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| **How To Configure Server Side Transparent Application Failover (Doc ID 460982.1)** | [To Bottom](https://support.oracle.com/epmos/faces/DocumentDisplay?_afrLoop=268591258188523&id=460982.1&_adf.ctrl-state=196ebbr9zv_165%20\o%20To%20Bottom) |  |

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| **In this Document**   |  |  | | --- | --- | |  | [Goal](https://support.oracle.com/epmos/faces/DocumentDisplay?_afrLoop=268591258188523&id=460982.1&_adf.ctrl-state=196ebbr9zv_165%20\l%20GOAL) | |  | [Solution](https://support.oracle.com/epmos/faces/DocumentDisplay?_afrLoop=268591258188523&id=460982.1&_adf.ctrl-state=196ebbr9zv_165%20\l%20FIX) |  |  |  | | --- | --- | |  | [References](https://support.oracle.com/epmos/faces/DocumentDisplay?_afrLoop=268591258188523&id=460982.1&_adf.ctrl-state=196ebbr9zv_165%20\l%20REF) |     **APPLIES TO:**  Oracle Database - Enterprise Edition - Version 10.2.0.1 to 11.2.0.4 [Release 10.2 to 11.2]  Oracle Net Services - Version 10.2.0.5 to 11.2.0.4 [Release 10.2 to 11.2]  Information in this document applies to any platform.  **GOAL**  This document provides basic instructions for configuring Server side (versus client)  TAF or Transparant Application Failover.  Server side TAF settings override client-side counterparts that might be configured in TNS connect descriptors. If TAF is not configured on the client side, then at a minimum, the failover type must be set to enable TAF. If the failover type is set on the server side, then the failover method will default to BASIC. Delay and retries are optional and may be specified independently.  **SOLUTION**  **1.** Create a service on the RAC cluster to setup for TAF. Example creates a service called server\_taf to the database called rac, with instance names rac1 & rac2.  Please note for the service name, select a name that is unique and not the same as the default service name created. A special Oracle database service is created by default for your Oracle RAC database. This default service is always available on all instances in an Oracle RAC environment, unless an instance is in restricted mode. You cannot alter this service or its properties. [http://docs.oracle.com/cd/E11882\_01/rac.112/e41960/hafeats.htm#CHDDBHHB](http://docs.oracle.com/cd/E11882_01/rac.112/e41960/hafeats.htm%20/l%20CHDDBHHB)  srvctl add service -d rac -s server\_taf -r "rac1,rac2" -P BASIC  **2.** Start the service server\_taf  srvctl start service -d rac -s server\_taf  **3.** Check service is running  srvctl config service -d rac  ractest PREF: rac1 rac2 AVAIL:  server\_taf PREF: rac1 rac2 AVAIL:  **4.** Find the service\_id value for the service just created  sqlplus /nolog  Connect / as sysdba  SQL> select name,service\_id from dba\_services where name = 'server\_taf';  NAME                                                             SERVICE\_ID  ---------------------------------------------------------------- ----------  server\_taf                                                                6  **5**. Review the standard setup for the services  SQL>col name format a15  col failover\_method format a11 heading 'METHOD'  col failover\_type format a10 heading 'TYPE'  col failover\_retries format 9999999 heading 'RETRIES'  col goal format a10  col clb\_goal format a8  col AQ\_HA\_NOTIFICATIONS format a5 heading 'AQNOT'  SQL>select name, failover\_method, failover\_type, failover\_retries,goal, clb\_goal,aq\_ha\_notifications  from dba\_services where service\_id = 6  NAME            METHOD      TYPE       RETRIES  GOAL       CLB\_GOAL AQNOT  --------------- ----------- ---------- -------- ---------- -------- -----  server\_taf                                                 LONG     NO  Please note there is no values for method, type or retries. These are required todo server side TAF.  