select **Edit Item** in the context menu. You can also use the *Enter* key for the same purpose.

*To remove a task*, select the task in the list and click the **Delete Item** link of the Navigation bar, or select **Delete Item** in the context menu. You can also use the *Del* key for the same purpose.

To remove all tasks from To-Do List, click the **Delete all** link of the Navigation bar, or select **Delete all** in the context menu. You can also use the *Ctrl+Del* shortcut from for the same purpose.

# 14.16 Windows List

The **Windows List** panel allows you to browse the list of windows that are currently opened within SQL Manager for PostgreSQL IDE.

To activate this panel as a DB Explorer tab [75], select the **Windows | Window List** main menu soft item, or use the Ctrl+Alt+0 shortcut noval.

Windows List				
DemoDB on ayz2:54383      AK_Contact_rowguid on Employee.Contact      Employee.Address      Employee.view6      Query Builder - [DemoDB on ayz2:54383]				
E H TestDB on ayz2:5438	3			
Print Metadata - IT	estDB on avz2:543831			
TEST	Bring To Front			
Background Proce	Close Window			
Object Reindex	Cascade			
Report Designer	Minimize All			
🛄 💲 User Manager - [aj	Restore All			
Tile Horizontal				
	Tile Vertical			
	Set Defaults to All Windows Ctrl+Alt+D	)		
6	Close All			
6	Close All Database Windows			
Databases				

If necessary, you can right-click within the list area to call the **popup menu** which allows you to bring a window to foreground, close windows one by one or in groups, and to arrange the windows according to your preferences.

# 14.17 Customize toolbars and menus

988

For your convenience SQL Manager for PostgreSQL provides **toolbars** and **menus** that you can customize, so the commands you use frequently are readily available and easily identifiable.

The **Customize** dialog allows you to create and personalize SQL Manager menus and toolbars local.

To call this dialog, click **More buttons...** on the right side of any toolbar (solbar), then click **Add or Remove Buttons** and select **Customize...** from the drop-down menu. Alternatively, you can right-click any toolbar and select the **Customize...** popup menu item.

~	Database
~	Options
~	Tools
~	Windows
~	Windows Bar
	Services
	<u>C</u> ustomize

# **Toolbars**

### Toolbars

This list displays all currently existing toolbars of SQL Manager (both *default* and *user-defined* toolbars). Check/uncheck the box at a toolbar name to show/hide the toolbar.

### New...

Use this button to add a new user-defined toolbar to the **Toolbars** list. Set a name for the newly created toolbar and dock it by dragging it to any permitted location within the application window.

### Rename...

Use this button to rename the selected user-defined toolbar.

### Delete

Use this button to delete the selected user-defined toolbar.

Customize			<b>—</b> ×
Toolbars	Commands	Options	
Toolbars:			
Main M	enu		<u>N</u> ew
Databa	se		Rename
Vindov	vs		<u>D</u> elete
Windov	vs Bar ∺s		
			Close

## Commands

This tab allows you to browse the list of all commands available within the menus and toolbars of the application window. Selecting categories in the **Categories** list displays commands of the selected category (e.g. 'Database' or 'Tools') in the **Commands** list.

If necessary, you can pick a command and drag it to any  $\underline{toolbar}$  to create a button for this command.

Toolbars Commands (	Options	
Categories: Default Database View Tools Services Options Windows Help Menus Description	Comman <u>d</u> s: Instance Manager Analyze Tables Vacuum Tables Reindex Server Log SQL Parser Server Status Server Status	

### **Options** Personalized Menus and Toolbars

#### Menus show recently used commands first

This option determines whether the most frequently used items will be placed in menus at first position.

If this option is enabled, frequently used menu items are "promoted" and displayed higher on the list. Unused and infrequently used menu items are visually suppressed and appear "collapsed".

#### Show full menus after a short delay

This option is available only if the **Menus show recently used commands first** option is selected.

If this option is enabled, infrequently used menu items (if they appear "collapsed") will be automatically expanded after a delay upon setting mouse cursor (or upon selection with the Up/Down keys) on the bottom of the menu. Otherwise, the menu expands only after clicking its bottom-most button (or using the Ctrl+Down shortcut hour).

### Reset my usage data

Resets the lists of recently used commands in the toolbars and menus.

Toolbars	Commands	Options		
Personalia	zed Menus and	d Toolbars		
Me <u>n</u> u	us show recen	tly used con	mands first	
√ S	how f <u>u</u> ll menus	after a sho	t delay	
Reset	my usage data	1		
		_		
Other				_
E Large	e icons			
V Shov	v Tool <u>T</u> ips on t	oolbars		
V S	how s <u>h</u> ortcut k	eys in Tool	īps	
<u>M</u> enu ar	imations:	(None)	•	

# Other

### Large icons

This option displays larger icons on the parent window toolbars [963].

#### Show ToolTips on toolbars

If this option is selected, ToolTips (hints) popup when the mouse cursor is positioned over a toolbar button.

#### Show shortcut keys in ToolTips

If this option is selected, the corresponding <u>shortcuts</u> are displayed in ToolTips (hints) for toolbar buttons.

#### **Menu animations**

Use the drop-down list to specify the menu animation effects: None (no animation) Random (random choice: Unfold, Slide, Fade) Unfold (unfolding menus) Slide (sliding menus) Fade (menus fade in when appearing)

# 14.18 SSH tunneling options

**SSH** (Secure Shell Host) protocol is used to heighten computer security when working with Unix systems on the Internet. SSH uses several encryption algorithms of different reliability. The spread of SSH is also related to the fact that a number of \*nix operating systems (e.g. FreeBSD) include SSH server in their standard distributions. To learn more about SSH, please visit <u>http://openssh.org</u>.

The SSH tunneling feature of SQL Manager is a means of ensuring secure connection to PostgreSQL servers when working over insecure connection channels. You can also use SSH tunnel to get access to the remote PostgreSQL servers when port 3306 is closed for external connections for some reasons.

The connection via SSH tunnel works in the following way.

First, a connection is established and the process of authentication between SSH client built in SQL Manager and remote PostgreSQL server is performed. Then all incoming and outgoing information between the application and PostgreSQL is transmitted through SSH server with the help of a communication port (regularly port 22), and SSH server transfers this information directly to PostgreSQL server.

To setup the connection via **SSH tunnel**, input the following values in the corresponding fields:

- SSH host name is the name of the host where SSH server is running
- SSH port indicates the port where SSH server is activated
- **SSH user name** stands for the user on the machine where SSH server is running ( **Note:** it is a Linux/Windows user, not a user of PostgreSQL server)
- SSH password is the Linux/Windows user password

Please note that PostgreSQL **host name** should be set relatively to the SSH server in this case. For example, if both PostgreSQL and SSH servers are located on the same computer, you should specify *localhost* as **host name** instead of the server external host name or IP address.

