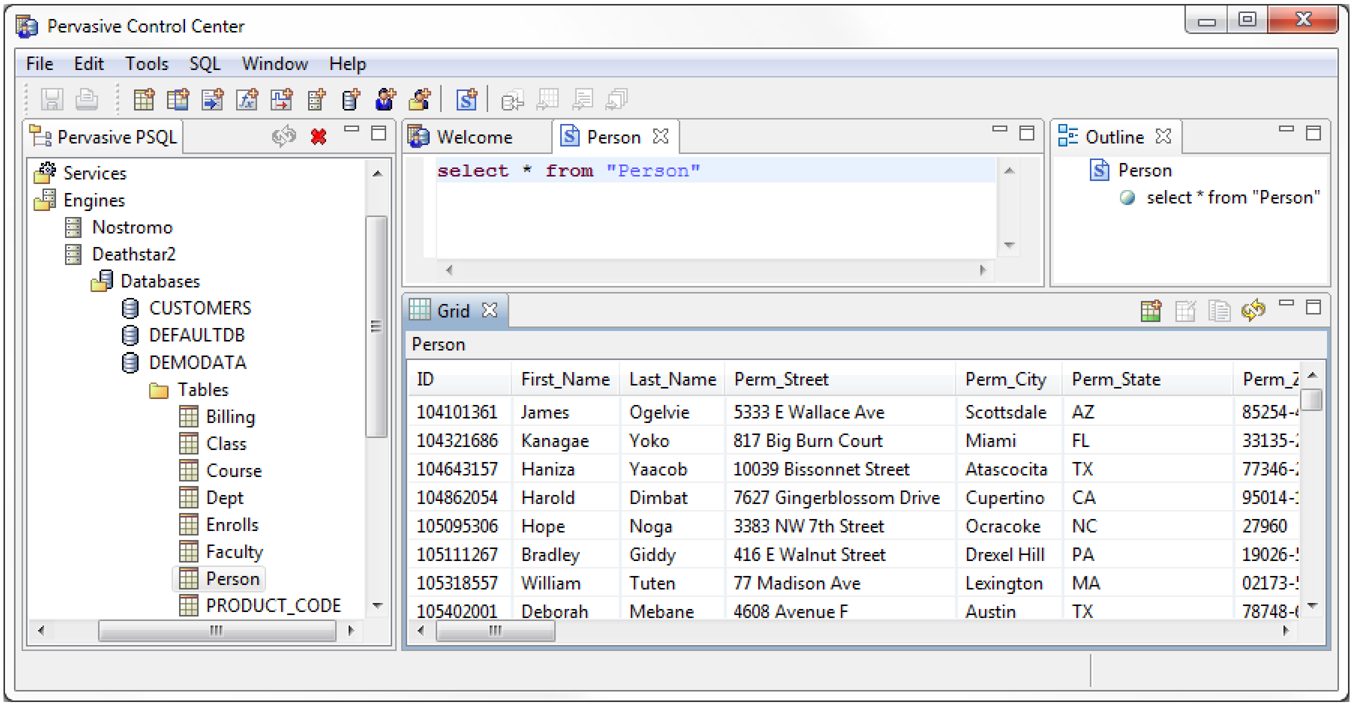
Tech Tip #13: Basic SQL Queries with the PCC

Overview: Basic SQL queries from the PCC, including WHERE and ORDER BY clauses

If our last Tech Tip, we got the database link created in the **Pervasive Control Center**. From here, accessing the data from SQL is actually quite easy. In this Tech Tip, we'll review how to access the database from the PCC and issue some simple SQL queries, including some of the basic functions and clauses like **WHERE** and **ORDER BY**.

