今天在网上看到一篇关于在oracle中对各种进制数进行转换的帖子，觉得不错，也比较全面，几乎涵盖了经常用到的所有转换。转过来学习一下，也方便以后查询。

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大家经常遇到进制转换的问题，网上搜到的转换只是部分十进制与其它进制的转换，所以我把自己写的转换函数提供给大家，4种进制共12个转换函数，虽然有的转换直接使用to\_char()和to\_number()就可以实现，但我还是把它们整理到一起，使用和查找都方便。

部分函数需要先创建type\_str\_agg类型和f\_stragg函数才能使用，这两个对象的代码也附在之后。

CREATE OR REPLACE PACKAGE pkg\_number\_trans IS

  FUNCTION f\_bin\_to\_oct(p\_str IN VARCHAR2) RETURN VARCHAR2;  
    
  FUNCTION f\_bin\_to\_dec(p\_str IN VARCHAR2) RETURN VARCHAR2;  
    
  FUNCTION f\_bin\_to\_hex(p\_str IN VARCHAR2) RETURN VARCHAR2;

  FUNCTION f\_oct\_to\_bin(p\_str IN VARCHAR2) RETURN VARCHAR2;  
    
  FUNCTION f\_oct\_to\_dec(p\_str IN VARCHAR2) RETURN VARCHAR2;

  FUNCTION f\_oct\_to\_hex(p\_str IN VARCHAR2) RETURN VARCHAR2;  
    
  FUNCTION f\_hex\_to\_bin(p\_str IN VARCHAR2) RETURN VARCHAR2;

  FUNCTION f\_hex\_to\_oct(p\_str IN VARCHAR2) RETURN VARCHAR2;

  FUNCTION f\_hex\_to\_dec(p\_str IN VARCHAR2) RETURN VARCHAR2;  
    
  FUNCTION f\_dec\_to\_bin(p\_int IN VARCHAR2) RETURN VARCHAR2;

  FUNCTION f\_dec\_to\_oct(p\_int IN VARCHAR2) RETURN VARCHAR2;

  FUNCTION f\_dec\_to\_hex(p\_int IN VARCHAR2) RETURN VARCHAR2;  
    
END pkg\_number\_trans;  
/  
CREATE OR REPLACE PACKAGE BODY pkg\_number\_trans IS

  FUNCTION f\_bin\_to\_oct(p\_str IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_bin\_to\_oct  
    -- 对象描述: 二进制转换八进制  
    -- 输入参数: p\_str 二进制字符串  
    -- 返回结果: 八进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_bin\_to\_oct('11110001010') FROM dual;  
    -- 备    注: 需要定义f\_stragg函数和type\_str\_agg类型  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return VARCHAR2(4000);  
    v\_bin    VARCHAR2(4000);  
  BEGIN  
    v\_bin := substr('00' || p\_str, -3 \* ceil(length(p\_str) / 3));  
    SELECT f\_stragg(data1) INTO v\_return  
      FROM (SELECT (CASE upper(substr(v\_bin, (rownum - 1) \* 3 + 1, 3))  
                     WHEN '000' THEN '0'  
                     WHEN '001' THEN '1'  
                     WHEN '010' THEN '2'  
                     WHEN '011' THEN '3'  
                     WHEN '100' THEN '4'  
                     WHEN '101' THEN '5'  
                     WHEN '110' THEN '6'  
                     WHEN '111' THEN '7'  
                   END) data1  
              FROM dual  
            CONNECT BY rownum <= length(v\_bin) / 3);  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_bin\_to\_oct;

  FUNCTION f\_bin\_to\_dec(p\_str IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_bin\_to\_dec  
    -- 对象描述: 二进制转换十进制  
    -- 输入参数: p\_str 二进制字符串  
    -- 返回结果: 十进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_bin\_to\_dec('11110001010') FROM dual;  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return  VARCHAR2(4000);  
  BEGIN  
    SELECT SUM(data1) INTO v\_return  
      FROM (SELECT substr(p\_str, rownum, 1) \* power(2, length(p\_str) - rownum) data1  
              FROM dual  
            CONNECT BY rownum <= length(p\_str));  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_bin\_to\_dec;

