Primary Key vs. Candidate Key vs. Super Key

A super key is a set of attributes that can be used to identify other similar attributes. The candidate keys are individual columns in the table that are unique to that table across the rows. The primary key is the column that keeps the uniqueness in designated table.

Data Types

In SQL, data can be represented in various different data type values. A number may be represented as an integer, a decimal, a float, a numeric, or other data type depending on the value of the number. Boolean can be used to identify true and false data. The data type character(n), is used to identify a character string and the "n" is used to represent a fixed length. The time, date, and timestamp data types can be used to store a time and/or date.

A database that keeps track of all songs released in 2016 could have some of the following fields:

FIELD NAME	DATA TYPE	NULLABLE
Title	Character	No
ReleaseDate	Date	No
Artist	Character	No
Genre	Character	No
Length	Time	No
Downloads	Integer	No
Awards	Character	Yes

Relational Rules

a) **The "first normal form" rule**

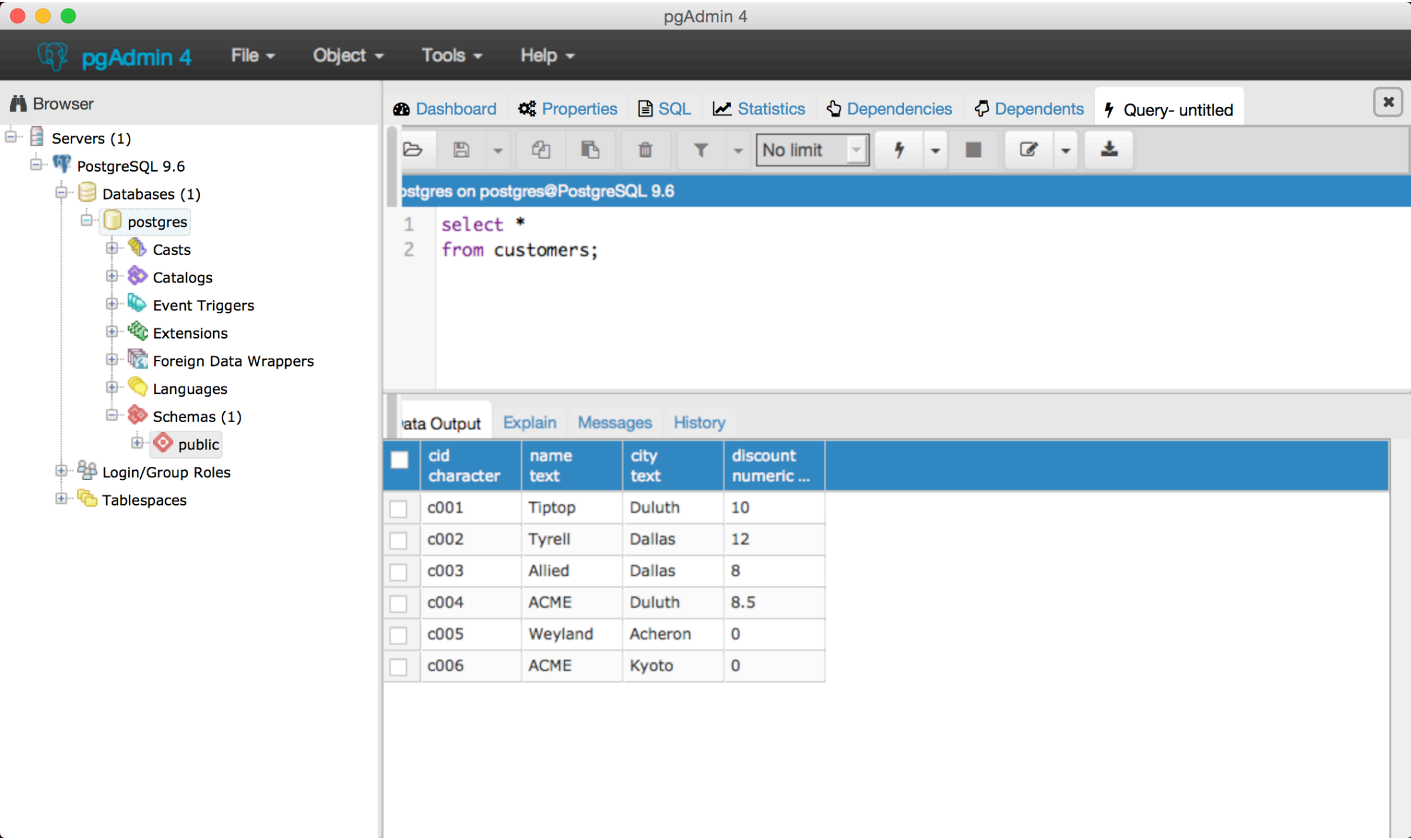
The *"first normal form"* rule states that the values of each attribute are atomic. Each column must have its own name and all the entries in any column must be of the same kind. No two rows are identical. An example would be if a database that was meant to store personal information asked for multiple phone numbers, instead of having two phone numbers in one field, another row would be formed with the second phone number in the phone number field. This rule contains important implications towards good database table design.