Let's start with the most basic of all queries, the "SELECT *" query, which retrieves all records from a given table. This is most easily done by browsing through the database tree in the left half of the **Pervasive Control Center** and double-clicking on the table you want to scan. You'll see something like:



```
select * from "Person"
```

Person

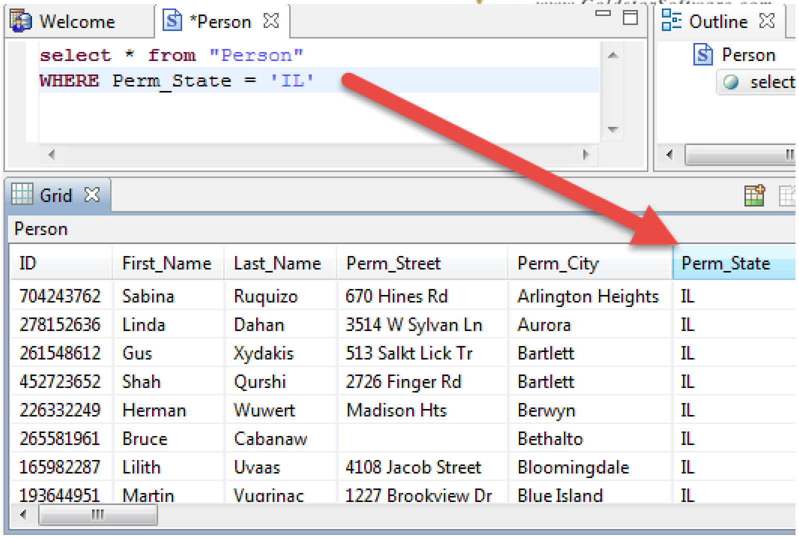
ID	First_Name	Last_Name	Perm_Street	Perm_City	Perm_State	Perm_Z
104101361	James	Ogelvie	5333 E Wallace Ave	Scottsdale	AZ	85254-
104321686	Kanagae	Yoko	817 Big Burn Court	Miami	FL	33135-
104643157	Haniza	Yaacob	10039 Bissonnet Street	Atascocita	TX	77346-
104862054	Harold	Dimbat	7627 Gingerblossom Drive	Cupertino	CA	95014-
105095306	Hope	Noga	3383 NW 7th Street	Ocracoke	NC	27960
105111267	Bradley	Giddy	416 E Walnut Street	Drexel Hill	PA	19026-
105318557	William	Tuten	77 Madison Ave	Lexington	MA	02173-
105402001	Deborah	Mebane	4608 Avenue F	Austin	TX	78748-

As you can see, *query tab* (in the upper center) shows your current query, and the *grid tab* in the bottom right shows the results of the query. This is your starting point for almost every query. You can then scroll through the data set using the scroll bars, and even edit any field of any record, directly from the grid. Clearly, this access can be used for either good or evil, so if you aren't supposed to be messing with the data, now's a good time to get out (or at least verify your backup is working).

If you want to work in the text window instead (where you cannot change anything by accident), then click on the *Execute In Text* button ( ) in the tool bar and the data will be shown in a text view instead.

Once you have the basic query set up, you might be interested in searching for one or more particular records from within the data set. This is where the **WHERE** clause comes into play. By adding a WHERE clause, we restrict the data set to only those records which satisfy the clause. For example, if we ONLY want those PERSON records from Illinois, we could add a simple "WHERE Perm_State = 'IL'" to the query and get a much smaller data set.

As you can see in this screen shot, the WHERE clause is serving to limit the data accordingly, and all of the *Perm_State* fields will be 'IL'.



