Code Examples

info-445/Autumn 2009

URL: http://uwmetering.ischool.washington.edu/show_all_devices.php
Output:

Show All Devices

```
host=localhost dbname=power user=dhendry password=10:Dh41pa

Academic Computer Center, 1976 (200: ACAD COMP CTR - 30468SF )
   No data loaded
Academic Computer Center, 1976 (202: ACAD COMP CTR - 30468SF )
   No data loaded
Aerospace and Engineering Research Building, 1969 (465: AERO & ENG RESCH -
58779SF )
   No data loaded
Aerospace and Engineering Research Building, 1969 (483: AERO & ENG RESCH -
58779SF )
   # raw  :   14394[2007-06-04 08:30:00-07][2007-11-01 09:00:02-07]
   # work :   14396[2007-06-04 08:30:00-07][2007-11-01 09:00:02-07]
Anderson Hall, 1925 (91: ANDERSON HALL - 33543SF )
   No data loaded
Architecture Hall, 1909 (151: ARCHITECTURE - 47485SF )
   No data loaded
Art Building, 1949 (220: ART BUILDING - 124082SF )
   No data loaded
Atmospheric Sciences-Geophysics Building, 1970 (93: ATMOS SCI/GEOPHYS -
77709SF )
   # raw  :   16597[2007-05-02 23:45:02-07][2007-11-01 09:00:02-07]
   # work :   17120[2007-05-02 23:45:02-07][2007-11-01 09:00:02-07]
Atmospheric Sciences-Geophysics Building, 1970 (92: ATMOS SCI/GEOPHYS -
77709SF )
   # raw  :   17510[2007-05-02 23:45:02-07][2007-11-01 09:00:02-07]
   # work :   17508[2007-05-02 23:45:02-07][2007-11-01 09:00:02-07]
Bagley Hall, 1937 (131: BAGLEY HALL - 223700SF )
   No data loaded
Balmer Hall, 1962 (221: BALMER HALL - 78677SF )
   # raw  :   17304[2007-05-02 23:45:02-07][2007-10-30 06:00:02-07]
   # work :   17304[2007-05-02 23:45:02-07][2007-10-30 06:00:02-07]

```

HTML CODE

```
<html>
<head>
<title>UWM: Show All Devices</title>
</head>
<body>
<h1>Show All Devices</h1>
<pre>
host=localhost dbname=power user=dhendry password=10:Dh41pa

<font color='green'><b>Academic Computer Center</b></font>, 1976 (<font color='red'>200</font>:
ACAD COMP CTR - 30468SF )
   No data loaded
<font color='green'><b>Academic Computer Center</b></font>, 1976 (<font color='red'>202</font>:
ACAD COMP CTR - 30468SF )
   No data loaded
<font color='green'><b>Aerospace and Engineering Research Building</b></font>, 1969 (<font
color='red'>465</font>: AERO & ENG RESCH - 58779SF )
   No data loaded
<a href="show_sum.php?did=483"><b><font color="green">Aerospace and Engineering Research
Building</font></b></a>, 1969 (<font color='red'>483</font>: AERO & ENG RESCH - 58779SF )
   # raw  :   14394[2007-06-04 08:30:00-07][2007-11-01 09:00:02-07]
   # work :   14396[2007-06-04 08:30:00-07][2007-11-01 09:00:02-07]
<font color='green'><b>Anderson Hall</b></font>, 1925 (<font color='red'>91</font>: ANDERSON HALL
- 33543SF )
   No data loaded
<font color='green'><b>Architecture Hall</b></font>, 1909 (<font color='red'>151</font>:
ARCHITECTURE - 47485SF )
   No data loaded
<font color='green'><b>Art Building</b></font>, 1949 (<font color='red'>220</font>: ART BUILDING
- 124082SF )
   No data loaded
<a href="show_sum.php?did=93"><b><font color="green">Atmospheric Sciences-Geophysics
Building</font></b></a>, 1970 (<font color='red'>93</font>: ATMOS SCI/GEOPHYS - 77709SF )
   # raw  :   16597[2007-05-02 23:45:02-07][2007-11-01 09:00:02-07]
   # work :   17120[2007-05-02 23:45:02-07][2007-11-01 09:00:02-07]
<a href="show_sum.php?did=92"><b><font color="green">Atmospheric Sciences-Geophysics
Building</font></b></a>, 1970 (<font color='red'>92</font>: ATMOS SCI/GEOPHYS - 77709SF )
   # raw  :   17510[2007-05-02 23:45:02-07][2007-11-01 09:00:02-07]
   # work :   17508[2007-05-02 23:45:02-07][2007-11-01 09:00:02-07]
<font color='green'><b>Bagley Hall</b></font>, 1937 (<font color='red'>131</font>: BAGLEY HALL -
223700SF )
   No data loaded
<a href="show_sum.php?did=221"><b><font color="green">Balmer Hall</font></b></a>, 1962 (<font
color='red'>221</font>: BALMER HALL - 78677SF )
   # raw  :   17304[2007-05-02 23:45:02-07][2007-10-30 06:00:02-07]
   # work :   17304[2007-05-02 23:45:02-07][2007-10-30 06:00:02-07]
<font color='green'><b>Balmer Hall</b></font>, 1962 (<font color='red'>222</font>: BALMER HALL -
78677SF )
   No data loaded
…
```