Connect through the Secure SHell (SSH) tunnel				
SSH <u>h</u> ost name	vadsrv			
SSH <u>p</u> ort	22			
SSH <u>u</u> ser name	tester			
SSH password				
Use Private Key for authentication				
SSH <u>k</u> ey file	C:\SSHKeys\dsa_key.ppk			

# **W** Use Private Key for authentication

If the SSH encryption is enabled on the SSH server, a user can generate a pair of cryptographic keys (the **Private key** and the **Public key**). The **Public key** is placed on the SSH server, and the **Private key** is the part you keep secret inside a secure box that can only be opened with the correct passphrase (or an empty string as the passphrase). When you wish to access the remote system, you open the secure box with your

passphrase (if any), and use the private key to authenticate yourself with the Public key on the remote Linux computer.

## SSH Key file

Specify the location (the secure box) of the **Private key** file on your local machine. Supported Private Key file formats are: *OpenSSH Putty SSH.com* Note that you need to trust your local machine not to scrape your passphrase or a copy of your Private key file while it is out of its secure box.

Passphrase dialog	×
Please enter the passphrase for the key	

# 14.19 HTTP tunneling options

**HTTP** tunneling is a method that allows one to connect to a database and transmit data between the program and a PostgreSQL server through the HTTP/HTTPS protocols using port 80 which is used by a regular Internet browser. This method is used to connect to the remote PostgreSQL server of a hosting company when direct connection is not available (e.g. for security reasons).

The HTTP tunnel works in the following way.

All outgoing queries and commands sent by the client's software are encoded and transmitted through the HTTP/HTTPS protocol using port 80 to the special script that decodes the received data, sends it to PostgreSQL server for processing and then sends the result back. This method requires the HTTP server (Apache) and PHP with PostgreSQL to be installed on the remote server. Normally this software is provided by a hosting company that offers Linux hosting solutions.

To use **HTTP tunneling**, just upload the tunneling script to the webserver where PostgreSQL server is located (e.g. to the location where other PHP scripts are stored), or to any other webserver from which direct connections to your PostgreSQL server are allowed. This script exposes the PostgreSQL API as a set of web-services used by SQL Manager for PostgreSQL.

If your webserver complies with the requirements and the script is installed correctly, you will see the message "EmsProxy v 1.31" (version can be different) in your browser when opening the http://<your\_webserver>/emsproxy.php page.

In case of using this connection method the response will be slower as compared to the direct connection or the SSH Tunneling method, since the data are XML encoded and HTTP is stateless by nature. However, all the features of SQL Manager for PostgreSQL are available.

Note that the *emsproxy.php* script file is included into the distribution package and can be found in SQL Manager installation directory.

Co	nnect through the HTTP tunnel	
U <u>R</u> L	http://webserver_name/emsproxy.php	-

# 14.20 SQL Manager Direct

**SQL Manager Direct** is a feature of SQL Manager for PostgreSQL which provides you with quick access to the related Internet resources and allows you to keep your SQL Manager version up-to-date.

To open the **SQL Manager Direct** window, select the **Help | SQL Manager Direct** item from the main menu

<u>)</u> atabase	<u>V</u> iew	Tools	Services	<u>O</u> ptions	<u>W</u> indows	<u>H</u> elp	
						0	What's New?
						0	Contents F1
						0	PostgreSQL Reference
							SQL Manager Home Page
						¢,	SQL Manager Direct
							Send Bug Reports to
							Purchase SQL Manager
							Register SQL Manager
						0	<u>A</u> bout

Links to <u>sqlmanager.net</u> resources provided by the **SQL Manager Direct** window are grouped into several sections:

- SQL Manager for PostgreSQL News
- General Information
- Downloads
- Related Products

Upon a link selection you will be immediately forwarded to the corresponding resource.

### SQL Manager for PostgreSQL News

This section takes you directly to the latest EMS news column. Using the links you can get up-to-date news, product information and downloads from <u>sqlmanager.net</u>.

### **General Information**

This section offers a number of links to product news, features, <u>Feature Matrix</u> , <u>system</u> requirements 21, testimonials and much more.

### **Downloads**

Using links of this section you can download other product versions from the <u>download</u> <u>page</u>.

### **Related Products**

This section allows you to browse the list of related products developed by EMS Database Management Solutions, Inc.

🄄 SQL Manager Direct	
Update V Automatically poll network in interval (in days)	0
SQL Manager for Postgre SQL News	÷
General Information	
<ul> <li>EMS Software Development Web Site</li> <li>Overview</li> <li>Product News</li> <li>Product Features</li> <li>Features Matrix</li> <li>Product Screenshots</li> <li>System Requirements</li> <li>License Agreement</li> <li>Testimonials</li> <li>Related Products</li> </ul>	
Downloads	Ð
Related Products	æ
	.::

Use the 🙆 🙆 buttons to navigate in the same way as you normally do it using a web browser.

Click the **Update** button to refresh the page.

# Automatically poll network in interval (in days)

If this option is selected, the page is refreshed automatically after the specified time interval. Use the spinner control to set the interval (in days).

In the **Status** area at the bottom of the **SQL Manager Direct** window you can find the status of your request to the <u>sqlmanager.net</u> website.

# 14.21 Database Login dialog

The **Database Login** dialog appears on attempt to <u>connect</u> and to a database if the **Login prompt before connection** option is enabled on the <u>Options</u> and page of the <u>Database</u> <u>Registration Info</u> dialog.

Dat	abase Login	<b>X</b>
D	atabase:	TestDB
U	lser Name:	ayz
E	assword:	
		QK Cancel

**Note:** If <u>SSH tunneling</u> is used for the database connection, the **SSH Login** dialog with the **SSH user name** and **SSH password** boxes appears first.

Specify *SSH* user name / password (if necessary), user name / password and click **OK** to start working with the database.

# 14.22 Overwriting existing output file

If a file having the same name as specified for an output file generated by SQL Manager already exists, a warning dialog is displayed.

Warning			<b>×</b>
	The file 'C:\E	xports\HR_EMPLO	YEE.xls' already exists.
	Overwrite	Make Unique	Cancel

You can **Overwrite** the file, **Make** it **Unique**, or **Cancel** both and change the path or file name manually.

The application makes the file unique by adding the current timestamp to the specified file name if the  $\square$  **Add Timestamp to filename** option is enabled, or by adding a simple numeric postfix to the file name if this option is disabled.

# 14.23 Script conversion

The **Script conversion** dialog allows you to select encoding to be used for script conversion upon loading script to one of SQL Manager editors (<u>Query Data and script Editor</u> (<u>Addition</u>) from an external file.

Script Conversion	×	
Select the encoding for script conve	ertion	
Windows default	latin6 (ISO 8859-10 Nordic)	
O Database default	latin7 (ISO 8859-13 Baltic) latin8 (ISO 8859 14 Caltic)	
Other encoding	Unicode (UCS-2)	
	Unicode /UTE 8\	
Preview		
10	A	
11 Data for table "HR"	."DEPARTMENT" (OID = 16705) (LIMIT	
12		
□ INSERT INTO "DEPARTMENT	<pre>IT ("DEPT_ID", "DEPARTMENT_NAME", "</pre>	
14 VALUES (1, 'Administration', 4, 'Executive General and Ac		
15		
□ INSERT INTO "DEPARTMENT	<pre>I'' ("DEPT_ID", "DEPARTMENT_NAME", '</pre>	
17 VALUES (2, 'Marketing'	, 7, 'Sales and Marketing');	
18		
DINSERT INTO "DEPARTMENT	I" ("DEPT ID", "DEPARTMENT NAME", " 🔻	
<	4	
	<u>O</u> K <u>C</u> ancel	

#### Windows default

Specifies that the standard Windows encoding will be used for the script conversion.