b) The "access rows by content only" rule

The *"access rows by content only"* rule states that rows can only be retrieved from the attribute values that exist in the row, the content. An example is that the user cannot ask to retrieve the fifth row of a table, the user must look for the content of one of the fields.

c) The "all rows must be unique" rule

The *"all rows must be unique"* rule states that there can not be two rows with identical elements in the data fields. All the data fields can not be the same, there must be at least one element that makes the row unique to all other rows in the table. This rule is important, especially for large databases, as it it important that a new row is not duplicating an existing row. An example would be if two rows had identical information, there needs to be some field that can make every row unique to each other.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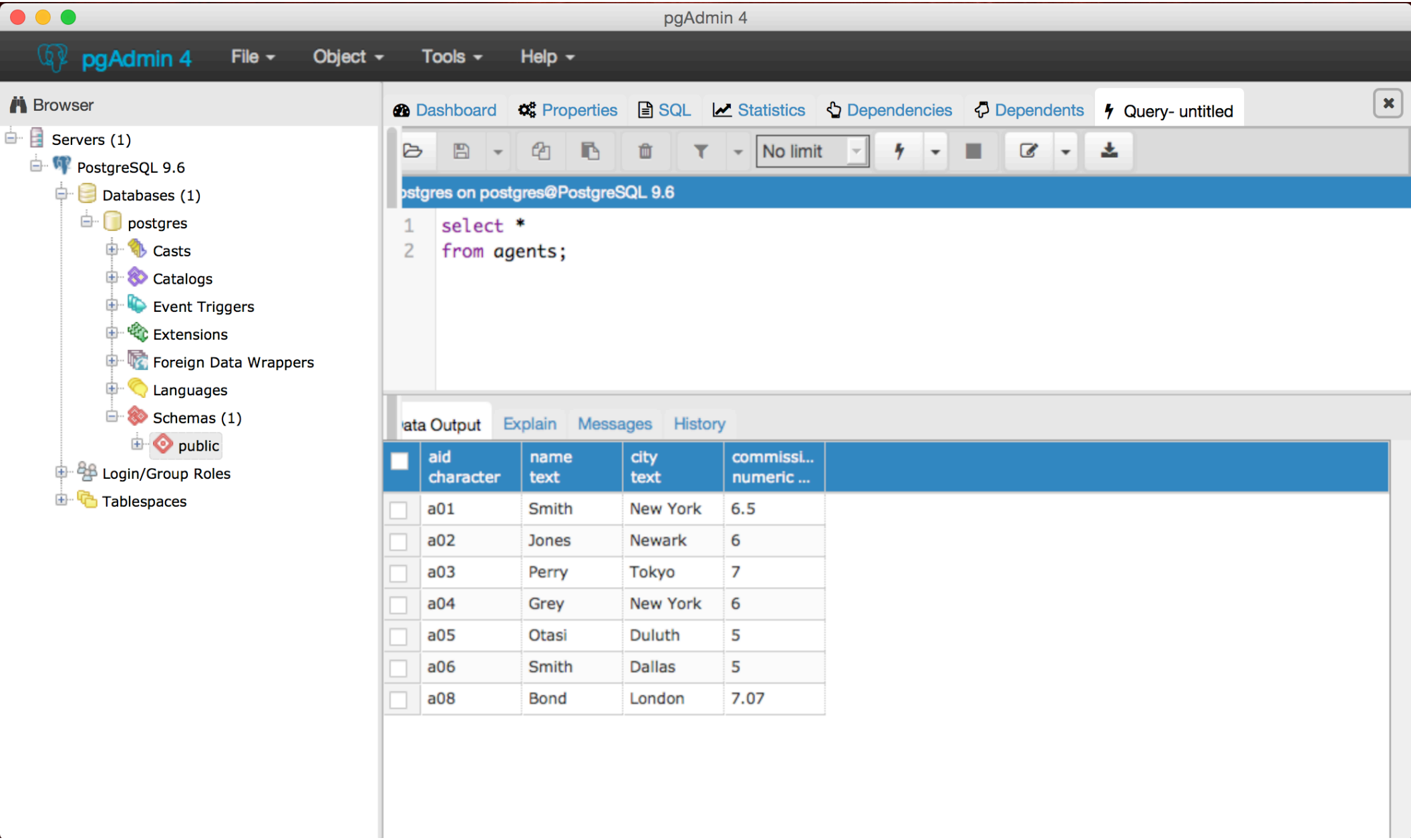
stgres on postgres@PostgreSQL 9.6
1 select *
2 from customers;
ata Output
Explain
Messages
History
cid character
name text
city text
discount numeric ...
c001 Tiptop Duluth 10
c002 Tyrell Dallas 12
c003 Allied Dallas 8
c004 ACME Duluth 8.5
c005 Weyland Acheron 0
c006 ACME Kyoto 0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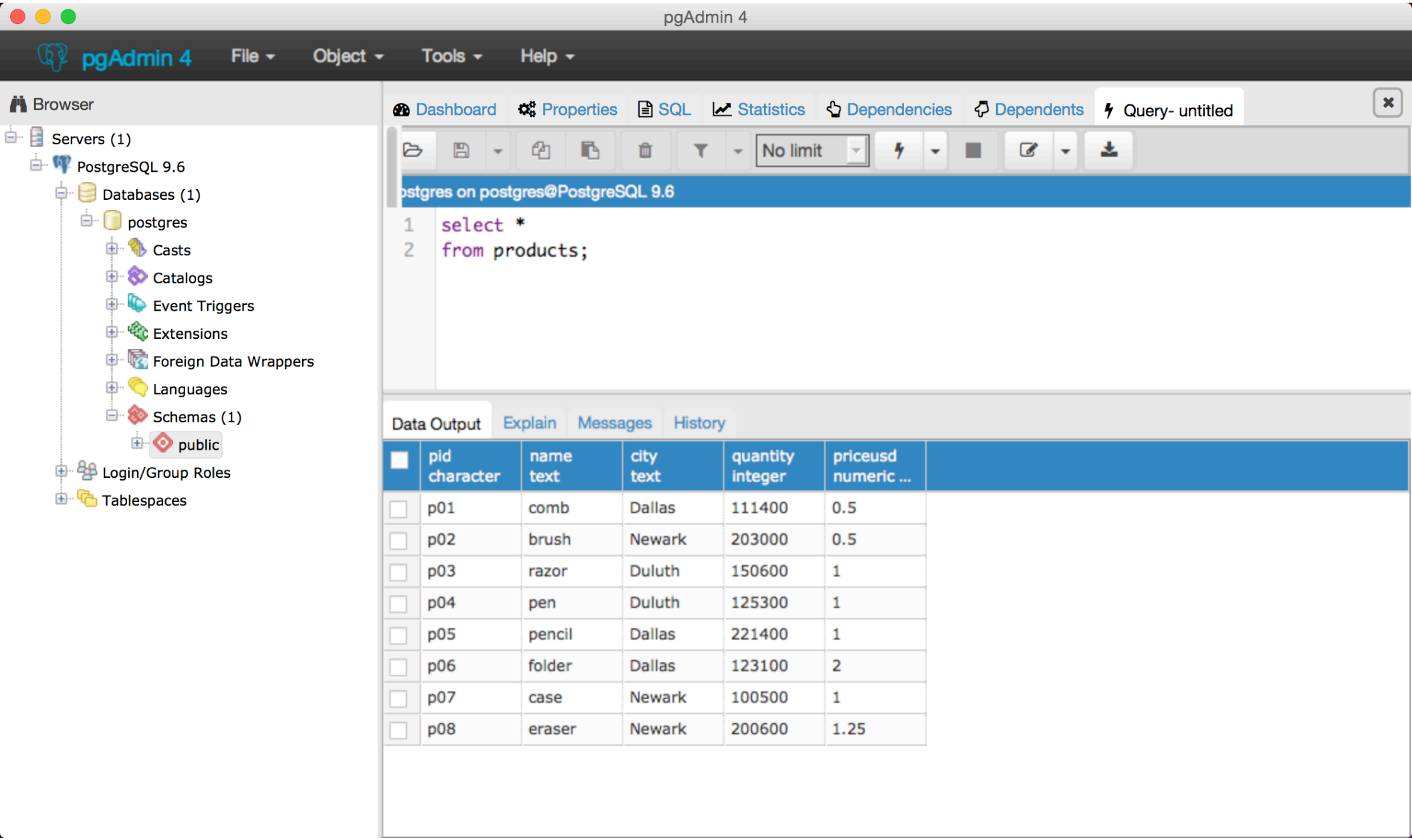
Query- untitled
No limit
ostgres on postgres@PostgreSQL 9.6
1 select *
2 from agents;
ata Output
Explain