EXAMPLE PLSQL SCRIPT

```
<html>
<head>
<title>UWM: Show All Devices</title>
</head>
<body>
<h1>Show All Devices</h1>
<pre>
<?php
/* filename: show_all_devices.php */

// Connect to db
include 'DBVars.php';
echo $gDB_conn_string . “\n\n”;
$dbconn = pg_connect($gDB_conn_string) or die('Could not connect: ' . pg_last_error());

   // Performing SQL query
   $query =  'SELECT did, fid, sname, lname, grosssf, yearbuilt, ';
   $query .=  "to_char(raw_num_records,'999999') as r_no, raw_first_time, raw_last_time, ";
   $query .=  "to_char(work_num_records,'999999') as w_no, work_first_time, work_last_time ";
   $query .= 'FROM uwm.get_devices()';

//   echo "\n<p>". $query . "</p>";


   $result = pg_query($query) or die('Query failed: ' . pg_last_error());

  while ($line = pg_fetch_array($result, null, PGSQL_ASSOC)) {
         $r_t0 = $line["raw_first_time"];
         $r_t1 = $line["raw_last_time"];
         $r_c  = $line["r_no"];
         $w_t0 = $line["work_first_time"];
         $w_t1 = $line["work_last_time"];
         $w_c  = $line["w_no"];

         if ($r_t0 =="") {
               echo "<font color='green'><b>" . $line["lname"] . "</b></font>, ";
         }
         else {
               echo '<a href="show_sum.php?did=' . $line["did"] . '">';
               echo '<b><font color="green">';
               echo $line["lname"] . "</font></b></a>, ";
         }

         echo $line["yearbuilt"] . " (";
         echo "<font color='red'>" . $line["did"] . "</font>: ";
         echo $line["sname"] . " - ";
         echo $line["grosssf"]. "SF )\n";


         if ($r_t0 == "") {
               echo "   No data loaded";
         }
         else {
               echo "   # raw  : " . $r_c . "[" .  $r_t0 . '][' .  $r_t1 ."]";
               echo "\n   # work : " . $w_c . "[" .  $w_t0 . '][' .  $w_t1 . "]";
         }
         echo "\n";

  }
   echo "<hr>\n<p>". $query . "</p>";
        // Free resultset
        pg_free_result($result);

        // Closing connection
        pg_close($dbconn);
?>
</pre>
</body></html>
```

CONSTRUCT CONNECTION STRING

```
<?php
/* filename: DBVars.php */

/*
$gDB_host      = "linux.ischool.washington.edu";
$gDB_name      = 'dhendry';
$gDB_user      = 'dhendry';
$gDB_password  = 'bluemonster';
*/

$gDB_host      = "localhost";
$gDB_name      = 'power';
$gDB_user      = 'dhendry';
$gDB_password  = '10:Dh41pa';

$gDB_conn_string = 'host=' . $gDB_host . ' dbname=' . $gDB_name . ' user=' . $gDB_user . '
password=' .   $gDB_password;
?>
```