#### Database default

Specifies that the default encoding of the database will be used for the script conversion.

#### Other encoding

Allows you to select the encoding that will be used for the script conversion.

#### **Preview**

This area displays the script with the current encoding parameters applied.

# 14.24 Select Object dialog

The **Select Object** dialog appears each time the application requests a database object selection, e.g. upon a root object selection for the <u>Dependency Tree</u> [638] tool, or when choosing an object to be added to a project.

	Select Object - TestDB on ayz2:54	383 [TestDB]	<b>—</b>
	Tables	< All :	>
<u> 4</u>	Production.Orders	public.Cust_Hist	public.table13
- 49	Production.geom	public.Department	public.table14
6	TEST.inside_forums_topics	public.Departments	public.table15
24	TEST.inside_forums_topics22	public.Employees	public.table5
	TEST.inside_forums_topics333	public.Inventory	public.table6
	TEST.table1	public.Orderlines	public.table7
1	TEST.table1_	public.Prod_desc	public.table7_new
Tol	TEST.table3	public.Product	public.table8
	TEST.table4	public.Products	tests.Account
	TEST2.table3	public.TypeList	tests.Address
- <b>e</b> e	TEST2.table4	public.child_feelings_1	tests.Contact
<b>-</b>	c.table2	public.dummy1	tests.Department
5	public.Account	public.dummy1_new	tests.Person
	public.Address	public.pgmfavorites	
9	public.Categories	public.pgmreports	
昌	public.City	public.table10	
5	public.Country	public.table11	
	public.CountryLanguage	public.table12	
0			
_	•		4
		<u> </u>	<u>Cancel</u> <u>H</u> elp

First select the object type in the list on the left-hand side of the window. Use the dropdown list at the top to select the schema, pick the object you need and click **OK** the apply your selection.

# 14.25 SQL Manager shortcuts

# Database management

Shift+Alt+RRegister a database using Register Database WizardShift+Alt+UUnregister the selected databaseShift+Ctrl+CConnectShift+Ctrl+DDisconnect from a database

## **Database objects management**

- *Ctrl+N* Create a new object (the object type depends on the current selection)
- *Ctrl+0* Edit the selected object in its editor
- Ctrl+R Rename the selected object

*Shift+Del* Drop the selected object

*Ctrl+Shift+C* Collapse the current <u>DB Explorer</u> [65] tree branch and switch selection to the parent tree node

# SQL Manager tools

F11	View/hide <u>Database Explorer</u>
Ctrl+F	Search for an item in the <u>DB Explorer</u> [65] tree
Shift+Ctrl+T	Open the <u>To-Do List</u> [985] window
F12	Show <u>Query Data</u> 415
Shift+F12	Open a new instance of <u>Query Data</u> [415]
Shift+Ctrl+M	Open <u>SQL Monitor</u> ब्दिअ
Shift+Ctrl+S	Open <u>Execute Script Editor</u> 646
Shift+Ctrl+L	Open Localization Editor जिंही
Ins	Add a new table subobject (the subobject type depends on the current tab
	selection)
Ctrl+Ins	Add a parameter in <u>Function Editor</u> 239
Ctrl+Del	Remove a parameter in <u>Function Editor</u> 239
Ctrl+Up	Move an argument up in <u>Function Editor</u> वि वि
Ctrl+Down	Move an argument down in <u>Function Editor</u> 239
Ctrl+I	Start incremental search 964

# Query Data and Execute Script (fixed and default)

F9	Execute query/script
Alt+F9	Execute selected only
Ctrl+Alt+F9	Execute under cursor
Ctrl+Alt+F2	Reset execution point (Query Data only)
Shift+Ctrl+ <dig< td=""><td>gToggle bookmark #<digit></digit></td></dig<>	gToggle bookmark # <digit></digit>
it >	
Ctrl+ <digit></digit>	Go to bookmark # <digit></digit>
Ctrl+Q,N	Go to next bookmark
Ctrl+Q,P	Go to previous bookmark
F2	Drop marker to current position
Esc	Collect marker (jump back)

Shift+Esc Swap marker to current position Ctrl+Z; Undo Alt+BkSp *Shift+Ctrl+Z*; Redo Shift+Alt+BkSp Search for text using the Find Text and dialog Ctrl+F Ctrl+R Replace text using the Replace Text [973] dialog F3 Search next Ctrl+I Start incremental search Alt+G Go to line number (an input number dialog prompts for the number) Ctrl+L Load a script from an external file Ctrl+S Load the script to an external file *Shift+Ctrl+F* Format the SQL text using SQL Formatter Alt+<symbol> Switch to the query with <&symbol> in its name (Query Data only) Ctrl+J Insert a keyboard template 953 Ctrl+D Toggle query results display mode (at the Edit tab or at a separate one) *Ctrl+Alt+Left* Switch to the next tab of <u>Query Data</u> 415 Ctrl+Alt+Right Switch to the previous tab of Query Data 415 Ctrl+Alt+PgUp Switch to the last tab of Ouery Data 41引 Ctrl+Alt+PqDo Switch to the first tab of Query Data 415 wn Ctrl+Q,S Move cursor to beginning of line Ctrl+Q,D Move cursor to end of line Ctrl+Q,R Move cursor to absolute beginning Ctrl+Q,C Move cursor to absolute end Ctrl+O,N Normal selection mode Ctrl+0,L Line selection mode Ctrl+0,C Column selection mode *Shift+Ctrl+LeftSelect* the previous word *Shift+Ctrl+RighSelect* the next word t Shift+Home Select text to the beginning of the line Shift+End Select text to the end of the line Shift+PageUp Select one page up Shift+PageDow Select one page down Shift+Ctrl+Pag Select text to the first line on the page eUp Shift+Ctrl+Pag Select text to the last line on the page eDown *Shift+Ctrl+Ho* Select text to the absolute beginning тe Shift+Ctrl+End Select text to the absolute end Shift+Alt+Left Select column symbol-by-symbol to the left Shift+Alt+RightSelect column symbol-by-symbol to the right *Shift+Alt+Up* Select column upwards Shift+Alt+Dow Select column downwards n Shift+Ctrl+Alt+Select column word-by-word to the left Left Shift+Ctrl+Alt+Select column word-by-word to the right Riaht Shift+Alt+Hom Select column to the beginning of line *Shift+Alt+End* Select column to the end of line Shift+Alt+Page Select column to the beginning of the page