Messages
History
aid character
name text
city text
commissi... numeric ...
a01 Smith New York 6.5
a02 Jones Newark 6
a03 Perry Tokyo 7
a04 Grey New York 6
a05 Otasi Duluth 5
a06 Smith Dallas 5
a08 Bond London 7.07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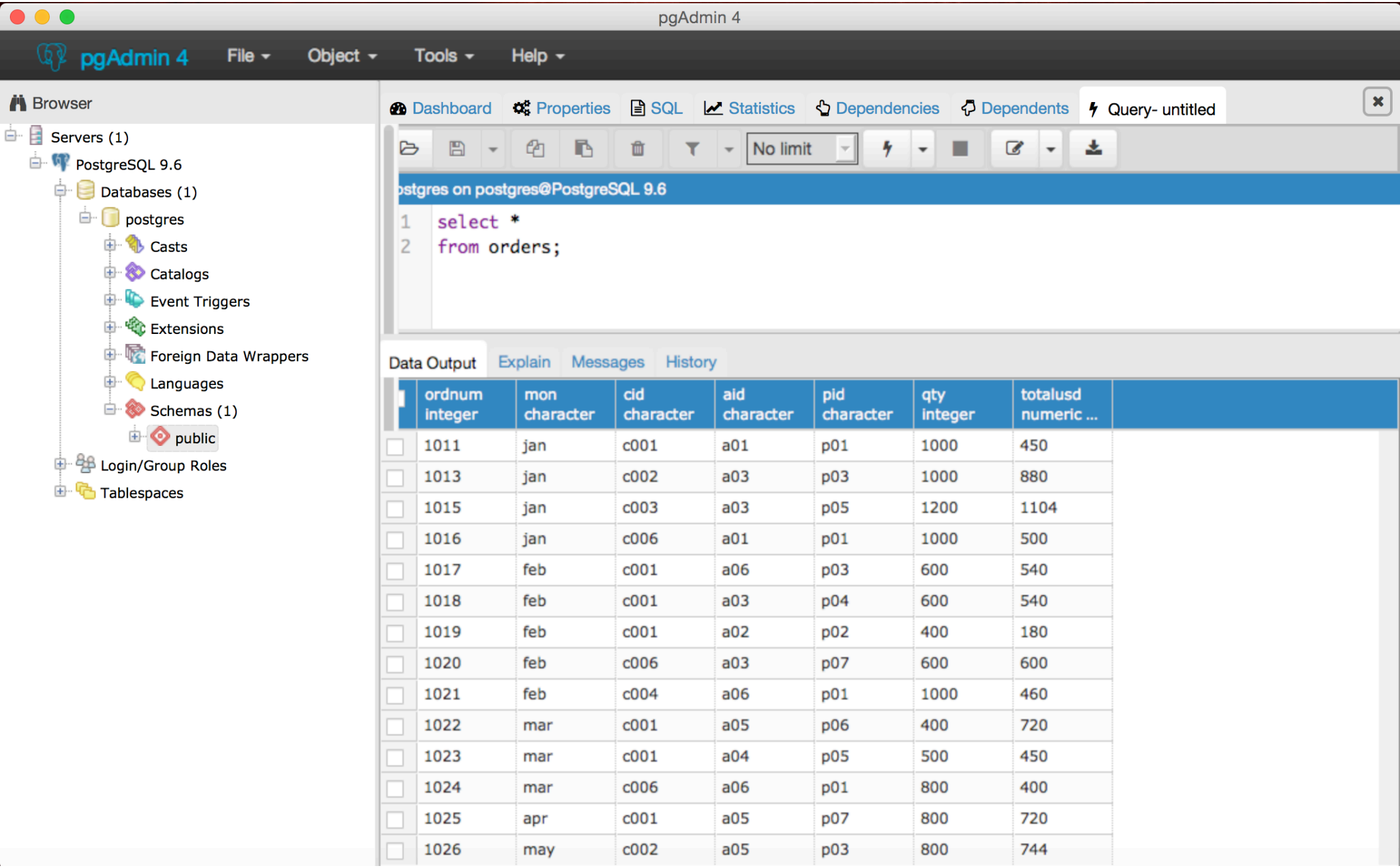
Dependents
Query- untitled
No limit
stgres on postgres@PostgreSQL 9.6
1 select *
2 from products;
Data Output
Explain
Messages
History
pid character
name text
city text
quantity integer
priceusd numeric ...
p01 comb Dallas 111400 0.5
p02 brush Newark 203000 0.5
p03 razor Duluth 150600 1
p04 pen Duluth 125300 1
p05 pencil Dallas 221400 1
p06 folder Dallas 123100 2
p07 case Newark 100500 1
p08 eraser Newark 200600 1.25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Dependents
Query- untitled
No limit
stgres on postgres@PostgreSQL 9.6
1 select *
2 from orders;
Data Output
Explain
Messages
History
ordnum integer
mon character
cid character
aid character
pid character
qty integer
totalusd numeric ...
1011 jan c001 a01 p01 1000 450
1013 jan c002 a03 p03 1000 880
1015 jan c003 a03 p05 1200 1104
1016 jan c006 a01 p01 1000 500
1017 feb c001 a06 p03 600 540
1018 feb c001 a03 p04 600 540
1019 feb c001 a02 p02 400 180
1020 feb c006 a03 p07 600 600
1021 feb c004 a06 p01 1000 460
1022 mar c001 a05 p06 400 720
1023 mar c001 a04 p05 500 450
1024 mar c006 a06 p01 800 400
1025 apr c001 a05 p07 800 720
1026 may c002 a05 p03 800 744