PostGRESQL



- "The world's most advanced open source database"
- □ Free 🙂
- □ We'll be using it for the 343 assignments.

Where?

- Central Site: postgresql.org
- Latest Releases
 - 8.1 (8.1.4) (binary)
- Do not take an older version. It may need Cygwin.
- Pre-compiled binaries are available for Linux and Windows only.

- Windows users: Only on NTFS
- Mac users: No native binaries are available
- But you can install by compiling the source. Google: postgresql on mac

□ Linux 😳

Windows Install - Min Requirements

Min Requirements

- CPU: 32-bit CPUs from either Intel or AMD
- Operating System: Windows XP or Windows Server 2003
- Getting the Installer
 - Download the latest version of PostgreSQL for Windows from the official website

site - <u>http://www.postgresql.org</u>

Installation comes with a zip file. Double-click on the postgresql-8.1.msi file to launch the installer.



Check the "Write detailed installation log to postgresql-8.1.log in the current

🛃 PostgreSQL	directory".			
Welcome to the Postgre	eSQL Installation Wiza	rd	\J	\mathbb{Z}
Select the language to be used	during installation:			
O German / Deutsch				
O French / Français O Brazilian Portuguese / Po	ortuguês - Brasil			
Russian / Russian				
 Swedish / Svenska Turkish / Türkçe 				
Write detailed installation log	g to postgresql-8.1.log in the cu	rrent directory		
		<u>S</u> tart >	Can	cel

Click on Next



Read Installation notes and proceed to next screen



Select PL/Java: If you don't have Java Runtime, abort the installation and install Java runtime and start the install again

Change the installation directory (if needed)

🛃 PostgreSQL	
Installation options	LS Z
PostgreSQL Database Server Data directory National language supp PostGIS Spatial Extens Vser Interfaces psql pgAdmin III Database Drivers	Supports stored procedures written in Java, PL/Java requires a Java Runtime Environment. This feature requires 0KB on your hard drive.
	BIowse
< <u>B</u> ack <u>N</u> ext > Cancel	

- The "Account name" pertains to the Windows special user account that will be used to run the PostgreSQL database server.
- Make sure "Account domain" actually exists otherwise the installation will fail at a later point of time.

PostgreSQL		
Service configur	ation	\mathbb{Z}
🗹 Install as a servic	e	
Service name	PostgreSQL Database Server 8.1	
Account name	postgres	
Account domain	WKSTN1	
Account password	*****	
Verify password	******	
The service account is the account that runs the PostgreSQL database server. It must NOT be a member of the local administrators group. If you have not already created an account, the installer can do so for you. Enter an account name and a password, or leave the password blank to have one auto-generated.		
	< <u>B</u> ack <u>N</u> ext > Cance	el

Click on Yes. Installation will automatically create the account if that account doesn't exist.



Select Yes/No depending on your choice. If yes, random password will be generated. If No, weak password will remain as your password.



- 1. Do not confuse this "superuser name" with the Windows special user account created earlier.
- 2. The superuser here pertains to the PostgreSQL database server account that can create databases and roles and has unrestricted access whereas windows special user can be found in My computer->Local Users and Groups.

🔂 PostgreSQL		
Initialise databas	se cluster	LS Z
💌 Initialize database	e cluster	
Port number	5432	
Addresses	Accept connections on a	all addreses, not just localhost
Locale	C	✓
Encoding	SQL_ASCII	
Superuser name	postgres	This is the internal database username, and
Password	*****	the password should NOT be the same as the service account.
Password (again)	******	
		< <u>B</u> ack <u>N</u> ext> Cancel

Install: Special Case(slide13 cont.)

If you have already created some database using PostGRESQL, you do not need to initialize database cluster again.

Dat	a directory error 🛛 🛛 🔀
ę	The specified data directory is not empty. If you have an existing database with the same major version number, you do not need to initialise a database cluster. If you have an existing database with a different major version you need to backup your old database and create a new one.
	ОК

Uncheck the initial database cluster option from the previous screen to avoid this error.