Up Shift+Alt+Page Select column to the end of the page Down Shift+Ctrl+Alt+Select column from the current cursor position to the beginning of the first Home line Shift+Ctrl+Alt+Select column from the current cursor position to the beginning of the last End line Ctrl+Up Scroll up one line with cursor position unchanged Ctrl+Down Scroll down one line with cursor position unchanged Alt+Down, Toggle case of a current word Alt+Up Ctrl+Alt+Up Toggle case to upper of a current selection or char Ctrl+Alt+Down Toggle case to lower of a current selection or char Ctrl+G+T Toggle folding *Ctrl+G,Ctrl+F* Collapse block at current line *Ctrl+G,Ctrl+E* Expand block at current line *Ctrl+G,Ctrl+C* Collapse/Expand block at current line Ctrl+G,Ctrl+M Collapse all blocks in the text *Ctrl+G,Ctrl+P* Expand all blocks in the text Ctrl+= Collapse/expand the nearest block Shift+Ctrl+B Jump to matching bracket (change range side) Shift+Ctrl+I Indent selected block *Shift+Ctrl+U;* Unindent selected block Shift+Tab Ctrl+/ Comment/uncomment selected block Show code completion Ctrl+Space Ctrl+Alt+SpaceShow character map Ctrl+Shift+Spa Show code parameters ce Ctrl+Alt+O Show columns Ctrl+Alt+T Show tables Ctrl+Alt+V Show views Show functions Ctrl+Alt+U Ctrl+Alt+J Show domains Ctrl+Alt+G Show triggers Ctrl+Alt+X Show indices Ctrl+Alt+S Show sequences Ctrl+Alt+M Show composite types Ctrl+Alt+E Show enum types Ctrl+Alt+Y Show base types Ctrl+Alt+A Show aggregates Show operators Ctrl+Alt+O Ctrl+Alt+N Show collations Show languages 321 Ctrl+Alt+L Ctrl+Alt+P Show tablespaces 318 Ctrl+C; Copy selection to Clipboard Ctrl+Ins Ctrl+X; Cut selection to Clipboard Shift+Del Ctrl+V; Paste Clipboard to current position Shift+Ins Delete from cursor to the next word Ctrl+Del Ctrl+BkSp Delete from cursor to the end of the previous word Delete from cursor to the beginning of the line Ctrl+B Shift+Ctrl+Y Delete from cursor to the end of the line

Ctrl+Y	Delete the current line
Ctrl+M;	Break line at current position, move caret to a new line
Enter;	
Shift+Enter	
Ctrl+Alt+I	Insert Tab char
Shift+Ctrl+R	Start macro recording
Shift+Ctrl+P	Play macro
Alt+End	Skip misprint
Ctrl+Alt+End	Skip all misprints
Alt+Home	Correct all misprints
F5	Toggle breakpoint
Shift+F5	Enable breakpoint

#### Print Data View

Ctrl+0	Load a printing report from a file
Ctrl+S	Save the report to file
Ctrl+P	Open the <u>Print 506</u> dialog
Ctrl+Home	Go to the first page
Ctrl+Up	Go to the previous page
Ctrl+Down	Go to the next page
Ctrl+End	Go to the last page
Ctrl+D	Open <u>Report Formatter</u> 490ो
Ctrl+\	Zoom 100%
Ctrl+0	Zoom page width
Ctrl+1	Whole page
Ctrl+2	Two pages
Ctrl+4	Four pages
Ctrl+W	Widen to source width
Ctrl+M	Show/hide margins
Ctrl+K	Set background color for the report

# Working with windows, menus and tabs

Ctrl+Tab	Switch to the next tab 59
Ctrl+Alt-0	Open Windows List 987
Ctrl+Alt+D	Set defaults to all windows
Ctrl+F6	Switch to the previous window
F6	Switch to the next window
Ctrl+W	Close the active window
Ctrl+Down	Expand a collapsed menu
Ctrl+W	Close the active window
Ctrl+Down	Expand a collapsed menu
Ctrl+Shift+N	Move to the next $\frac{\text{tab}}{15}$ in DB Explorer
Ctrl+Shift+P	Move to the previous $\frac{\text{tab}}{15}$ in DB Explorer



# 15 How to...

The succeeding pages of this chapter are intended to provide you with brief instructions on how to perform this or that operation correctly using SQL Manager for PostgreSQL.

#### Work with databases

Connect to a database from Create a database from Edit database connection parameters from Make work with a database faster from Design a visual database structure from View an ER diagram from Create a database copy from Document a database from Save metadata reports to file from Log database changes from Get an SQL dump from Synchronize two databases from

# Work with database objects

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# Work with data

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## Work with queries and scripts

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## Work with version control

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Create a simple report in Report Designer 1043 Transfer program settings 1050 Update SQL Manager 1051 Report bugs and suggestions 1052

# 15.1 Work with Databases

# 15.1.1 Connect to a database

If you want to connect to a database that has not been registered yet then perform the following operations:

- 1. Launch the <u>Register Database wizard</u> by selecting the **Database |**  Register **Database...** main menu item.
- 2. If a host where the database is located has not been registered yet then type in its name in the **Host name** field on the <u>first step</u> of the wizard. Otherwise, select the necessary host from the drop-down list. If needed you can set <u>Tunneling parameters</u> [93] as well.

**Note:** To register several databases at once uncheck the **Register a single database** option. In this case you will proceed to the <u>Selecting databases</u> [103] step of the wizard where you are to define databases you want to be registered.

- 3. On the <u>last step</u>  $10^{\circ}$  of the wizard set database name and specify specific options.
- 4. The registered database(s) is/are now displayed in the <u>DB Explorer</u> (65). To connect to the database double-click its alias or select the **Connect to Database** item of the database context menu [54].
### 15.1.2 Create a database

To create a database on the registered server perform the following operations:

- 1. Launch the <u>Create Database wizard</u> by selecting **Database** | **Create Database** main menu item.
- 2. On the <u>first step</u> specify a name for a newly created database.
- 3. On the <u>second step</u>[91] set the necessary **connection properties** for the database being created. Use the corresponding boxes and options: *Host name, Port, User name* and *Password*. If needed you can set <u>Tunneling parameters</u>[93] as well.
- 4. If you want your newly created database to contain data of another database then select it from the *Template* drop-down list situated on the <u>Setting advanced database</u> <u>properties</u> step. There you can also specify such properties as *Encoding*, *Owner*, *Default tablespace* and *Connection limit*.
- 5. On the last step [97] view the result SQL statement. If you have checked the  **Register After Creating** box on the <u>first step of the wizard</u> [90] then the <u>Database</u> <u>Registration Info</u> [109] dialog will appear after creating a new database.

### 15.1.3 Edit database connection parameters

If you have made a mistake when <u>creating</u> [89] or <u>registering</u> [98] a database or the information provided is incomplete then it can be edited using the <u>Database Registration</u> <u>Info</u> [109] dialog. You can view this information both for connected or disconnected database.