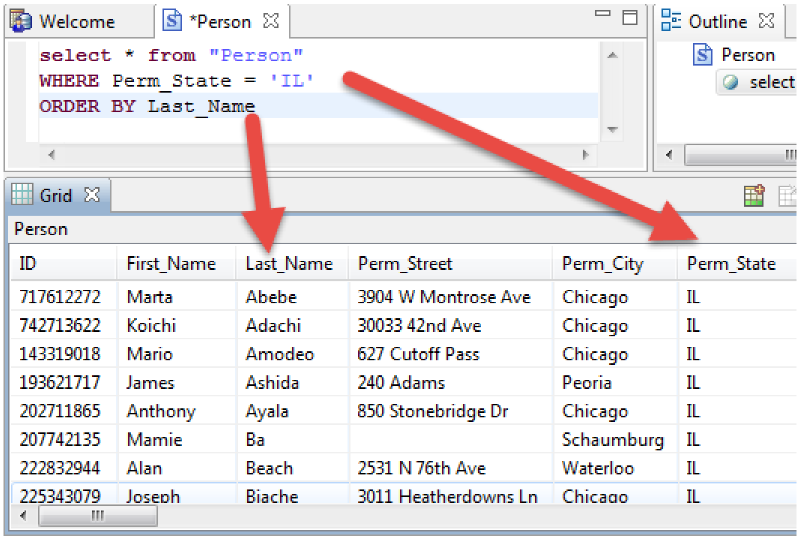
```
select * from "Person"
WHERE Perm_State = 'IL'
```

Person

ID	First_Name	Last_Name	Perm_Street	Perm_City	Perm_State
704243762	Sabina	Ruquizo	670 Hines Rd	Arlington Heights	IL
278152636	Linda	Dahan	3514 W Sylvan Ln	Aurora	IL
261548612	Gus	Xydakis	513 Salkt Lick Tr	Bartlett	IL
452723652	Shah	Qurshi	2726 Finger Rd	Bartlett	IL
226332249	Herman	Wuwert	Madison Hts	Berwyn	IL
265581961	Bruce	Cabanaw		Bethalto	IL
165982287	Lilith	Uvaas	4108 Jacob Street	Bloomingdale	IL
193644951	Martin	Vugrinac	1227 Brookview Dr	Blue Island	IL

Note that the SQL language deals with "sets" of data. Mathematically, sets have no order to them, so the order of the data in your view is subject to change based on the whims of the query or the engine. If you want to ensure that data comes back in a specific order, then you must use another clause – the **ORDER BY** clause.

In this example, we have added the ORDER BY clause to sort the data by the *Last_Name* field. Note that the WHERE clause is still in place, so all records shown are from IL, but they are now in alphabetical order by *Last_Name*.



```
select * from "Person"
WHERE Perm_State = 'IL'
ORDER BY Last_Name
```

Person

ID	First_Name	Last_Name	Perm_Street	Perm_City	Perm_State
717612272	Marta	Abebe	3904 W Montrose Ave	Chicago	IL
742713622	Koichi	Adachi	30033 42nd Ave	Chicago	IL
143319018	Mario	Amodeo	627 Cutoff Pass	Chicago	IL
193621717	James	Ashida	240 Adams	Peoria	IL
202711865	Anthony	Ayala	850 Stonebridge Dr	Chicago	IL
207742135	Mamie	Ba		Schaumburg	IL
222832944	Alan	Beach	2531 N 76th Ave	Waterloo	IL
225343079	Joseph	Biache	3011 Heatherdowns Ln	Chicago	IL

Of course, these two clauses only scratch the surface of what the SQL language can do for you. While WHERE and ORDER BY are the most common clauses used in SQL, you can also group a larger set of records into smaller sets with the GROUP BY clause, and even restrict results on the aggregate data of those sets with the HAVING clause, as well. If you want to explore further, you can certainly start with the online **SQL Reference Manual** included within your PSQL product manual set (in the PCC menu, go to *Help,* then *PSQL Documentation Library*). However, there are hundreds (if not thousands) of books about SQL, including **SQL for Dummies** from IDG Books and **The SQL Guide to Pervasive PSQL**, by Rick van der Lans. Any of these texts would be a great starting point to understanding the intricacies and idiosyncrasies of the SQL language.

Of course, once you start writing queries, you'll also want to write fast queries. This is one of the topics covered in the **Pervasive PSQL Service & Support** training class:

http://www.goldstarsoftware.com/psqlss.asp

In this class, we take some time to review queries and query optimization, so that you can see how to write the most efficient queries for your own look-ups or reports.