MS Access as a Front End for PostgreSQL

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1 Introduction

This document briefly describes a procedure for configuring Microsoft Access and PostgreSQL to work together as client and server.

1.1 Why?

Professional-quality web applications require a robust, high-performance database engine. PostgreSQL is one of the best databases available, and its price (free) is hard to beat. From a developer's perspective, however, it is useful to have a graphical interface for table and query design, and this is a feature that is lacking in PostgreSQL. Microsoft Access provides an easy-to-use GUI and can make an excellent client for PostgreSQL.

1.2 Prerequisites

This document assumes that you have working installations of PostgreSQL and Access. The command-line and SQL examples for PostgreSQL are taken from a Linux environment; you may encounter minor differences if you are running PostgreSQL on Windows.

2 PostgreSQL Setup

Before performing these steps, you should have PostgreSQL installed and running. You also need to have administrative privileges over the database.

2.1 Create the Database

The easiest way to create a PostgreSQL database is to use the createdb command:

bash-2.03\$ createdb skills_matrix CREATE DATABASE

Next we log in to our new database ...

bash-2.03\$ psql skills_matrix Welcome to psql, the PostgreSQL interactive terminal. Type: \copyright for distribution terms \h for help with SQL commands \? for help on internal slash commands \g or terminate with semicolon to execute query \q to quit ...and create some tables:

```
skills_matrix=# CREATE TABLE categories (
skills_matrix(# Category_ID INT PRIMARY KEY,
skills_matrix(# Category_Name VARCHAR(64) NOT NULL,
skills_matrix(# HTML_ID VARCHAR(16) NOT NULL
skills_matrix(# );
NOTICE: CREATE TABLE/PRIMARY KEY will create implicit index 'cate-
gories_pkey' for table 'categories'
CREATE
skills_matrix=#
```

2.2 Create a User

There are two ways to create a PostgreSQL user: you can use the createuser script from the command line, or you can log in to a database and use a SQL CREATE USER statement. I recommend the latter approach because it is easier that way to set some important options such as the password; also, you will need to log in to the database anyway to grant permissions to the user.

skills_matrix=# CREATE USER joebob; CREATE USER skills_matrix=#

However, there is one problem with the above command. Our new user has no password, which means he or she can access the database without no authentication. We can create a user with a password this way:

```
skills_matrix=# CREATE USER joebob WITH PASSWORD 'griddlewhelp';
CREATE USER
skills matrix=#
```

2.3 Grant Permissions

By default, a new user has no access to any resources in the database. You can use the SQL GRANT command to give the user privileges on a per-table basis:

```
skills_matrix=# GRANT SELECT ON categories TO joebob;
CHANGE
skills_matrix=#
```

If you wish to give a user full control over a given table, rather than granting each permission individually, you can simply use the ALL keyword, as shown here:

```
skills_matrix=# GRANT ALL ON members TO joebob;
CHANGE
skills_matrix=#
```

2.4 Configure Remote Access

In order to allow remote users to connect to your database, you must edit the file \$PG_DATA/pg_hba.conf.

TYPE DATABASE IP_ADDRESS MASK AUTHTYPE MAP
....
host all 10.0.0.5 255.255.255 password

This line says that access is being given to a particular host or group of hosts; these hosts can access all databases in the system; the host being given access has an IP address of 10.0.0.5, with a netmask of 255.255.255.255 (i.e., the IP address must be *exactly* 10.0.0.5); and clear-text passwords will be used for authentication. The optional MAP parameter is omitted.

2.5 Restart the PostgreSQL Daemon

swordfish:/var/lib/postgres/data# su postgres
swordfish:~/data\$ /opt/bin/pg_ctl restart
waiting for postmaster to shut down....done
postmaster successfully shut down
postmaster successfully started
swordfish:~/data\$ DEBUG: database system was shut down at 2002-0621 11:59:04 MDT
DEBUG: CheckPoint record at (0, 27162456)
DEBUG: Redo record at (0, 27162456); Undo record at (0, 0); Shutdown TRUE DEBUG: NextTransactionId: 3239; NextOid: 48121
DEBUG: database system is in production state

