Java tools for beginners

Сергей Немчинский, FoxmindEd,
2019

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Что такое

Базы данных и какие они бывают?

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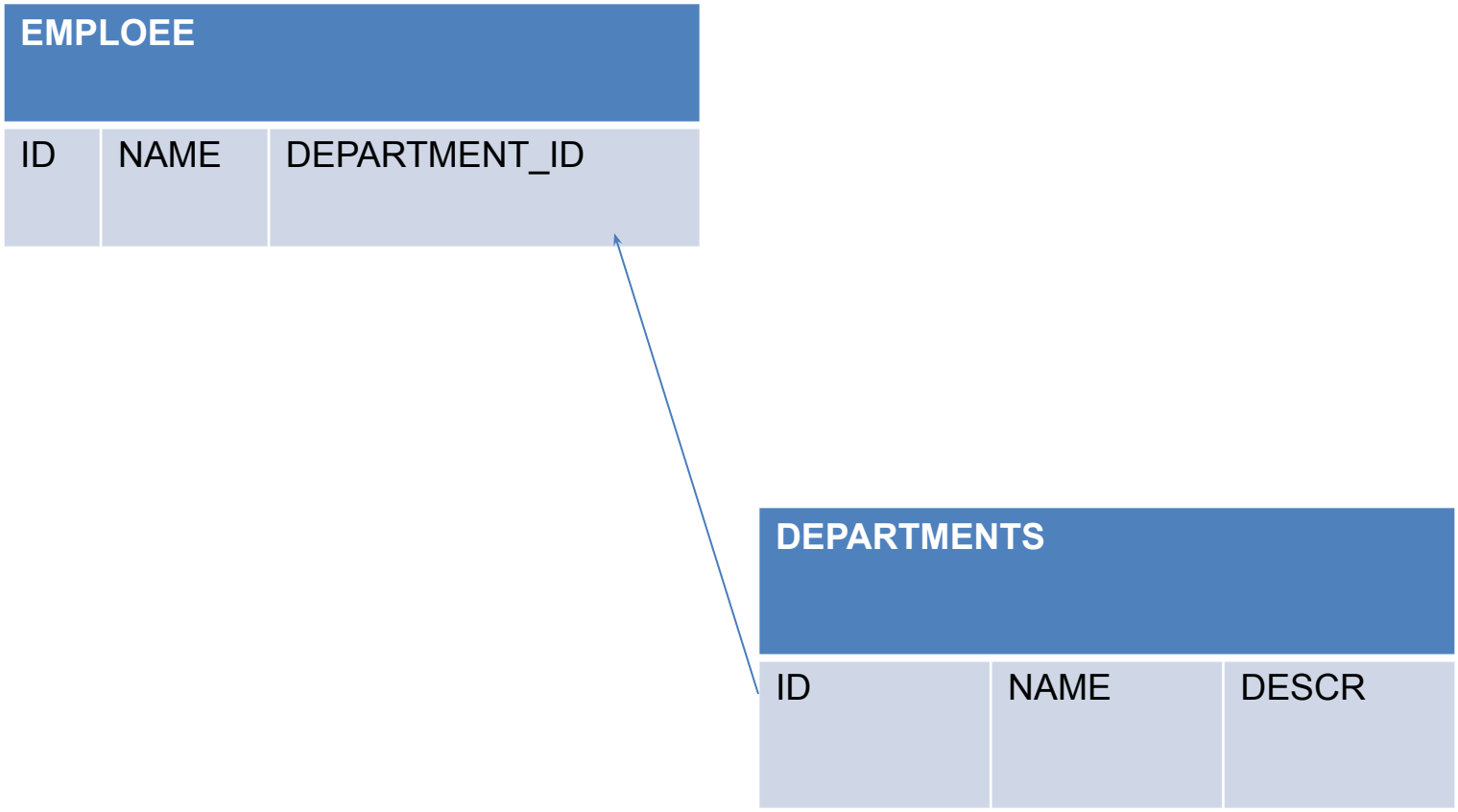
Концепция трех-тирового приложения

Основные понятия

- Реляционные базы данных
- JDBC
- Drivers
- ORM (Object-relational mapping)

Реляционные базы данных



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Практика

Устанавливаем PostgreSQL

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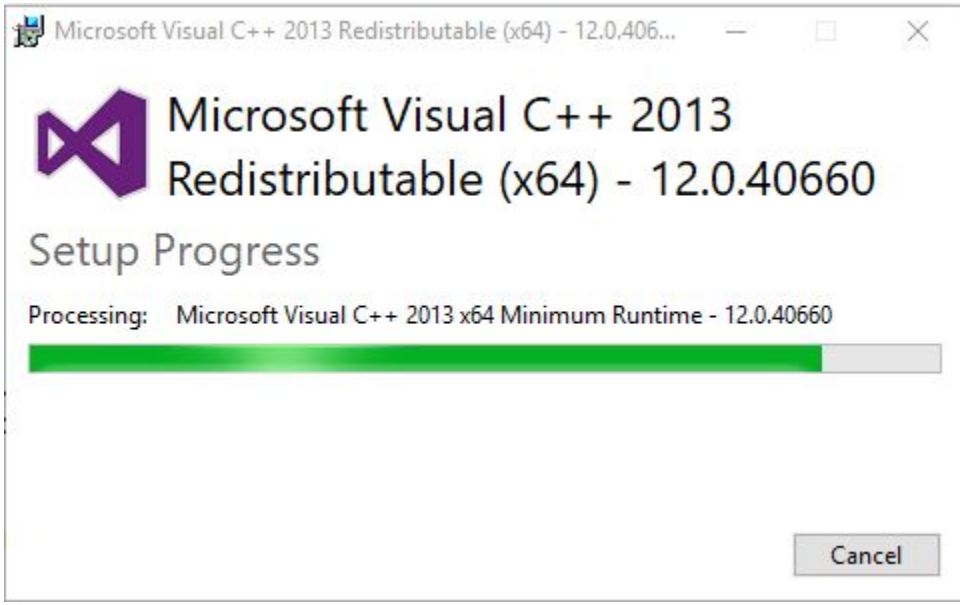
Microsoft Visual C++ 2013 Redistributable (x64) - 12.0.406...
Microsoft Visual C++ 2013 Redistributable (x64) - 12.0.40660
Setup Progress
Processing: Microsoft Visual C++ 2013 x64 Minimum Runtime - 12.0.40660
Cancel

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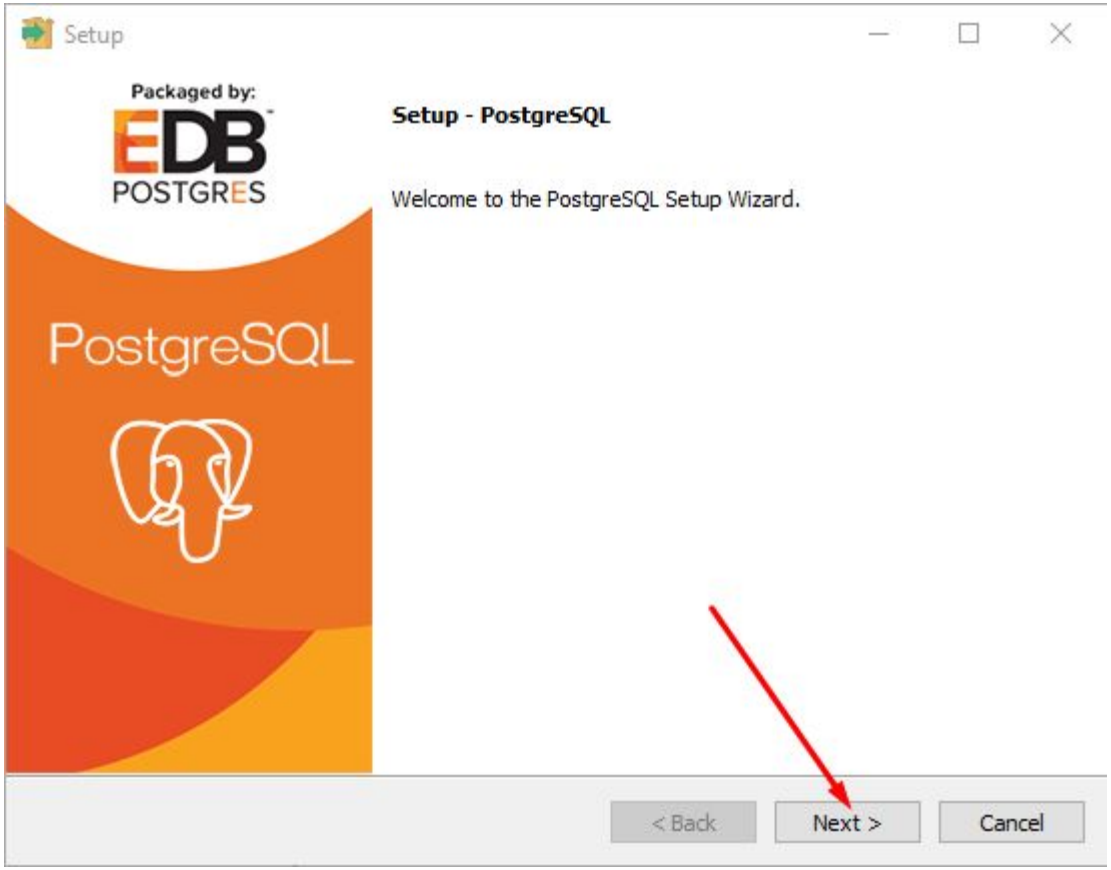
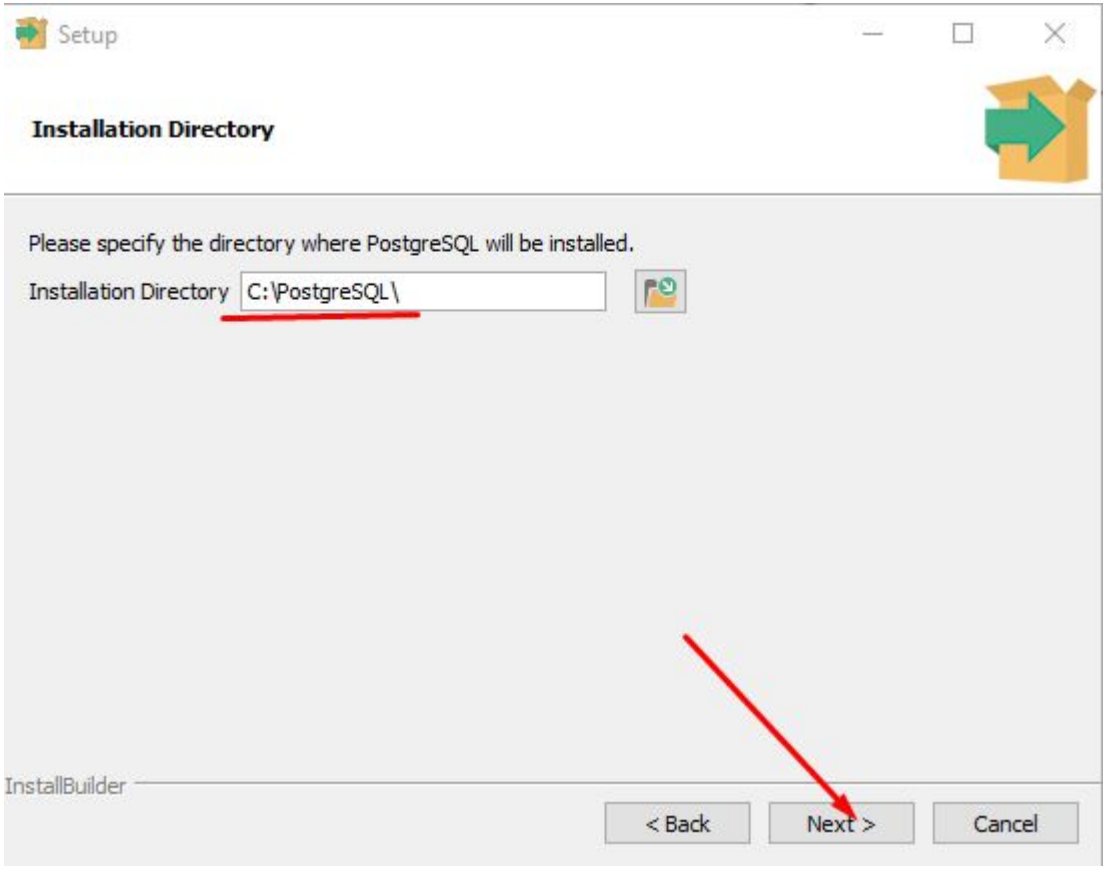

Setup
Packaged by:
EDB
POSTGRES
PostgreSQL
Setup - PostgreSQL
Welcome to the PostgreSQL Setup Wizard.
< Back
Next >
Cancel


Setup
Installation Directory
Please specify the directory where PostgreSQL will be installed.
Installation Directory
C:\PostgreSQL\
InstallBuilder
< Back
Next >
Cancel

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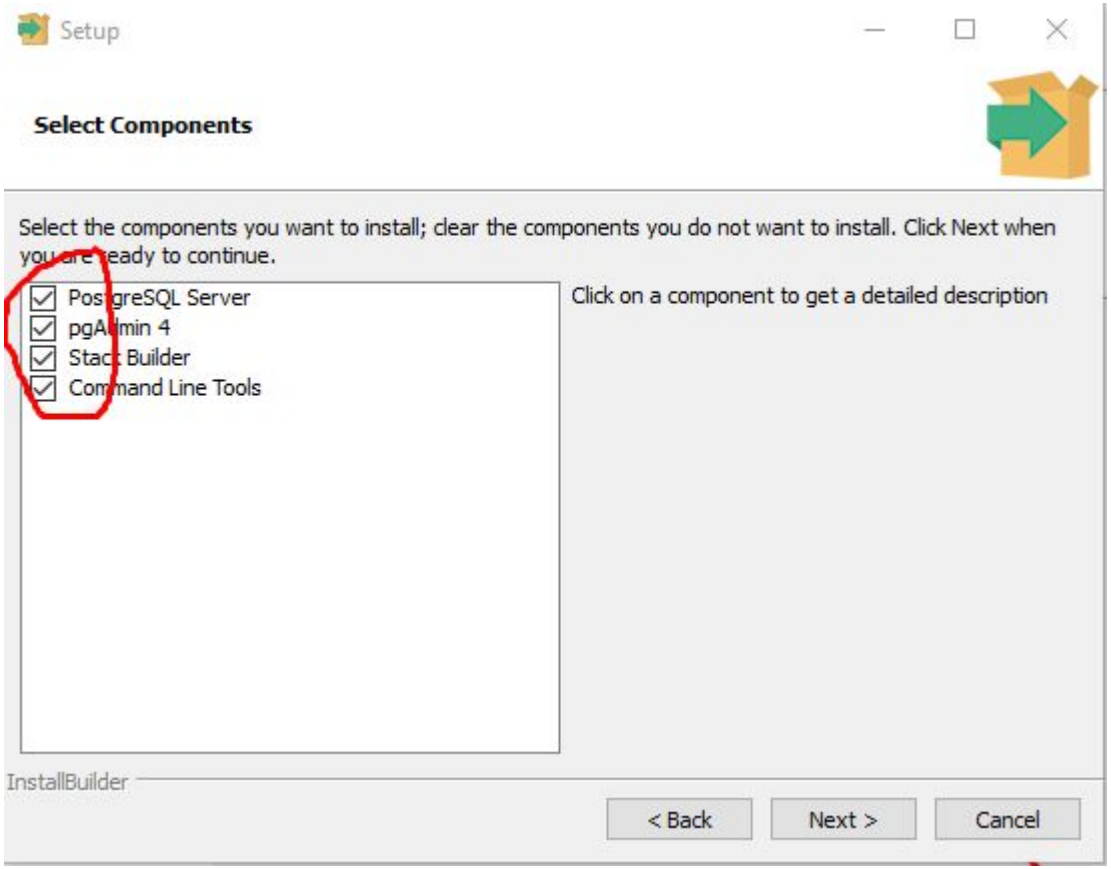
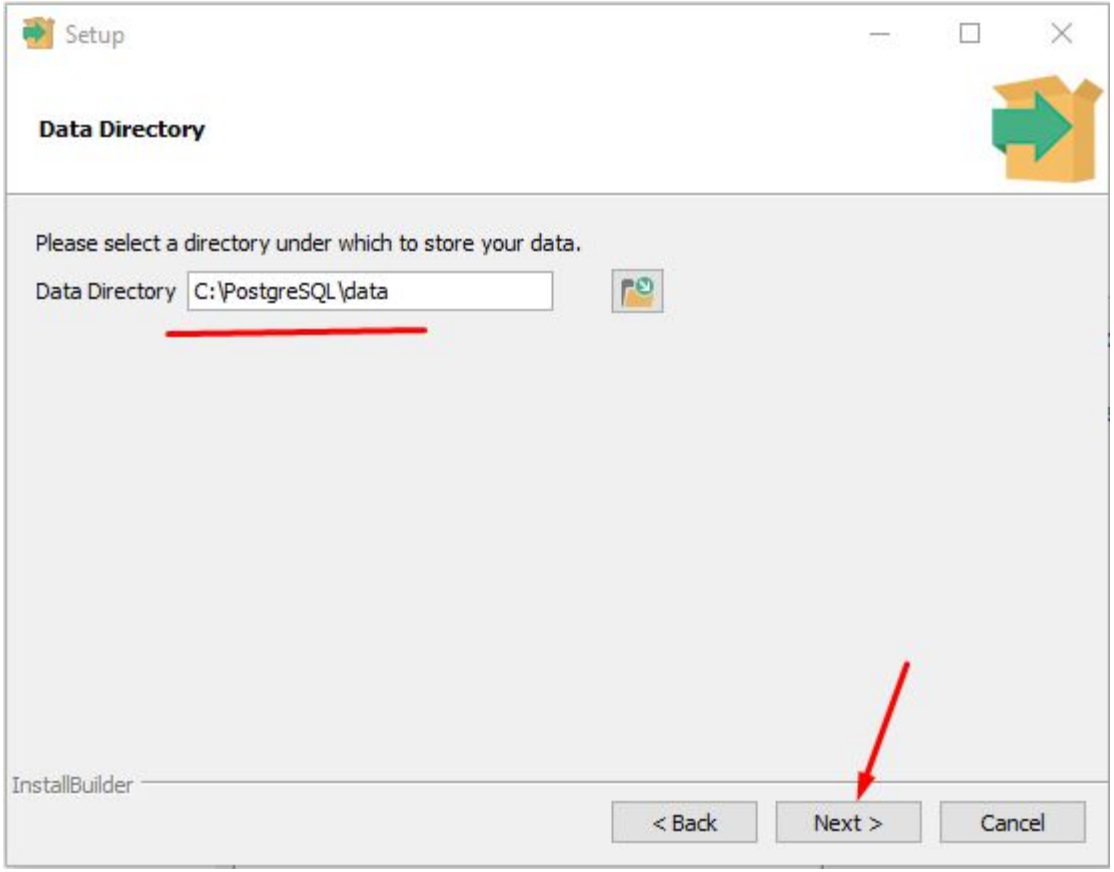

Setup
Select Components
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.
PostgreSQL Server
pgAdmin 4
Stack Builder
Command Line Tools
Click on a component to get a detailed description
InstallBuilder
< Back
Next >
Cancel


Setup
Data Directory
Please select a directory under which to store your data.
Data Directory
C:\PostgreSQL\data
InstallBuilder
< Back
Next >
Cancel

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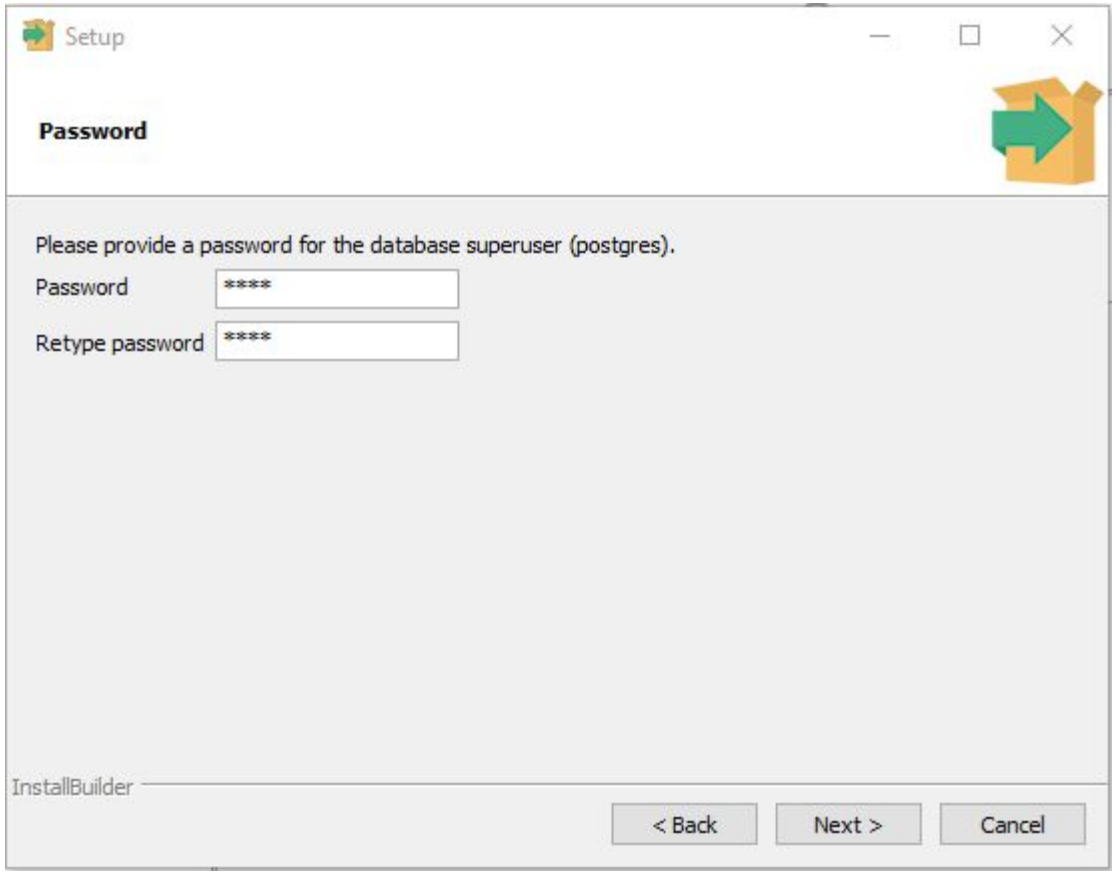
Setup
Password
Please provide a password for the database superuser (postgres).
Password
****
Retype password
****
InstallBuilder
< Back
Next >
Cancel

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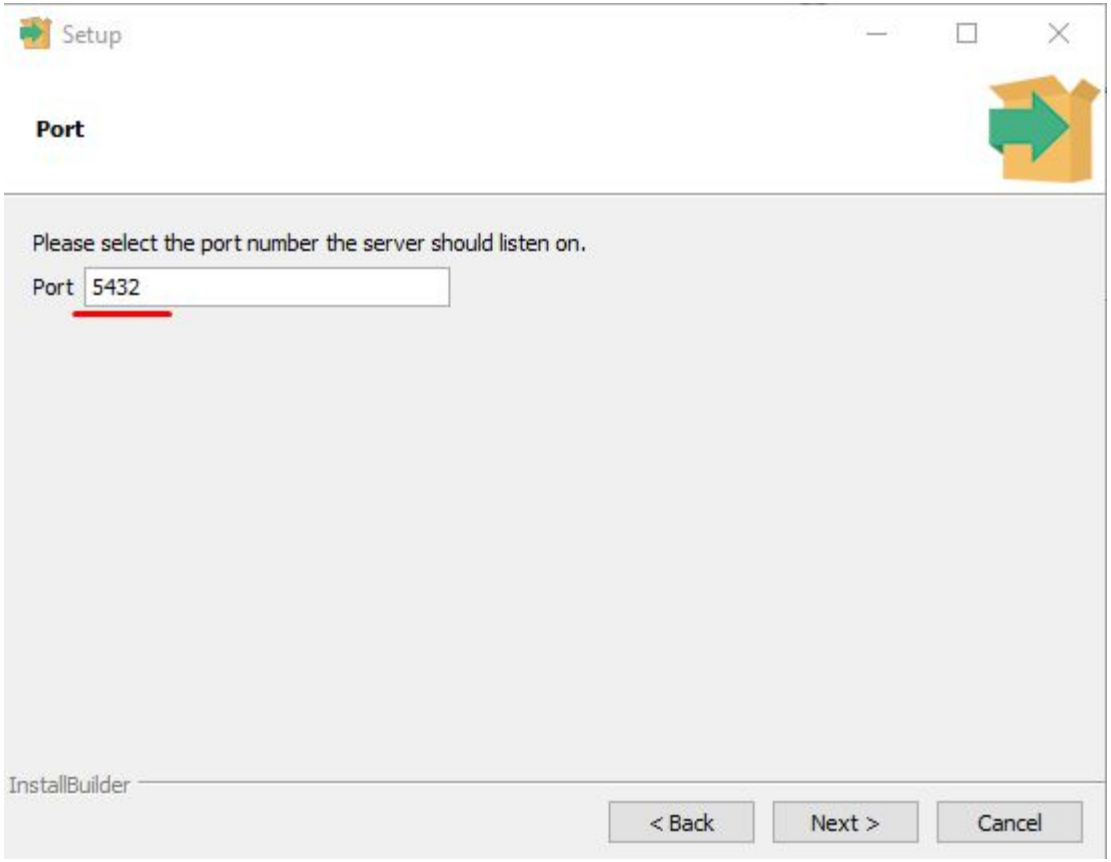
Setup
Port
Please select the port number the server should listen on.
Port
5432
InstallBuilder
< Back
Next >
Cancel

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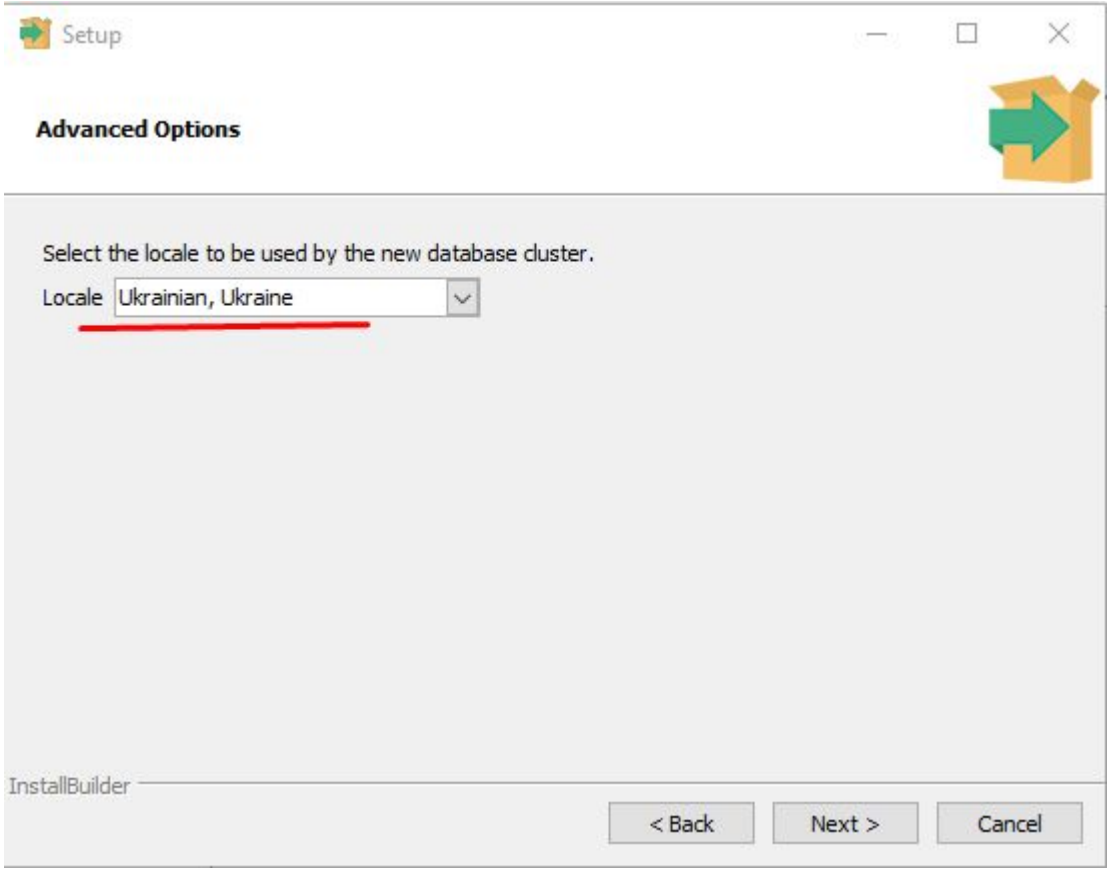
Setup
Advanced Options
Select the locale to be used by the new database cluster.
Locale
Ukrainian, Ukraine
InstallBuilder
< Back
Next >
Cancel