PLSQL FUNCTION DEFINITION

```
/*
 * This returns a list of all devices, and their associated properties
 */
CREATE OR REPLACE FUNCTION uwm.get_devices ()
RETURNS SETOF uwm.device_info as $PROC$

DECLARE
        row     uwm.device_info%ROWTYPE;
        row2    RECORD;
BEGIN

        FOR row2 IN
                select  D.id as did, D.fid as fid,
                        F.shortName as sname, F.longName as lname,
                        F.grossSF as grossSF, F.yearbuilt as yearBuilt,
                        D.raw_num_records as r1, D.raw_first_time as r2, D.raw_last_time as r3,
                        D.work_num_records as w1, D.work_first_time as w2, D.work_last_time as w3
                from    uwm.device D, uwm.facility F
                where   D.fid = F.id
                order by F.shortName
        LOOP
                row.did         := row2.did;
                row.fid         := row2.fid;
                row.sname       := row2.sName;
                row.lname       := row2.lName;
                row.grossSF     := row2.grossSF;
                row.yearBuilt    := row2.yearBuilt;

                row.raw_num_records:= row2.r1;
                row.raw_first_time := row2.r2;
                row.raw_last_time := row2.r3;

                row.work_num_records := row2.w1;
                row.work_first_time  := row2.w2;
                row.work_last_time   := row2.w3;
                RETURN NEXT row;
        END LOOP;
        RETURN;
END;
$PROC$ LANGUAGE plpgsql;
```

Table defined a returning row structure.

```
/*
 *  Used as a record set format for returning data -- see get_devices
 */
create table uwm.device_info (
        did             int,
        fid             int,
        sname           text,
        lname           text,
        grossSF         int,
        yearBuilt       int,

        raw_num_records                 int,
        raw_first_time          timestamp with time zone,
        raw_last_time           timestamp with time zone,

        work_num_records        int,
        work_first_time                 timestamp with time zone,
        work_last_time          timestamp with time zone
)
```

PLSQL TABLE DEFINIITONS

```
/*
 * Each meter is a device
 */
create table uwm.device (
       id             int PRIMARY KEY,

       dtype_id       int references uwm.device_type(id),

       description    text,

       /* Not sure if these are needed */
       station_id     int,
       group_id       int,
       dev_num        int,
       active         int,
       timeCreated    timestamp with time zone,
       timeDeleted    timestamp with time zone,


       /* orginal facility code in table DEVICE table */
       /* need to keep this data around because of oddities, including:
              BB18      --  code starts with 'BB'
              1400-1    --  code ends with '-1'
              ... */
        fid_messy     char(16),
/*
 *     Missing facility codes prevents this from working
 *            bid            int references uwm.facility(id),
 */

       /* cleaned up fid_messy value -- facility number in table FACILITY */
       fid            int,

       /* WORK_LOG summary information */
       raw_num_records              int,
       raw_first_time         timestamp with time zone,
       raw_last_time          timestamp with time zone,

       /* WORK_LOG summary information */
       work_num_records       int,
       work_first_time               timestamp with time zone,
       work_last_time         timestamp with time zone
);

/*
 *  Holds data about the building in which the device is located
 */
create table uwm.facility (
       id             int PRIMARY KEY, /* facility number */
        code          char(8),        /* facility code */
       shortName      text,
       longName       text,
       grossSF        int,           /* size in gross square feet */
       yearBuilt      int            /* year built */
);
```

