PSQL Tips

Here are a few tips on running psql commands from a terminal window on your workstation, logged in under your userid, on AWIPS-2.

(still from your regular linux prompt in the terminal window …)

psql -l will list the PostgreSQL databases on your system

hd_ob92xxx your (office ID xxx) Hydro database
(ihfsdb, hydro DB, whfs db, etc. – same thing)
dc_ob7xxx your Dam Catalog DB, used by the DamCREST application

psql hd_ob92xxx starts psql and connects to your hydro DB

(Now, from the psql prompt, **hd_ob92xxx=#** **)**

\? lists help for the various **** commands…
\q quits psql
\g repeats last command (& executes command if you forgot ";" at the end)

(up arrow) or (down arrow) keys display previous or later commands

\d lists all the relations (tables and views) in the DB (210 in build 16.1)
\dt lists all the tables (194 in build 16.1)
\dv lists all the views (16 in build 16.1) – **Note**: **view** is a combination of columns from 2 or more tables, used to create some GUIs you use

\d height describes…or lists all the columns in the **height** table

Things you might see when you run \d <table name> …

- Shows the format as number of characters, date, integer, smallint, timestamp, or double precision (lots of decimal places)
- **Modifiers** column value "**not null**" means that column **MUST** have data

At the bottom, you see the line for some of these …

- **Indexes**: that contains the **PRIMARY KEY** constraint, which is a column or group of columns that define a unique identifier for a row of data in that table
- **TRIGGERS** which populate the table as data arrives
- **Foreign-key constraints**: values in these columns MUST match those in other tables (i.e., that other table must have been created first
(continued)

- **Referenced by**: constraints that exist for table that references another table
    - There are LOTS of tables that reference **lid** from the **location** table

\dt loc* lists names of all the tables with names starting with "loc"
\dt *ocat* lists names of all tables with string "ocat" in the name

Sample Queries

This is only a short list of a few possible helpful queries to run in **Snoopy** or **psql**.
Don't forget to end your **queries** with a semicolon (**;**)

select * from floodcat; shows all data in the floodcat table
select * from fpinfo; shows all data in the fpinfo view

Run these four in order as an example of changing the output to your console:

- /x (to toggle ON expanded output … display columns 1 line at a time)
- select * from riverstat where lid='AGYM7'; (use one of your stations)

- /x (to toggle OFF expanded output)
- select * from riverstat where lid='AGYM7'; (shows all rows again, with
    - actual space needed for each column)

In the next example, the query is not run until you press <Enter> after the ";" at the end.
Note: If you forget the semicolon in a query, you just get the prompt… **hd_ob92xxx=#**
Simply press **;** <Enter> and it will execute your command.

This query only shows data newer than the time shown, then it orders by the time descending, or latest obs first.

```
select lid, obstime, value from height where lid='AGYM7' and
obstime > '2016-04-06 17:59:00'
order by obstime desc;
```

Notes:

- Put your gauge ID in place of AGYM7, today's date, and a recent time
- Don't forget single quotes around gauge ID and around date/time (with the space between date and time)
- Can type as one continuous string in terminal window – just ignore the word wraps
- Make a practice of using the semicolon (;) to end queries, but you CAN use \g to act like semicolon and run query if you already hit <Enter>
    - Snoopy doesn't need the ";" (but it doesn't hurt anything)

NOTE!!! Snoopy's original Queries installed are just queries. However, in the SQL window you CAN execute DELETE, UPDATE, and other commands that WILL CHANGE or DELETE data in the database!! Be aware of this, and also be careful not to save any kind of DELETE or UPDATE query (in most cases).

Next Example –

Run a query to elect daily precip (24 hr end 12Z) data for Missouri; order by ID, then obstime.