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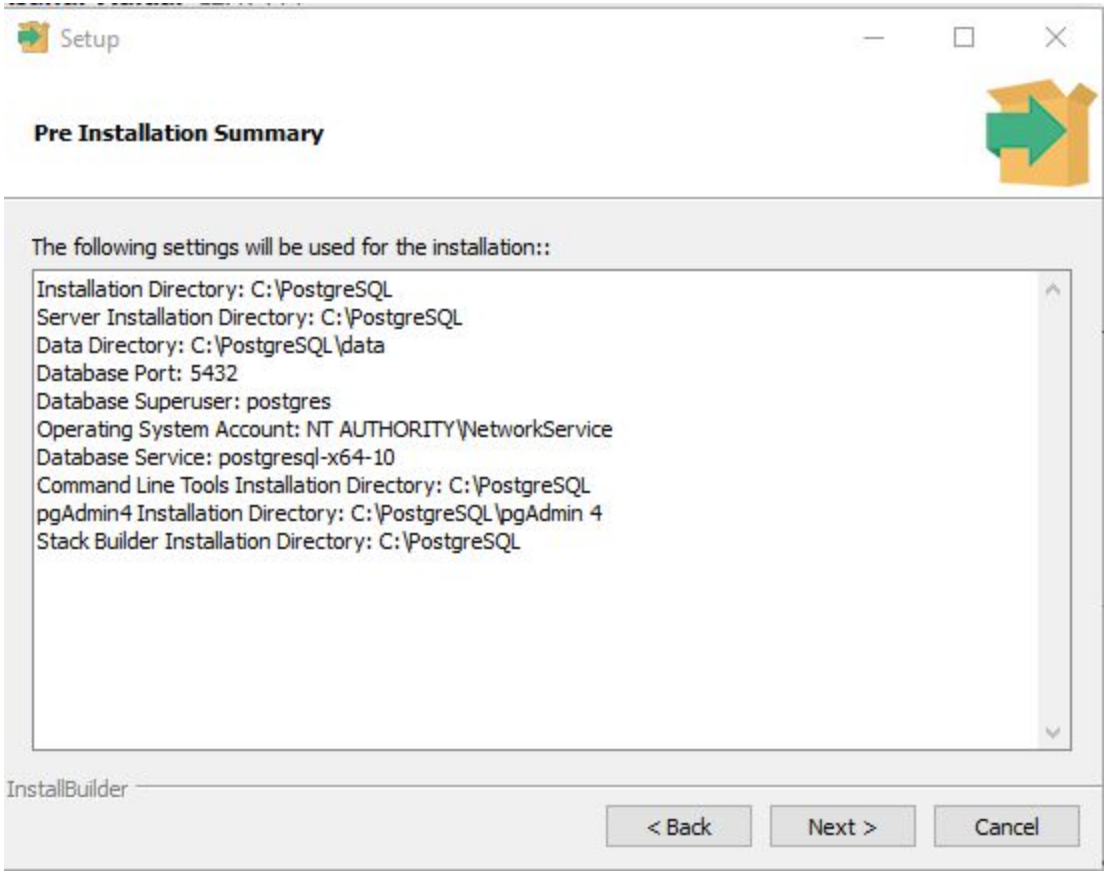
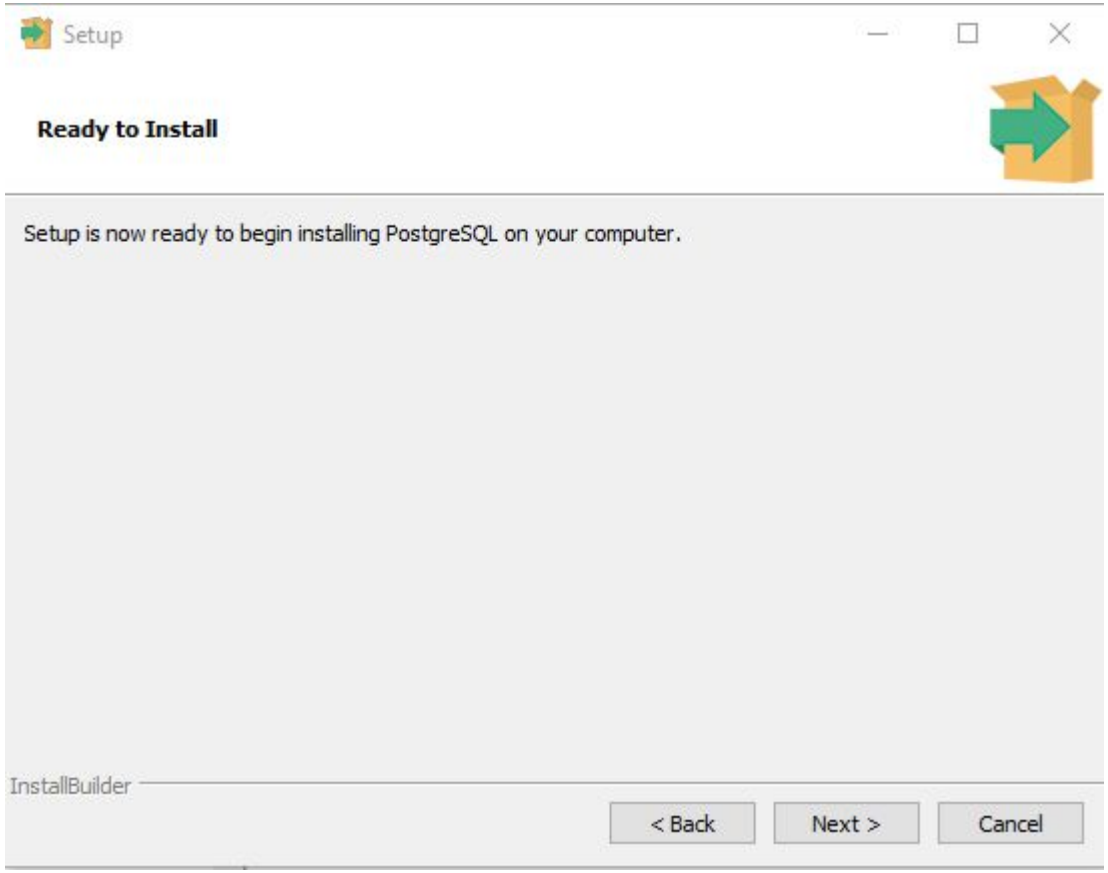

Setup
Pre Installation Summary
The following settings will be used for the installation::
Installation Directory: C:\PostgreSQL
Server Installation Directory: C:\PostgreSQL
Data Directory: C:\PostgreSQL\data
Database Port: 5432
Database Superuser: postgres
Operating System Account: NT AUTHORITY\NetworkService
Database Service: postgresql-x64-10
Command Line Tools Installation Directory: C:\PostgreSQL
pgAdmin4 Installation Directory: C:\PostgreSQL\pgAdmin 4
Stack Builder Installation Directory: C:\PostgreSQL
InstallBuilder
< Back
Next >
Cancel


Setup
Ready to Install
Setup is now ready to begin installing PostgreSQL on your computer.
InstallBuilder
< Back
Next >
Cancel

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Setup
Packaged by:
EDB
POSTGRES
PostgreSQL
Completing the PostgreSQL Setup Wizard
Setup has finished installing PostgreSQL on your computer.
Launch Stack Builder at exit?
Stack Builder may be used to download and install additional tools, drivers and applications to complement your PostgreSQL installation.
< Back
Finish
Cancel

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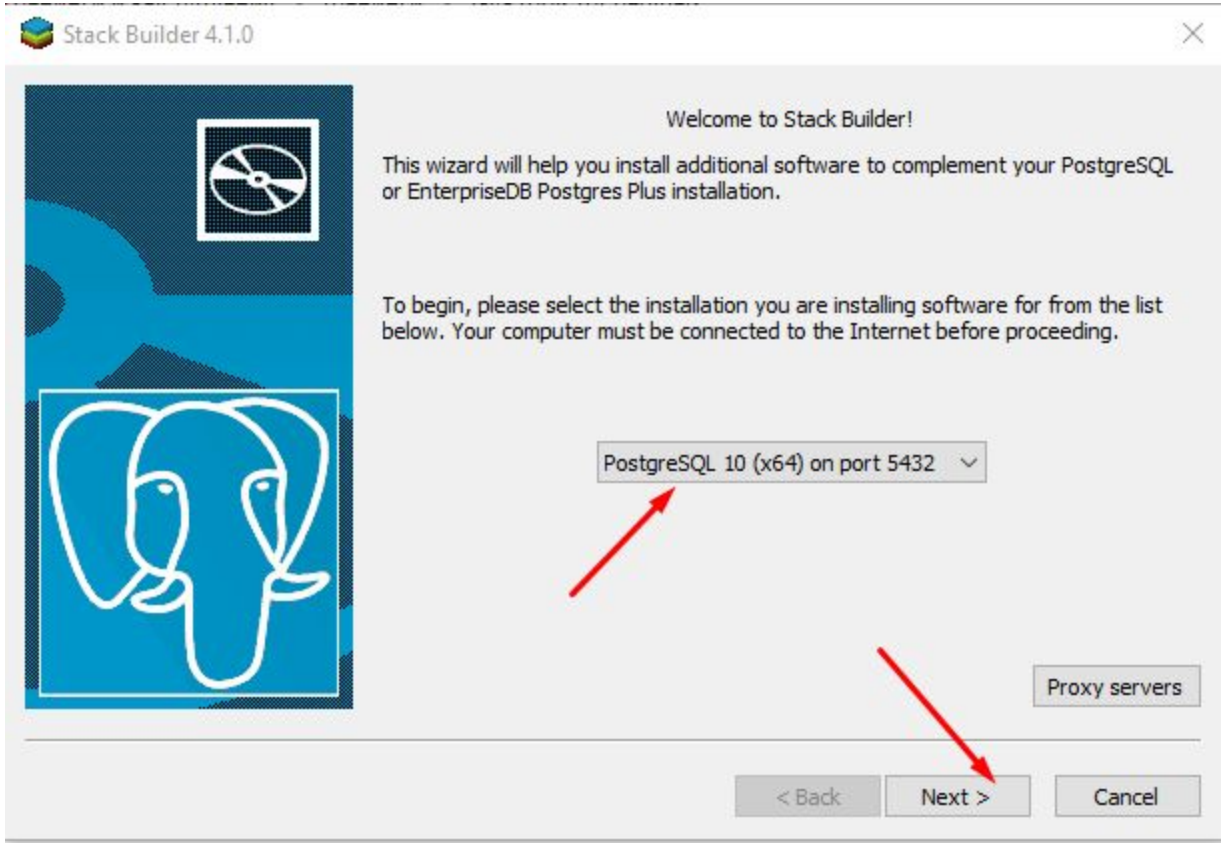
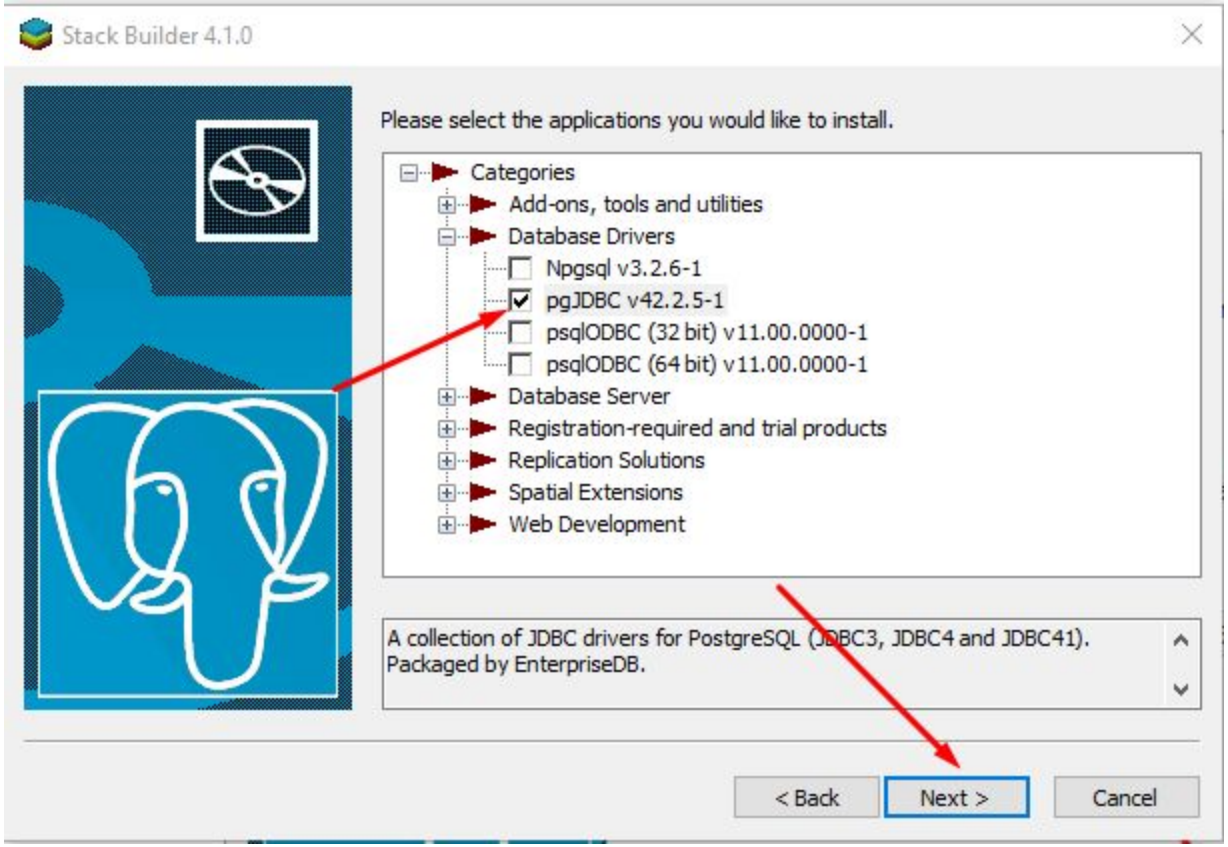
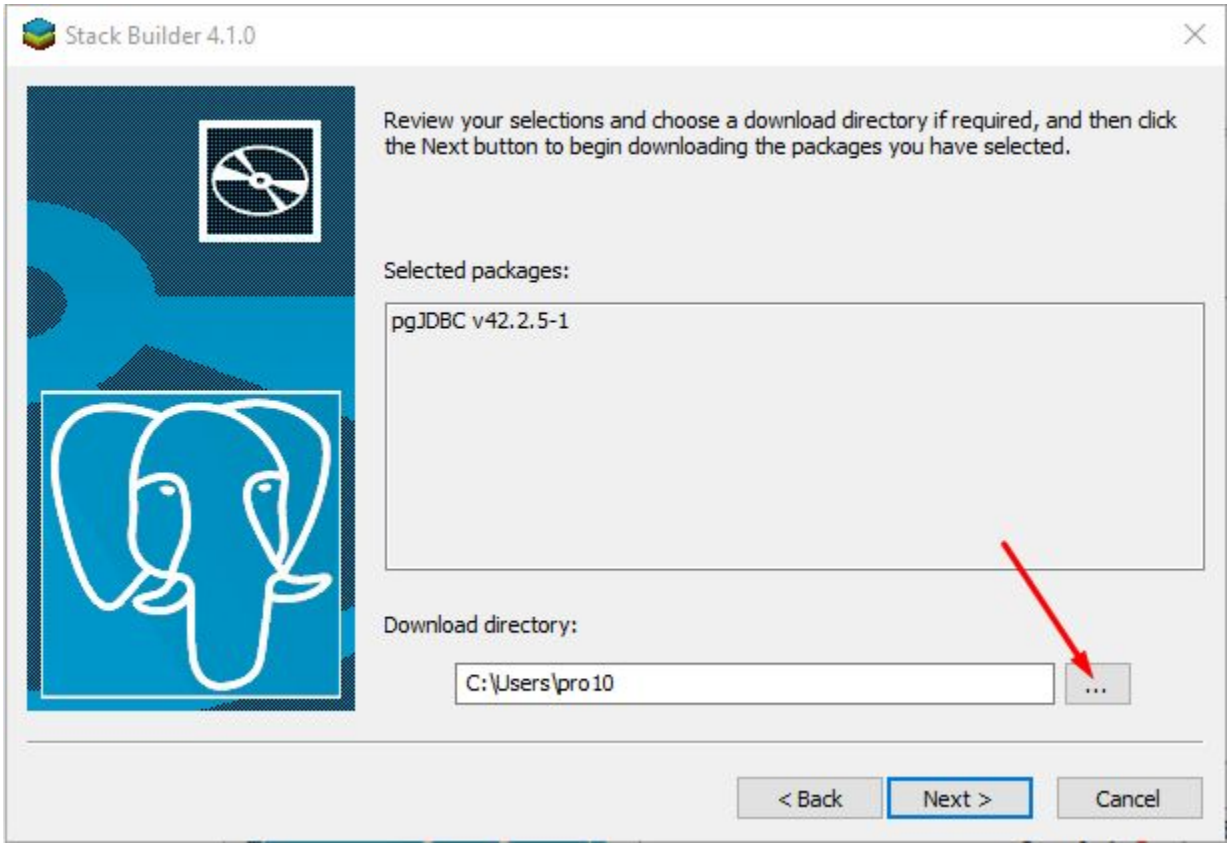
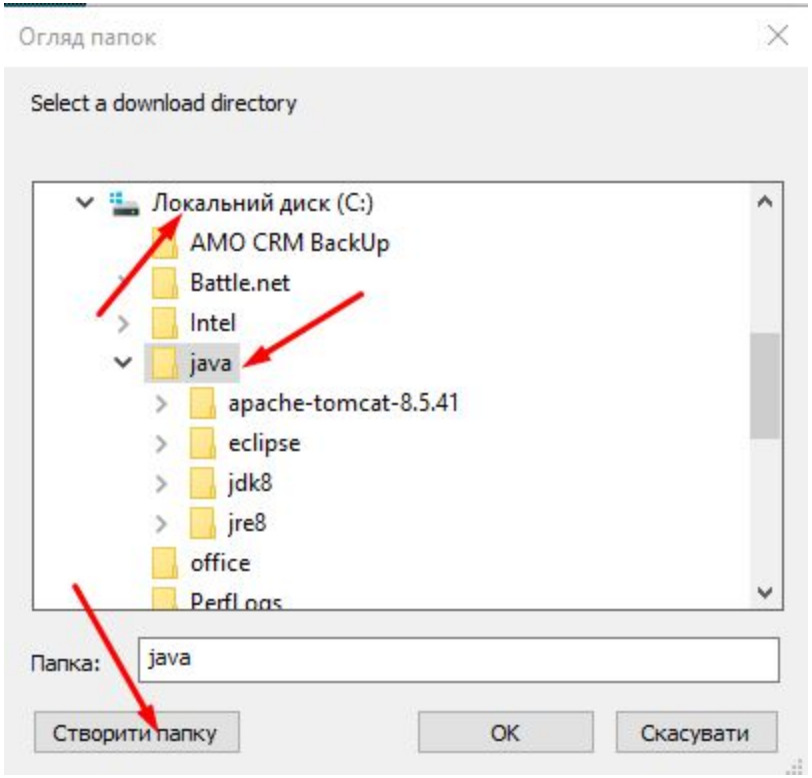
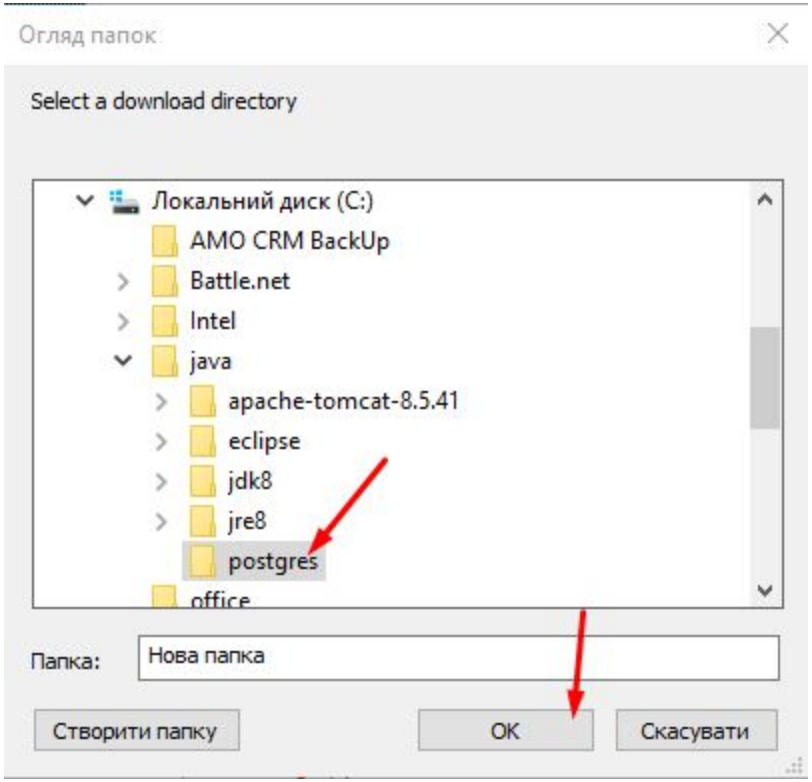
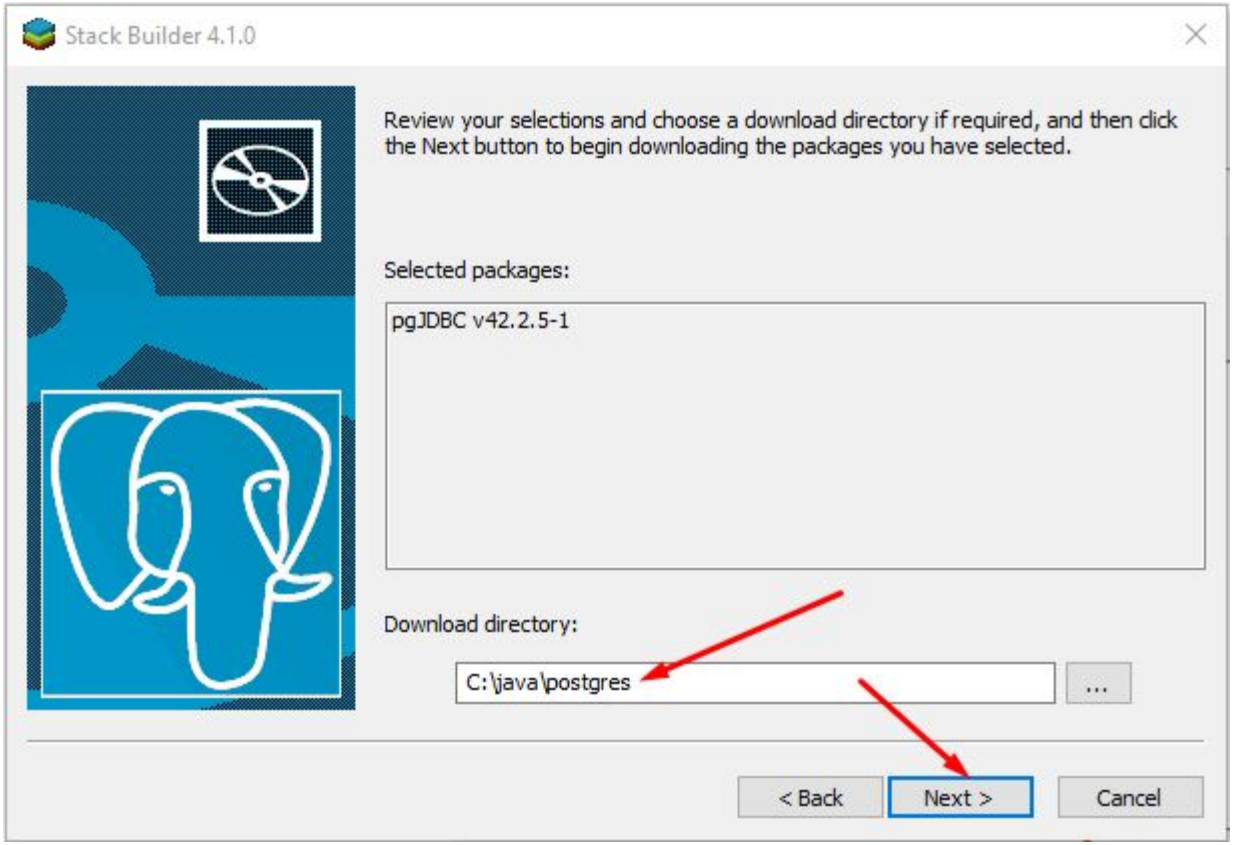

Stack Builder 4.1.0
Welcome to Stack Builder!
This wizard will help you install additional software to complement your PostgreSQL or EnterpriseDB Postgres Plus installation.
To begin, please select the installation you are installing software for from the list below. Your computer must be connected to the Internet before proceeding.
PostgreSQL 10 (x64) on port 5432
Proxy servers
< Back
Next >
Cancel

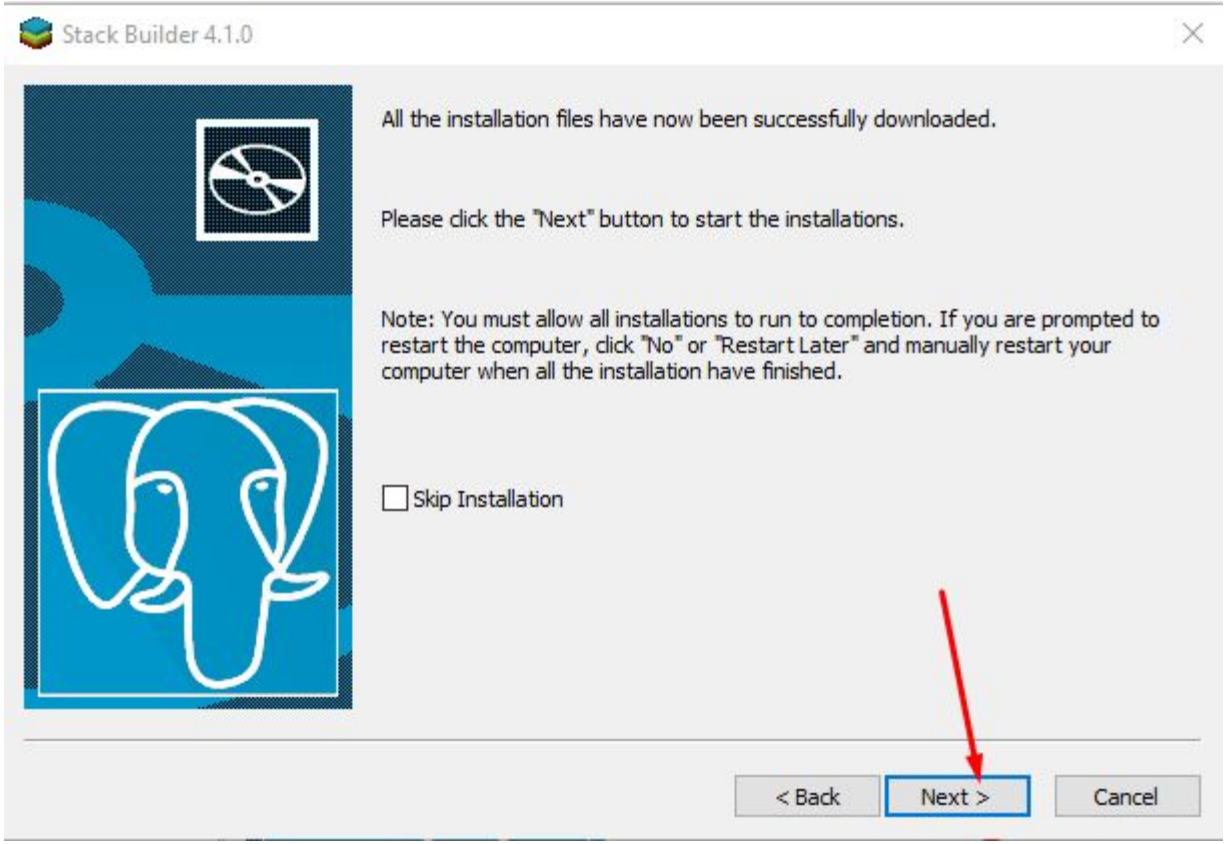

Stack Builder 4.1.0
Please select the applications you would like to install.
Categories
Add-ons, tools and utilities
Database Drivers
Npgsql v3.2.6-1
pgJDBC v42.2.5-1
psqlODBC (32 bit) v11.00.0000-1
psqlODBC (64 bit) v11.00.0000-1
Database Server
Registration-required and trial products
Replication Solutions
Spatial Extensions
Web Development
A collection of JDBC drivers for PostgreSQL (JDBC3, JDBC4 and JDBC41).
Packaged by EnterpriseDB.
< Back
Next >
Cancel