Select PL/pgsql and continue

🖶 PostgreSQL	
Enable procedural languages	LQ Y
Select procedural languages to enable in the default database	
✓ PL/pgsql	
PL/perl	
PL/perl (untrusted)	
PL/python (untrusted)	
PL/tol	
PL/tcl (untrusted)	
PL/java (trusted and untrusted)	
< Back Next >	Cancel

- Do NOT enable contrib modules in the default template database.
- For e.g. If crypto functions is enabled, every database that is created from default template will have crypto functions

enabl	🙀 PostgreSQL			
	Enable contrib mod	lules		LQ Y
	Contrib modules provide in the default template of executing the appropria	e additional, often specia database. All files will be i te SQL script.	lised, functionality. Selec installed so modules may	t those you wish to install be added later simply by
	🔄 B-Tree GiST	Integer Aggregator	Crypto. Functions	🔄 Refint
	Chkpass	Integer Array	PGStatTuble	Time Travel
	🔄 Cube	ISBN and ISSN	🔄 SEG	Table Functions
	🔲 DBlink	Large Objects (lo)	AutoInc	TSearch2
	Earth Distance	L-Tree	📃 Insert Username	User Lock
	Fuzzy String Match	Trigram Matching	ModDateTime	
	Admin81 - used by p	gAdmin to provide enha	nced functionaity.	lia-tiad
	- Fuillextindex dep	recated in rayour or 1 se	aronz; only use for existin	ng applications!.
			< <u>B</u> ack <u>N</u> e	xt > Cancel

Don't check on PostGIS. By not checking, PostGIS functions from template1 are disabled. (which we don't want)

🔂 PostgreSQL	
Enable PostGIS	J Z Z
You can enable the PostGIS functions and load referer you can manually enable it in individual databases later	nce data in the template1 database now, or
Enable PostGIS in template1	
	<u>B</u> ack <u>N</u> ext > Cancel

Click Next

🙀 PostgreSQL	
Ready to install	Q V
PostgreSQL is now ready to be installed. Click Next to complete the installation.	
< <u>B</u> ack <u>N</u> ext >	Cancel

Click "Finish" and that's it for the installation.

🙀 PostgreSQL	
Installation complete!	LQ V
Congratulations, PostgreSQL has been successful We recommend that you subscribe to the pgsql-an releases and bugfixes. Subscribe to pgsql-announce	ly installed on your system. nounce mailinglist to receive information about new
	< <u>B</u> ack <u>Finish</u> Cancel

Set POSTGRESQL service for Manual Startup

By Default, POSTGRESQL service is set for automatic startup

To set it for manual startup, open Control Panel -> Administrative Tools-> Services.



Launch PostGRESQL command prompt

 Run the PostgreSQL command prompt via Start -> All Programs PostgreSQL 8.1 -> Command Prompt. A Windows command prompt will appear.

2) psql is a command-line interface to PostgreSQL



How to connect to a PostgreSQL Server?

- The postgres database account is a superuser by default.
- Steps:
 - 1. Launch POSTGRESQL command prompt
 - 2. Enter the following at the command prompt
 - C:\Program Files\PostgreSQL\8.1\bin>psql -U postgres -h localhost
 - 3. Provide superuser "postgres" password
 - U postgres indicates user name, -h localhost indicates server is on local host
 - PostGRESQL prompt will appear means that we are connected to the database named "postgres", the default database.
 - postgres=#

Setting a Sample Database

Setting up database

Four steps:

- 1. Create database owner
- 2. Create storage for default table space and tighten security (if required)
- 3. Create database
- 4. Create database objects

- Connect to default postgres database(Refer to slides 21, 22)
- **To create a role, Enter:**
 - postgres=# CREATE ROLE <db_owner> LOGIN
 PASSWORD `<sample_pwd>';
- To verify creation of owner, Enter:
 postgres=# \du <db_owner>

Create the default tablespace

- Use c:\pgdata folder for storing default table space
- If you are running POSTGRESQL server in a multiuser environment, then you need to tighten the security for the C:\pgdata folder. For desktop environment this is not necessary.
- To create the "sample_ts" tablespace, enter:
 - postgres=# CREATE TABLESPACE sample_ts OWNER
 <db_owner> LOCATION
 - 'c:/pgdata/sampledb/system';

To verify table space creation, run postgres=# \db+ <sample_db>

- To create the "sample_db" database, enter:
 - postgres=# CREATE DATABASE <sample_db> OWNER
 <db_owner> TEMPLATE template0 TABLESPACE
 sample_ts;
- To list list all installed databases, enter:
 postgres=# \1+

Create Database objects

Steps involved

- 1.Connect to sample database and then enter
 postgres=# \c <sample_db_name>
- 2.Run the SQL DB scripts or queries to create/update database objects.

3. List database objects:

postgres=# \d+

Finally, enter:

postgres:=# Analyze

to update the statistics used by the PostgreSQL query planner to generate good execution plans for queries