

SQLCODE -904 and -911

Resource Name Resolution Tips

Db2 for z/OS application programmers know tables, views, SQL and sometimes indexes. However, SQLCODE -904 and -911 refer to *space names* to tell the user what is wrong. Suppose a resource was unavailable or a lock was held on a resource that was needed. Calling DSNTIAR or something similar returns a message that can often be cryptic to an application developer because the resource name and resource type are likely not familiar to them. In most cases, it is a database and space name.

What is Needed

Application programmers need to know specifics related to the resource in the message. Something that will tell them what table or index is being referenced in the message. In other words, they need to be able to look up the resource and determine the table or index. A query against the Db2 Catalog can be used to provide the needed information, however the programmer may not have access to the Db2 catalog. If they have no access, they may be forced to ask the DBA for help.

Here's a typical SQLCODE -911 message:

```
DSNT408I SQLCODE = -911, ERROR: THE CURRENT UNIT OF WORK HAS BEEN ROLLED BACK  
DUE TO DEADLOCK OR TIMEOUT. REASON 00C9008E, TYPE OF RESOURCE  
00000304, AND RESOURCE NAME TDGF6160.TDGF10 .X'000044' '.X'34'
```

After looking up RESOURCE TYPE 304 in the SQL Reference appendix, we find:

```
00000304 Table space RID DB.SP.RID
```

We now know we were trying to get a lock on a row of a tablespace defined with *locksize row*, more precisely the lock is on Page x'44' Row x'34'. It may also be concluded that the tablespace is in database TDGF6160 and the tablespace name is TDGF10. We still don't know what table that is unless SQL is issued against the Db2 catalog to find what tables live in this tablespace. SQL to run which would help answer this question would look like:

```
SELECT SUBSTR(CREATOR,1,8) AS CREATOR  
      , SUBSTR(NAME,1,30) AS NAME  
FROM SYSIBM.SYSTABLES  
WHERE DBNAME = 'TDGF6160'  
      AND TSNAME = 'TDGF10'  
      AND TYPE = 'T'  
FOR READ ONLY WITH UR;
```

If there is only one table in the tablespace, as is common practice today, it can be concluded that this is the table from which we were trying to get data. If the isolation clause, "WITH UR", is omitted from the SQL, this causes locks on the Db2 Catalog, possibly creating catalog contention. We also must look at TYPE = 'T' in the catalog table for tables rather than views or aliases.

Here's a typical SQLCODE -904 message:

```
DSNT408I SQLCODE = -904, ERROR: UNSUCCESSFUL EXECUTION CAUSED BY AN  
UNAVAILABLE RESOURCE. REASON 00C90081, TYPE OF RESOURCE 00000201, AND  
RESOURCE NAME TDGF6160.CDVL01CP
```

Another trip to the SQL Reference appendix yields that 201 is:

```
00000201 Index space DB.SP
```

This time the indexspace, TDGF61060.CDVL01CP, is unavailable. The first step is to determine what index this space name represents. Again, SQL issued against the Db2 Catalog is needed:

```
SELECT SUBSTR(CREATOR,1,8) AS CREATOR
      , SUBSTR(NAME,1,30) AS NAME
      , SUBSTR(TBCREATOR,1,8) AS TBCREATOR
      , SUBSTR(TBNAME,1,30) AS TBNAME
FROM SYSIBM.SYSINDEXES
WHERE DBNAME = 'TDGF6160'
      AND INDEXSPACE= 'CDVL01CP'
FOR READ ONLY WITH UR ;
```

In this case, the index name is likely to be CDVL01CP because it is 8 bytes or less. If your shop index names are longer than 8 bytes, the index name will not be the same as the indexspace, since Db2 must generate a unique indexspace name that is 8 bytes. The indexspace name, like the database name, is a node of the z/OS dataset name.

If the application programmer has the authority to display the indexspace, the following command can be issued:

```
-DISPLAY DATABASE(TDGF6160) SPACENAM(CDVL01CP) LOCKS LIMIT(1000)
```

The results from issuing the Db2 command follow:

```
DSNT360I  -DBCG *****
DSNT361I  -DBCG *   DISPLAY DATABASE SUMMARY
          *   GLOBAL LOCKS
DSNT360I  -DBCG *****
DSNT362I  -DBCG   DATABASE = TDGF6160  STATUS = RW
          DBD LENGTH = 36332
DSNT397I  -DBCG
NAME      TYPE PART  STATUS          CONNID   CORRID   LOCKINFO
-----
CDVL01CP IX          STOP
***** DISPLAY OF DATABASE TDGF6160 ENDED *****
DSN9022I  -DBCG DSNITDDIS 'DISPLAY DATABASE' NORMAL MPLETION
```

The Db2 command results show why the -904 was received. The status of the index which we needed was STOP.

A simple tool is needed that turns a space name into an index or table without having to remember how to traverse the Db2 Catalog with SQL or calling a DBA. The tool should also be able to issue the “-DISPLAY” command against the tablespace or indexspace. Without the knowledge to perform these steps or tools to assist, resolving -904 and -911 issues becomes more complex and could cause an extended outage. At a minimum, busy DBA’s or System Administrators will have to assist.

TestBase Db2 Catalog Guide provides help translating space names to index names, tablespace names and issuing the “-DISPLAY” command. In fact, there are many other situations when users need information from one of the most important Db2 databases – the Db2 Catalog (DSNDB06). Data in the Db2 Catalog is necessary to perform:

- Db2 Abend Resolution (like SQLCODEs -904 and -911)
- Database Tuning
- SQL Tuning
- Performance Evaluation

And is useful in writing SQL and other typical application programmer tasks.

To learn more about the **TestBase Db2 Catalog Guide**, see: https://www.softbase.com/pdf/datasheets/DB2_Catalog_Guide.pdf

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