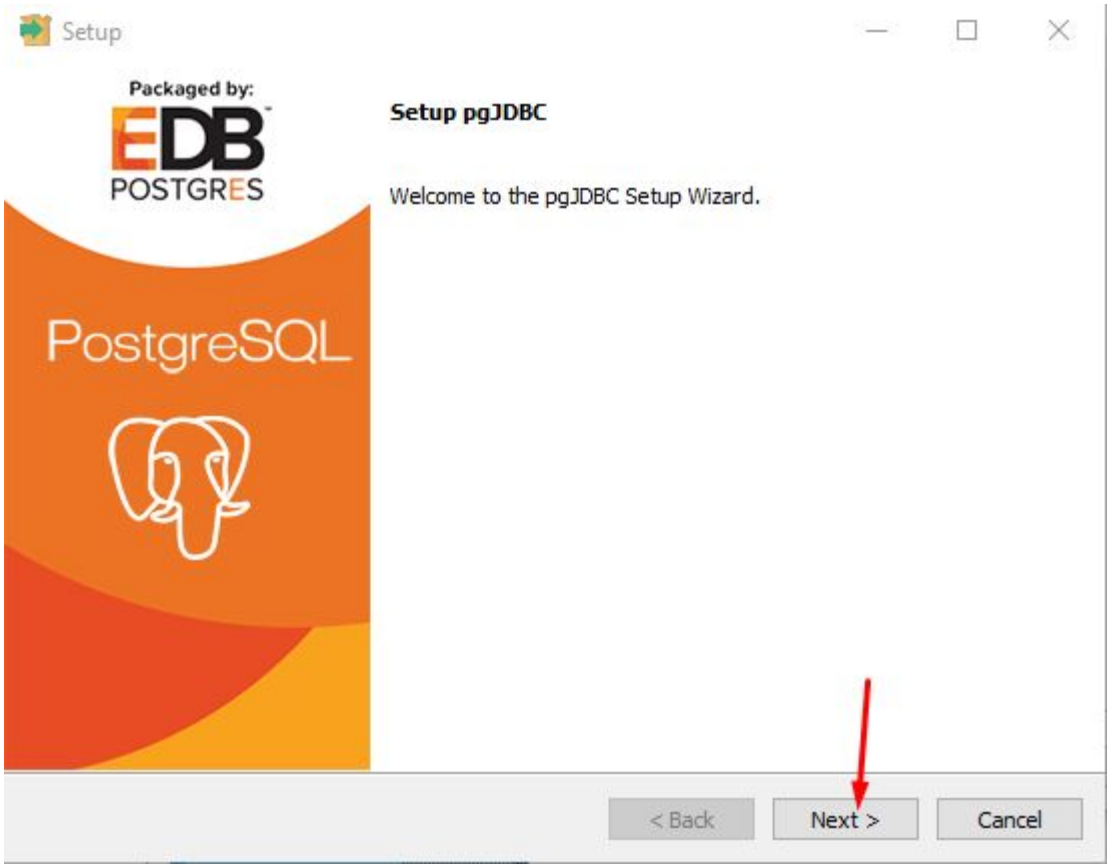

Stack Builder 4.1.0
Review your selections and choose a download directory if required, and then click the Next button to begin downloading the packages you have selected.
Selected packages:
pgJDBC v42.2.5-1
Download directory:
C:\Users\pro10
...
< Back
Next >
Cancel


Огляд папок
Select a download directory
Локальний диск (C:)
AMO CRM BackUp
Battle.net
Intel
java
apache-tomcat-8.5.41
eclipse
jdk8
jre8
office
PerfLogs
Папка:
java
Створити папку
OK
Скасувати


Огляд папок
Select a download directory
Локальний диск (C:)
AMO CRM BackUp
Battle.net
Intel
java
apache-tomcat-8.5.41
eclipse
jdk8
jre8
postgres
office
Папка:
Нова папка
Створити папку
OK
Скасувати


Stack Builder 4.1.0
Review your selections and choose a download directory if required, and then click the Next button to begin downloading the packages you have selected.
Selected packages:
pgJDBC v42.2.5-1
Download directory:
C:\java\postgres
...
< Back
Next >
Cancel


Stack Builder 4.1.0
All the installation files have now been successfully downloaded.
Please click the "Next" button to start the installations.
Note: You must allow all installations to run to completion. If you are prompted to restart the computer, click "No" or "Restart Later" and manually restart your computer when all the installation have finished.
Skip Installation
< Back
Next >
Cancel


Setup
Packaged by:
EDB
POSTGRES
PostgreSQL
Setup pgJDBC
Welcome to the pgJDBC Setup Wizard.
< Back
Next >
Cancel

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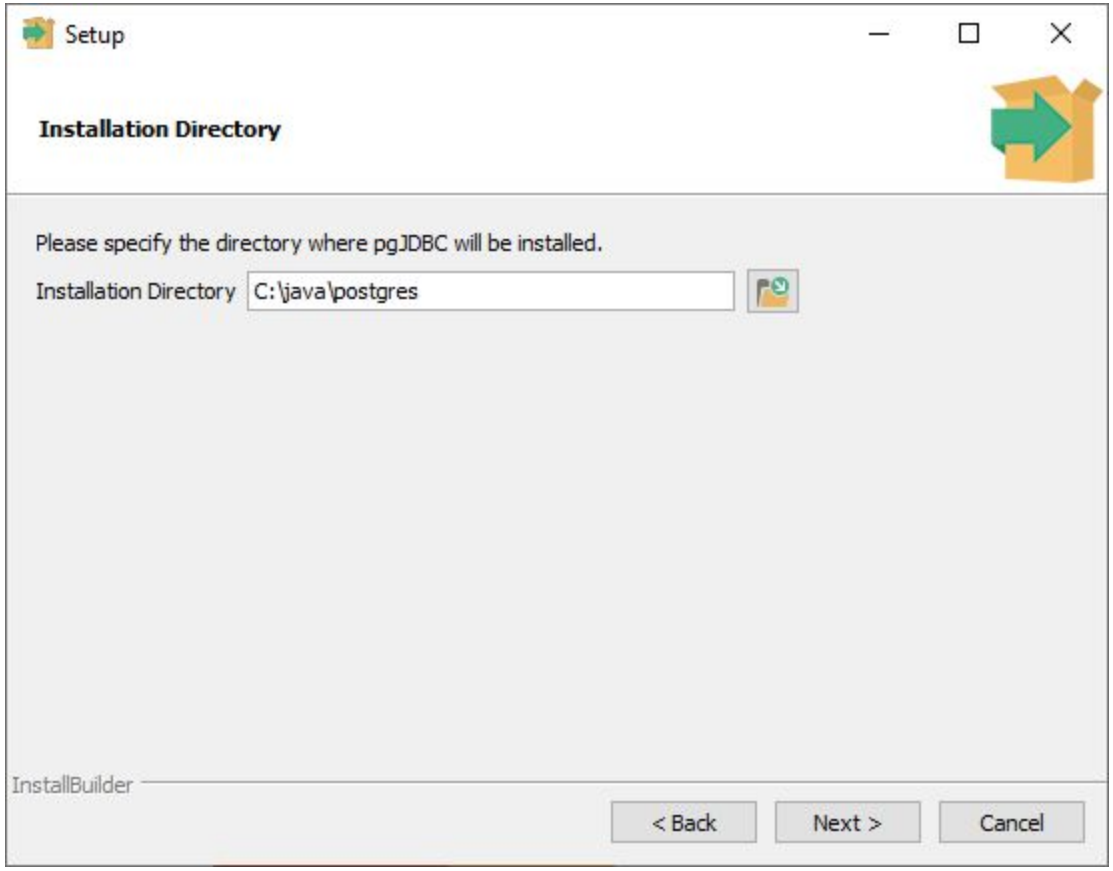
Setup
Installation Directory
Please specify the directory where pgJDBC will be installed.
Installation Directory
C:\java\postgres
InstallBuilder
< Back
Next >
Cancel

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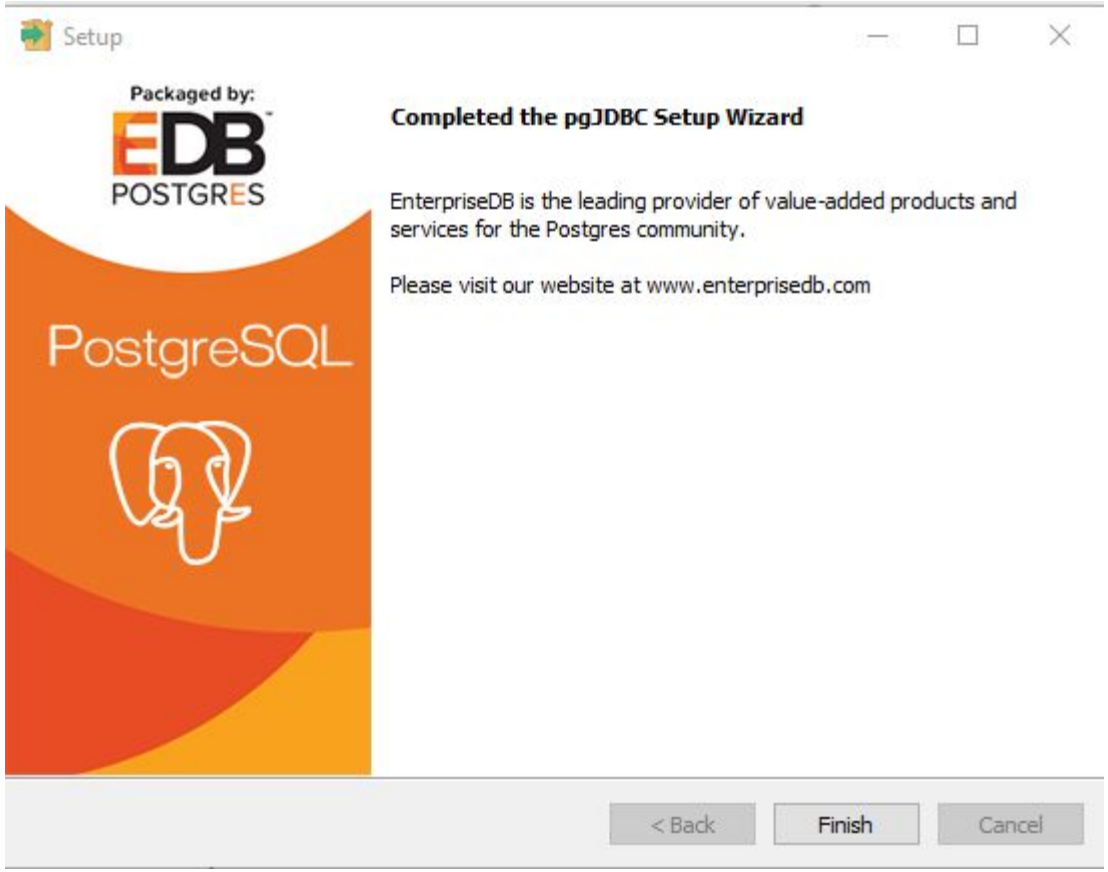
Setup
Packaged by:
EDB
POSTGRES
PostgreSQL
Completed the pgJDBC Setup Wizard
EnterpriseDB is the leading provider of value-added products and services for the Postgres community.
Please visit our website at www.enterprisedb.com
< Back
Finish
Cancel

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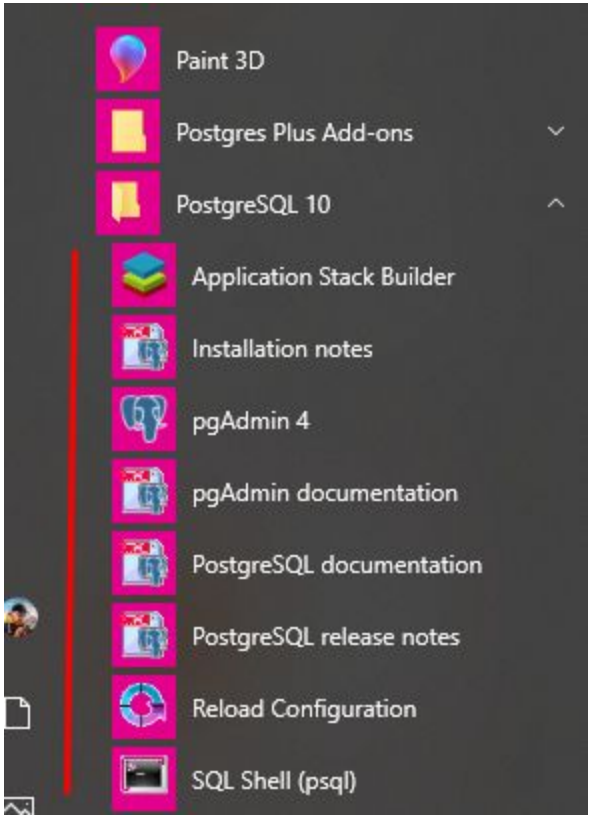
Paint 3D
Postgres Plus Add-ons
PostgreSQL 10
Application Stack Builder
Installation notes
pgAdmin 4
pgAdmin documentation
PostgreSQL documentation
PostgreSQL release notes
Reload Configuration
SQL Shell (psql)

Практика

Изучаем pgAdmin


pgAdmin
Management Tools for PostgreSQL
Starting pgAdmin4 server...

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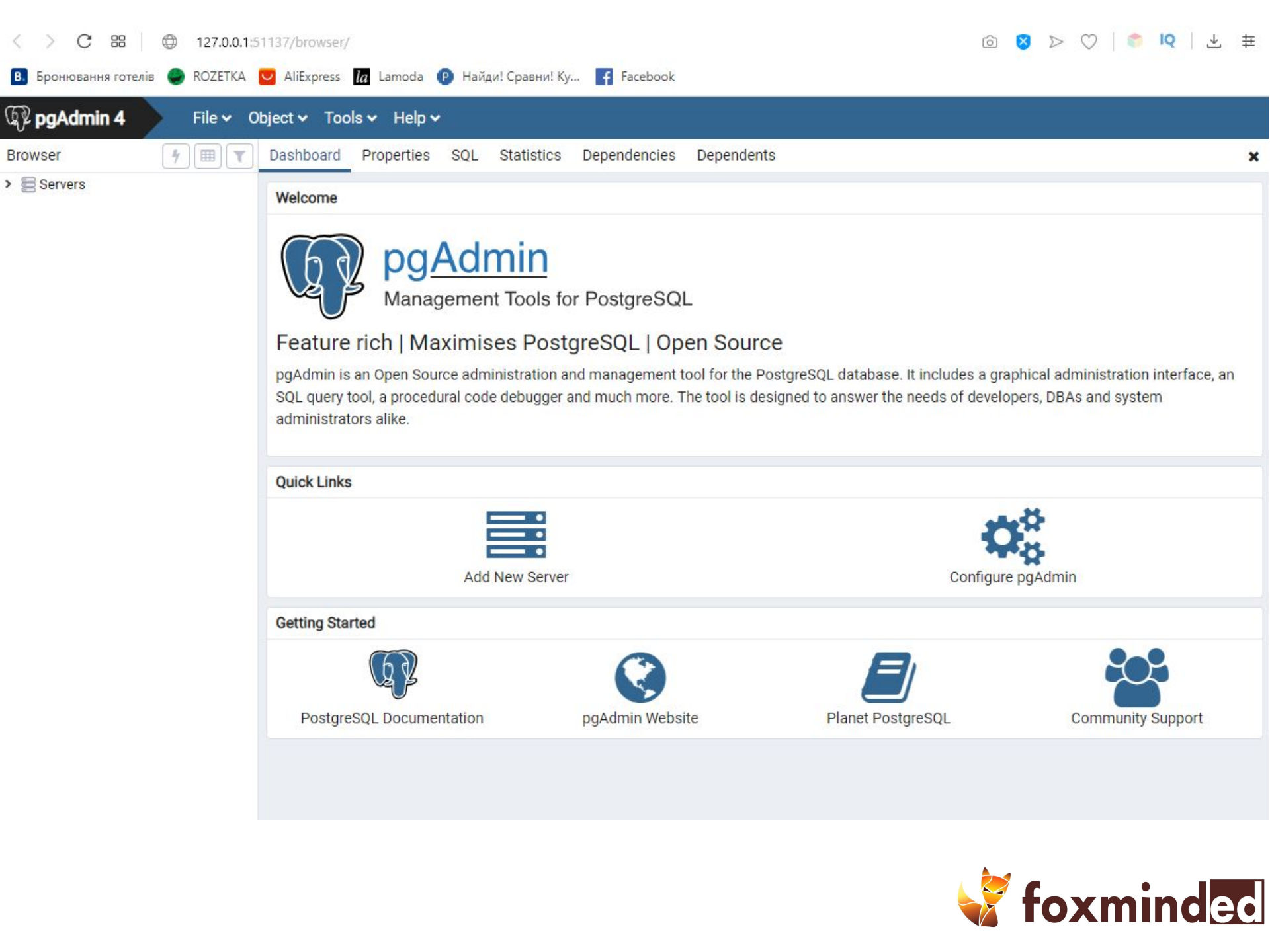
127.0.0.1:51137/browser/
Бронювання готелів
ROZETKA
AliExpress
Lamoda
Найди! Сравни! Ку...
Facebook
pgAdmin 4
File
Object
Tools
Help
Browser
Dashboard
Properties
SQL
Statistics
Dependencies
Dependents
Servers
Welcome
pgAdmin
Management Tools for PostgreSQL
Feature rich | Maximises PostgreSQL | Open Source
pgAdmin is an Open Source administration and management tool for the PostgreSQL database. It includes a graphical administration interface, an SQL query tool, a procedural code debugger and much more. The tool is designed to answer the needs of developers, DBAs and system administrators alike.
Quick Links
Add New Server
Configure pgAdmin
Getting Started
PostgreSQL Documentation
pgAdmin Website
Planet PostgreSQL
Community Support


Connect to Server
Please enter the password for the user 'postgres' to connect the server - "PostgreSQL 10"
Password
Save Password
Cancel
OK

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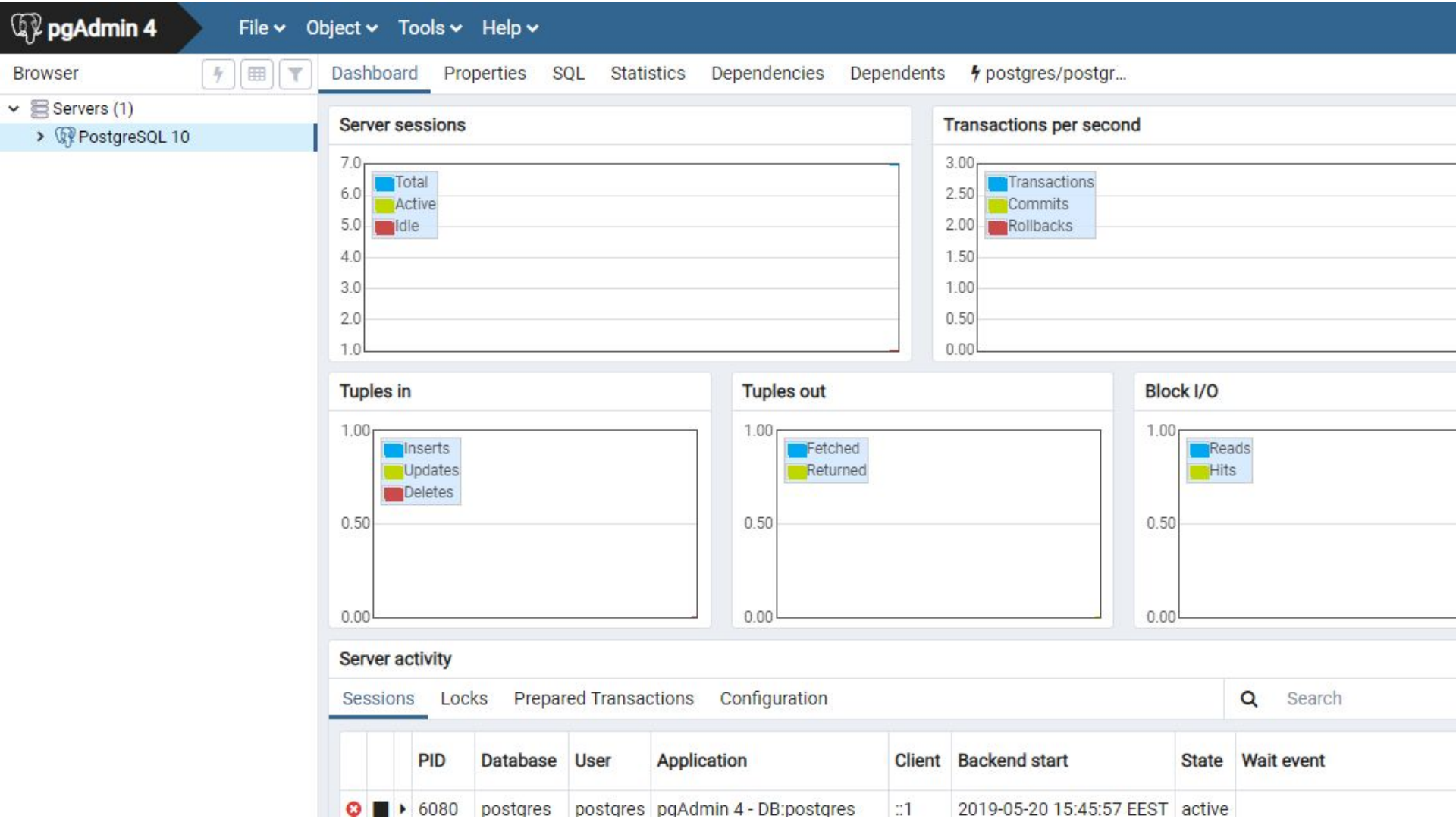
pgAdmin 4
File
Object
Tools
Help
Browser
Servers (1)
PostgreSQL 10
Dashboard
Properties
SQL
Statistics
Dependencies
Dependents
postgres/postgr...
Server sessions
7.0
6.0
5.0
4.0
3.0
2.0
1.0
Total
Active
Idle
Transactions per second
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Transactions
Commits
Rollbacks
Tuples in
1.00
0.50
0.00
Inserts
Updates
Deletes
Tuples out
1.00
0.50
0.00
Fetched
Returned
Block I/O
1.00
0.50
0.00
Reads
Hits
Server activity
Sessions
Locks
Prepared Transactions
Configuration
Search
PID
Database
User
Application
Client
Backend start
State
Wait event
6080
postgres
postgres
pgAdmin 4 - DB:postgres
::1
2019-05-20 15:45:57 EEST
active

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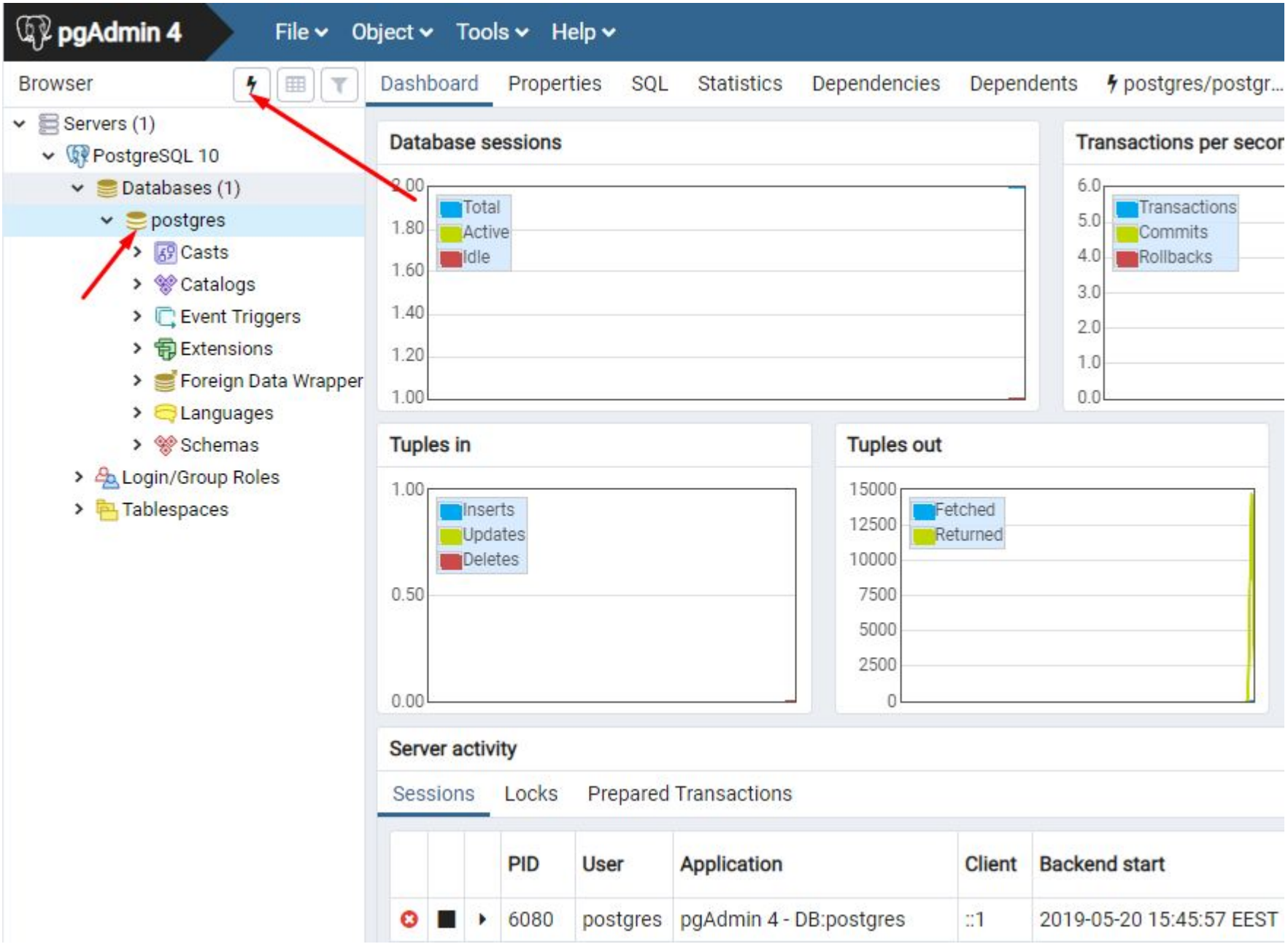
pgAdmin 4
File
Object
Tools
Help
Browser
Dashboard
Properties
SQL
Statistics
Dependencies
Dependents
postgres/postgr...
Servers (1)
PostgreSQL 10
Databases (1)
postgres
Casts
Catalogs
Event Triggers
Extensions
Foreign Data Wrapper
Languages
Schemas
Login/Group Roles
Tablespaces
Database sessions
Total
Active
Idle
Transactions per secor
Transactions
Commits
Rollbacks
Tuples in
Inserts
Updates
Deletes
Tuples out
Fetched
Returned
Server activity
Sessions
Locks
Prepared Transactions
PID
User
Application
Client
Backend start
6080
postgres
pgAdmin 4 - DB:postgres
::1
2019-05-20 15:45:57 EEST

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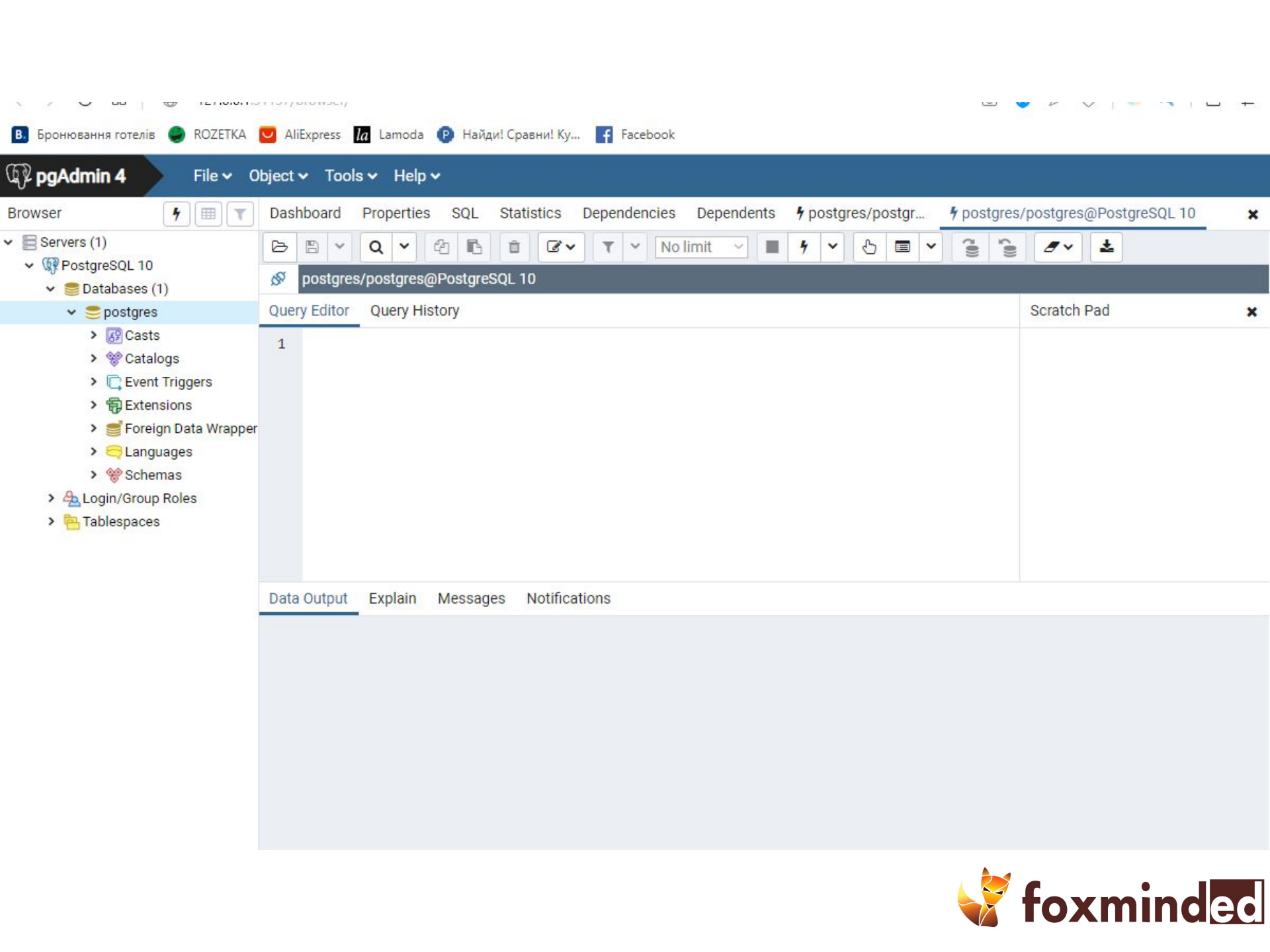
Бронювання готелів
ROZETKA
AliExpress
Lamoda
Найди! Сравни! Ку...
Facebook
pgAdmin 4
File
Object
Tools
Help
Browser
Dashboard
Properties
SQL
Statistics
Dependencies
Dependents
postgres/postgr...
postgres/postgres@PostgreSQL 10
Servers (1)
PostgreSQL 10
Databases (1)
postgres
Casts
Catalogs
Event Triggers
Extensions
Foreign Data Wrapper
Languages
Schemas
Login/Group Roles
Tablespaces
No limit
postgres/postgres@PostgreSQL 10
Query Editor
Query History
Scratch Pad
1
Data Output
Explain
Messages
Notifications