  FUNCTION f\_bin\_to\_hex(p\_str IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_bin\_to\_hex  
    -- 对象描述: 二进制转换十六进制  
    -- 输入参数: p\_str 二进制字符串  
    -- 返回结果: 十六进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_bin\_to\_oct('11110001010') FROM dual;  
    -- 备    注: 需要定义f\_stragg函数和type\_str\_agg类型  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return VARCHAR2(4000);  
    v\_bin    VARCHAR2(4000);  
  BEGIN  
    v\_bin := substr('000' || p\_str, -4 \* ceil(length(p\_str) / 4));  
    SELECT f\_stragg(data1) INTO v\_return  
      FROM (SELECT (CASE upper(substr(v\_bin, (rownum - 1) \* 4 + 1, 4))  
                     WHEN '0000' THEN '0'  
                     WHEN '0001' THEN '1'  
                     WHEN '0010' THEN '2'  
                     WHEN '0011' THEN '3'  
                     WHEN '0100' THEN '4'  
                     WHEN '0101' THEN '5'  
                     WHEN '0110' THEN '6'  
                     WHEN '0111' THEN '7'  
                     WHEN '1000' THEN '8'  
                     WHEN '1001' THEN '9'  
                     WHEN '1010' THEN 'A'  
                     WHEN '1011' THEN 'B'  
                     WHEN '1100' THEN 'C'  
                     WHEN '1101' THEN 'D'  
                     WHEN '1110' THEN 'E'  
                     WHEN '1111' THEN 'F'  
                   END) data1  
              FROM dual  
            CONNECT BY rownum <= length(v\_bin) / 4);  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_bin\_to\_hex;

  FUNCTION f\_oct\_to\_bin(p\_str IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_oct\_to\_bin  
    -- 对象描述: 八进制转换二进制  
    -- 输入参数: p\_str 八进制字符串  
    -- 返回结果: 二进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_oct\_to\_bin('3612') FROM dual;  
    -- 备    注: 需要定义f\_stragg函数和type\_str\_agg类型  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return VARCHAR2(4000);  
  BEGIN  
    SELECT to\_char(to\_number(f\_stragg(data1))) INTO v\_return  
      FROM (SELECT (CASE upper(substr(p\_str, rownum, 1))  
                     WHEN '0' THEN '000'  
                     WHEN '1' THEN '001'  
                     WHEN '2' THEN '010'  
                     WHEN '3' THEN '011'  
                     WHEN '4' THEN '100'  
                     WHEN '5' THEN '101'  
                     WHEN '6' THEN '110'  
                     WHEN '7' THEN '111'  
                   END) data1  
              FROM dual  
            CONNECT BY rownum <= length(p\_str));  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_oct\_to\_bin;

  FUNCTION f\_oct\_to\_dec(p\_str IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_oct\_to\_dec  
    -- 对象描述: 八进制转换十进制  
    -- 输入参数: p\_str 八进制字符串  
    -- 返回结果: 十进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_oct\_to\_dec('3612') FROM dual;  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return  VARCHAR2(4000);  
  BEGIN  
    SELECT SUM(data1) INTO v\_return  
      FROM (SELECT substr(p\_str, rownum, 1) \* power(8, length(p\_str) - rownum) data1  
              FROM dual  
            CONNECT BY rownum <= length(p\_str));  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_oct\_to\_dec;  
    
  FUNCTION f\_oct\_to\_hex(p\_str IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_oct\_to\_bin  
    -- 对象描述: 八进制转换十六进制  
    -- 输入参数: p\_str 八进制字符串  
    -- 返回结果: 十六进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_oct\_to\_hex('3612') FROM dual;  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return VARCHAR2(4000);  
    v\_bin    VARCHAR2(4000);  
  BEGIN  
    SELECT pkg\_number\_trans.f\_oct\_to\_bin(p\_str) INTO v\_bin FROM dual;  
    SELECT pkg\_number\_trans.f\_bin\_to\_hex(v\_bin) INTO v\_return FROM dual;  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_oct\_to\_hex;