The cause of this problem has been identified and verified in an unpublished [Bug 6886239](https://support.oracle.com/epmos/faces/BugDisplay?parent=DOCUMENT&sourceId=460982.1&id=6886239%20\t%20_blank) DBMS\_SERVICE parameters are not added using srvctl add service. This is fixed in release 11.2 onwards.  **6.** Add the server side failover parameters to the service. (Pre 11.2)  Server side TAF method is BASIC. BASIC is the only value currently supported. This means that a new connection is established at failure time. It is not possible to pre-establish a backup connection. (which is to say, PRECONNECT is not supported)  SQL> execute dbms\_service.modify\_service (service\_name => 'server\_taf' -  , aq\_ha\_notifications => true -  , failover\_method => dbms\_service.failover\_method\_basic -  , failover\_type => dbms\_service.failover\_type\_select -  , failover\_retries => 180 -  , failover\_delay => 5 -  , clb\_goal => dbms\_service.clb\_goal\_long);  PL/SQL procedure successfully completed.  Addtional failover parameters value can be found in the [Oracle Database PL/SQL Packages and Types Reference 11g Release 1 (11.1), under section 116 DBMS\_SERVICE](http://download.oracle.com/docs/cd/B28359_01/appdev.111/b28419/d_serv.htm%20/l%20sthref7056)  For 11.2 version use SVRCTL to modify the service  srvctl modify service -d RAC -s server\_taf -m BASIC -e SELECT -q TRUE -j LONG  /\*  srvctl add service -d racdb -s srv\_test -r racdb1 -a racdb2 -P basic -e select -m basic -z 180 -w 5  srvctl modify service -d orcl -s server\_taf -n -i "orcl1" -a "orcl2"  \*/  Service can be checked with the command:  srvctl config service -d RAC  Service name: server\_taf  Service is enabled  Server pool: RAC\_server\_taf  Cardinality: 2  Disconnect: false  Service role: PRIMARY  Management policy: AUTOMATIC  DTP transaction: false  AQ HA notifications: true  Failover type: SELECT  Failover method: BASIC  TAF failover retries: 0  TAF failover delay: 0  Connection Load Balancing Goal: LONG  Runtime Load Balancing Goal: NONE  TAF policy specification: BASIC  Edition:  Preferred instances: RAC1,RAC2  Available instances:  **7.** Check the service and we can now see values for Method, Type and Retries.  SQL>select name, failover\_method, failover\_type, failover\_retries,goal, clb\_goal,aq\_ha\_notifications  from dba\_services where service\_id = 6    NAME            METHOD      TYPE        RETRIES GOAL       CLB\_GOAL AQNOT  --------------- ----------- ---------- -------- ---------- -------- -----  server\_taf      BASIC       SELECT          180 NONE       LONG     YES  **8.** Check the listener has the service registered. (output will look similar too following, depending on version used)  lsnrctl services  Service "server\_[taf.za.oracle.com](http://taf.za.oracle.com/)" has 2 instance(s).    Instance "rac1", status READY, has 2 handler(s) for this service...      Handler(s):        "DEDICATED" established:0 refused:0 state:ready           REMOTE SERVER           (ADDRESS=(PROTOCOL=TCP)(HOST=dell01)(PORT=1521))        "DEDICATED" established:0 refused:0 state:ready           LOCAL SERVER    Instance "rac2", status READY, has 1 handler(s) for this service...      Handler(s):        "DEDICATED" established:0 refused:0 state:ready           REMOTE SERVER           (ADDRESS=(PROTOCOL=TCP)(HOST=dell02)(PORT=1521))  **9.** Create a net service name. Here we have client load balancing between the two nodes.  SERVERTAF =    (DESCRIPTION =      (LOAD\_BALANCE = yes)      (ADDRESS = (PROTOCOL = TCP)(HOST = dell01)(PORT = 1521))      (ADDRESS = (PROTOCOL = TCP)(HOST = dell02)(PORT = 1521))      (CONNECT\_DATA =        (SERVICE\_NAME = server\_[taf.za.oracle.com](http://taf.za.oracle.com/))      )    )  **10.** Testing...  SQL\*Plus: Release 10.2.0.1.0 - Production on Tue Oct 2 12:15:44 2007  Copyright (c) 1982, 2005, Oracle.  All rights reserved.    Connected to:  Oracle Database 10g Enterprise Edition Release 10.2.0.3.0 - Production  With the Partitioning, Real Application Clusters, OLAP and Data Mining options  SQL> select host\_name,instance\_name from v$instance;  HOST\_NAME  ----------------------------------------------------------------  INSTANCE\_NAME  ----------------  dell02  rac2  **11.