> **Note**: This will not find any unique IDs (such as ALERT or Mesonet stations that don't follow the normal 8-character LID naming of ABCDEM7 (where M7 = Missouri, etc.)

select * from dailypp where lid like '%M7' order by lid, obstime desc;

Some key Hydro DB Tables & Views (out of 210 total) **and a brief description**

Remember – use the **Snoopy** application for a quick access to table names and the columns in each table, explanations of tables and columns, as well as a 1-click button for a Brief or Full listing of the latest data in each table.

alertalarmval	stores values flagged by QC check or Alert or Alarm value checks
benchmark	stores benchmark location info for river stations
contacts	stores contact info for gauges
counties	includes WFO responsible and Primary, Secondary backups
crest	significant river crest information
curpc	last XX hours of PC (accumulated precip) data (from rawpc table)
curpp	last XX hours of PP (incremental precip) data (from rawpp table)
dailypp	holds 24-hour precip data ending 12Z (SHEF code PP)
datalimits	holds the QC, Alarm, and Alert values for all data by PE
datum	vertical elevation (including date of observation) of each station
definingissuecriteria	table with handful of issuance criteria possibilities
descrip	text info for each station, including reach; remarks may hold driving directions;
discharge	holds observed flow data for river stations
fcstheight	holds forecast stage data for stations
fcstprecip	holds forecast precip for points or basins (areas)
fcsttemperature	holds forecast temperature for points or basins (areas)
flood	holds damage statements and also holds summary statements for historical floods for stations
floodcat	holds flood category values for stations
floodstmt	holds flood impact statement data
floodts	time series of events with stages above FS
fpinfo	view used to store data needed by RiverPro
gage	info about all river gauges for stations in your database
height	observations of river stage, reservoir elevation, etc. (SHEF Hx)

hgstation	table used by HydroGen
hourlypc	hourly accumulated precip data (DCPs, etc.)
hourlypp	hourly and 6-hourly incremental precip data (ASOS, ALERT, etc.)
hsa	all Hydrologic Service Area identifiers
hvstation	view used to store data needed for display in the Hydro perspective
hwstages	view to get all high water stages for a station
ingestfilter	defines required data for posting obs & fcst data to hydro DB
latestobsvalue	stores just the latest data for stations (used by some GUIs)
locarea	affected areas for a forecast point, used by RiverPro
location	stores most geographic info and more for stations in the DB
locdatalimits	location-specific QC, Alarm, Alert limits for each station
lowwater	significant low-water events at each station (appear on AHPS pages and in E-19s)
lwstmt	low water statements, appear on AHPS pages
observer	station-specific observer information
pairedvalue	special SHEF PEs with multiple observations at a site (soil temp)
pointdatapresets	table holding Point Data Control presets used in Hydro perspective
purgeproduct	controls textproduct table purging
rating	stores rating curve (stage vs flow) for river stations
rawpc	SHEF-decoded accumulated precip values
rawpother	SHEF-decoded precip values OTHER than PC or PP (such as PT, precip type, which indicates freezing rain, drizzle, snow, etc.)
rawpp	SHEF-decoded incremental precip values
rivermongroup	table holding groups for River Monitor
rivermonlocation	table holding location rankings for each River Monitor Group
riverstat	reference information about each river station
riverstatus	latest observed and forecast height, discharge for river points
rpffcstgroup	defined RiverPro forecast group info
rpffcstpoint	defined RiverPro forecast points
rpfparams	control parameters for RiverPro
shefdur	simple table with all the SHEF Duration codes (from Table 3 of the SHEF manual)
shefex	table of SHEF Extremum codes (from Table 5)
shefpe	table of SHEF Physical Element codes (from Table 1)
shefpetrans	table of SHEF PE translations such as PT 1 = rain, PT 2 = freezing rain, etc., (from Table 17)
shefprob	table of SHEF probability codes (from Table 6)
shefqc	table of SHEF QC codes (from Table 10)
shefts	table of SHEF Type Source codes (from Table 4)
snow	decoded observations for SHEF Sx (see Table 1 for all Sx PE's)
stationlist	observer information for a station
telem	reference info about telemetry reporting stations
temperature	table of temperature data
textproduct	formatted text products (SHEF products, etc.) stored in the DB
vtecxxxxxx	there are 8 VTEC tables, including the vtecpractice table, which holds VTEC information when in Practice Mode

weather	stores data with PE codes Xx (see Table 1 for Weather codes Xx)
wind	stores data with PE codes of Ux (see Table 1 for Wind codes Ux)
zoneinfo	view that stores zone ID, state, number, and description
zonenum	table that stores the zone ID, state, and number