Another Example

```
<?php

// function: show_sum.php?

$device_id     = $_GET["did"];
$unit          = $_GET["unit"];
$t0            = $_GET["t0"];
$t1            = $_GET["t1"];
$max_records   = $_GET["max"];
$fmt           = $_GET["fmt"];

if ($device_id == "") {$device_id = 1;}
if ($unit == "")                                        { $unit = "W"; }
if ($unit <> "W" and $unit <> "M" and $unit <> "X")  { $unit = "W"; }

if ($t0 == "")         { $t0 = "-infinity"; }
if ($t1 == "" )        { $t1 = "infinity";  }
if ($max_records == "") { $max_records = 9999999; }
if ($fmt <> "dat") { $fmt = "ui"; }

$t0 = trim($t0,"\"");
$t1 = trim($t1,"\"");

if($fmt != "dat")
{
echo "<html>";
echo "<head>";
echo "<title>UWM: Show Summary (did:" . $device_id . ")</title>";
echo "</head>";
echo "<body>";
echo "<pre>";
}

// Connect to db
include 'DBVars.php';
//echo $gDB_conn_string;


$dbconn = pg_connect($gDB_conn_string) or die('Could not connect: ' . pg_last_error());

if ($unit == "W") {
       $query  = "select year, woy, count(e) as n,";
}
elseif ($unit == "M") {
       $query  = "select year, moy, count(e) as n,";
}
else {
       $query  = "select year, dow, count(e) as n,";
}

$query .= "round(CAST(sum(e) as NUMERIC),1) as sum,";
$query .= "round(CAST(avg(e) as NUMERIC),1) as avg,";
$query .= "round(CAST(stddev(e) as NUMERIC),1) as std,";
$query .= "min(e), max(e) from uwm.work_log_sum W where ";
$query .= "did=" . $device_id . " and delta_unit='D' ";
if ($unit == "W") {
       $query .= "group by W.year, woy order by W.year, woy";
}
elseif ($unit == "M")  {
       $query .= "group by W.year, moy order by W.year, moy";
}
else {
       $query .= "group by W.year, dow order by W.year, dow";
}

//echo $query;


