

IBM z Systems Platform Test

Recovery for DB2 group buffer pool

ICF recovery considerations for DB2 group buffer pool duplexing

This topic describes recovery for DB2 group buffer pool duplexing in an internal coupling facility (ICF) environment. DB2 group buffer pools (GBPs) allow us to share data between members of a DB2 data sharing group, while duplexing creates another instance of a GBP structure in another coupling facility; in the event of structure damage or connectivity loss to a primary GBP structure, the system can switch to the secondary structure.

Currently, our DB2 data sharing group consists of 12 members. All of our group buffer pools are enabled for duplexing (DUPLEX(ENABLED)), and all have three CFs designated in their preference list. We have two coupling facilities using ICF CPs on the same CPCs as two of the DB2 members, and our third coupling facility is a stand-alone model. For information on how group buffer pools were initially implemented in our environment, please refer to "[DB2 Group Buffer Pool Duplexing](#)", of the December 1999 edition of our test report.

Note that the following coupling facility failure and recovery example assumes the failure occurs on an ICF in a 2 CF environment, the second CF being a stand-alone; messages shown may be issued repeatedly.

Messages issued when the ICF fails

If the system with the ICF housing the primary GBP structure fails, you'll receive messages similar to the following:

```
IXL158I PATH 72 IS NOW NOT-OPERATIONAL TO CUID: FFF4 COUPLING FACILITY  
009672.IBM.02.000000046781 PARTITION: 1 CPCID: 00
```

```
IXC518I SYSTEM JB0 NOT USING COUPLING FACILITY 009672.IBM.02.000000046781  
PARTITION: 1 CPCID: 00 NAMED CF2 REASON: CONNECTIVITY LOST. REASON  
FLAG: 13300002.
```

```
DSNB228I @DBZ1 DSNB5STS GROUP BUFFER POOL GBP8 CANNOT BE ACCESSED  
FOR READ_STGSTATS MVS IXLCACHE REASON CODE=X'0C1C0C06'
```

```
IXC522I REBUILD FOR STRUCTURE DSNDB1G_GBP0 IS BEING STOPPED TO SWITCH  
TO THE NEW STRUCTURE DUE TO LOSS OF CONNECTIVITY TO THE STRUCTURE
```

```
DSNB303E @DBG1 DSNB1REE A LOSS OF CONNECTIVITY WAS DETECTED TO  
GROUP BUFFER POOL GBP0
```

DSNB744I @DBG1 DSNB1GBR DUPLEXING IS BEING STOPPED FOR GROUP BUFFER POOL GBP0 SWITCHING TO SECONDARY REASON = LOSSCONNPRI DB2 REASON CODE = 00000000

IXC101I SYSPLEX PARTITIONING IN PROGRESS FOR J90 REQUESTED BY XCFAS. REASON: SFM STARTED DUE TO STATUS UPDATE MISSING

Messages issued after the ICF system is partitioned from the sysplex

After the failing system that housed the ICF is partitioned out of the sysplex, the group buffer pools transition from duplex to simplex mode:

IXC105I SYSPLEX PARTITIONING HAS COMPLETED FOR J90 - PRIMARY REASON: SYSTEM REMOVED BY SYSPLEX FAILURE MANAGEMENT BECAUSE ITS STATUS UPDATE WAS MISSING - REASON FLAGS: 000100

DSNB745I @DBG1 DSNB1GBR THE TRANSITION BACK TO SIMPLEX MODE HAS COMPLETED FOR GROUP BUFFER POOL GBP0

IXL014I IXLCONN REBUILD REQUEST FOR STRUCTURE DSNDB1G_GBP0 WAS SUCCESSFUL. JOBNAME: DBG1DBM1 ASID: 00FD CONNECTOR NAME: DB2_DBG1 CFNAME: CF2

IXC538I DUPLEXING REBUILD OF STRUCTURE DSNDB1G_GBP0 WAS NOT INITIATED BY MVS. REASON: NO COUPLING FACILITY PROVIDED BETTER OR EQUIVALENT CONNECTIVITY

Messages issued when the secondary GBP structure becomes available

Since we specify DUPLEX(ENABLED) for our group buffer pools in our CFRM policy, our group buffer pools are automatically rebuilt in duplex mode when the secondary coupling facility structure becomes available. You'll see messages similar to the following as this occurs:

IXC517I SYSTEM Z1 ABLE TO USE COUPLING FACILITY 009672.IBM.02.000000046781 PARTITION: 1 CPCID: 00 NAMED CF2

IXC536I DUPLEXING REBUILD OF STRUCTURE DSNDB1G_GBP0 INITIATED. REASON: GAINED CONNECTIVITY TO A COUPLING FACILITY

DSNB740I @DBH1 DSNB1RBQ ATTEMPTING TO ESTABLISH DUPLEXING FOR GROUP BUFFER POOL GBP0 REASON = POLICY

IXC529I DUPLEX REBUILD NEW STRUCTURE DSNDB1G_GBP0 IS BEING ALLOCATED IN COUPLING FACILITY CF2. OLD STRUCTURE IS ALLOCATED IN

COUPLING FACILITY CF1. REBUILD START REASON: MVS INITIATED BASED ON POLICY

IXL015I REBUILD NEW STRUCTURE ALLOCATION INFORMATION FOR STRUCTURE DSNDB1G_GBP0, CONNECTOR NAME DB2_DBG1 CFNAME ALLOCATION STATUS/FAILURE REASON ----- CF1 RESTRICTED BY REBUILD OTHER CF2 STRUCTURE ALLOCATED

IXC521I REBUILD FOR STRUCTURE DSNDB1G_GBP0 HAS REACHED THE DUPLEXING ESTABLISHED PHASE

DSNB742I @DBH1 DSNB1GBR DUPLEXING HAS BEEN SUCCESSFULLY ESTABLISHED FOR GROUP BUFFER POOL GBP0

Recovery completes

Now, because we specified DUPLEX(ENABLED) in our CFRM policy, our group buffer pools are automatically allocated once the failing ICF comes back online.

Note that table spaces do not require manual recovery when you have group buffer pools set up in duplex mode.