To open the dialog, select the database or any of its objects in the <u>DB Explorer</u> (65) tree, then select the **Database | Catabase Registration Info...** main menu item, or rightclick the database alias in <u>DB Explorer</u> (65) and use the **Catabase Registration Info...** context menu item.

The connection parameters can be changed on the **Connections** tab of the dialog. Here you can define or redefine the following properties in the corresponding boxes: *Server* name, User name, Password, Database name, Database alias and Font charset.

## 15.1.4 Make work with a database faster

If your database contains too many objects or if connection to the database is slow you can increase work speed by uncheking the  $\boxed{\mathbb{Z}}$  Refresh objects on connection option when registering database or editing the Database Registration Info

# 15.1.5 Design a visual database structure

To design your database visually you may use the <u>Database Designer</u>  $r_2 d$ . It allows you to create, edit and drop tables and table columns, set relations between tables and perform other operations you may need to achieve your purpose. All new objects are displayed on a diagram.

# 15.1.6 View an ER diagram

The relationship diagram is built using the <u>reverse engineering</u> 736 operation.

- To view an ER diagram of a scheme you should follow the steps:
- 1. Run <u>Database Designer</u> 720;
- 2. Click the **equation** Reverse Engineer button on the main toolbar or use the corresponding item of the <u>context menu</u> 728.
- 3. Choose schemas to reverse engineer from.

The created diagram can be saved as a \*.pgd file (**J** Save Diagram button) or as an image (**Save as Picture** button).

# 15.1.7 Create a database copy

In order to create a copy of the whole database or of separate objects you can:

- 1. Extract DB objects structure and data into SQL script using the Extract Database Wizard and The result script can be used to copy or restore your database.
- 2. Create database backups with the help of the Backup Database Wizard 808.
- 3. Create copies of separate database objects by using the <u>Duplicate Object Wizard</u> 159.
- 4. Copy 663 the selected database wholly or partially to a new database or to one of the existing databases using the <u>Copy Database Wizard</u> 663.

### 15.1.8 Document a database

There are several ways to document a database:

- 1. You can generate a detailed HTML report of the selected database objects using HTML Report Wizard 686
- 2. You can generate and print metadata [680] reports of any database object(s). Generated reports can be exported to any of the available formats: HTML file, Excel file, Text file, RTF file, CSV file, HTML file, BMP image, Excel table (OLE), JPEG image, TIFF image. 3. You can save the Database Designer diagram as a \*.pgd file for future use. If
- necessary, you can also save the diagram as an image.

# 15.1.9 Save metadata reports to file

To save a metadata report in a file of any supported format (\*.*txt*, \*.*csv*, \*.*pdf*, \*.*html*) you should do the following:

- 1. Open the Print Metadata 📾 window by selecting the **Tools |** Reference Print Metadata item of the main menu.
- 2. Mark the needed objects and define printing settings and click the Preview button on the <u>navigation bar or toolbar</u> and .
- 3. In the opened Preview window click **Export** and select from the drop-down list the needed file format for report saving. When done, specify file name and location.

# 15.1.10 Log database changes

- If you want to perform metadata changes logging and SQL query logging you need to:
- 1. Check the **Enable log of metadata changes** and specify the path to the \*.sql file to store the metadata logs.
- 2. Check the **I** Enable log of Query Data queries and specify the path to the \*.sql file to store the logs of SQL queries: date/time of query execution, SQL text, execution result or errors (if any).

This can be done in the Database Registration Info | Logs [117] window.

# 15.1.11 Get an SQL dump

To get an SQL dump (an \*.sql file) of your database use the Extract Database Wizard [653] that will extract database objects and/or data to an SQL script, e.g. for backup purposes.

# 15.1.12 Synchronize two databases

The synchronization between two databases can be done with a help of the <u>Compare</u> <u>Databases Wizard</u> [574]. This wizard allows you to compare databases and create a script to deploy changes from one database into another one.

To run the wizard use the **Tools |** 🏟 **Compare Databases...** item of the main menu.

# 15.2 Work with Database Objects

# 15.2.1 Group objects

If you want to group objects you can do it in one of the following ways:

- Using projects (situated in the <u>DB Explorer</u> [65] tree):
  - 1. Click create **New Sub Folder** in the **Projects** folder using the corresponding item of the context menu
  - 2. Define its name and drag-and-drop necessary objects there or use the **Add Object** item of the created folder context menu. Pick the objects to add to folder from the appeared dialog.
- Using <u>DB Explorer</u> [65] tabs:
  - 1. Right-click the necessary object in the DB Explorer [65].
  - 2. Choose the **New Tab from Here** item of the <u>object context menu</u> and define the name of the tab.
  - 3. Now your objects are stored on the separate tab of a <u>DB Explorer</u> [65]. **Note:** If an object is not a tree node, it cannot be placed on a separate tab.

### 15.2.2 Find objects

In order to search for objects you need you can:

- 1. Call the **Find Object** dialog by right-clicking the **Database** alias, any database object group nodes or objects in the **DB Explorer** tree and select the **Find Object...** <u>context</u> <u>menu</u> [51] item.
- 2. Call the **Find Object** dialog by using the *Ctrl+F* shortcut.
- 3. Type in the first letters in the edit-box of the <u>Search Panel</u>, and the corresponding object will be highlighted in the tree. **Note:** Objects among which the search is performed should be updated and the object node should be expanded.
- 4. Launch the <u>Search in Metadata</u> 714 tool by selecting the **Tools | Search in Metadata** <u>main menu</u> filtem, or using the *Ctrl+Alt+F* <u>shortcut</u> from. After the search is complete, the **Explorer** group on the <u>Navigation bar</u> 715 displays the tree of database objects in which the search string is found, and allows you to view metadata of the required object or its fragment.

# 15.2.3 View dependecies

If you want to view all the object dependencies then: 1. Use a <u>dependencies tab and in the Table Editor</u> [177].

- 2. Use the Dependency Tree 638 tool.

These tools may be useful when you can't find an object that prevents your from dropping a table.

# 15.2.4 Get an object DDL

In order to get an object DDL you can:

- 1. Right-click the object in the <u>DB explorer</u> (65) tree and select the **Script to New Query Data | Create** context menu item.
- 2. Right-click the object and select the **Edit Table <table\_name>...** context menu item or double-click the table and then proceed to the DDL tab in the opened table editor window.
- 3. Right-click the object in the <u>DB explorer</u> [65] tree and select the **Data Manipulation** | **Export Data as SQL Script** context menu item.

# 15.3 Work with Data

### 15.3.1 View tables with many records

If your table contains a lot of records you can minimize dataset loading time by:

- 1. Setting the number of records to be selected;
- 2. Enabling 
  Load visible records in order to load only a fixed number of dataset records into memory

These options can be set only for the selected database on the <u>Data Options</u> 124 page of the <u>Database Registration Info</u> 108.

Default settings for newly registered databases can be defined on the <u>Grid | Data Options</u> [912] page of the <u>Environment Options</u> [871] dialog.

# 15.3.2 Set data filter

#### Quick Filtering (by the current value in a cell)

Open the context menu of the needed column and choose the **Quick Filter** item. Then choose a <u>filter condition</u> [463] in the opened submenu.