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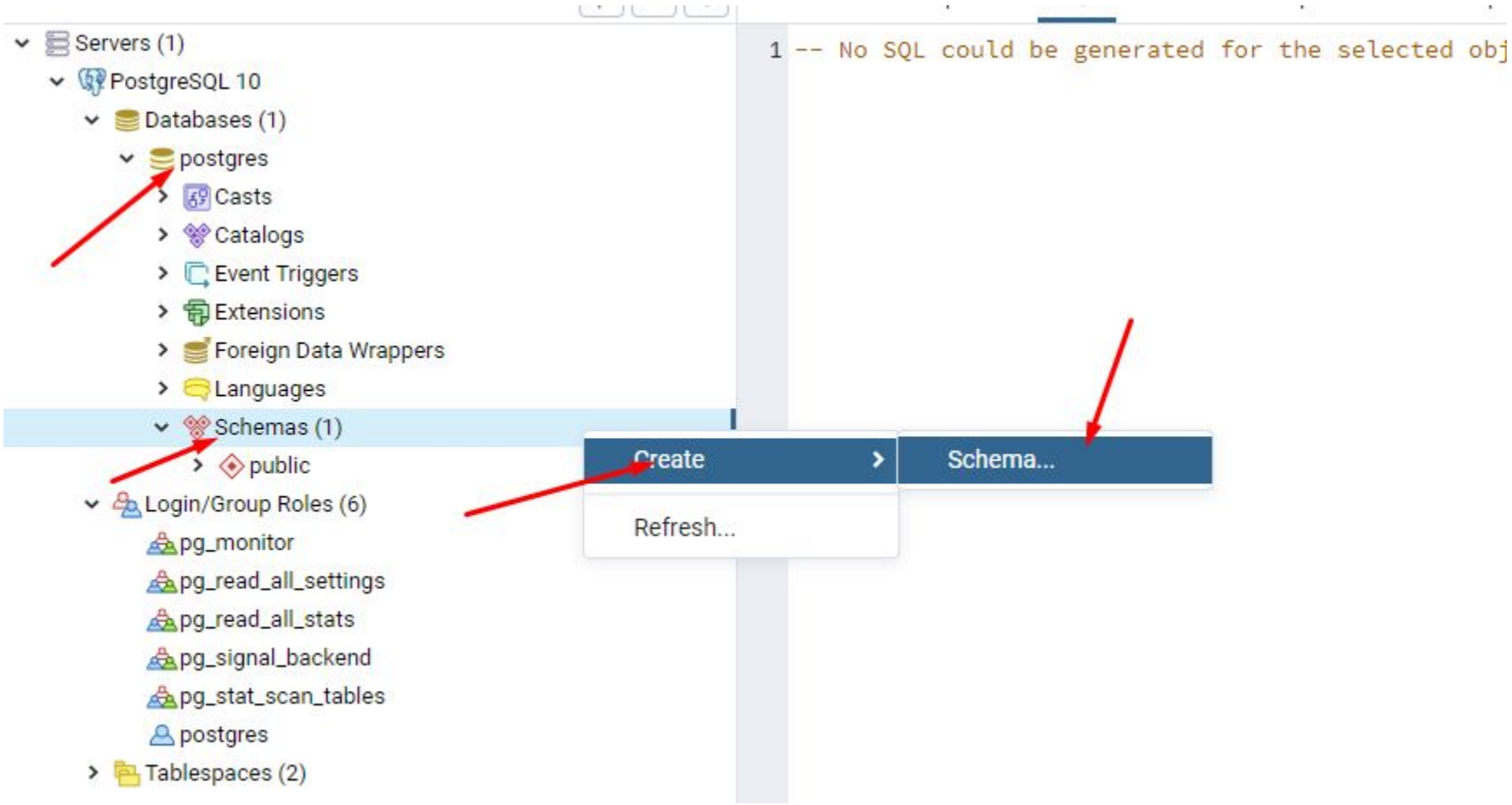
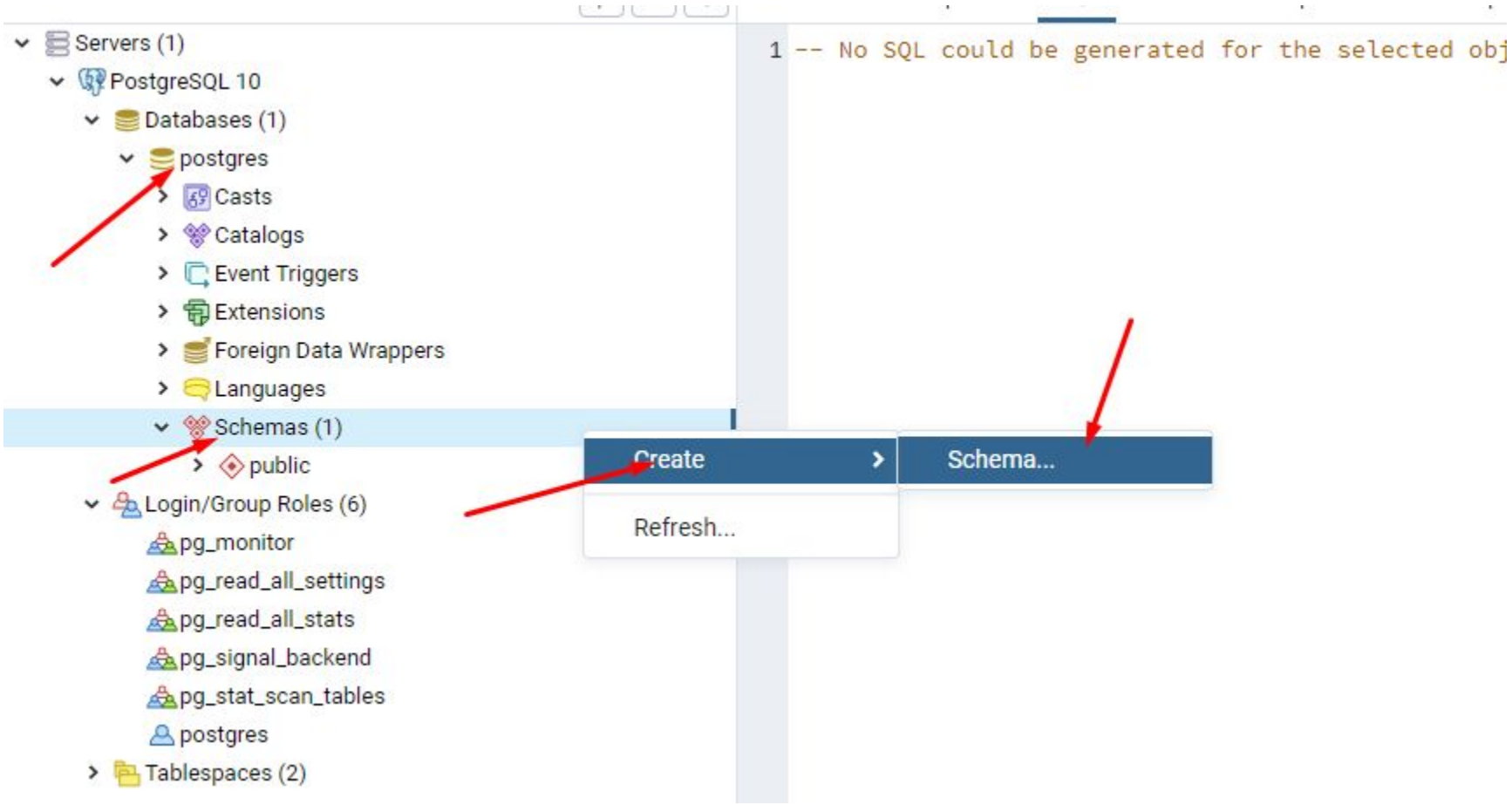
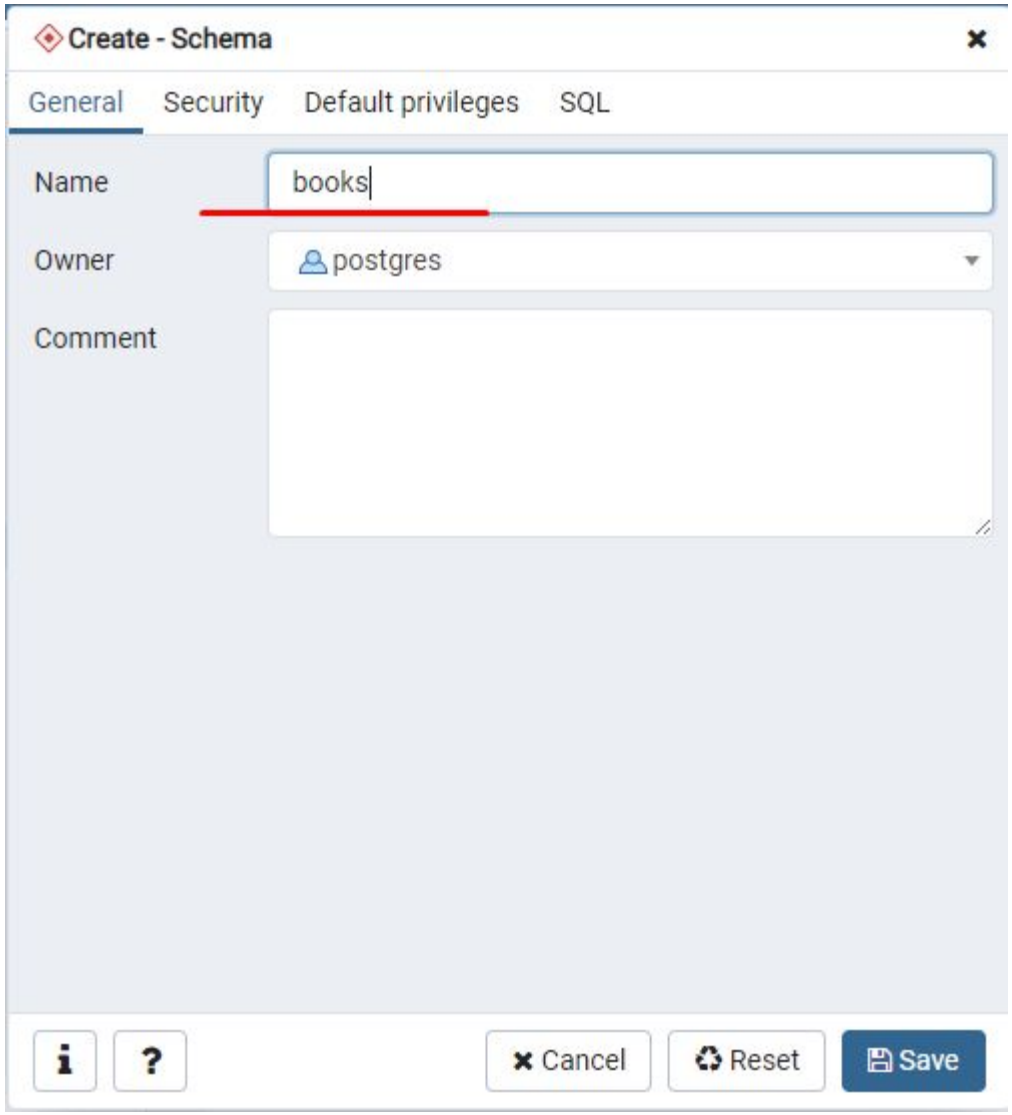
Практика

Создаем в базе первоначальные таблицы


Servers (1)
PostgreSQL 10
Databases (1)
postgres
Casts
Catalogs
Event Triggers
Extensions
Foreign Data Wrappers
Languages
Schemas (1)
public
Login/Group Roles (6)
pg_monitor
pg_read_all_settings
pg_read_all_stats
pg_signal_backend
pg_stat_scan_tables
postgres
Tablespaces (2)
1 -- No SQL could be generated for the selected obj
Create
Schema...
Refresh...


Servers (1)
PostgreSQL 10
Databases (1)
postgres
Casts
Catalogs
Event Triggers
Extensions
Foreign Data Wrappers
Languages
Schemas (1)
public
Login/Group Roles (6)
pg_monitor
pg_read_all_settings
pg_read_all_stats
pg_signal_backend
pg_stat_scan_tables
postgres
Tablespaces (2)
1 -- No SQL could be generated for the selected obj
Create
Schema...
Refresh...


Create - Schema
General
Security
Default privileges
SQL
Name
books
Owner
postgres
Comment
Cancel
Reset
Save

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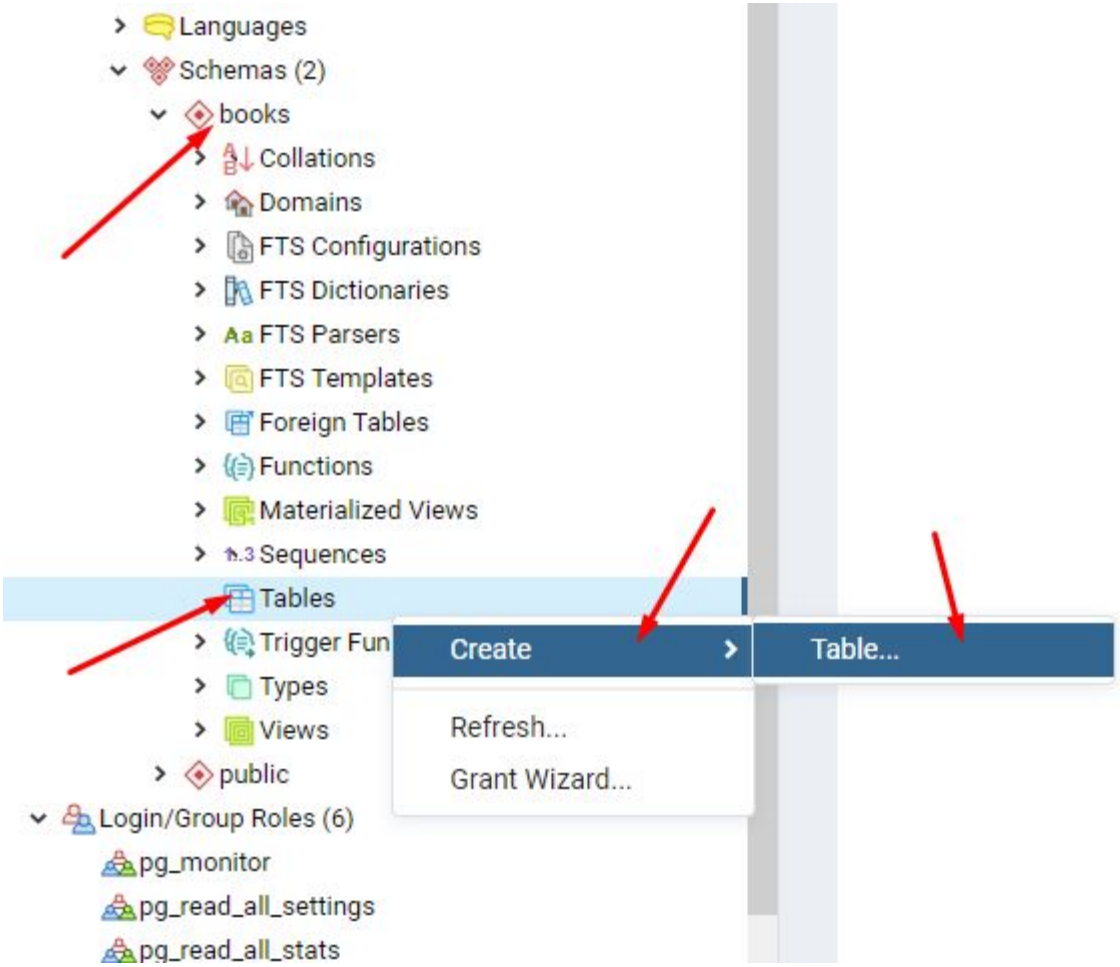
Languages
Schemas (2)
books
Collations
Domains
FTS Configurations
FTS Dictionaries
FTS Parsers
FTS Templates
Foreign Tables
Functions
Materialized Views
Sequences
Tables
Trigger Fun
Types
Views
public
Login/Group Roles (6)
pg_monitor
pg_read_all_settings
pg_read_all_stats
Create
Table...
Refresh...
Grant Wizard...

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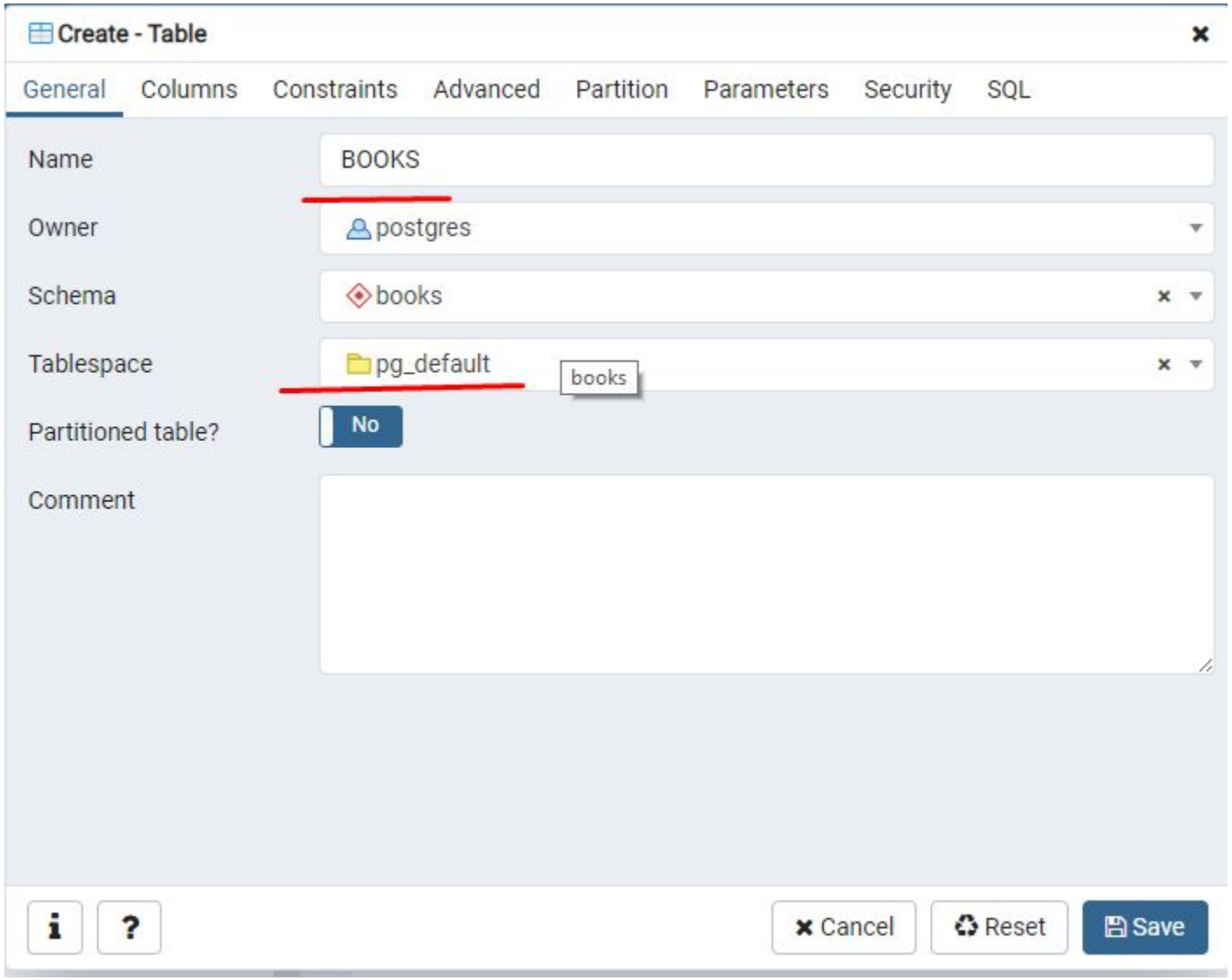
Create - Table
General
Columns
Constraints
Advanced
Partition
Parameters
Security
SQL
Name
BOOKS
Owner
postgres
Schema
books
Tablespace
pg_default
books
Partitioned table?
No
Comment
Cancel
Reset
Save