3 Setting up an ODBC Data Source

3.1 Open the Windows Control Panel



3.2 Select "ODBC Data Sources"

	💀 Control Panel						
	∫ <u>F</u> ile <u>E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp						
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уd	Address 🗟 Control Panel						
	Ł	*		*	8	Ē	
	Accessibility Options	Add New Hardware	Add/Remove Programs	Automatic Updates	Date/Time	Dial-Up Networking	
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	Find Fast	Folder Options	Fonts	Gaming Options	Internet Options	Java Plug-in 1.4.0	
lec (ی Mail	ی Modems	Mouse	e e MSDTC	Network	ODBC Data Sources (32bit)	F

3.3 Select the "System DSN" Tab

🌕 ODBC Data	Source Administrator ? 🗙			
User DSN Sys	tem DSN File DSN Drivers Tracing Connection Pooling About			
System Data Sources:				
Name IT_Sams_Sk	Driver Add ills Microsoft Access Driver (*.mdb) Remove Configure			
ir n	in ODBC System data source stores information about how to connect to the idicated data provider. A System data source is visible to all users on this nachine, including NT services.			
	OK Cancel Apply Help			

3.4 Select the PostgreSQL Driver

Create New Data Source			×
Sel Mi Mi Mi Mi	Select a driver for which you want to set up a data source. Name Version Compr Microsoft FoxPro VFP Driver (*.dbf) 6.01.8629.01 Microsoft Microsoft ODBC for Oracle 2.573.4403.00 Microsoft Microsoft Paradox Driver (*.db) 4.00.4403.02 Microsoft Microsoft Text Driver (*.db) 4.00.4403.02 Microsoft Microsoft Visual FoxPro Driver 6.01.8629.01 Microsoft		
	sistgreSQL+ (Beta) sistgreSQL+ (Beta) ostgreSQL+ Unicode (Beta) QL Server	7.02.00.01 7.02.00.01 7.02.00.01 7.02.00.01 3.70.08.20	Insight Insight Insight Micros
	< Back Fi	nish	Cancel

3.5 Fill in the Setup Form

PostgreSQL Driver Setup			
<u>D</u> ata Source:	PGSkills	Des <u>c</u> ription:	
Data <u>b</u> ase:	skills_matrix		
<u>S</u> erver:	10.0.0.2	Port: 5432	
User Name: joebob		Pass <u>w</u> ord: *********	
		Options (Advanced):	
ОК	Cancel	Driver DataSource	

Field	Description
Data Source	Any name you wish to give the data source. Names with no spaces are preferable.
Database	The real name of the database you wish to access.
Server	The hostname or IP address of the database server.
Port	The port that the database daemon listens on. Usually 5432 for PostgreSQL.
User Name	The user name you created earlier.
Password	The password you created earlier.

3.6 Your Data Source is Ready



4 Creating a Linked Database in Access

4.1 Create a Blank Database

Microsoft Access			
Create a new database using			
Blank Access database			
▲ccess database wizards, pages, and projects			
© Open an existing file			
More Files devel\itsams-web-dynamic\db\SkillsMatrix ODBC ODBC5 ODBC4			
OK Cancel			

4.2 Right-click in the Tables Window and Select "Link Tables"



4.3 Select "ODBC Databases"



4.4 Select the PostgreSQL Data Source

Select Data Source					
File Data Source Machine Data Source					
	Data Source Name	Туре	Description		
	Excel Files	User			
	FoxPro Files - Word IT_Sams_Skills MS Access 97 Database	User System User	Skills matrix database		
	MS Access Database	User			
	PGSkills Visual FoxPro Database	System User			
	Visual FoxPro Tables	User		-	
	•				
			1	Vew	
	A Machine Data Source is spec sources are specific to a user or all users on this machine, or by a	ific to this m n this machi a system-wi	achine, and cannot be shared. "Us ne. "System" data sources can be de service.	er" data used by	
			OK Cancel	Help	

4.5 Select All Tables You Wish to Include

Link Tables	? ×
Tables	
categories	ок
	Cancel
	Select <u>A</u> ll
	D <u>e</u> select All
	□ Sa <u>v</u> e password

4.6 Done!