### **Filtering by Column**



Open the drop-down list on the column title and choose a filter condition from the list. You can set advanced conditions by using the **Custom...** menu item. When choosing this item, the special window for setting filter conditions [522] opens.

#### **Advanced Filtering**

You can set advanced filter options by pressing the button  $\square$  on the <u>toolbar</u> 454 of the Data View and set filter parameters in the <u>Filter Builder</u> 524. Apply the set conditions by pressing the **Apply** button.

If a filter is set for a table, the special bar appears in the lower part of the table where you can see filter conditions and the history of filter changes opened by pressing the drop-down list.



#### **Disable Filtering**

To cancel filtering, open the context menu of the column and choose the **Disable filter** item.

Or press the 🗾 button on the filter toolbar.

### 15.3.3 Sort and group data

In order to *sort* data, do the following:

- 1. Open data at the **Data** or **Results** tab.
- 2. Choose the column by which you need to sort data and click the column title.
- 3. If the column was not sorted, the first click will sort it in the ascending order and the second one in the descending order.

**Note:** To cancel the sorting, open the context menu by right-clicking the necessary column and choose the **Clear Sorting** item, or press the *Ctrl* button and click the column title.

To enable grouping, drag the column title to the special grouping car above the table.

HIRE_DATE	
EMP_ID	]

**Note:** To disable grouping, drag the column title from the group bar back to the table.

### 15.3.4 Export/import data

You can *export* data from a database table into an external <u>file of any supported format</u> [983] by means of the <u>Export Data Wizard</u> िउले. There are several ways to launch it:

- 1. Open the **Data** or **Results** tab, press **Export Data** on one of the Data View toolbars
- 2. Open the **Data** or **Results** tab, choose **Data Manipulation | Export Data** in the <u>Data</u> <u>Grid context menu</u>
- 3. Open the <u>table context menu</u> [57] in the <u>DB Explorer</u> [65], choose the **Data Manipulation** [Export Data item.
- 4. Open the **Data** or **Results** tab and use the shortcut **Shift+Ctrl+E**.

You can *import* data from external sources into a table or view using the <u>Import Data</u> Wizard 582:

- 1. Open the **Data** tab, press the **Import Data** button on one of the Data View toolbar 454.
- 2. Open the **Data** tab, choose **Data Manipulation | Import Data** in the <u>Data Grid context</u> <u>menu</u><sup>466</sup>].
- 3. Open the <u>table context menu</u> [57] in the <u>DB Explorer</u> [65], choose the **Import Data** item.
- 4. Open the **Data** tab and use the shortcut **Ctrl+I**.

**Note:** Export and import data tools are available in full version of SQL Manager for PostgreSQL only.

### 15.3.5 Export data as SQL script

You can export data from a database table into SQL script with INSERT INTO statements in one of the following ways:

- 1. Open the **Data** or **Results** tab, press the **Export Data as SQL Script** on one of the **Data View** toolbars 454 and set export parameters in the opened Export as SQL Script Wizard 608.
- 2. Open the **Data** or **Results** tab, choose **Data Manipulation** | **Export Data as SQL Script** in the <u>Data Grid context menu</u> [466] and set export parameters in the opened <u>Export as SQL Script Wizard</u> [608].
- 3. Open the <u>table context menu</u> [57] in the <u>DB Explorer</u> [65], choose the **Data Manipulation** | **Export Data as SQL Script** item and set export parameters in the opened <u>Export</u> as SQL Script Wizard [66].

**Note:** In order to extract table DDL (CREATE TABLE statement), check the  $\blacksquare$  Add CREATE TABLE statement box at the <u>Step 1</u> [610].

## 15.3.6 Edit data of master-detail tables

You can work with data in multi-level mode, that is you can view and modify it in several related tables simultaneously.

To manage grid levels, right-click the grid and select the **Grid Levels** <u>context menu</u> (466) group. Click **Add Grid Level** in the menu to run the <u>Create Grid Level wizard</u> (469). After the level is added you can edit data of the related tables.

### 15.3.7 Add image to table

- If you want to add an image to a table then do the following:
- 1. Open the table on the Data tab.
- 2. Go to the BLOB View section (the navigation buttons are located in the bottom part of the window) and then proceed to the Image tab.
- 3. If there are several BLOB columns, choose the required column from the Select BLOB Column drop-down list on the toolbar of the Blob View tab 455 and press the P Load from File button on the same toolbar.
- 4. Choose the needed image file in the appeared dialog.

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**Note:** Adding images to table is possible only if table contains at least one <u>BLOB column</u>  $\overline{1007}$ .

# 15.3.8 Set data display format

To set the format for displaying data open the **Options |** from the <u>main program menu</u> of, proceed to the <u>Color & Formats</u> of tab and define or choose the display format for some <u>data types</u> of in the **Display formats** section.

# 15.4 Work with Queries and Scripts

### 15.4.1 Create SQL statements rapidly

There are two options for creating SQL queries rapidly:

### In the DB Explorer

- 1. Right-click a table in the <u>DB Explorer</u>
- 2. Choose Script to New Query Data context menu item.
- 3. Select the necessary query type.

### In the Visual Design Query

- 1. Open <u>Design Query</u> 431].
- 2. On the **Builder** tab drag an object from the <u>DB Explorer</u> [70] tree to the diagram area.
- 3. Choose necessary columns to include in the query by checking the corresponding box located to the left from the column name in the list, or just by double-clicking it. To include all columns of the table/view, check the box located to the left of the table/ view caption.
- 4. <u>Associate two objects</u> [436] by their columns. Drag a column from one object list to another. This will set a link between these objects by the selected columns. It is indicated by a bidirectional arrow between the linked columns.
- 5. <u>Edit link properties</u> [436]. Double-click the linking arrow or right-click it and select the **Property** popup menu item. The **Link properties** dialog allows you to change the association condition by choosing it from the drop-down list.
- 6. You can view and edit your SQL statement on the Edit tab of the Design Query 431.

### 15.4.2 Control a query productivity

You can view a query productivity on the <u>query plan</u> [422]. It allows you to view the sequence of actions performed by the database server in the process of the query execution, and the amount of system resources used for the query execution. To view the **Plan** of a query, open the query in **Query Data** and use the **Bhow estimated execution plan** item of the <u>Navigation bar</u> [416] or <u>toolbar</u> [416]. If necessary, you can specify that the **Plan** tab appears automatically upon query execution in <u>Query Data</u> [415]: select the **Show actual execution plan on query execution** option available within the <u>Tools | Query Data</u> [888] section of the <u>Environment</u> <u>Options</u> [877] dialog.

### 15.4.3 Work with several queries at once

Query Data [415] provides a possibility to open and edit several queries. You can create tabs in the lower part of the **Query Data**, each tab may contain a separate query. There are several ways for creating tabs:

1. Open 📝 Query Data and choose 🖼 Add New Query on one of the toolbars 418.

2. Open **and Choose and Choose Add New Query** in the context menu

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evisting tab		Ē	Add New Query			Ctrl+N
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3. Use the shortcut **Ctrl + N**.