  FUNCTION f\_dec\_to\_bin(p\_int IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_dec\_to\_bin  
    -- 对象描述: 十进制转换二进制  
    -- 输入参数: p\_str 十进制字符串  
    -- 返回结果: 二进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_dec\_to\_bin('1930') FROM dual;  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return VARCHAR2(4000);  
    v\_hex    VARCHAR2(4000);  
  BEGIN  
    SELECT pkg\_number\_trans.f\_dec\_to\_hex(p\_int) INTO v\_hex FROM dual;  
    SELECT pkg\_number\_trans.f\_hex\_to\_bin(v\_hex) INTO v\_return FROM dual;  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_dec\_to\_bin;  
    
  FUNCTION f\_dec\_to\_oct(p\_int IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_dec\_to\_oct  
    -- 对象描述: 十进制转换八进制  
    -- 输入参数: p\_str 十进制字符串  
    -- 返回结果: 八进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_dec\_to\_oct('1930') FROM dual;  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return VARCHAR2(4000);  
    v\_bin    VARCHAR2(4000);  
  BEGIN  
    SELECT pkg\_number\_trans.f\_dec\_to\_bin(p\_int) INTO v\_bin FROM dual;  
    v\_bin := substr('00' || v\_bin, -3 \* ceil(length(v\_bin) / 3));  
    SELECT f\_stragg(data1) INTO v\_return  
      FROM (SELECT (CASE upper(substr(v\_bin, (rownum - 1) \* 3 + 1, 3))  
                     WHEN '000' THEN '0'  
                     WHEN '001' THEN '1'  
                     WHEN '010' THEN '2'  
                     WHEN '011' THEN '3'  
                     WHEN '100' THEN '4'  
                     WHEN '101' THEN '5'  
                     WHEN '110' THEN '6'  
                     WHEN '111' THEN '7'  
                   END) data1  
              FROM dual  
            CONNECT BY rownum <= length(v\_bin) / 3);  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_dec\_to\_oct;  
    
  FUNCTION f\_dec\_to\_hex(p\_int IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_dec\_to\_oct  
    -- 对象描述: 十进制转换十六进制  
    -- 输入参数: p\_str 十进制字符串  
    -- 返回结果: 十六进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_dec\_to\_hex('1930') FROM dual;  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return VARCHAR2(4000);  
  BEGIN  
    SELECT upper(TRIM(to\_char(p\_int, 'xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx'))) INTO v\_return FROM dual;  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_dec\_to\_hex;  
    
  FUNCTION f\_hex\_to\_bin(p\_str IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_dec\_to\_oct  
    -- 对象描述: 十六进制转换二进制  
    -- 输入参数: p\_str 十六进制字符串  
    -- 返回结果: 二进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_hex\_to\_oct('78A') FROM dual;  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return VARCHAR2(4000);  
  BEGIN  
    SELECT to\_char(to\_number(f\_stragg(data1))) INTO v\_return  
      FROM (SELECT (CASE upper(substr(p\_str, rownum, 1))  
                     WHEN '0' THEN '0000'  
                     WHEN '1' THEN '0001'  
                     WHEN '2' THEN '0010'  
                     WHEN '3' THEN '0011'  
                     WHEN '4' THEN '0100'  
                     WHEN '5' THEN '0101'  
                     WHEN '6' THEN '0110'  
                     WHEN '7' THEN '0111'  
                     WHEN '8' THEN '1000'  
                     WHEN '9' THEN '1001'  
                     WHEN 'A' THEN '1010'  
                     WHEN 'B' THEN '1011'  
                     WHEN 'C' THEN '1100'  
                     WHEN 'D' THEN '1101'  
                     WHEN 'E' THEN '1110'  
                     WHEN 'F' THEN '1111'  
                   END) data1  
              FROM dual  
            CONNECT BY rownum <= length(p\_str));  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_hex\_to\_bin;  
    
  FUNCTION f\_hex\_to\_oct(p\_str IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_dec\_to\_oct  
    -- 对象描述: 十六进制转换八进制  
    -- 输入参数: p\_str 十六进制字符串  
    -- 返回结果: 八进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_hex\_to\_oct('78A') FROM dual;  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return VARCHAR2(4000);  
    v\_bin    VARCHAR2(4000);  
  BEGIN  
    SELECT pkg\_number\_trans.f\_hex\_to\_bin(p\_str) INTO v\_bin FROM dual;  
    SELECT pkg\_number\_trans.f\_bin\_to\_oct(v\_bin) INTO v\_return FROM dual;  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_hex\_to\_oct;  
    