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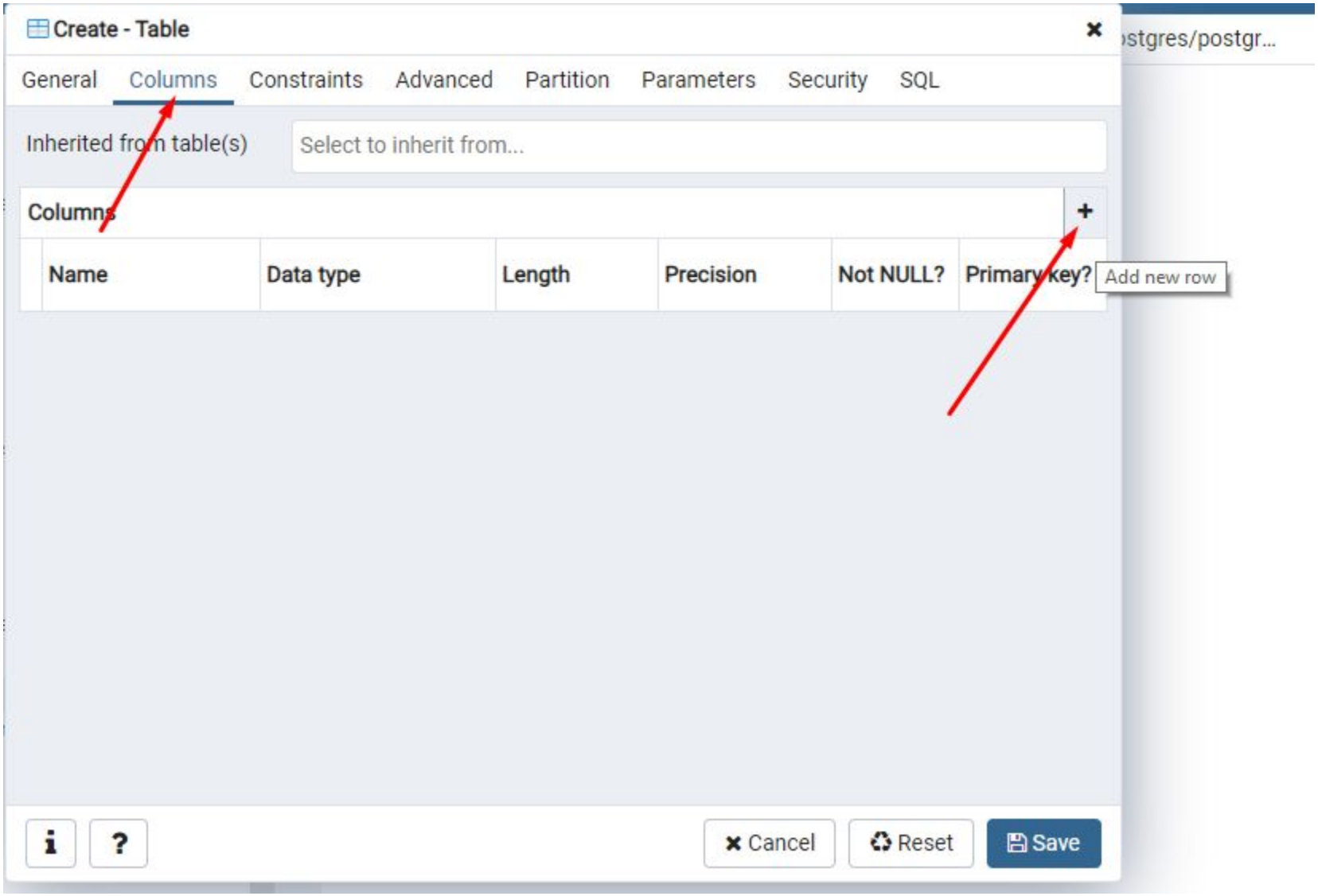
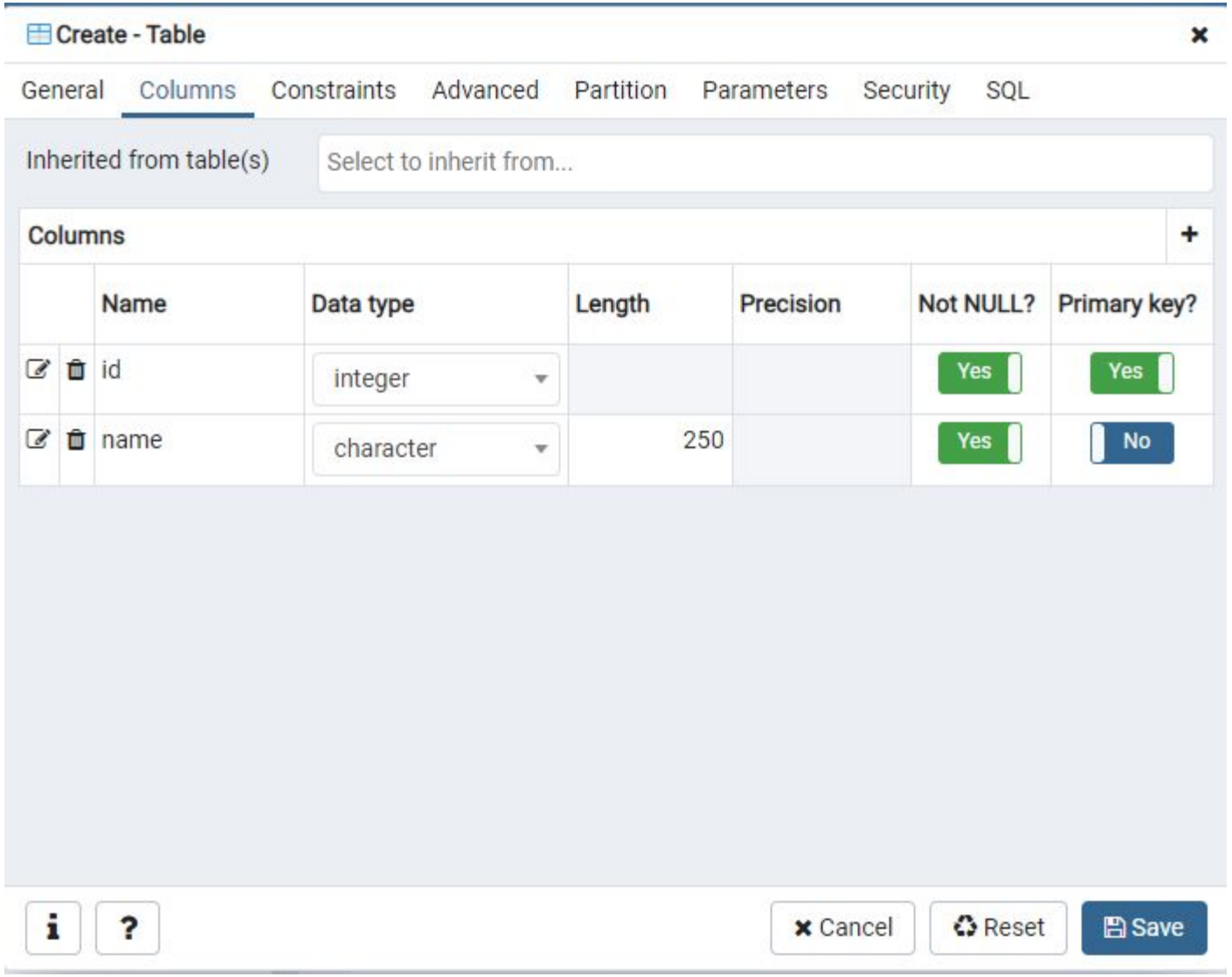
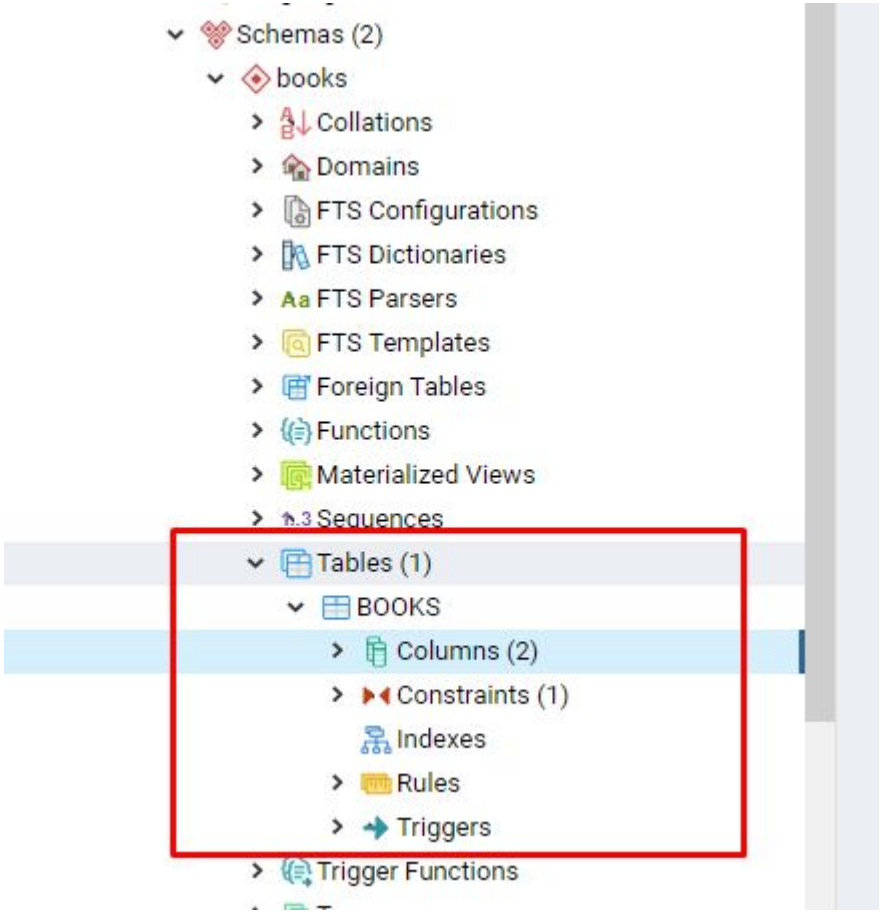
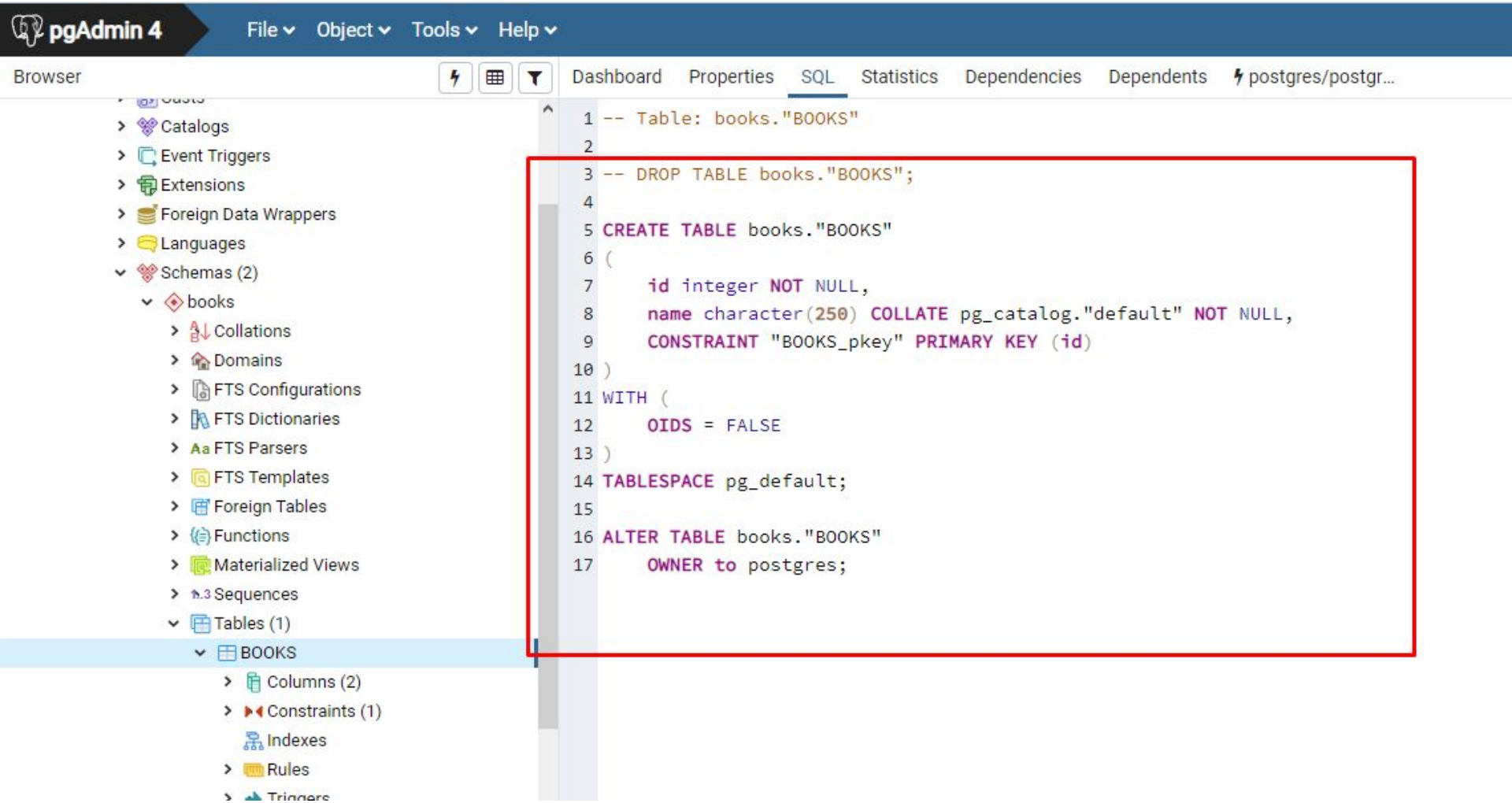
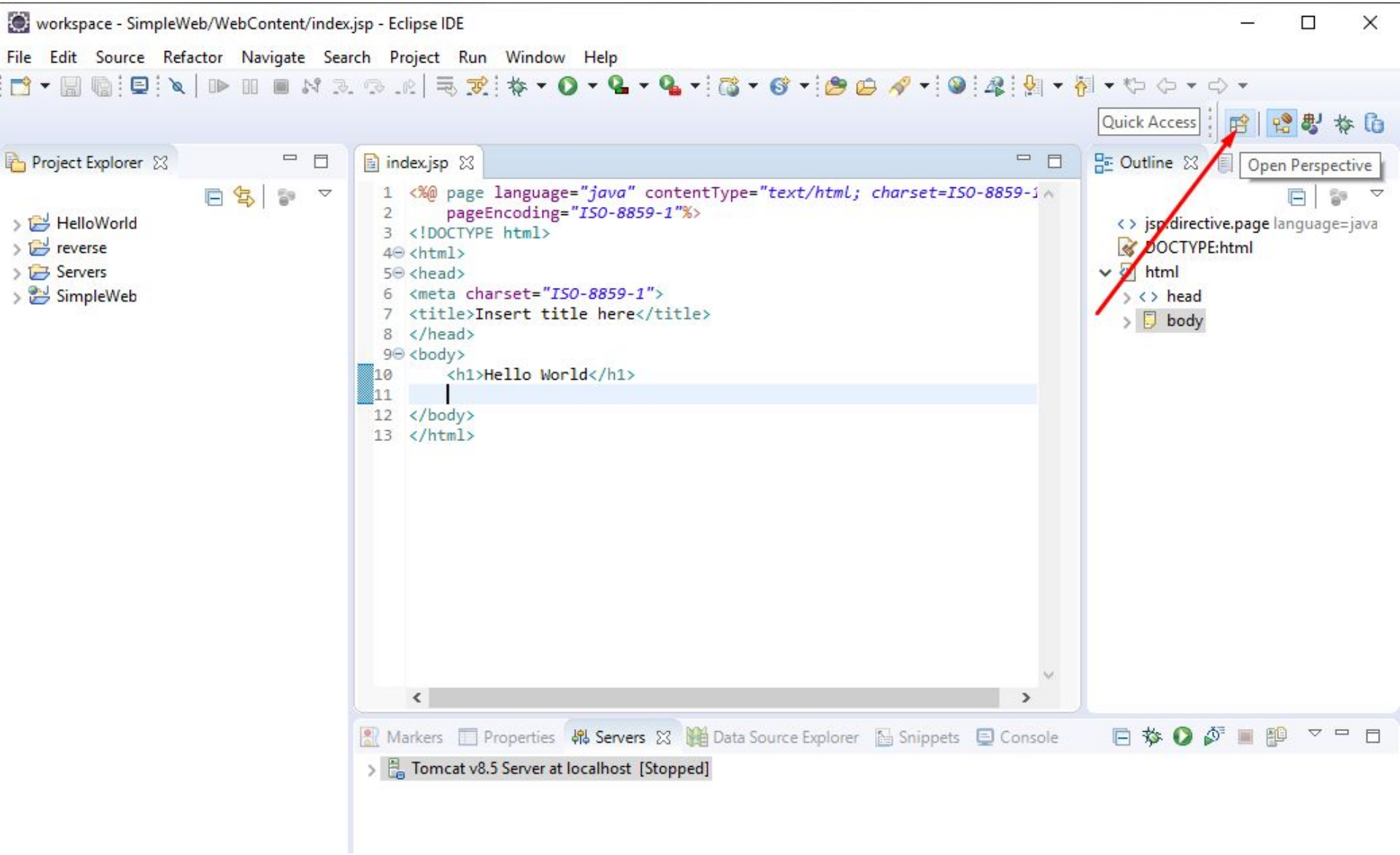
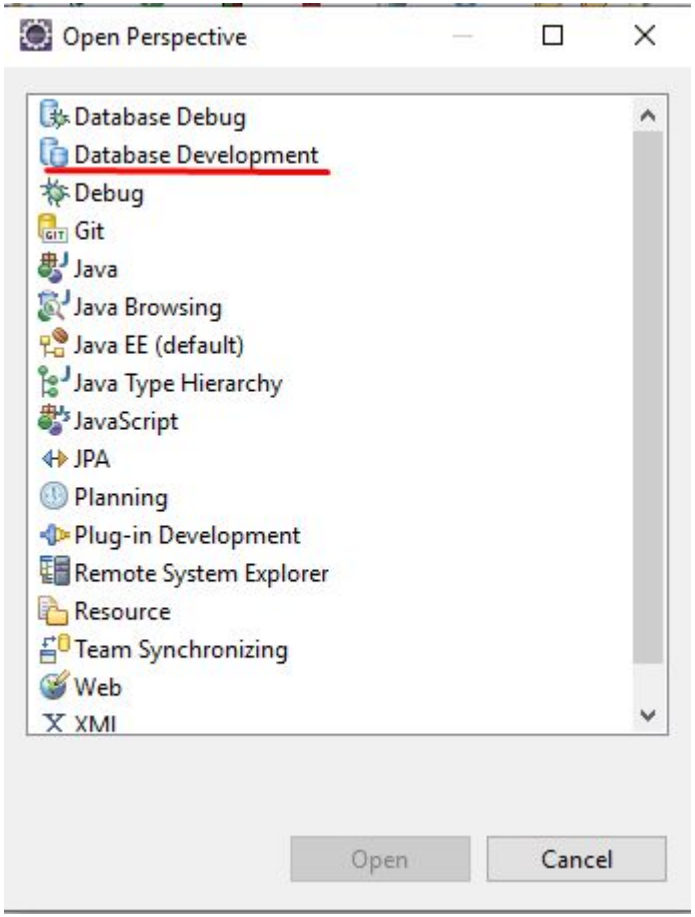

Create - Table
General
Columns
Constraints
Advanced
Partition
Parameters
Security
SQL
Inherited from table(s)
Select to inherit from...
Columns
+
Name
Data type
Length
Precision
Not NULL?
Primary key?
Add new row
Cancel
Reset
Save

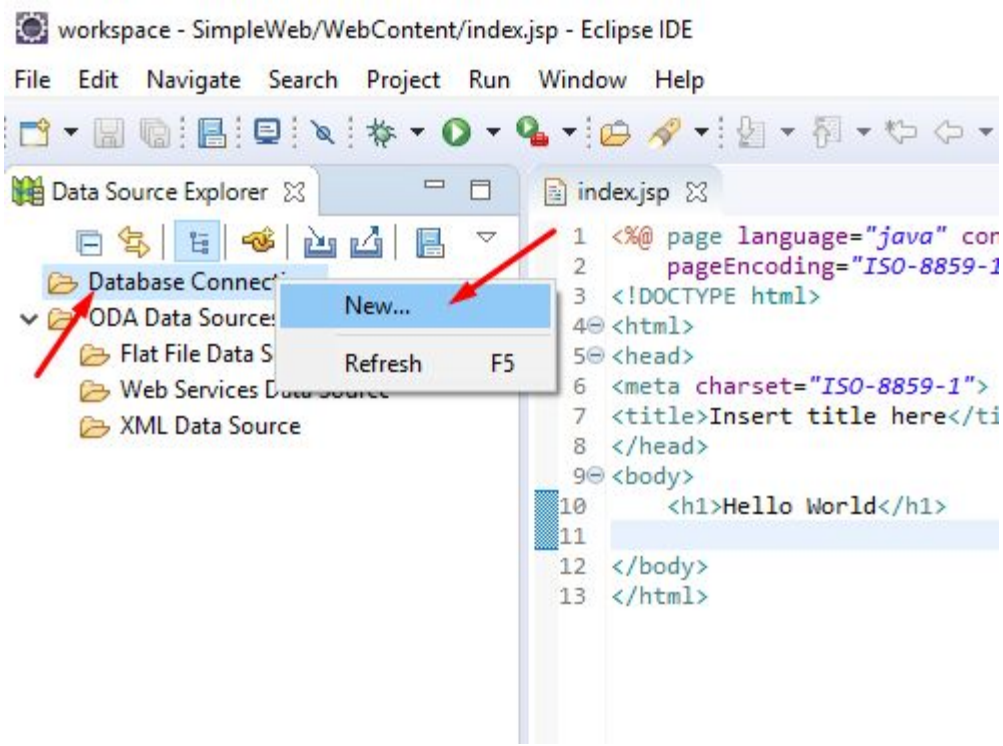

Create - Table
General
Columns
Constraints
Advanced
Partition
Parameters
Security
SQL
Inherited from table(s)
Select to inherit from...
Columns
Name
Data type
Length
Precision
Not NULL?
Primary key?
id
integer
Yes
Yes
name
character
250
Yes
No
Cancel
Reset
Save

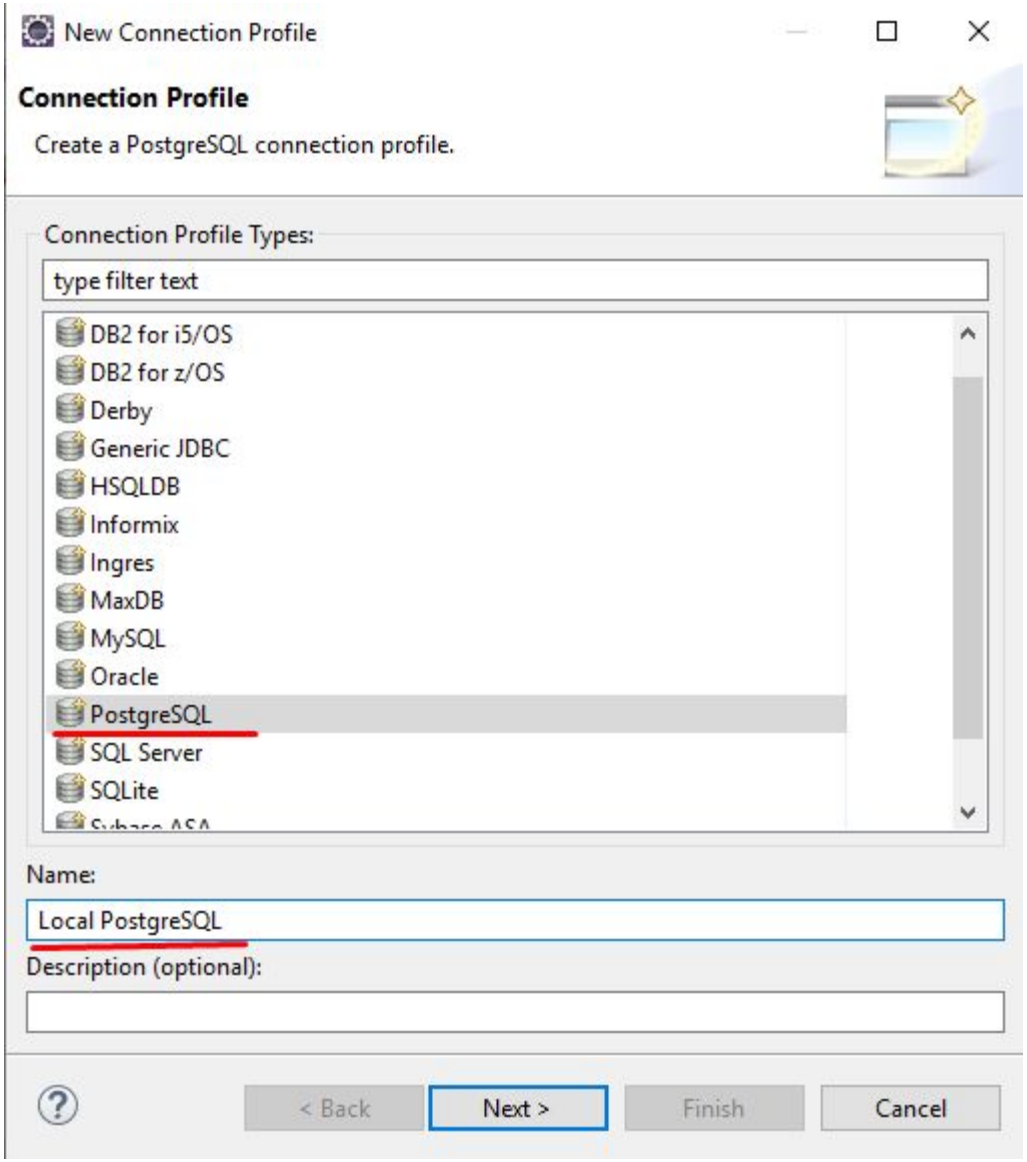

Schemas (2)
books
Collations
Domains
FTS Configurations
FTS Dictionaries
FTS Parsers
FTS Templates
Foreign Tables
Functions
Materialized Views
Sequences
Tables (1)
BOOKS
Columns (2)
Constraints (1)
Indexes
Rules
Triggers
Trigger Functions


pgAdmin 4
File
Object
Tools
Help
Browser
Dashboard
Properties
SQL
Statistics
Dependencies
Dependents
postgres/postgr...
Catalogs
Event Triggers
Extensions
Foreign Data Wrappers
Languages
Schemas (2)
books
Collations
Domains
FTS Configurations
FTS Dictionaries
FTS Parsers
FTS Templates
Foreign Tables
Functions
Materialized Views
Sequences
Tables (1)
BOOKS
Columns (2)
Constraints (1)
Indexes
Rules
-- Table: books."BOOKS"
-- DROP TABLE books."BOOKS";
CREATE TABLE books."BOOKS"
(
id integer NOT NULL,
name character(250) COLLATE pg_catalog."default" NOT NULL,
CONSTRAINT "BOOKS_pkey" PRIMARY KEY (id)
)
WITH (
OIDS = FALSE
)
TABLESPACE pg_default;
ALTER TABLE books."BOOKS"
OWNER to postgres;


workspace - SimpleWeb/WebContent/index.jsp - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Open Perspective
Project Explorer
HelloWorld
reverse
Servers
SimpleWeb
index.jsp
1 <%@ page language="java" contentType="text/html; charset=ISO-8859-1
2 pageEncoding="ISO-8859-1"%>
3 <!DOCTYPE html>
4 <html>
5 <head>
6 <meta charset="ISO-8859-1">
7 <title>Insert title here</title>
8 </head>
9 <body>
10 <h1>Hello World</h1>
11
12 </body>
13 </html>
Outline
jsp:directive.page language=java
DOCTYPE:html
html
head
body
Markers Properties Servers Data Source Explorer Snippets Console
Tomcat v8.5 Server at localhost [Stopped]


Open Perspective
Database Debug
Database Development
Debug
Git
Java
Java Browsing
Java EE (default)
Java Type Hierarchy
JavaScript
JPA
Planning
Plug-in Development
Remote System Explorer
Resource
Team Synchronizing
Web
XML
Open
Cancel


workspace - SimpleWeb/WebContent/index.jsp - Eclipse IDE
File Edit Navigate Search Project Run Window Help
Data Source Explorer
Database Connect
ODA Data Source
Flat File Data S
Web Services Data Source
XML Data Source
New...
Refresh F5
index.jsp
1 <%@ page language="java" cor
2 pageEncoding="ISO-8859-1
3 <!DOCTYPE html>
4 <html>
5 <head>
6 <meta charset="ISO-8859-1">
7 <title>Insert title here</ti
8 </head>
9 <body>
10 <h1>Hello World</h1>
11
12 </body>
13 </html>


New Connection Profile
Connection Profile
Create a PostgreSQL connection profile.
Connection Profile Types:
type filter text
DB2 for i5/OS
DB2 for z/OS
Derby
Generic JDBC
HSQLDB
Informix
Ingres
MaxDB
MySQL
Oracle
PostgreSQL
SQL Server
SQLite
Name:
Local PostgreSQL
Description (optional):
< Back
Next >
Finish
Cancel

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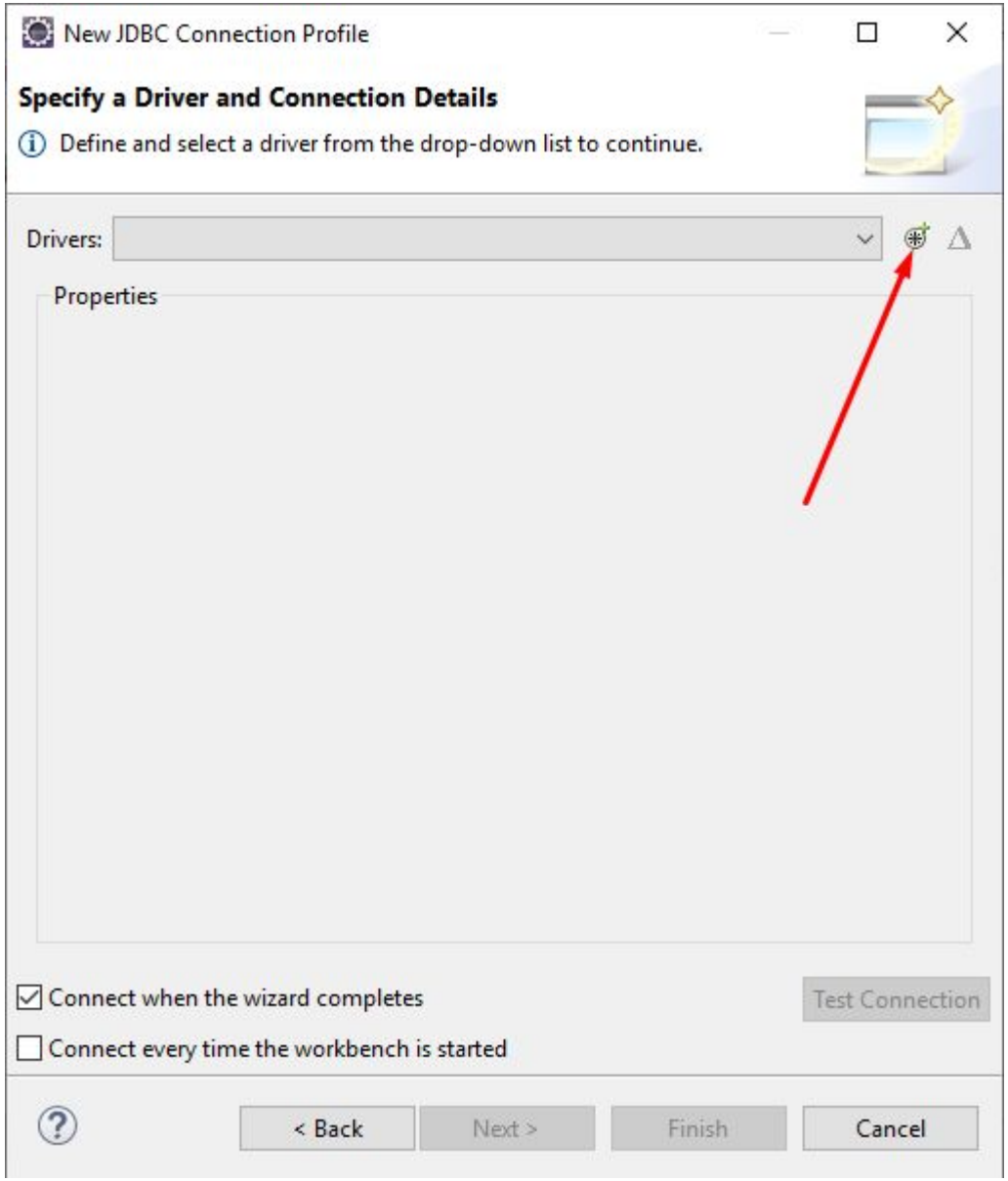
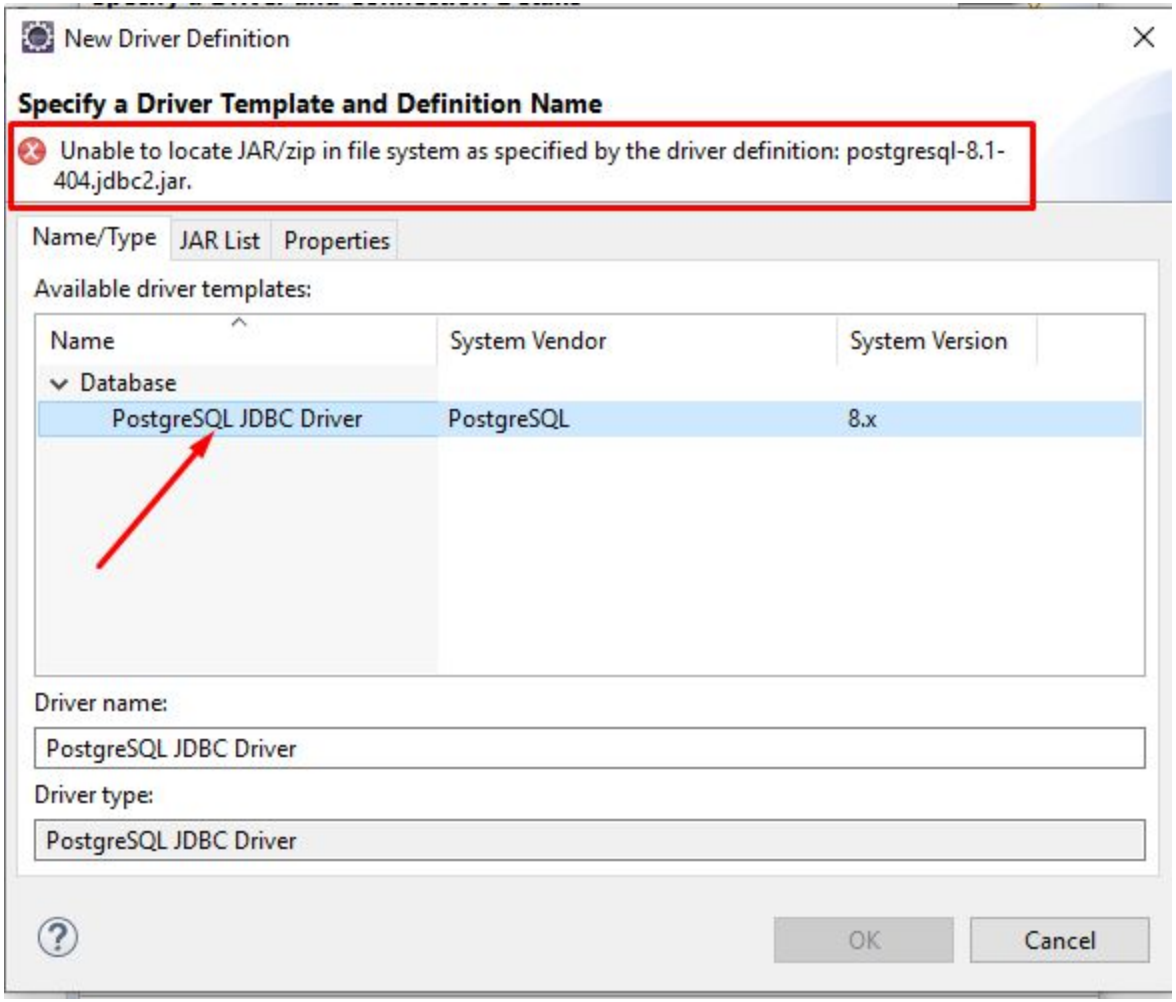

New JDBC Connection Profile
Specify a Driver and Connection Details
Define and select a driver from the drop-down list to continue.
Drivers:
Properties
Connect when the wizard completes
Test Connection
Connect every time the workbench is started
< Back
Next >
Finish
Cancel


New Driver Definition
Specify a Driver Template and Definition Name
Unable to locate JAR/zip in file system as specified by the driver definition: postgresql-8.1-404.jdbc2.jar.
Name/Type
JAR List
Properties
Available driver templates:
Name
System Vendor
System Version
Database
PostgreSQL JDBC Driver
PostgreSQL
8.x
Driver name:
PostgreSQL JDBC Driver
Driver type:
PostgreSQL JDBC Driver
OK
Cancel