Note: Each tab can be renamed and any query can be added to Favorite Queries 3.

# 15.4.4 Save most frequently used queries

Use the <u>Favorite Queries</u> feature to store your most frequently used SQL queries. To access the list of your favorite queries you can use the **Favorite Queries** node of DB Explorer or create a separate tab for your Favorite queries.

Using the context menu you can create a new Favorite query or edit an existing one using  $\frac{Favorites \ editor}{429}$ , open any of the existing queries in  $\frac{Query \ Data}{415}$  or remove a query if you don't need it any longer.

# 15.4.5 Execute queries with parameters

If you want to use queries with parameters then you should check  $\blacksquare$  **Allow using parameters in query text** option in the Environment Options | Tools<sup>[879]</sup>. This feature allows you to specify different values within a query in a popup dialog<sup>[450]</sup> just before the query execution. Use the colon (':') character before an identifier (e.g. :P1) to specify a parameter within the query.

### 15.4.6 Export query results into file

When executing queries, their results can be displayed on the **Edit** or **Results** tab in the Data View 453.

You can copy data from database tables into an external file of any supported format and in one of the following ways:

- 1. Open the **Data** or **Results** tab, press **Export Data** on one of the Data View toolbars and define export parameters in the opened <u>Data Export Wizard</u> **Sign**.
- 2. Open the **Data** or **Results** tab, choose **Data Manipulation** | **\*\* Export Data** in the Data Grid context menu<sup>466</sup> and define export parameters in the opened Data Export Wizard 536.
- 3. Open the <u>table context menu</u> [57] in the <u>DB Explorer</u> [65], choose the **Export Data** item and define export parameters in the opened <u>Data Export Wizard</u> [536].
- 4. Open the **Data** or **Results** tab and use the shortcut Ctrl+E.

### 15.4.7 Execute scripts

**Execute Script** Add allows you to create, view, edit and execute SQL scripts. To open Execute Script Editor select the **Tools** | **Structure Script...** main menu and item. This tool is intended for work with a great number of SQL statements and with scripts that are stored in files. For instance, you can execute a script directly from a file without loading it to the Editor window. This reduces memory usage. However Execute Script allows just to estimate whether the execution of script statements will be successful, but it does not return query result.

**Note:** To execute SQL scripts you should use <u>Execute Script</u> [646], not <u>Query Data</u> [415]. The latter is intended for creating, editing and executing SQL statements. It also provides a possibility to view query result, perform various operations with it (data import, data export, etc.) and manage transactions.

# 15.4.8 Execute a large SQL script

If you need to execute a large SQL script it's not necessary to load it from file to the <u>Execute Script Editor</u> [646] window as it can take a lot of time. Instead you can execute script directly from \*.*sql*, \*.*zsql* or \*.*txt* file. In order to do this click the **Script from file** button of the <u>Navigation bar and Toolbar</u> [647] in <u>Execute Script editor</u> [646].

# 15.4.9 Make SQL script work faster

In order to make the SQL script work faster, you can disable some functions.

#### Parsing

Choose and disable the **E** Disable Parsing item on <u>one of Execute Script Editor toolbars</u>

#### **Automatic Creation of Hierarchical Text Structure**

Uncheck the **Use code folding** box on the <u>Display</u> [930] tab of the <u>Editor options</u> [925].

#### Syntax Highlight and Quick Code for Aliases

Choose **Options** | **Editor options** in the main menu, proceed to the <u>General</u> [926] tab and uncheck the **Resolve aliases** box - the <u>syntax highlight</u> [933] and <u>quick code</u> [935] for aliases will be disabled.

### 15.4.10 Customize work with query/script text

#### **Using Internal Link**

The name of the object existing on a database is highlighted in a query/script text. You can open such an object by holding the *Ctrl* key and clicking the object with a mouse.

#### Adding Text Template

To add a <u>keyboard template</u> [953], use *Ctrl+J* shortcut.

#### Automatic Completion (Object List)

You can call the autocompletion list by starting to enter the first characters of the text and using the shortcut Ctrl + Space.

#### **Customize Autocompletion List**

Choose **Options** | **Editor options** in the <u>main program menu</u> कि, proceed to the <u>Code</u> <u>Completion</u> (ash tab and define the list and quick code parameters.

#### Automatic Formatting of Query/Script

Choose **Quick Code** | **Format** in the Query Data/Execute Script  $\frac{\text{context menu}}{\text{shift}+Ctrl+F}$  shortcut to apply automatic formatting.

#### Setting Font and Query/Script Format at the Display tab

Choose **Options** | **Editor options** in the <u>main program menu</u> किने, proceed to the <u>Display</u> विजे tab and define common font and format parameters for Query Data/Execute Script.

#### Setting Font and Query/Script Format at the Highlight tab

Choose **Options** | **Editor options** in the <u>main program menu</u> (soft), proceed to the <u>Color</u> <u>Scheme</u> (933) tab and define font options for each element.

**Note:** If some font parameters are defined on the **Highlight** tab, they will be applied to the query/script text and not the ones defined on the **Display** tab.

# 15.4.11 View executed queries and scripts

To view all queries and scripts sent to the server you need to launch <u>SQL Monitor</u> [643]. It will show you the log of database operations and SQL queries as items, each consisting of 3 parts: *Executed* (the date and time of the operation), *Operation* (SQL statement sent to the server), *Result* (the result of the operation).

**Note:** SQL Monitor only displays scripts and queries executed in SQL Manager for PostgreSQL during the current session.

# **15.5 Work with Version Control**

Change management system allows you to:

- Systematization of release database new versions process: storing different database versions; tracking of database changes; Getting (storing, testing) change scripts which reveal differences between two database states.
- Possibility to rollback database to definite state.
- Control of database changes.

When a user of the system makes typical actions, such as getting previous version of a document or creating new version etc., he works with a local copy of repository. As the amount of applied changes grows, repositories of various developers become more different. This results in necessity of synchronization of repositories. Synchronization can be performed by interchange of patches or change sets among developers.

### 15.5.1 Enable version control

To start working with Version Control System (VCS) you need to:

1. Install change management system.

The following systems are supported:

- CVS
- Subversion
- Microsoft Visual SourceSafe
- Team Foundation Server
- 2. Create the directory for **CVS** and **Subversion**, which is a working copy of VCS (version control system) directory.
- 3. Open the <u>Change Management</u> [126] tab of the <u>Database Registration Info</u> [108] dialog to check the **Enabled** flag.
- 4. <u>Create local repository</u> [129] for each database under version control. Press the **Repository Management Wizard** button to open the corresponding <u>wizard</u> [129]. Use this wizard to define settings for linking database to VCS repository. Repository is a directory, where VCS stores all documents with history of its changes and other service information.
- 5. Specify the parameters of the created repository at the <u>Change Management</u> [126] tab of the <u>database registration info</u> [108] dialog, or confirm autocomplete on closing the <u>Repository management wizard</u> [129].
- 6. Confirm the changes and reconnect to the database.

