Implementing Coordinated Replicat

Practice Overview

In this practice you will set up a coordinated Replicat and perform a basic testing on it.

Note: coordinated Replicat option is introduced in Oracle GoldenGate 12c. With earlier version, the functionality of the coordinated Replicat could be achieved using the `Range` function.

Setting up Coordinated Replicat

A. Create a testing table

You will create a table in the databases. You will use that table to test the coordinated functionality.

1. In `db1`, create the following table:

```
CREATE TABLE HR.RTABLE ( RID NUMBER PRIMARY KEY, NOTES VARCHAR2(20));
```

2. In `db1`, create a procedure that will populate the table.

```
CREATE PROCEDURE HR.POPULATE_RTABLE ( N NUMBER )
IS
 /* this procedure inserts N records into RTABLE */
 V INTEGER;
BEGIN
 -- get the maximum ID from the table
 SELECT MAX(RID) INTO V FROM RTABLE;
 FOR I IN 1..N LOOP
  INSERT INTO RTABLE (RID, NOTES) VALUES(I, 'record ' || TO_CHAR(I));
  -- end the transactions every 5 inserts
  IF MOD(I,5)=0 THEN
   COMMIT;
  END IF;
 END LOOP;
 COMMIT;
END POPULATE_RTABLE;
/
```

3. In `db2`, create a table with the same structure:

```
CREATE TABLE HRTRG.RTABLE ( RID NUMBER PRIMARY KEY, NOTES VARCHAR2(20));
```

4. Add the testing table to the Extract parameter file.

```
Table HR.RTABLE;
```

B. Delete current configuration

In the following steps you will delete the current Replicat configuration.

5. Stop the Extract, Data Pump, and the Replicat

6. Remove the existing Replicat components

  a. Delete the Replicat process

```
DBLogin UserIDAlias oggdb2
Delete Replicat rsrv2
```

  b. Delete the trail files

```
sh rm ./dirdat/rt*
```

C. Create the coordinated Replicat configuration

7. Replace the code in the Replicat parameter file with the following code.

Note: there is no parameter that indicates that the Replicat is a coordinated Replicat.

Note: you may take a backup copy of the current Replicat parameter file before changing it.

```
Replicat rsrv2
INCLUDE /u01/app/oracle/product/ogg/dirprm/header.mac
DiscardFile ./dirrpt/rsrv2.dsc, Purge
UserIDAlias oggdb2
MAP HR.SAMPLE, TARGET HRTRG.SAMPLE;
MAP HR.RTABLE, TARGET HRTRG.RTABLE ThreadRange (1-3, RID);
```

8. Create the coordinated Replicat

```
Add Replicat rsrv2, Coordinated, ExtTrail ./dirdat/rt, MaxThreads 3, CHECKPOINTTABLE
OGG.GG_CHECKPOINT
```

9. In the source system, start the Extract and the Data Pump

10. In the target system, start the Replicat

```
start r*
```

11. Verify that the coordinated Replicat has started in three threads.

```
info r*
```

D. **Test the coordinated Replicat configuration**

You will run the procedure to populate the testing table and examine how the Replicat processes the data stream.

12. View the Replicat process and its thread information.

```
info rsrv2, detail
info RSRV2001
info RSRV2002
info RSRV2003
```

13. Populate the testing table with a few thousands rows.

```
SQL> exec HR.POPULATE_RTABLE ( 10000 )
SQL> SELECT COUNT(*) FROM HR.RTABLE ;
```

14. In db2, verify the data has been replicated.

```
SELECT COUNT(*) FROM  HRTRG.RTABLE  ;
```

15. View the Replicat statistics for all the threads.

Notice the transactions load has been approximately equally distributed on the three threads.

```
stats rsrv2
stats RSRV2001
stats RSRV2002
stats RSRV2003
```

Summary

The coordinated Replicat allows the Replicat to run in multiple threads. It provides better throughput for high transactions data streams by dividing the input stream on the threads. This is similar to the integrated Replicat but the coordinated Replicat is supported by more databases other than Oracle database.

By the end of this practice, following are the code in each process parameter file:

```
Extract esrv1
INCLUDE /u01/app/oracle/product/ogg/dirprm/header.mac
UserIDAlias oggdb1
ALLOWDUPTARGETMAP
TRANLOGOPTIONS INTEGRATEDPARAMS (MAX_SGA_SIZE 250, PARALLELISM 3)
LOGALLSUPCOLS
ExtTrail ./dirdat/es
Table HR.RTABLE;
Table HR.JOB_HISTORY;
Table HR.EMPLOYEES,
TOKENS ( TK-OSUSER = @GETENV ('GGENVIRONMENT' , 'OSUSERNAME'),
TK-HOST = @GETENV('GGENVIRONMENT' , 'HOSTNAME'));
Table HR.JOBS;
Table HR.DEPARTMENTS;
Table HR.LOCATIONS;
Table HR.REGIONS;
Table HR.SAMPLE;
TABLE HR.EVENTS, FILTER (@STREQ (EVENT, 'STOP EXTRACT' )), EVENTACTIONS (IGNORE
TRANS,STOP);
TABLE HR.EVENTS;
```

```
Extract psrv1
EncryptTrail AES256
RmtHost ggsrv2, MgrPort 7810
RmtTrail ./dirdat/rt
Passthru
Table HR.*;
```

```
Replicat rsrv2
INCLUDE /u01/app/oracle/product/ogg/dirprm/header.mac
DiscardFile ./dirrpt/rsrv2.dsc, Purge
UserIDAlias oggdb2
MAP HR.SAMPLE, TARGET HRTRG.SAMPLE;
MAP HR.RTABLE, TARGET HRTRG.RTABLE ThreadRange (1-3, RID);
```