```

```
1    if ($fmt == "ui") {
2    //      echo "<p>" . $query . "</p>";
3
4           $query_t  =  'SELECT did, fid, sname, lname, grosssf, yearbuilt, ';
5           $query_t .=  "to_char(raw_num_records,'99999') as r_no, raw_first_time, raw_last_time, ";
6           $query_t .=  "to_char(work_num_records,'99999') as w_no, work_first_time, work_last_time
7    ";
8           $query_t .=  'FROM uwm.get_device_info(' . $device_id . ')';
9
10          $result = pg_query($query_t) or die('Query failed: ' . pg_last_error());
11
12          if ($line = pg_fetch_array($result, null, PGSQL_ASSOC))  {
13                  $r_t0 = $line["raw_first_time"];
14                  $r_t1 = $line["raw_last_time"];
15                  $r_c  = $line["r_no"];
16                  $w_t0 = $line["work_first_time"];
17                  $w_t1 = $line["work_last_time"];
18                  $w_c  = $line["w_no"];
19
20                  echo "<h1><font color='green'><b>" . $line["lname"] . ",";
21                  echo $line["yearbuilt"] . "</b></font></h1>";
22
23                  echo "   info   : " .  "<font color='red'>" . $line["did"] . "</font> - ";
24                  echo $line["sname"] . " - ";
25                  echo $line["grosssf"]. "SF\n";
26                  echo "   # raw  : " . $r_c . "[" .  $r_t0 . '][' .  $r_t1 ."]";
27                  echo "\n   # work : " . $w_c . "[" .  $w_t0 . '][' .  $w_t1 . "]";
28          }
29
30
31          $url = 'show_e_dist.php?did=' . $device_id;
32          echo "\n\n\t\t\t\t\t\t\t\t\t  |Show <a href='" . $url . "'>electricity distribution </a>";
33
34          if ($unit == "W") {
35                  $url = 'show_sum.php?did=' . $device_id . "&unit=M";
36                  echo "\n\t\t\t\t\t\t\t\t  |Show summary by <a href='" . $url . "'>Month</a>";
37                  $url = 'show_sum.php?did=' . $device_id . "&unit=X";
38                  echo "|<a href='" . $url . "'>Day\\W</a>\n";
39          } elseif ($unit == "M") {
40                  $url = 'show_sum.php?did=' . $device_id . "&unit=W";
41                  echo "\n\t\t\t\t\t\t\t\t  |Show summary by <a href='" . $url . "'>Week</a>";
42                  $url = 'show_sum.php?did=' . $device_id . "&unit=X";
43                  echo " |<a href='" . $url . "'>Day\\W</a>\n";
44          }
45          else {
46                  $url = 'show_sum.php?did=' . $device_id . "&unit=M";
47                  echo "\n\t\t\t\t\t\t\t\t  |Show summary by <a href='" . $url . "'>Month</a>";
48                  $url = 'show_sum.php?did=' . $device_id . "&unit=W";
49                  echo " |<a href='" . $url . "'>Week</a>\n";
50          }
51
52          $next_unit = 'D';
53          $next_max = 10;
54          $interval_title = "";
55          if ($unit == 'W') {
56                  $interval_title = "WEEK summary data                        ";
57          }
58          elseif ($unit == "M")  {
59                  $interval_title = "MONTH summary data                       ";
60          }
61          else {
62                  $interval_title = "DAY OF THE WEEK summary data             ";
63          }
64
65          $url  = 'show_log.php?did=' . $device_id;
66          $url .= '&unit=D';
67          $url .= '&max=' . $max_records;
68
69          echo "\t\t\t\t\t\t\t\t  |Show <a href='" . $url . "'>log by day</a>";
70
71          echo "\nshowing: <font size=+1 color=red><b>" . $interval_title . "<b></font>";
```

```
 1
 2          $url  = 'show_sum.php?did=' . $device_id;
 3          $url .= '&unit=' . $unit;
 4          $url .= '&max=' . $max_records;
 5          $url .= '&fmt=dat';
 6
 7          echo "\t|Show <a href='" . $url . "'>text only</a>";
 8
 9          echo "<hr>";
10
11          if ($unit == 'M') {
12                  echo "<b>did\tYear\tMonth" . "\t" . "N\tSum\tAvg\tSD\tMin\tMax\n";
13          }
14          elseif ($unit == "W") {
15                  echo "<b>did\tYear\tWeek" . "\t" . "Count\tSum\tAvg\tSD\tMin\tMax\n";
16          }
17          else {
18                  echo "<b>did\tYear\tDay\\W" . "\t" . "Count\tSum\tAvg\tSD\tMin\tMax\n";
19          }
20  }
21  else {
22          if ($unit == 'M') {
23                  echo "did\tyear\tmonth\tn\tsum\tavg\tsd\tmin\tmax\n";
24          }
25          elseif ($unit == "W") {
26                  echo "did\tyear\tweek\tn\tsum\tavg\tsd\tmin\tmax\n";
27          }
28          else {
29                  echo "did\tyear\tdow\tn\tsum\tavg\tsd\tmin\tmax\n";
30          }
31  }
32
33  $result = pg_query($query) or die('Query failed: ' . pg_last_error());
34
35  while ($line = pg_fetch_array($result, null, PGSQL_ASSOC)) {
36                  echo $device_id               . "\t";
37                  echo $line["year"]            . "\t";
38                  if ( $unit == "W") {
39                          echo $line["woy"]     . "\t";
40                  } elseif ($unit == "M") {
41                          echo $line["moy"]     . "\t";
42                  }
43                  else {
44                          echo $line["dow"]     . "\t";
45                  }
46                  echo $line["n"]               . "\t";
47                  echo $line["sum"]             . "\t";
48                  echo $line["avg"]             . "\t";
49                  echo $line["std"]             . "\t";
50
51                  echo $line["min"]             . "\t";
52                  echo $line["max"]             . "\t";
53
54                  echo "\n";
55  }
56
57          if ($fmt == "ui") {
58                  echo "<hr>";
59                  echo $query;
60          }
61
62  if($fmt != "dat")
63  {
64          echo "</pre>";
65          echo "</body>";
66          echo "</html>";
67  }
68  ?>
```