You can view/edit repository connection settings within the **Provider settings** dialog which can be called by pressing the **Properties** button.
### 15.5.2 Create the repository for a database from scratch

If you have just installed Subversion (please note that SQL Manager supports CollabNet Subversion and Slik Subversion only), and you need to create the repository for your database from scratch, please perform the following.

- 1. You need to initialize the SVN server repository. To do this, use native Subversion 'svnadmin' tool which is included into subversion server installation. Please execute the following command: <msg:code>svnadmin create c:\svnstorage\</msg:code> specifying the valid path to the existing empty directory.
- 2. Launch SQL Manager and open the <u>Database Registration Info</u> 108 dialog for the database which you need to add to the SVN. Switch to the <u>Change Management</u> 128 tab and press the <u>Repository Management Wizard</u> 129 button.
- 3. Choose the O Create new repository item and press 'Next'.
- 4. Choose the <sup>(a)</sup> Subversion item and press 'Next'.
- 5. Specify the path to your Subversion server libraries in the **Subversion client libraries path** field (for example: "C:\Program Files\CollabNet Subversion Server\"). If you use the client part only (in case of using a remote SVN server) you need to specify the path to your installed client part (for example: "C:\Program Files\CollabNet Subversion Client\"). Check the ability to load the libraries by clicking the 'Test' button and press 'Next'.
- 6. Specify the path to your server repository in the Server path field as 'file:///c:/ svnrepository/'; specify your working copy directory or any other empty directory where the working copy will be created automatically in the Local path field as 'c:\project\'; specify a name for your database repository in the Repository name field (for example: "mydb"); press 'Next' two times.
- 7. Press the 'Run' button to start the process.
- 8. After the process has finished, press the 'Close' button and then press the 'Yes' button in the popup dialog asking your to apply the settings.
- 9. Press 'OK' to apply the Version Control settings and close the <u>Database Registration</u> <u>Info</u> 108 dialog.

### 15.5.3 Rollback to previous revision state

If you want to rollback a database to the state of a previous revision then you need to perform the following actions:

- 1. Right-click database in the <u>DB Explorer</u> (65) and select **Change management | Get Change Script** item from the popup menu or select the **Tools | Change Management | Get Change Script** in the <u>main program menu</u> (961). <u>Get change script wizard</u> (366) will appear.
- 2. On the <u>second step</u> and check **(a)** Generate differential script in order to generate a script reflecting difference between two database states.
- 3. On the <u>third step</u> [370] specify a date or tag as a script end point so as to define a state to which you want to rollback your database and create a reverse script.
- 4. Execution of this script will rollback your database to the necessary point.

### 15.5.4 View database changes

If you want to view committed database changes you can do it in one of the following ways:

- Using database <u>history</u> 407:
  - 1. Right-click database alias in the <u>DB Explorer</u> and select **Change management | History** item from the popup menu or select the **Tools | Change Management | History** in the <u>main program menu</u> [961].
  - 2. Define the **Period** within the corresponding section. Changes made in this period will be displayed in the working area.
  - 3. At the top of the window you can find a table that displays information about changes made in the specified period. It displays transaction *ID*, *Date* when transaction was made, name of the *User* who made changes and *Comment* to a transaction if any. In the bottom part of the window you can view SQL statement of the selected action.
- Using tags and change script:
  - 1. Right-click database alias in the <u>DB Explorer</u> [65] and select **Change management | Get Change Script** item from the popup menu or select the **Tools | Change Management | Get Change Script** in the <u>main program menu</u> [96]. The <u>Get change</u> <u>script wizard</u> [366] will appear.
  - 2. On the <u>second step</u> and check **(a)** Generate differential script in order to generate a script reflecting difference between two database states.
  - 3. On the <u>third step</u>[370] you may either select <u>tags</u>[348] from the drop-down list to specify two database states to view changes between or pick up dates to define a period of changes.
  - 4. After that a generated change script will show you the differences between two database states.

### 15.5.5 View procedure changes

If you have modified a procedure and want to view committed changes then you need to do the following:

- 1. Right-click this procedure in the <u>DB Explorer</u> [65].
- 2. Select **Change management | History** item from the popup menu. You will see a table of object changes history.
- 3. Select two procedure revisions you need to compare.
- 4. Right-click any of the objects to call the context menu and select the <u>Compare</u> <u>Properties</u>[410] or <u>Compare DDL</u>[411] item to view differences as table of properties or as object script respectively.
- 5. If you are comparing properties then in the window appeared you will see a table containing all procedure properties and its value in compared revisions. Properties with different values are highlighted with grey.
- 6. If you are comparing DDL then in the window appeared you will see DDL of procedures revisions. Extra lines in an early revision script are red, in latter revision grey. Lines for pasting missing lines are yellow and different lines are blue.

### 15.6 Create a simple report in report designer

To create a report using <u>Report Designer</u> गि:

- 1. Select the **Tools | Report Designer** main menu item.
- 2. In the opened **Report Designer** select the **File | New Report** main menu item, or click the **New Report** item of the navigation bar. The following objects will be added to the newly created report: **ReportTitle**, **MasterData** and **PageFooter**.
- 3. <u>Connect to data source</u> 704.
- 4. Add <u>ADOTable</u> 704 or <u>ADOQuery</u> 704 object.
- 5. Link ADOTable 704 or ADOQuery 704 with ADODatabase 704.
- 6. Place database fields Page1. Move the required fields from Data Tree to **Band MasterData**.

## **15.7** Transfer program settings

If you want to apply current program settings (wholly or partially) to SQL Manager for PostgreSQL installed on another machine you can save them into a single *\*.reg* file. This can be done by means of the <u>Save Settings Wizard</u> [945].

Note that [85] Favorite Queries [85] are not saved in this case. To get access to your queries from another machine please store [429] them in the database.

### 15.8 Update SQL Manager

SQL Manager for PostgreSQL can be updated in the following ways:

- 1. Download the SQL Manager for PostgreSQL distribution package from the <u>download</u> page, then extract archive to the preferable directory (e.g. c:\unzipped). Close SQL Manager for PostgreSQL if it's opened <u>and</u> run *PgManagerFull.msi* or *PgManagerLite.msi*.
- 2. Select the **Help** | <u>SQL Manager Direct</u> [995], then press the **Update** button. If new SQL Manager for PostgreSQL version is released it will be offered for downloading. Click Yes in the dialog window to update SQL Manager for PostgreSQL automatically.

### 15.9 Report bugs and suggestions

Before reporting bugs and suggestions make sure you are using the latest version of the SQL Manager for PostgreSQL. If so then you may contact us via Members Area on <a href="https://www.sqlmanager.net/">https://www.sqlmanager.net/</a>, via **Help** main menu or by sending an email to <a href="support@sqlmanager.net">support@sqlmanager.net</a>. Please, don't forget to mention your OS version, PostgreSQL server version and program version. Describe the steps to reproduce the bug in detail and illustrate them with screenshots.

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