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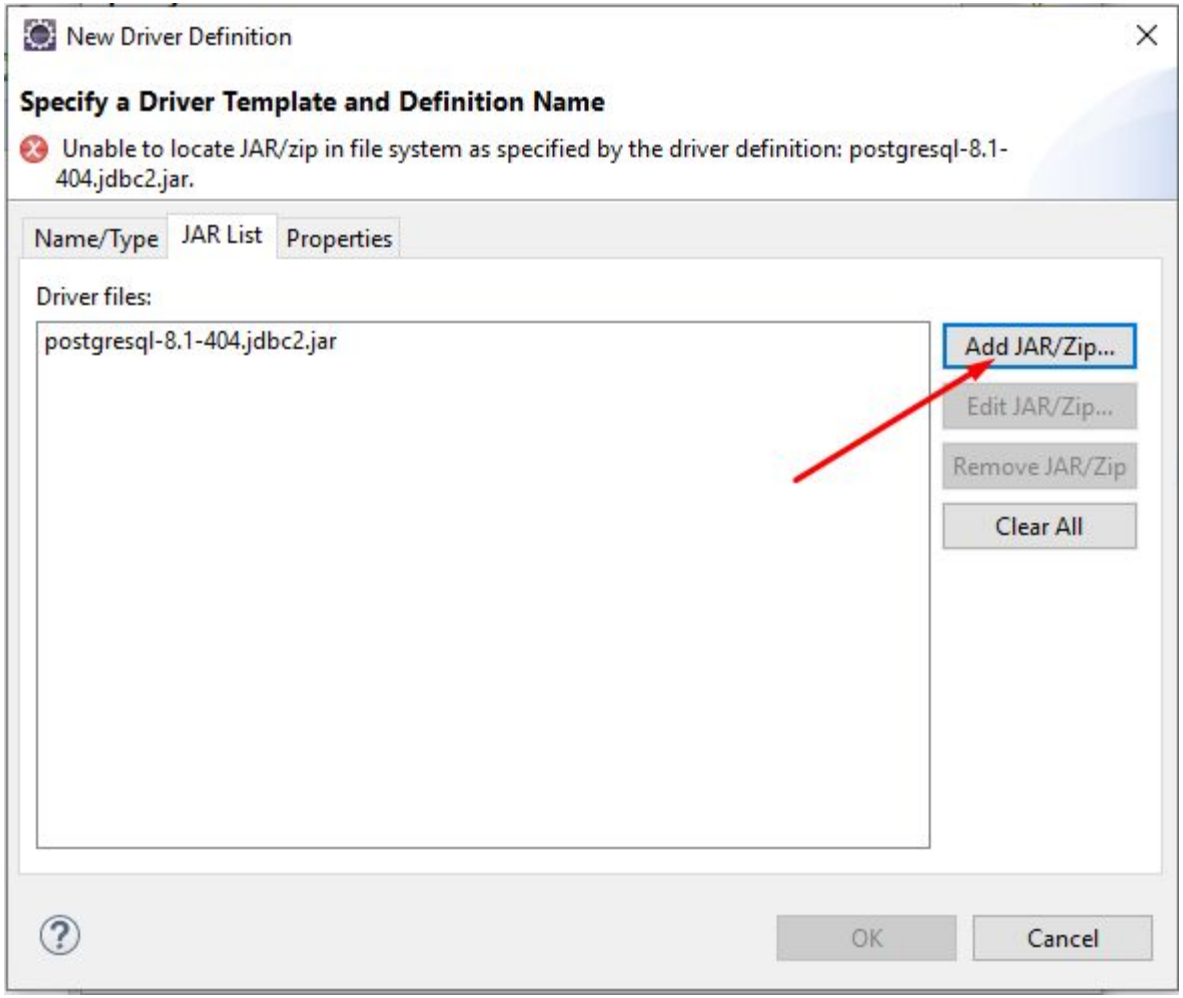
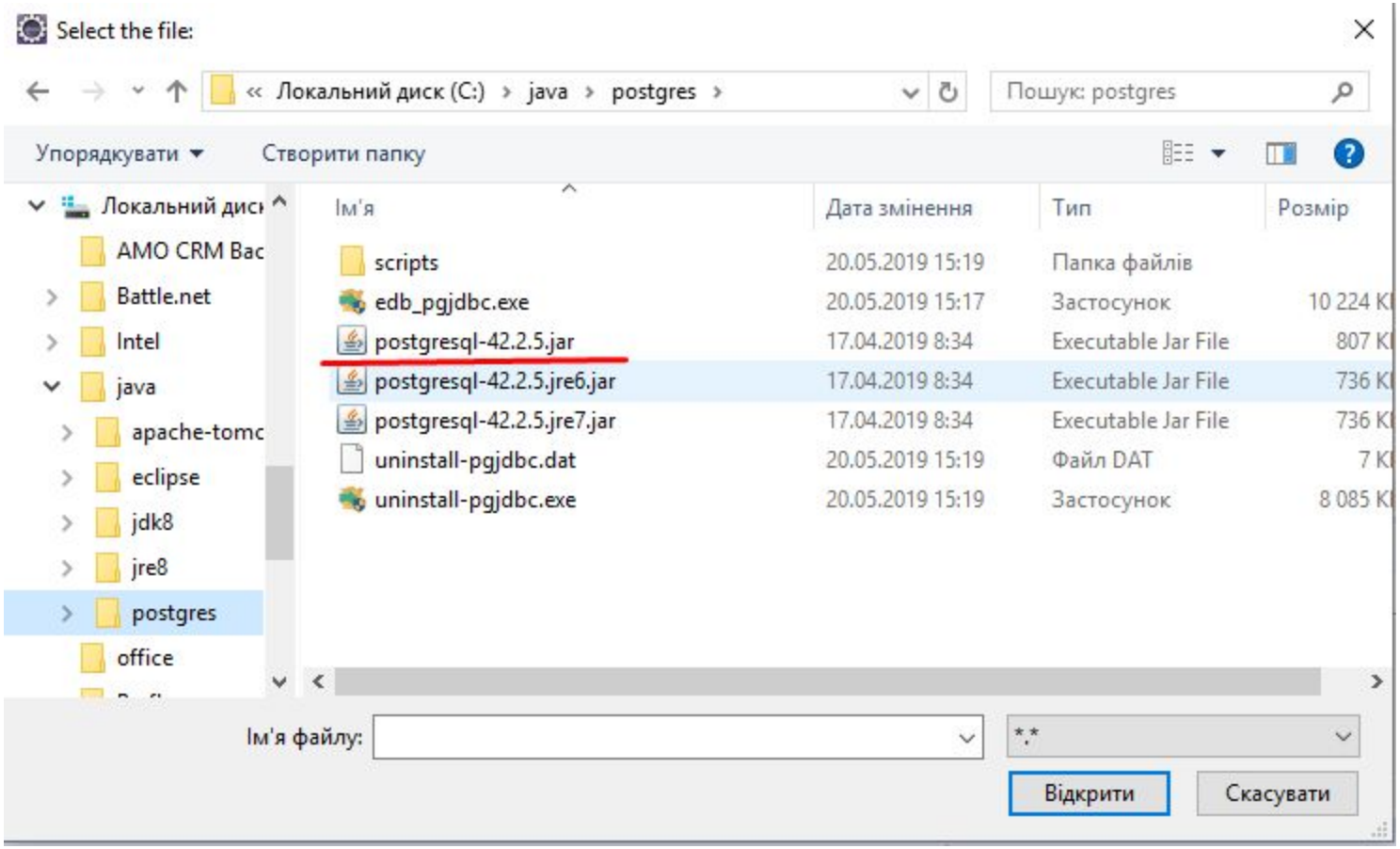

New Driver Definition
Specify a Driver Template and Definition Name
Unable to locate JAR/zip in file system as specified by the driver definition: postgresql-8.1-404.jdbc2.jar.
Name/Type
JAR List
Properties
Driver files:
postgresql-8.1-404.jdbc2.jar
Add JAR/Zip...
Edit JAR/Zip...
Remove JAR/Zip
Clear All
OK
Cancel


Select the file:
« Локальний диск (C:) › java › postgres ›
Пошук: postgres
Упорядкувати
Створити папку
Локальний диск
AMO CRM Bac
Battle.net
Intel
java
apache-tomc
eclipse
jdk8
jre8
postgres
office
Ім'я
Дата змінення
Тип
Розмір
scripts
20.05.2019 15:19
Папка файлів
edb_pgjdbc.exe
20.05.2019 15:17
Застосунок
10 224 КБ
postgresql-42.2.5.jar
17.04.2019 8:34
Executable Jar File
807 КБ
postgresql-42.2.5.jre6.jar
17.04.2019 8:34
Executable Jar File
736 КБ
postgresql-42.2.5.jre7.jar
17.04.2019 8:34
Executable Jar File
736 КБ
uninstall-pgjdbc.dat
20.05.2019 15:19
Файл DAT
7 КБ
uninstall-pgjdbc.exe
20.05.2019 15:19
Застосунок
8 085 КБ
Ім'я файлу:
.
Відкрити
Скасувати

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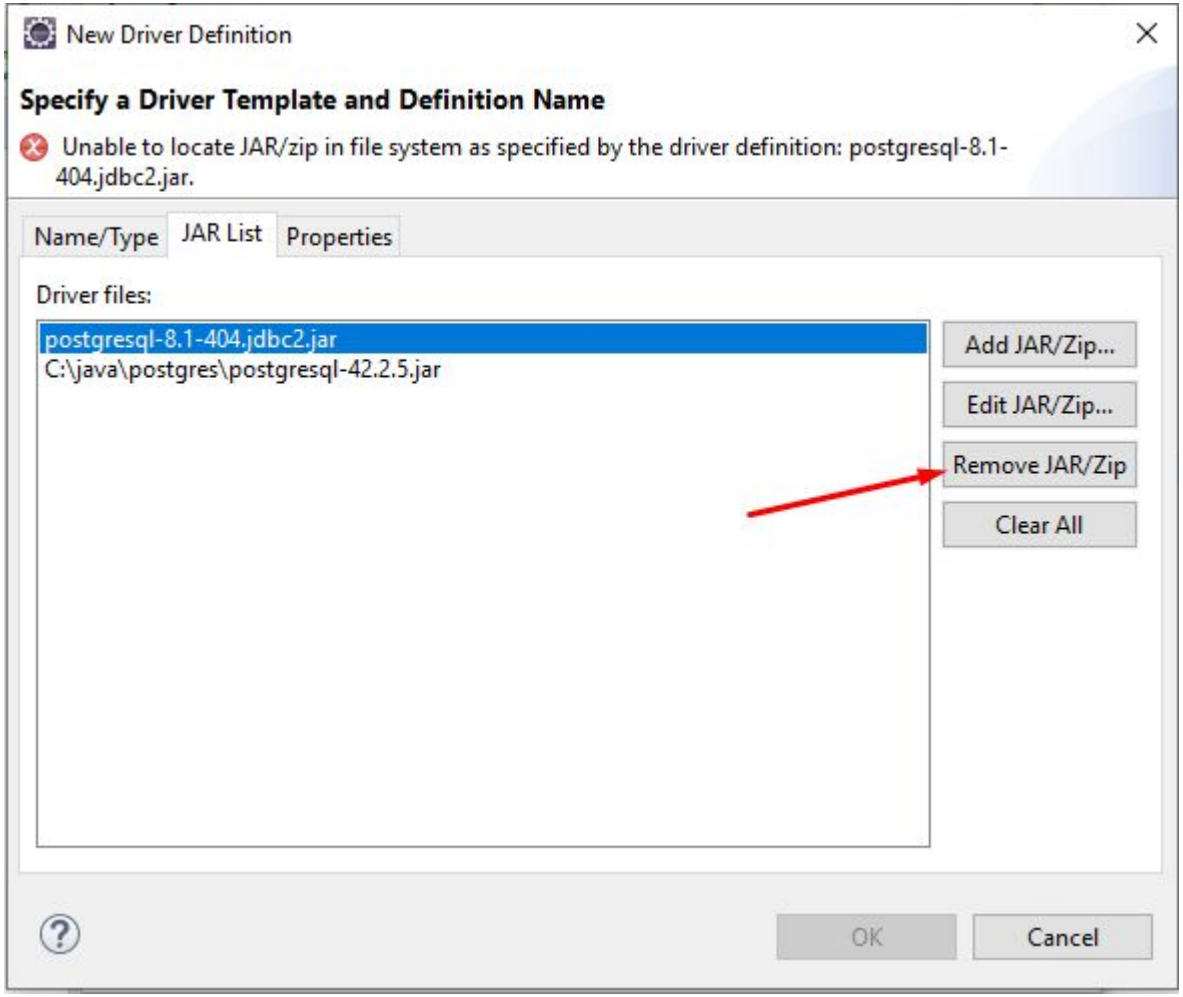
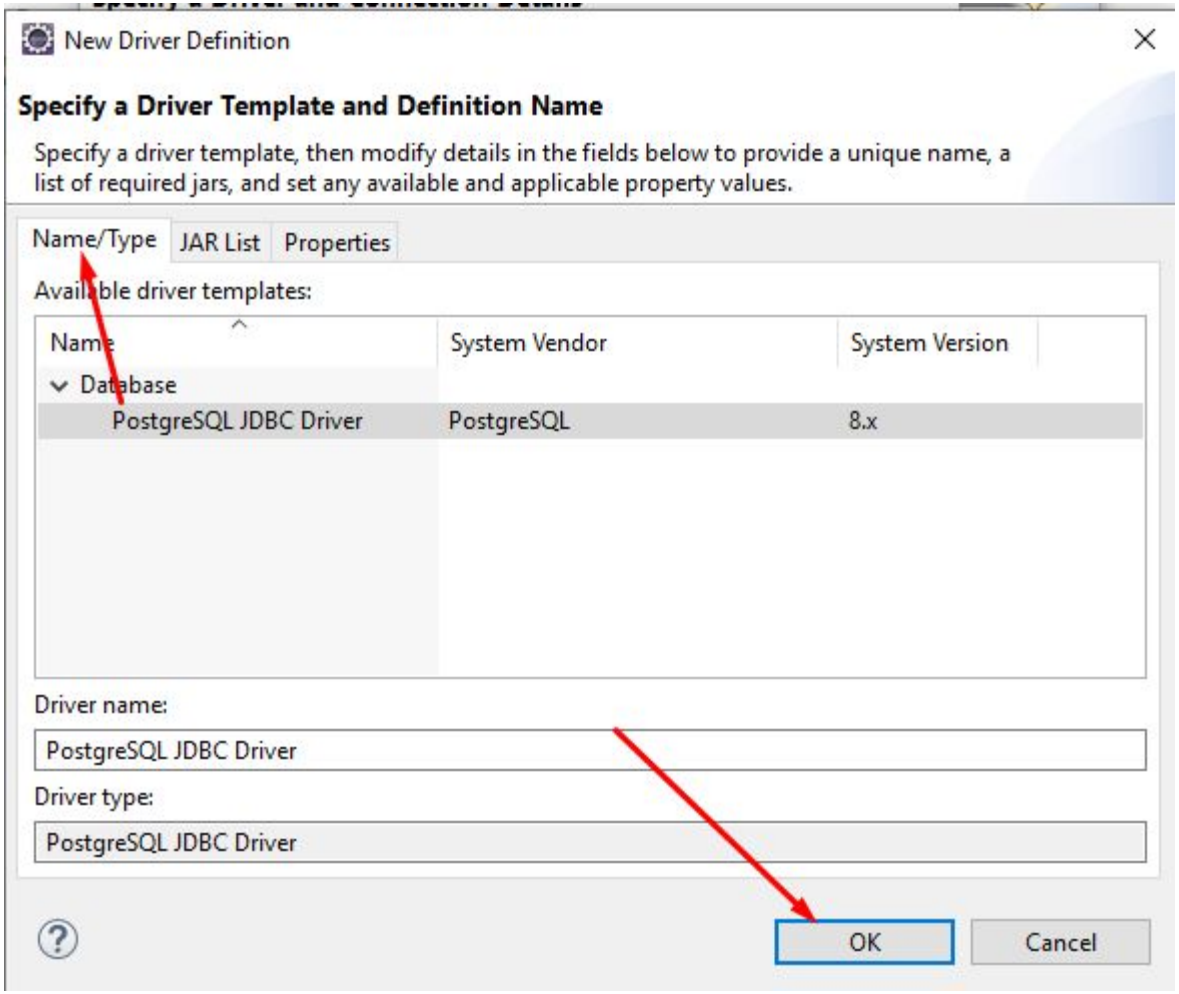
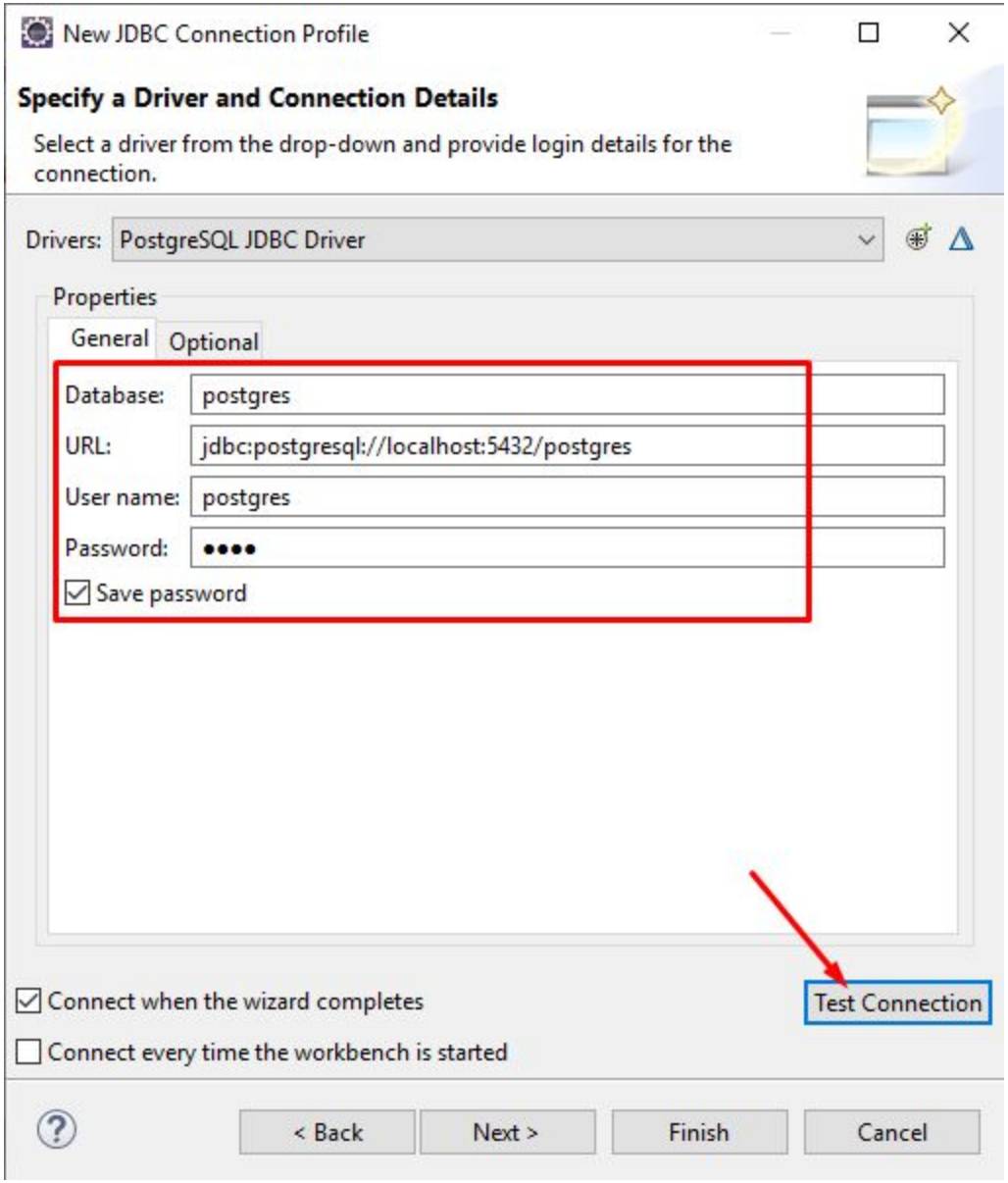

New Driver Definition
Specify a Driver Template and Definition Name
Unable to locate JAR/zip in file system as specified by the driver definition: postgresql-8.1-404.jdbc2.jar.
Name/Type
JAR List
Properties
Driver files:
postgresql-8.1-404.jdbc2.jar
C:\java\postgres\postgresql-42.2.5.jar
Add JAR/Zip...
Edit JAR/Zip...
Remove JAR/Zip
Clear All
OK
Cancel


New Driver Definition
Specify a Driver Template and Definition Name
Specify a driver template, then modify details in the fields below to provide a unique name, a list of required jars, and set any available and applicable property values.
Name/Type
JAR List
Properties
Available driver templates:
Name
System Vendor
System Version
Database
PostgreSQL JDBC Driver
PostgreSQL
8.x
Driver name:
PostgreSQL JDBC Driver
Driver type:
PostgreSQL JDBC Driver
OK
Cancel


New JDBC Connection Profile
Specify a Driver and Connection Details
Select a driver from the drop-down and provide login details for the connection.
Drivers:
PostgreSQL JDBC Driver
Properties
General
Optional
Database:
postgres
URL:
jdbc:postgresql://localhost:5432/postgres
User name:
postgres
Password:
Save password
Connect when the wizard completes
Test Connection
Connect every time the workbench is started
< Back
Next >
Finish
Cancel

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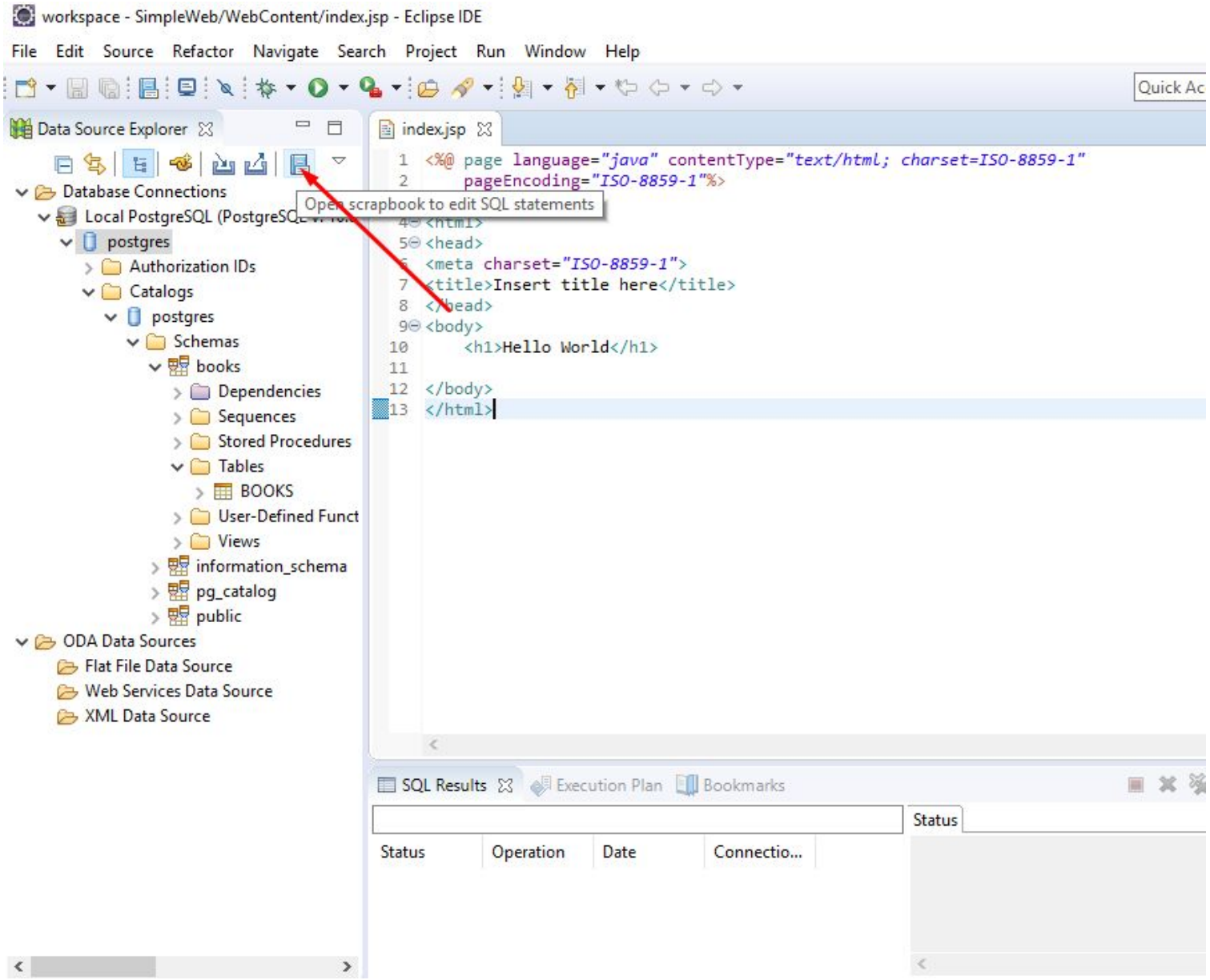
workspace - SimpleWeb/WebContent/index.jsp - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Data Source Explorer
Open scrapbook to edit SQL statements
Database Connections
Local PostgreSQL (PostgreSQL
postgres
Authorization IDs
Catalogs
postgres
Schemas
books
Dependencies
Sequences
Stored Procedures
Tables
BOOKS
User-Defined Funct
Views
information_schema
pg_catalog
public
ODA Data Sources
Flat File Data Source
Web Services Data Source
XML Data Source
index.jsp
1 <%@ page language="java" contentType="text/html; charset=ISO-8859-1"
2 pageEncoding="ISO-8859-1"%>
4 <html>
5 <head>
6 <meta charset="ISO-8859-1">
7 <title>Insert title here</title>
8 </head>
9 <body>
10 <h1>Hello World</h1>
11
12 </body>
13 </html>
SQL Results
Execution Plan
Bookmarks
Status
Status
Operation
Date
Connectio...