  FUNCTION f\_hex\_to\_dec(p\_str IN VARCHAR2) RETURN VARCHAR2 IS  
    ----------------------------------------------------------------------------------------------------------------------  
    -- 对象名称: f\_hex\_to\_dec  
    -- 对象描述: 十六进制转换十进制  
    -- 输入参数: p\_str 十六进制字符串  
    -- 返回结果: 十进制字符串  
    -- 测试用例: SELECT pkg\_number\_trans.f\_hex\_to\_dec('78A') FROM dual;  
    ----------------------------------------------------------------------------------------------------------------------  
    v\_return  VARCHAR2(4000);  
  BEGIN  
    SELECT SUM(data1) INTO v\_return  
      FROM (SELECT (CASE upper(substr(p\_str, rownum, 1))  
                     WHEN 'A' THEN '10'  
                     WHEN 'B' THEN '11'  
                     WHEN 'C' THEN '12'  
                     WHEN 'D' THEN '13'  
                     WHEN 'E' THEN '14'  
                     WHEN 'F' THEN '15'  
                     ELSE substr(p\_str, rownum, 1)  
                   END) \* power(16, length(p\_str) - rownum) data1  
              FROM dual  
            CONNECT BY rownum <= length(p\_str));  
    RETURN v\_return;  
  EXCEPTION  
    WHEN OTHERS THEN  
      RETURN NULL;  
  END f\_hex\_to\_dec;  
    
END pkg\_number\_trans;  
/

CREATE OR REPLACE TYPE type\_str\_agg AS OBJECT  
(  
  total VARCHAR2(4000),

  STATIC FUNCTION odciaggregateinitialize(sctx IN OUT type\_str\_agg)  
    RETURN NUMBER,

  MEMBER FUNCTION odciaggregateiterate  
  (  
    SELF  IN OUT type\_str\_agg,  
    VALUE IN VARCHAR2  
  ) RETURN NUMBER,

  MEMBER FUNCTION odciaggregateterminate  
  (  
    SELF        IN type\_str\_agg,  
    returnvalue OUT VARCHAR2,  
    flags       IN NUMBER  
  ) RETURN NUMBER,

  MEMBER FUNCTION odciaggregatemerge  
  (  
    SELF IN OUT type\_str\_agg,  
    ctx2 IN type\_str\_agg  
  ) RETURN NUMBER  
)  
/  
CREATE OR REPLACE TYPE BODY type\_str\_agg IS

  STATIC FUNCTION odciaggregateinitialize(sctx IN OUT type\_str\_agg)  
    RETURN NUMBER IS  
  BEGIN  
    sctx := type\_str\_agg(NULL);  
    RETURN odciconst.success;  
  END;

  MEMBER FUNCTION odciaggregateiterate  
  (  
    SELF  IN OUT type\_str\_agg,  
    VALUE IN VARCHAR2  
  ) RETURN NUMBER IS  
  BEGIN  
    SELF.total := SELF.total || VALUE;  
    RETURN odciconst.success;  
  END;

  MEMBER FUNCTION odciaggregateterminate  
  (  
    SELF        IN type\_str\_agg,  
    returnvalue OUT VARCHAR2,  
    flags       IN NUMBER  
  ) RETURN NUMBER IS  
  BEGIN  
    returnvalue := SELF.total;  
    RETURN odciconst.success;  
  END;

  MEMBER FUNCTION odciaggregatemerge  
  (  
    SELF IN OUT type\_str\_agg,  
    ctx2 IN type\_str\_agg  
  ) RETURN NUMBER IS  
  BEGIN  
    SELF.total := SELF.total || ctx2.total;  
    RETURN odciconst.success;  
  END;

END;  
/

CREATE OR REPLACE FUNCTION f\_stragg(p\_input VARCHAR2) RETURN VARCHAR2  
  PARALLEL\_ENABLE  
  AGGREGATE USING type\_str\_agg;  
/