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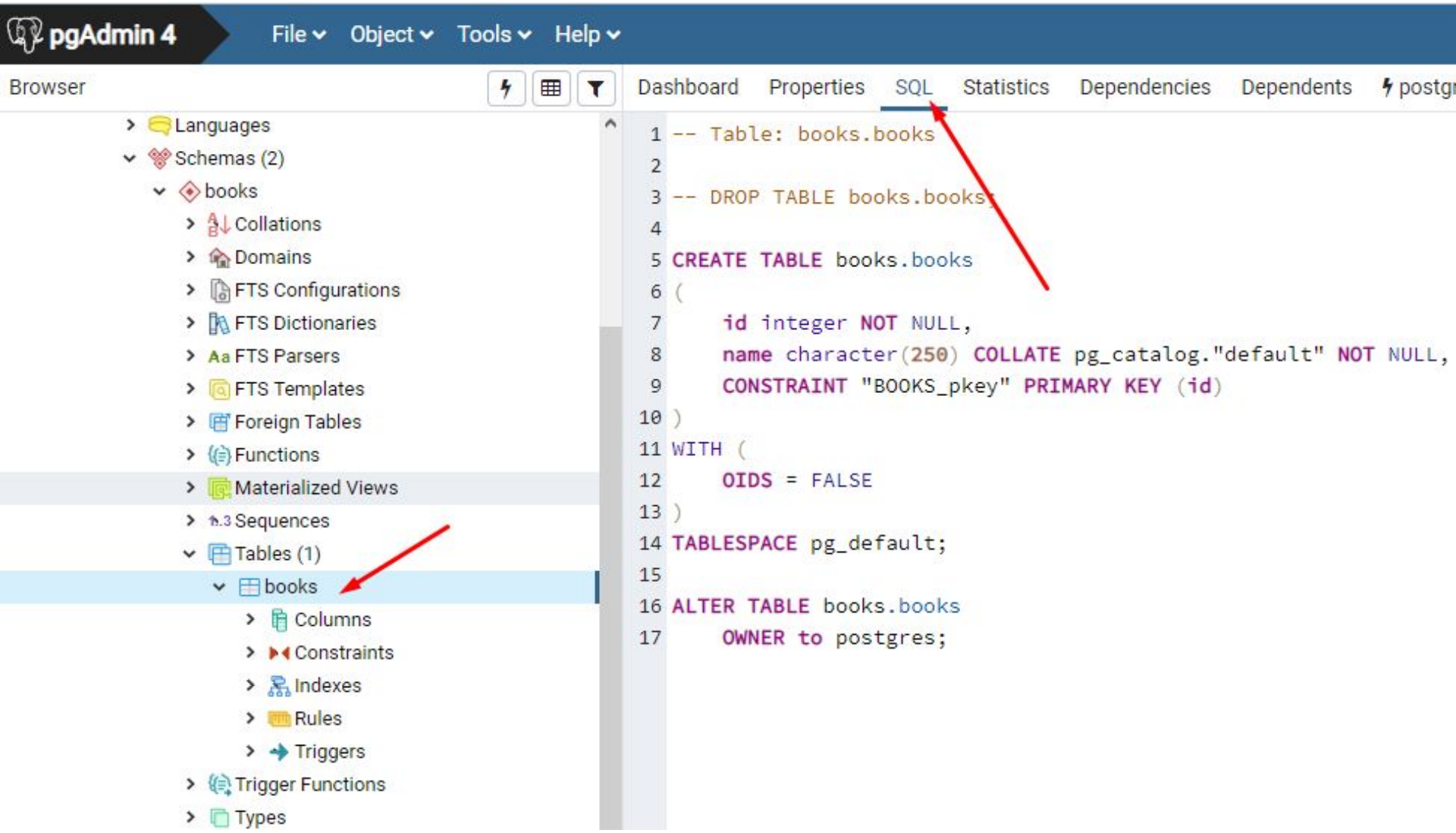
pgAdmin 4
File
Object
Tools
Help
Browser
Dashboard
Properties
SQL
Statistics
Dependencies
Dependents
Languages
Schemas (2)
books
Collations
Domains
FTS Configurations
FTS Dictionaries
FTS Parsers
FTS Templates
Foreign Tables
Functions
Materialized Views
Sequences
Tables (1)
books
Columns
Constraints
Indexes
Rules
Triggers
Trigger Functions
Types
-- Table: books.books
-- DROP TABLE books.books;
CREATE TABLE books.books
(
id integer NOT NULL,
name character(250) COLLATE pg_catalog."default" NOT NULL,
CONSTRAINT "BOOKS_pkey" PRIMARY KEY (id)
)
WITH (
OIDS = FALSE
)
TABLESPACE pg_default;
ALTER TABLE books.books
OWNER to postgres;

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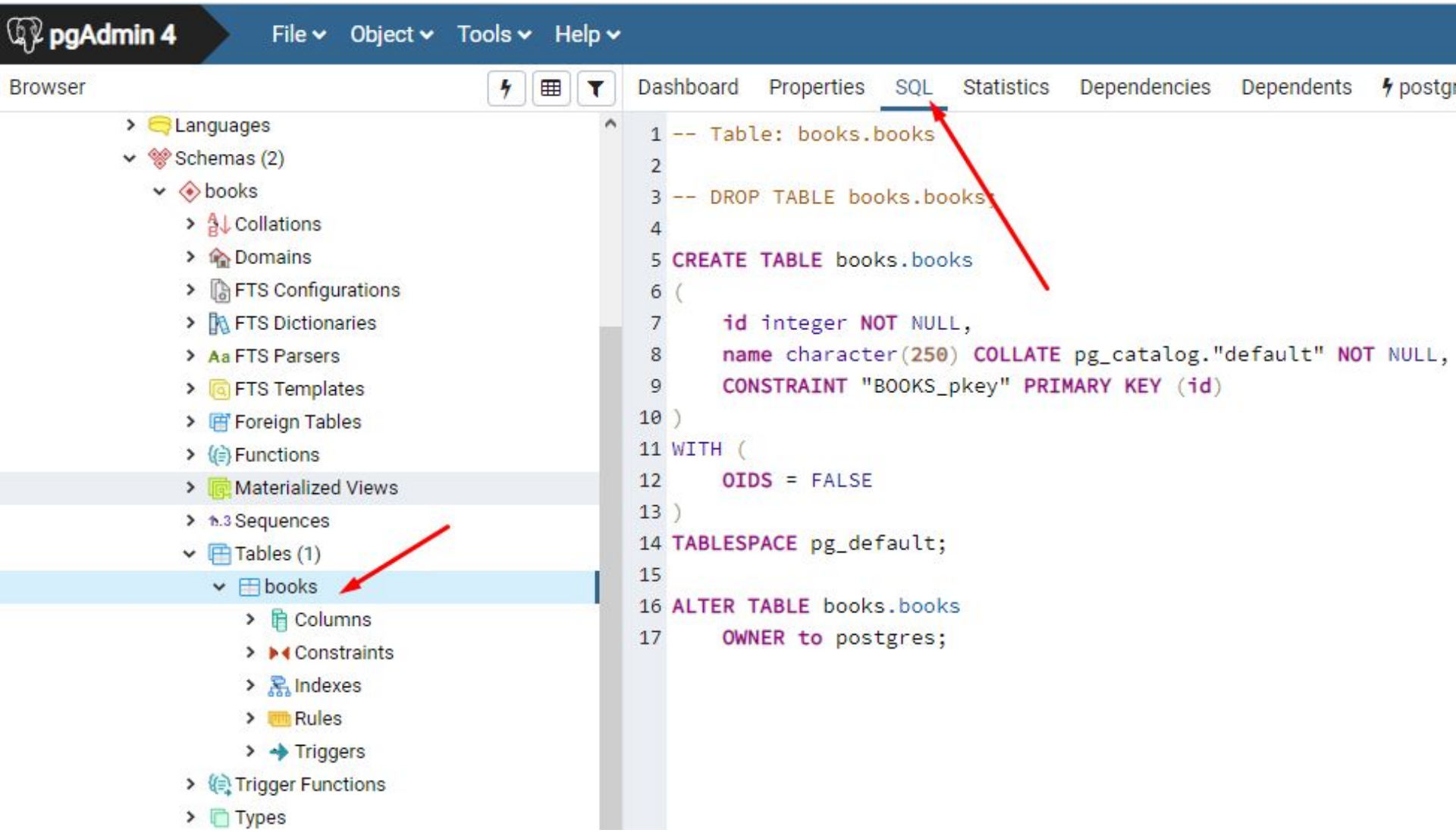
pgAdmin 4
File
Object
Tools
Help
Browser
Dashboard
Properties
SQL
Statistics
Dependencies
Dependents
Languages
Schemas (2)
books
Collations
Domains
FTS Configurations
FTS Dictionaries
FTS Parsers
FTS Templates
Foreign Tables
Functions
Materialized Views
Sequences
Tables (1)
books
Columns
Constraints
Indexes
Rules
Triggers
Trigger Functions
Types
-- Table: books.books
-- DROP TABLE books.books;
CREATE TABLE books.books
(
id integer NOT NULL,
name character(250) COLLATE pg_catalog."default" NOT NULL,
CONSTRAINT "BOOKS_pkey" PRIMARY KEY (id)
)
WITH (
OIDS = FALSE
)
TABLESPACE pg_default;
ALTER TABLE books.books
OWNER to postgres;

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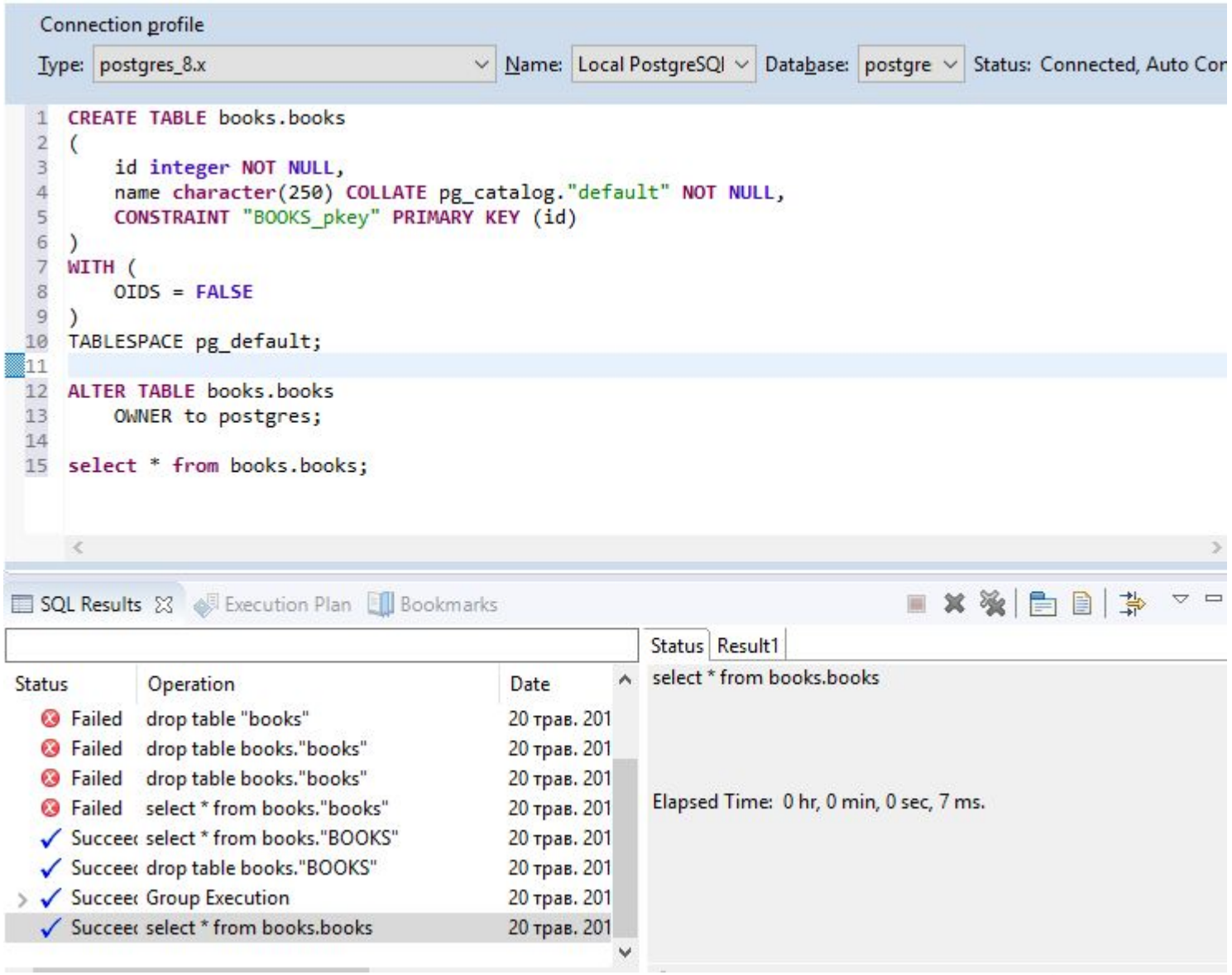
Connection profile
Type: postgres_8.x
Name: Local PostgreSQl
Database: postgre
Status: Connected, Auto Cor
1 CREATE TABLE books.books
2 (
3 id integer NOT NULL,
4 name character(250) COLLATE pg_catalog."default" NOT NULL,
5 CONSTRAINT "BOOKS_pkey" PRIMARY KEY (id)
6)
7 WITH (
8 OIDS = FALSE
9)
10 TABLESPACE pg_default;
11
12 ALTER TABLE books.books
13 OWNER to postgres;
14
15 select * from books.books;
SQL Results
Execution Plan
Bookmarks
Status
Operation
Date
Failed drop table "books" 20 трав. 201
Failed drop table books."books" 20 трав. 201
Failed drop table books."books" 20 трав. 201
Failed select * from books."books" 20 трав. 201
Succee select * from books."BOOKS" 20 трав. 201
Succee drop table books."BOOKS" 20 трав. 201
Succee Group Execution 20 трав. 201
Succee select * from books.books 20 трав. 201
Status
Result1
select * from books.books
Elapsed Time: 0 hr, 0 min, 0 sec, 7 ms.

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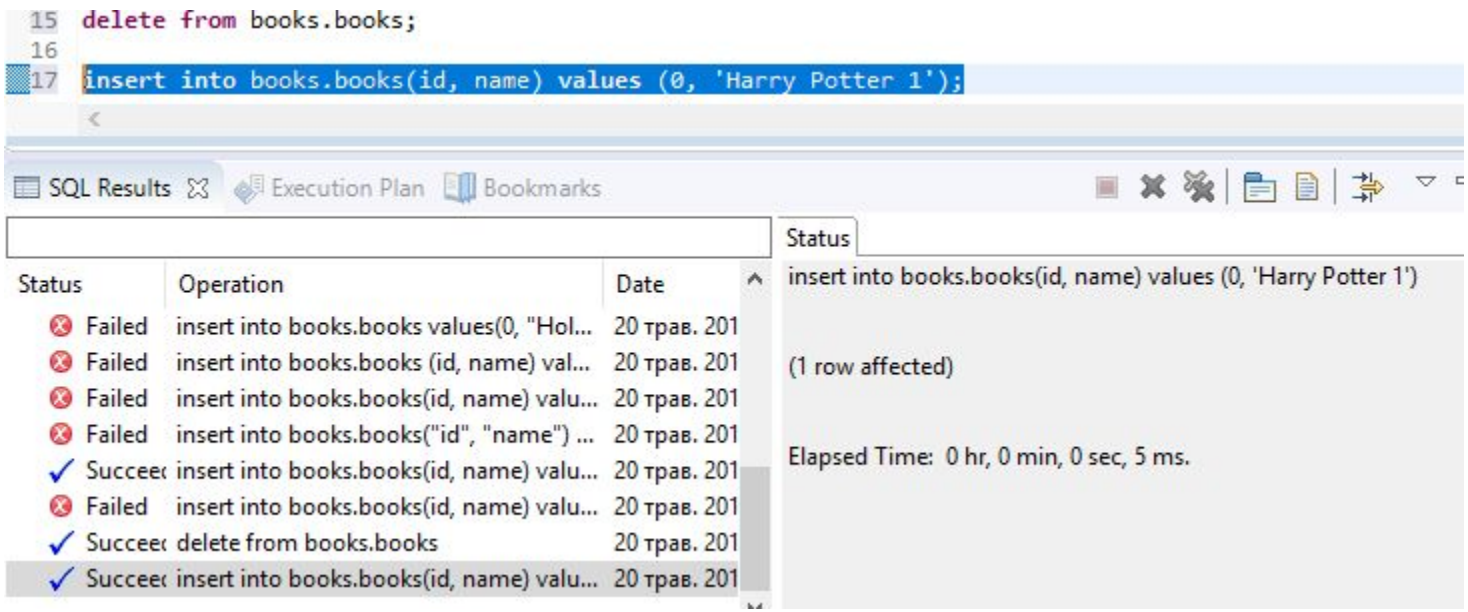
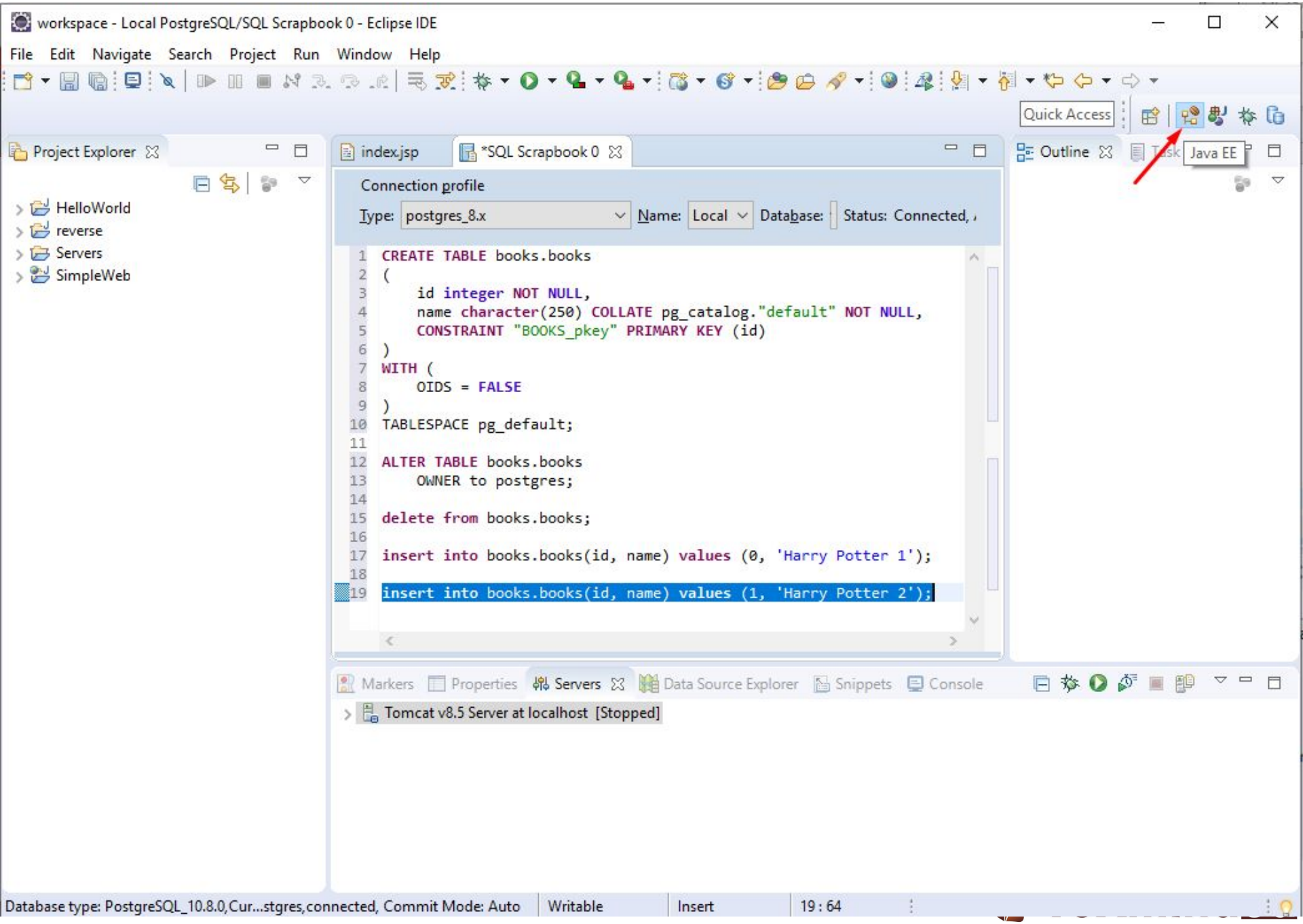
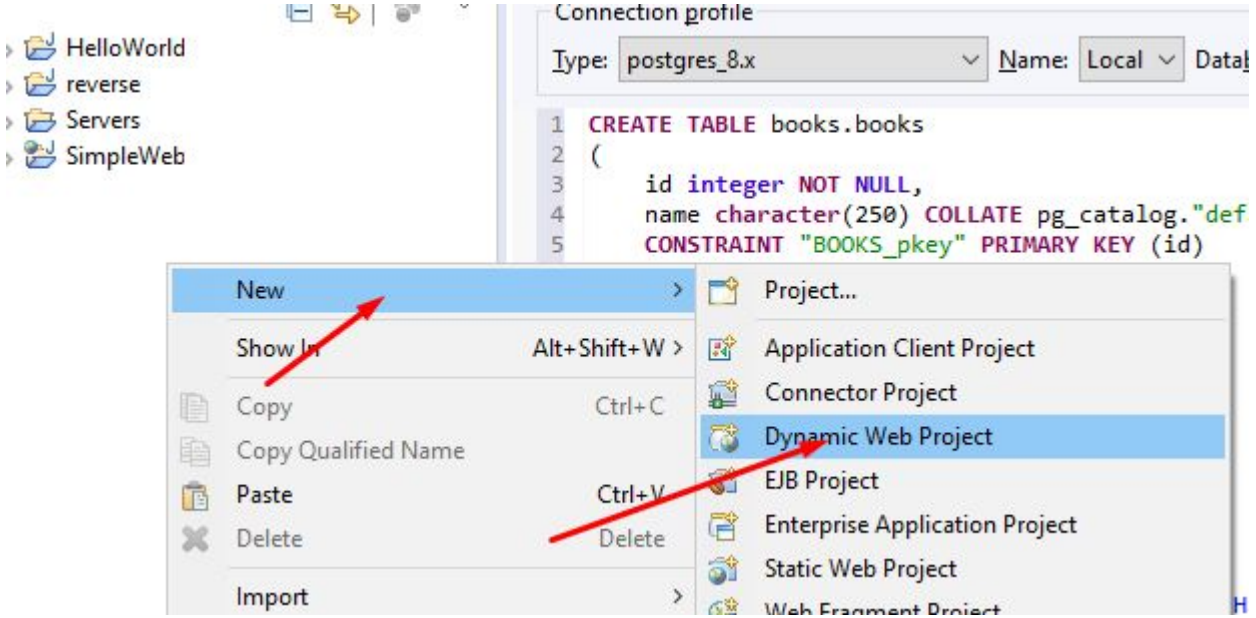
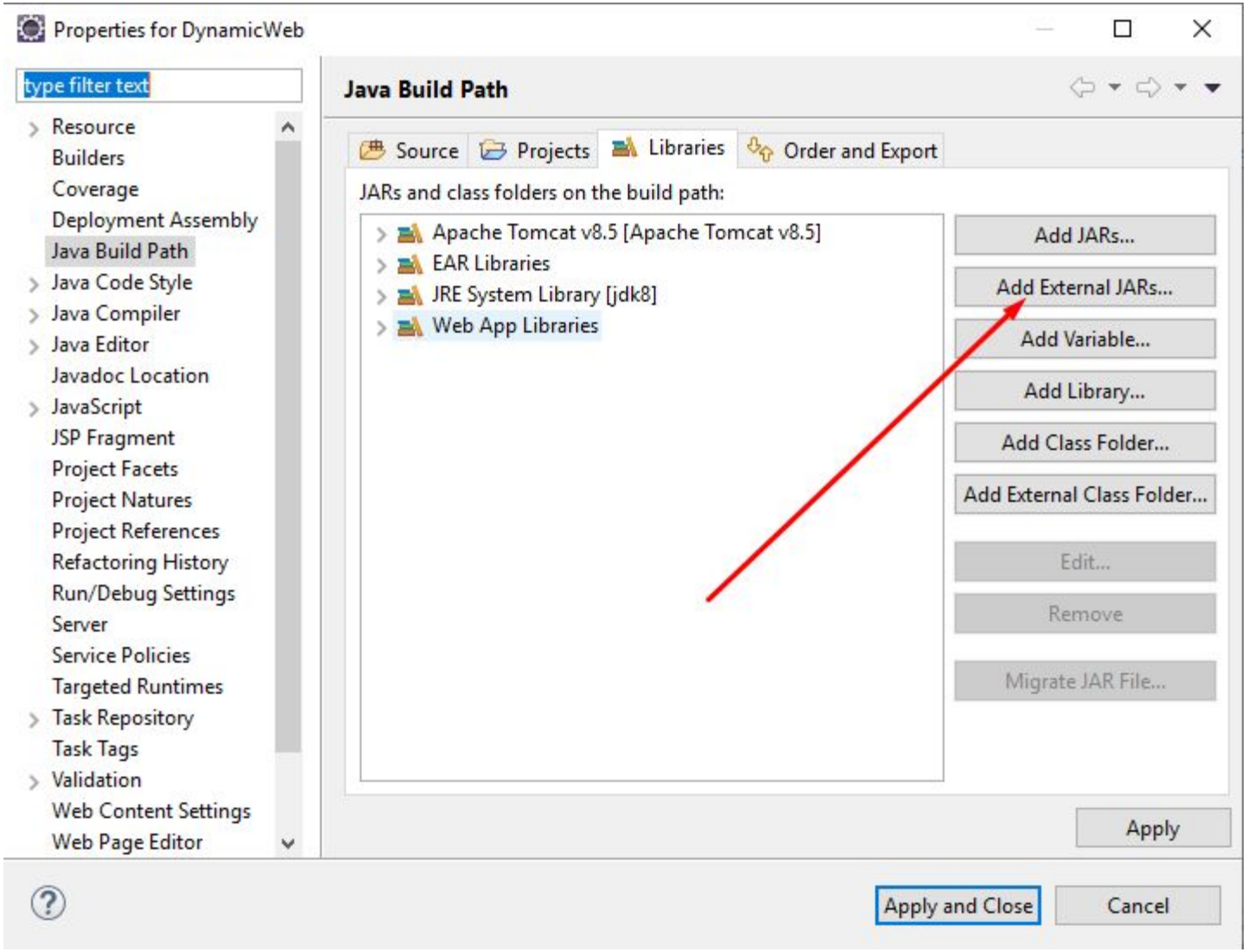

15 delete from books.books;
16
17 insert into books.books(id, name) values (0, 'Harry Potter 1');
SQL Results
Execution Plan
Bookmarks
Status
Operation
Date
Failed insert into books.books values(0, "Hol... 20 трав. 201
Failed insert into books.books (id, name) val... 20 трав. 201
Failed insert into books.books(id, name) valu... 20 трав. 201
Failed insert into books.books("id", "name") ... 20 трав. 201
Succee insert into books.books(id, name) valu... 20 трав. 201
Failed insert into books.books(id, name) valu... 20 трав. 201
Succee delete from books.books 20 трав. 201
Succee insert into books.books(id, name) valu... 20 трав. 201
Status
insert into books.books(id, name) values (0, 'Harry Potter 1')
(1 row affected)
Elapsed Time: 0 hr, 0 min, 0 sec, 5 ms.


workspace - Local PostgreSQL/SQL Scrapbook 0 - Eclipse IDE
File Edit Navigate Search Project Run Window Help
Quick Access
Java EE
Project Explorer
HelloWorld
reverse
Servers
SimpleWeb
index.jsp
*SQL Scrapbook 0
Connection profile
Type: postgres_8.x
Name: Local
Database:
Status: Connected,
1 CREATE TABLE books.books
2 (
3 id integer NOT NULL,
4 name character(250) COLLATE pg_catalog."default" NOT NULL,
5 CONSTRAINT "BOOKS_pkey" PRIMARY KEY (id)
6)
7 WITH (
8 OIDS = FALSE
9)
10 TABLESPACE pg_default;
11
12 ALTER TABLE books.books
13 OWNER to postgres;
14
15 delete from books.books;
16
17 insert into books.books(id, name) values (0, 'Harry Potter 1');
18
19 insert into books.books(id, name) values (1, 'Harry Potter 2');
Outline
Markers
Properties
Servers
Data Source Explorer
Snippets
Console
Tomcat v8.5 Server at localhost [Stopped]
Database type: PostgreSQL_10.8.0,Cur...stgres,connected, Commit Mode: Auto
Writable
Insert
19 : 64


HelloWorld
reverse
Servers
SimpleWeb
Connection profile
Type: postgres_8.x
Name: Local
CREATE TABLE books.books
(
id integer NOT NULL,
name character(250) COLLATE pg_catalog."def
CONSTRAINT "BOOKS_pkey" PRIMARY KEY (id)
New
Show In Alt+Shift+W
Copy Ctrl+C
Copy Qualified Name
Paste Ctrl+V
Delete Delete
Import
Project...
Application Client Project
Connector Project
Dynamic Web Project
EJB Project
Enterprise Application Project
Static Web Project


Properties for DynamicWeb
type filter text
Resource
Builders
Coverage
Deployment Assembly
Java Build Path
Java Code Style
Java Compiler
Java Editor
Javadoc Location
JavaScript
JSP Fragment
Project Facets
Project Natures
Project References
Refactoring History
Run/Debug Settings
Server
Service Policies
Targeted Runtimes
Task Repository
Task Tags
Validation
Web Content Settings
Web Page Editor
Java Build Path
Source
Projects
Libraries
Order and Export
JARs and class folders on the build path:
Apache Tomcat v8.5 [Apache Tomcat v8.5]
EAR Libraries
JRE System Library [jdk8]
Web App Libraries
Add JARs...
Add External JARs...
Add Variable...
Add Library...
Add Class Folder...
Add External Class Folder...
Edit...
Remove
Migrate JAR File...
Apply
Apply and Close
Cancel

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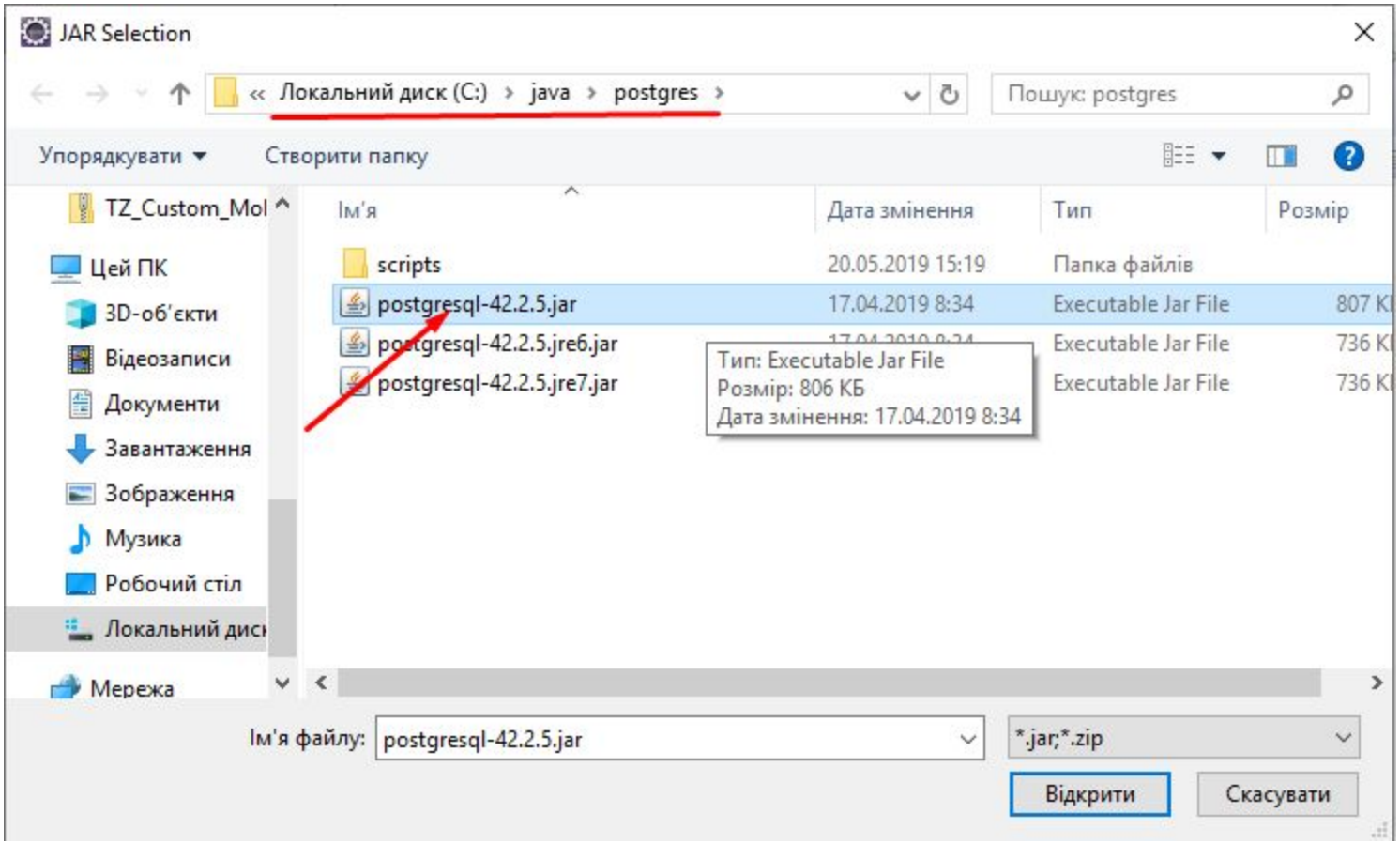
JAR Selection
« Локальний диск (C:) › java › postgres ›
Пошук: postgres
Упорядкувати
Створити папку
TZ_Custom_Mol
Цей ПК
3D-об'єкти
Відеозаписи
Документи
Завантаження
Зображення
Музика
Робочий стіл
Локальний диск
Мережа
Ім'я
Дата змінення
Тип
Розмір
scripts
20.05.2019 15:19
Папка файлів
postgresql-42.2.5.jar
17.04.2019 8:34
Executable Jar File
807 KB
postgresql-42.2.5.jre6.jar
Executable Jar File
736 KB
postgresql-42.2.5.jre7.jar
Executable Jar File
736 KB
Тип: Executable Jar File
Розмір: 806 КБ
Дата змінення: 17.04.2019 8:34
Ім'я файлу:
postgresql-42.2.5.jar
.jar;.zip
Відкрити
Скасувати

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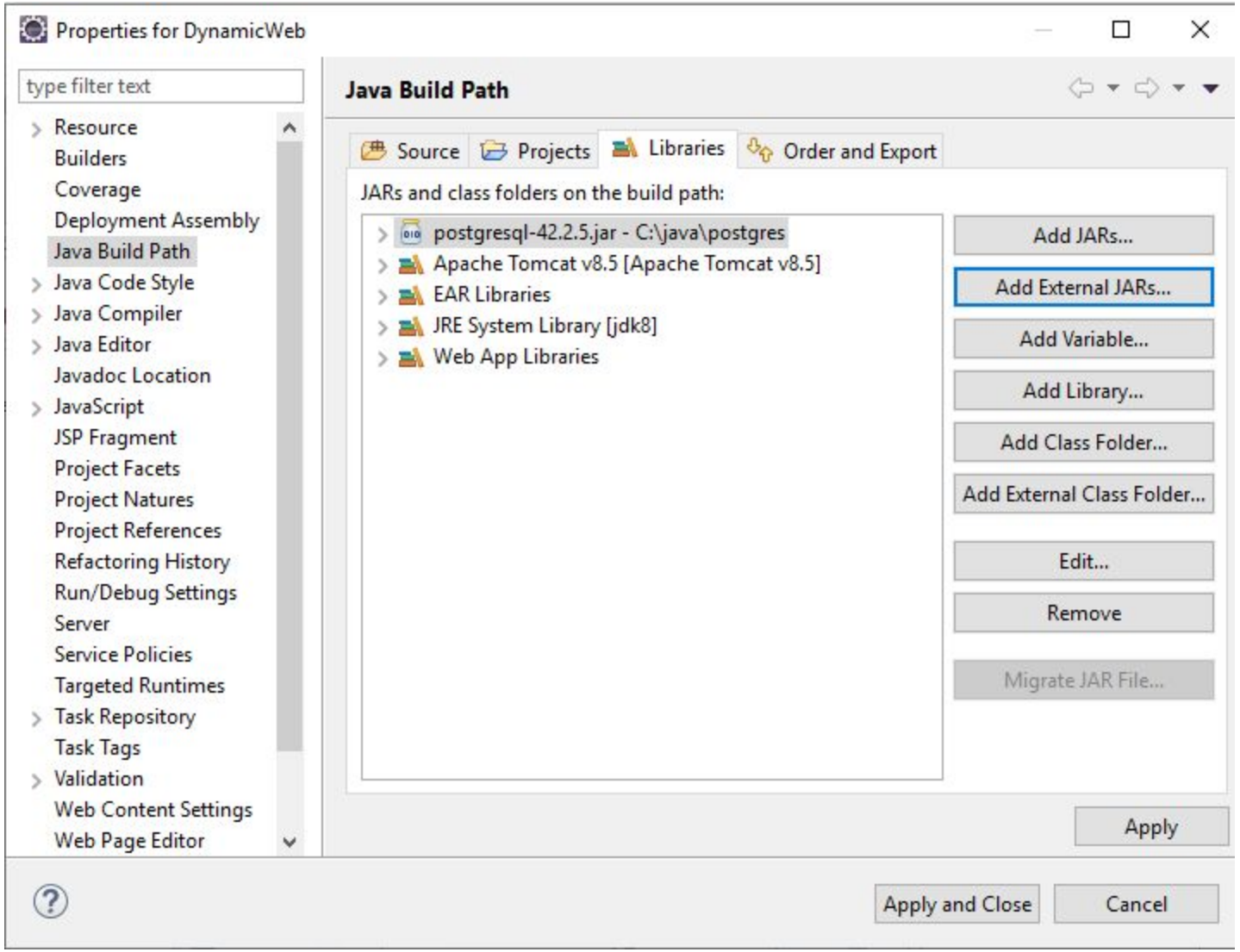
Properties for DynamicWeb
type filter text
Resource
Builders
Coverage
Deployment Assembly
Java Build Path
Java Code Style
Java Compiler
Java Editor
Javadoc Location
JavaScript
JSP Fragment
Project Facets
Project Natures
Project References
Refactoring History
Run/Debug Settings
Server
Service Policies
Targeted Runtimes
Task Repository
Task Tags
Validation
Web Content Settings
Web Page Editor
Java Build Path
Source
Projects
Libraries
Order and Export
JARs and class folders on the build path:
postgresql-42.2.5.jar - C:\java\postgres
Apache Tomcat v8.5 [Apache Tomcat v8.5]
EAR Libraries
JRE System Library [jdk8]
Web App Libraries
Add JARs...
Add External JARs...
Add Variable...
Add Library...
Add Class Folder...
Add External Class Folder...
Edit...
Remove
Migrate JAR File...
Apply
Apply and Close
Cancel

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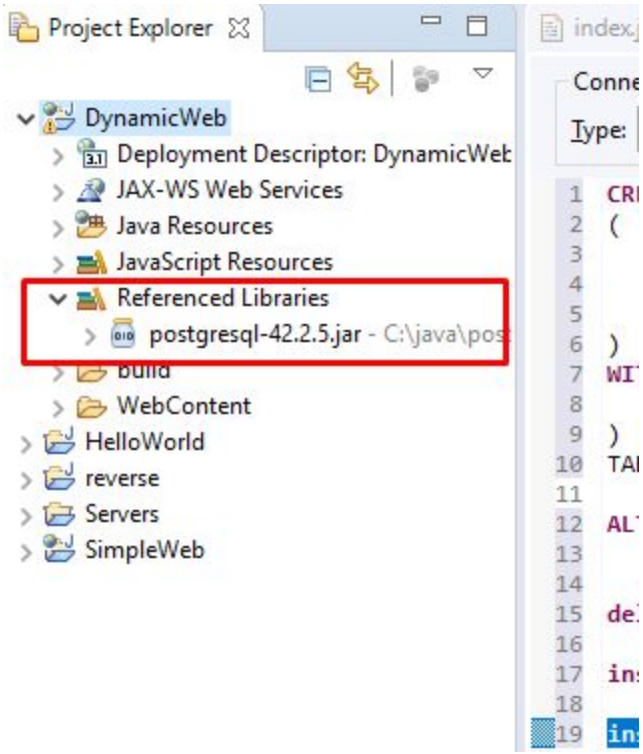
Project Explorer
DynamicWeb
Deployment Descriptor: DynamicWeb
JAX-WS Web Services
Java Resources
JavaScript Resources
Referenced Libraries
postgresql-42.2.5.jar - C:\java\pos
build
WebContent
HelloWorld
reverse
Servers
SimpleWeb
Type:

Теория

JDBC (Java Data Base Connectivity)

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Основные понятия

- Единый интерфейс
- ClassLoader
- JAVA_PATH

Connect

```
Class.forName("full.driver.class");
Connection con =
DriverManager.getConnection(URL, Properties);
//URL: jdbc:oracle://host:port/SID
//MySQL: jdbc:mysql://host:port?var1=val1&…
```

Statemets &ResultState

```
Statement st = con.createStatement();
ResultSet rs = st.executeQuery("SQL
statement");
while(rs.next()){
    String s = rs.getString(1);
    int i = rs.getInt(2);
    String name = rs.getString("name");
}
```

Close

- Устанавливается реальное соединение
- Закрываются объекты в обратном порядке
- Connection pool

Теория

JDBC (Java Data Base Connectivity)

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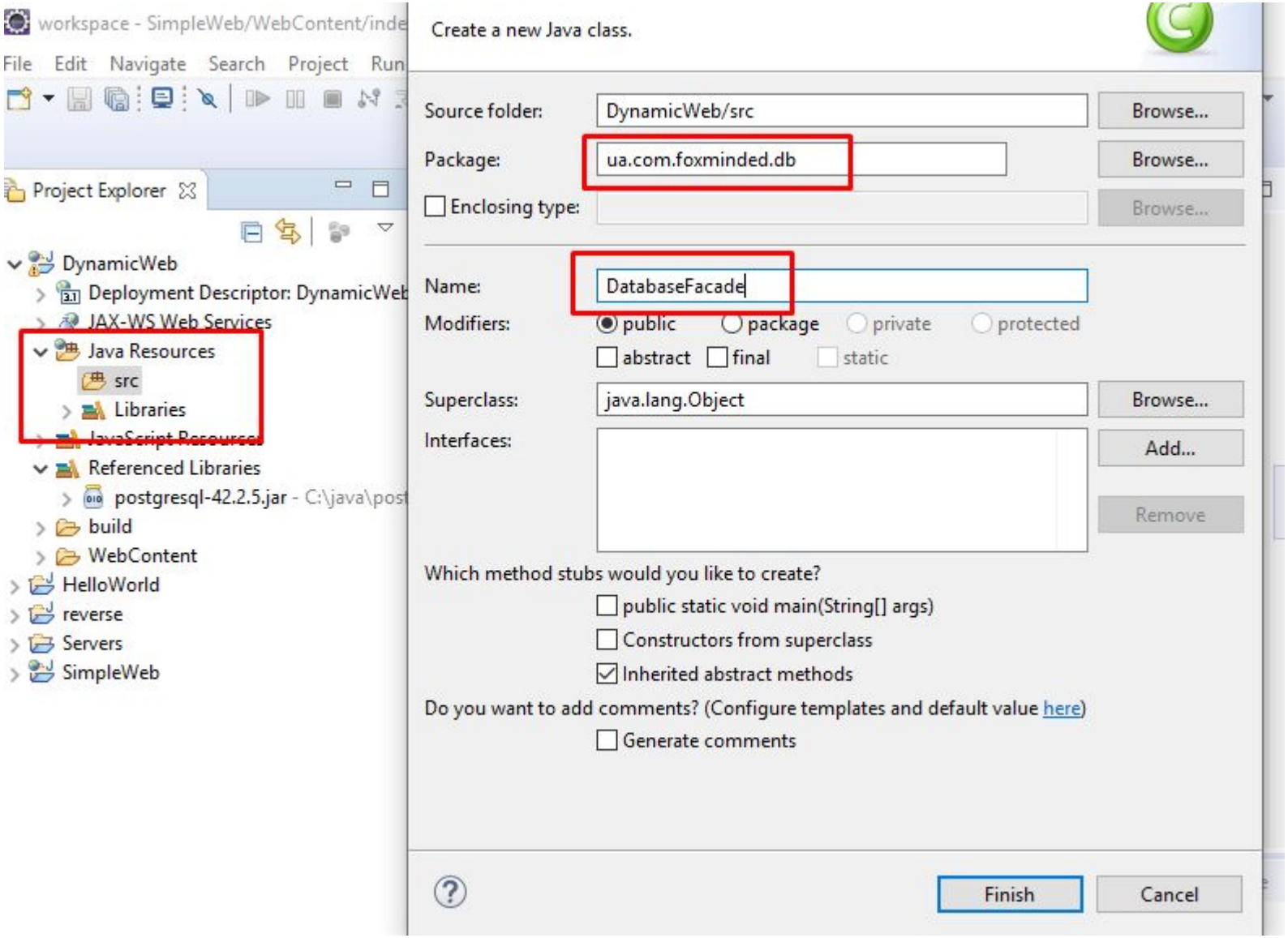
workspace - SimpleWeb/WebContent/inde
File Edit Navigate Search Project Run
Project Explorer
DynamicWeb
Deployment Descriptor: DynamicWeb
JAX-WS Web Services
Java Resources
src
Libraries
JavaScript Resources
Referenced Libraries
postgresql-42.2.5.jar - C:\java\post
build
WebContent
HelloWorld
reverse
Servers
SimpleWeb
Create a new Java class.
Source folder:
DynamicWeb/src
Browse...
Package:
ua.com.foxminded.db
Browse...
Enclosing type:
Browse...
Name:
DatabaseFacade
Modifiers:
public
package
private
protected
abstract
final
static
Superclass:
java.lang.Object
Browse...
Interfaces:
Add...
Remove
Which method stubs would you like to create?
public static void main(String[] args)
Constructors from superclass
Inherited abstract methods
Do you want to add comments? (Configure templates and default value here)
Generate comments
Finish
Cancel

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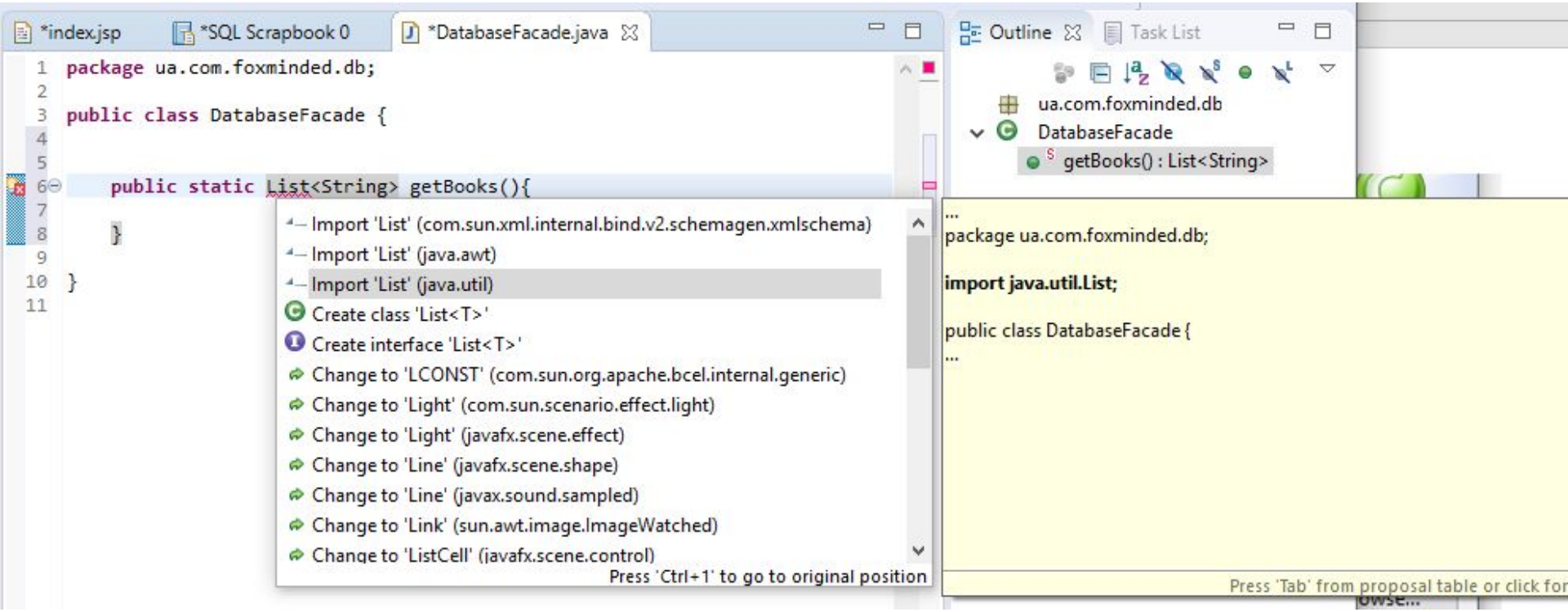
*index.jsp
*SQL Scrapbook 0
*DatabaseFacade.java
Outline
Task List
1 package ua.com.foxminded.db;
2
3 public class DatabaseFacade {
4
5
6 public static List<String> getBooks(){
7
8 }
9
10 }
11
Import 'List' (com.sun.xml.internal.bind.v2.schemagen.xmlschema)
Import 'List' (java.awt)
Import 'List' (java.util)
Create class 'List<T>'
Create interface 'List<T>'
Change to 'LCONST' (com.sun.org.apache.bcel.internal.generic)
Change to 'Light' (com.sun.scenario.effect.light)
Change to 'Light' (javafx.scene.effect)
Change to 'Line' (javafx.scene.shape)
Change to 'Line' (javax.sound.sampled)
Change to 'Link' (sun.awt.image.ImageWatched)
Change to 'ListCell' (javafx.scene.control)
Press 'Ctrl+1' to go to original position
ua.com.foxminded.db
DatabaseFacade
getBooks() : List<String>
...
package ua.com.foxminded.db;
import java.util.List;
public class DatabaseFacade {
...
Press 'Tab' from proposal table or click for

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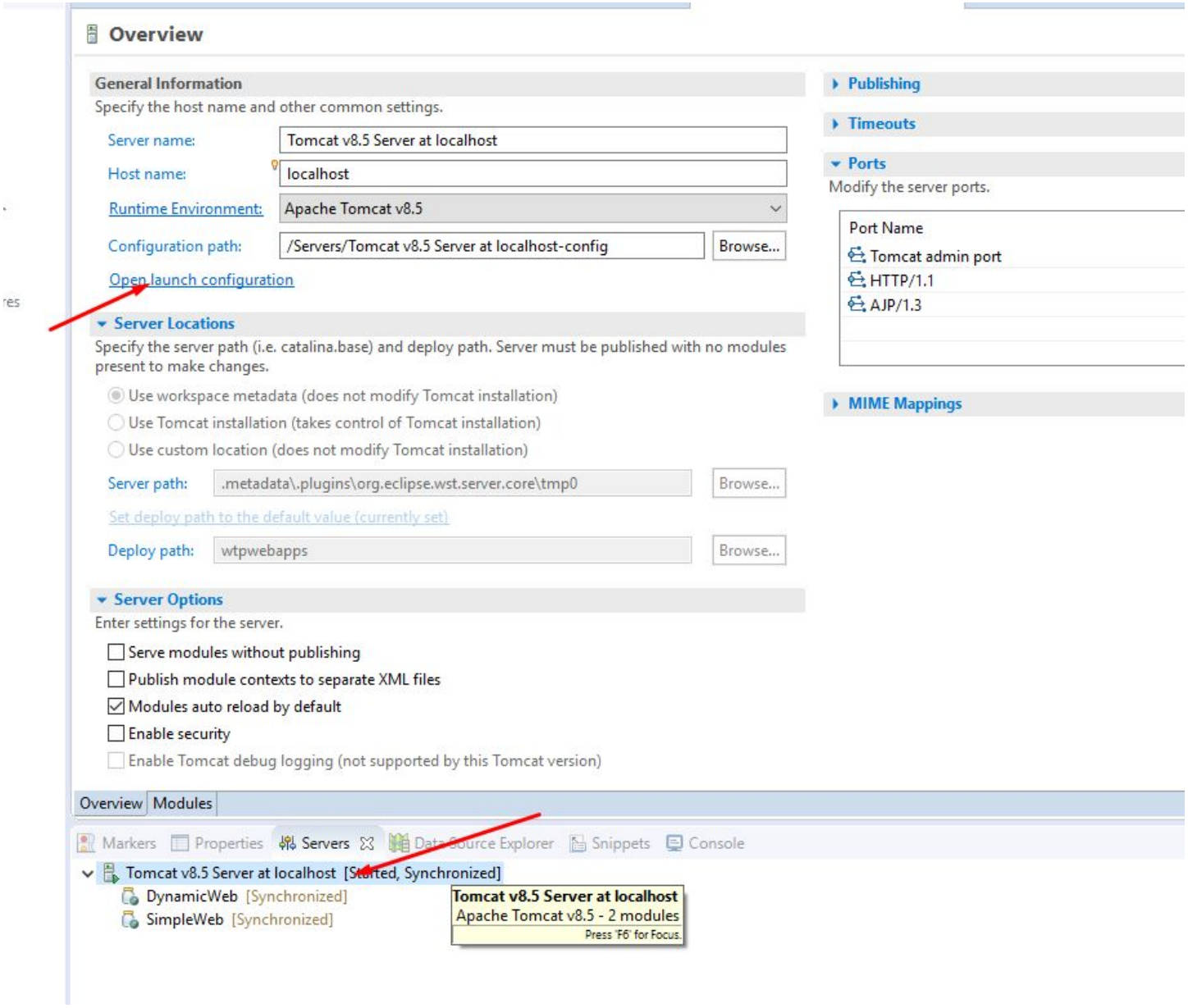
Overview
General Information
Specify the host name and other common settings.
Server name:
Tomcat v8.5 Server at localhost
Host name:
localhost
Runtime Environment:
Apache Tomcat v8.5
Configuration path:
/Servers/Tomcat v8.5 Server at localhost-config
Browse...
Open launch configuration
Server Locations
Specify the server path (i.e. catalina.base) and deploy path. Server must be published with no modules present to make changes.
Use workspace metadata (does not modify Tomcat installation)
Use Tomcat installation (takes control of Tomcat installation)
Use custom location (does not modify Tomcat installation)
Server path:
.metadata\.plugins\org.eclipse.wst.server.core\tmp0
Browse...
Set deploy path to the default value (currently set)
Deploy path:
wtpwebapps
Browse...
Server Options
Enter settings for the server.
Serve modules without publishing
Publish module contexts to separate XML files
Modules auto reload by default
Enable security
Enable Tomcat debug logging (not supported by this Tomcat version)
Publishing
Timeouts
Ports
Modify the server ports.
Port Name
Tomcat admin port
HTTP/1.1
AJP/1.3
MIME Mappings
Overview
Modules
Markers
Properties
Servers
Data Source Explorer
Snippets
Console
Tomcat v8.5 Server at localhost [Started, Synchronized]
DynamicWeb [Synchronized]
SimpleWeb [Synchronized]
Tomcat v8.5 Server at localhost
Apache Tomcat v8.5 - 2 modules
Press 'F6' for Focus.

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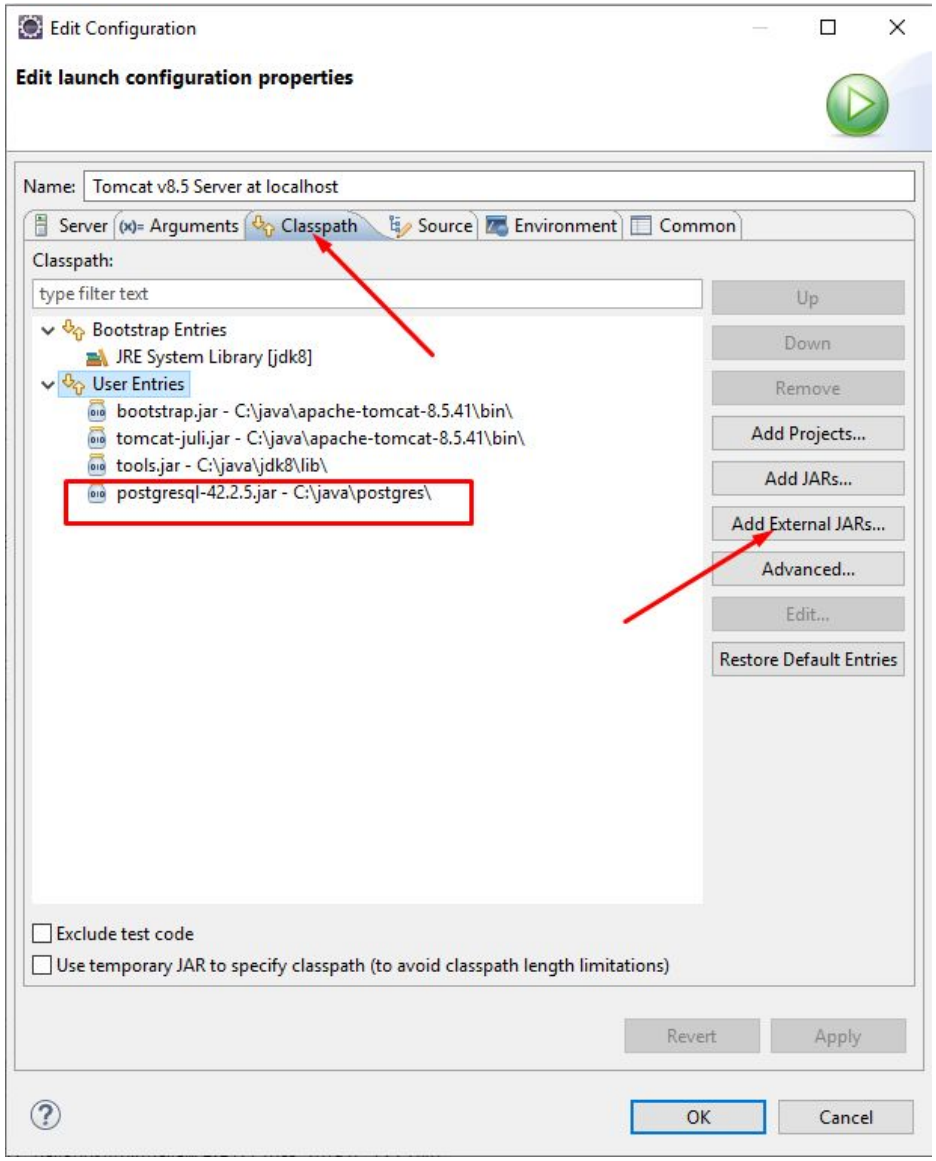

Edit Configuration
Edit launch configuration properties
Name: Tomcat v8.5 Server at localhost
Server
Arguments
Classpath
Source
Environment
Common
Classpath:
type filter text
Bootstrap Entries
JRE System Library [jdk8]
User Entries
bootstrap.jar - C:\java\apache-tomcat-8.5.41\bin\
tomcat-juli.jar - C:\java\apache-tomcat-8.5.41\bin\
tools.jar - C:\java\jdk8\lib\
postgresql-42.2.5.jar - C:\java\postgres\
Up
Down
Remove
Add Projects...
Add JARs...
Add External JARs...
Advanced...
Edit...
Restore Default Entries
Exclude test code
Use temporary JAR to specify classpath (to avoid classpath length limitations)
Revert
Apply
OK
Cancel

index.jsp | DatabaseFacade.java | index.jsp | Insert title here | Tomcat v8.5 Server at localhost

```java
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
import java.util.ArrayList;
import java.util.List;

public class DatabaseFacade {

    public static List<String> getBooks() {

        List<String> result = new ArrayList<String>();


        try (Connection connection = DriverManager.getConnection("jdbc:postgresql://localhost:5432/postgres",
                "postgres", "1234")) {

            System.out.println("Java JDBC PostgreSQL Example");



            System.out.println("Connected to PostgreSQL database!");
            Statement statement = connection.createStatement();

            ResultSet resultSet = statement.executeQuery("SELECT * FROM books.books");
            while (resultSet.next()) {
                result.add(resultSet.getString("name"));
            }

        } catch (SQLException e) {
            System.out.println("Connection failure.");
            e.printStackTrace();
        }
        return result;

    }

}
```

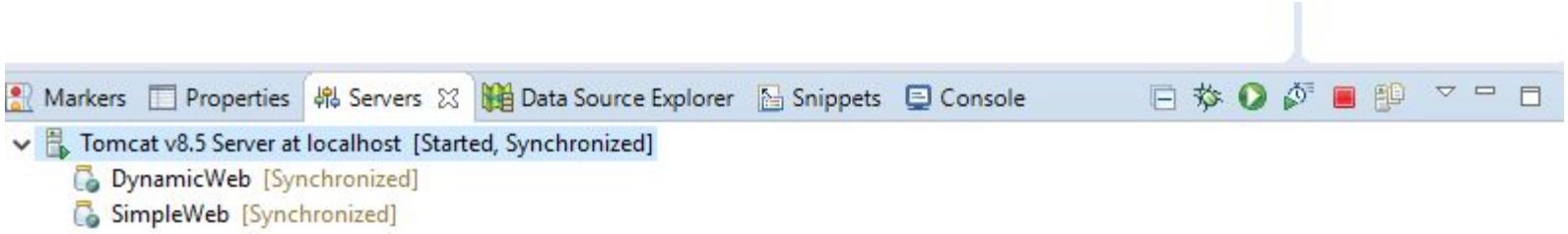
index.jsp | DatabaseFacade.java | index.jsp | Insert title here | Tomcat v8.5 Server at localhost

```jsp
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>

<%@ page import="ua.com.foxminded.db.*"%>

<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
    <h1>Hello World</h1>
    <br>
    <%
        for(String name : DatabaseFacade.getBooks()){
            out.println(name + "<br/>");
        }
    %>

</body>
</html>
```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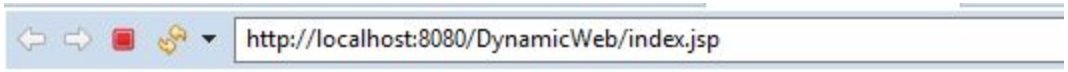
Console
Tomcat v8.5 Server at localhost [Started, Synchronized]
DynamicWeb [Synchronized]
SimpleWeb [Synchronized]



Hello World

Harry Potter 1
Harry Potter 2

Ваши вопросы

http://foxmindEd.com

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