** Shutdown the database in the node the connection has routed to  SQL> select instance\_name from V$instance;  INSTANCE\_NAME  ----------------  rac2  SQL> shutdown abort;  ORACLE instance shut down.  **12.** TAF will now kick in  SQL> /  HOST\_NAME  ----------------------------------------------------------------  INSTANCE\_NAME  ----------------  dell01  rac1  **Oracle Net client trace of sqlplus connection during failover shows :**  **Shows the calling net service name**  [02-OCT-2007 12:15:44:618] niotns: Calling address: (DESCRIPTION=(LOAD\_BALANCE=yes)(ADDRESS=(PROTOCOL=TCP)(HOST=dell01)(PORT=1521))  (ADDRESS=(PROTOCOL=TCP)(HOST=dell02)(PORT=1521))(CONNECT\_DATA=(SERVICE\_NAME=server\_[taf.za.oracle.com](http://taf.za.oracle.com/))  (CID=(PROGRAM=d:\oracle\102ee\bin\sqlplus.exe)(HOST=sflood-uk2)(USER=sflood))))  **Selected node dell02**  [02-OCT-2007 12:15:44:648] nttbnd2addr: looking up IP addr for host: dell02  **Connection handshake**  [02-OCT-2007 12:15:44:878] nscon: sending NSPTCN packet  [02-OCT-2007 12:15:45:229] nscon: got NSPTRS packet  [02-OCT-2007 12:15:45:229] nscon: sending NSPTCN packet  [02-OCT-2007 12:15:45:429] nscon: got NSPTAC packet  **The select running**  [02-OCT-2007 12:16:04:046] nspsend: 00 00 00 00 00 E8 64 0B |......d.|  [02-OCT-2007 12:16:04:046] nspsend: 01 2E 73 65 6C 65 63 74 |..select|  [02-OCT-2007 12:16:04:046] nspsend: 20 68 6F 73 74 5F 6E 61 |.host\_na|  [02-OCT-2007 12:16:04:046] nspsend: 6D 65 2C 69 6E 73 74 61 |me,insta|  [02-OCT-2007 12:16:04:046] nspsend: 6E 63 65 5F 6E 61 6D 65 |nce\_name|  [02-OCT-2007 12:16:04:046] nspsend: 20 66 72 6F 6D 20 76 24 |.from.v$|  [02-OCT-2007 12:16:04:046] nspsend: 69 6E 73 74 61 6E 63 65 |instance|  **Here the the time the instance was shutdown**  [02-OCT-2007 12:16:05:077] nioqrc: exit  [02-OCT-2007 12:18:20:642] nioqsn: entry  **Select attempts to run again**  [02-OCT-2007 12:18:20:652] nspsend: 00 00 00 00 00 E8 64 0B |......d.|  [02-OCT-2007 12:18:20:652] nspsend: 01 2E 73 65 6C 65 63 74 |..select|  [02-OCT-2007 12:18:20:652] nspsend: 20 68 6F 73 74 5F 6E 61 |.host\_na|  [02-OCT-2007 12:18:20:652] nspsend: 6D 65 2C 69 6E 73 74 61 |me,insta|  [02-OCT-2007 12:18:20:652] nspsend: 6E 63 65 5F 6E 61 6D 65 |nce\_name|  [02-OCT-2007 12:18:20:652] nspsend: 20 66 72 6F 6D 20 76 24 |.from.v$|  [02-OCT-2007 12:18:20:652] nspsend: 69 6E 73 74 61 6E 63 65 |instance|  **Fails, due to instance was shutdown**  [02-OCT-2007 12:18:20:652] nserror: nsres: id=0, op=68, ns=12537, ns2=12560; nt[0]=507, nt[1]=0, nt[2]=0; ora[0]=0, ora[1]=0, ora[2]=0  [02-OCT-2007 12:18:20:652] nsrdr: error exit  [02-OCT-2007 12:18:20:652] nsdo: nsctxrnk=0  [02-OCT-2007 12:18:20:652] nsdo: error exit  [02-OCT-2007 12:18:20:652] nioqer: entry  [02-OCT-2007 12:18:20:652] nioqer: incoming err = 12151  [02-OCT-2007 12:18:20:652] nioqce: entry  [02-OCT-2007 12:18:20:652] nioqce: exit  [02-OCT-2007 12:18:20:652] nioqer: returning err = 3113  **TAF kicks in**  [02-OCT-2007 12:18:20:652] nsc2addr: (DESCRIPTION=(LOAD\_BALANCE=yes)(ADDRESS=(PROTOCOL=TCP)(HOST=dell01)(PORT=1521))(CONNECT\_DATA=(SERVICE\_NAME=server\_[taf.za.oracle.com)(CID=(PROGRAM=d](http://taf.za.oracle.com)(cid=(program=d/):\oracle\102ee\bin\sqlplus.exe)(HOST=sflood-uk2)(USER=sflood))))  **Connection fails over to node dell01**  [02-OCT-2007 12:18:20:652] nttbnd2addr: looking up IP addr for host: dell01  **Connection handshake is completed**  [02-OCT-2007 12:18:20:863] nscon: sending NSPTCN packet  [02-OCT-2007 12:18:23:547] nscon: got NSPTRS packet  [02-OCT-2007 12:18:23:547] nscon: sending NSPTCN packet  [02-OCT-2007 12:18:23:747] nscon: got NSPTAC packet  **Select is run**  [02-OCT-2007 12:18:47:861] nspsend: 00 00 00 00 00 E8 64 0B |......d.|  [02-OCT-2007 12:18:47:861] nspsend: 01 2E 73 65 6C 65 63 74 |..select|  [02-OCT-2007 12:18:47:861] nspsend: 20 68 6F 73 74 5F 6E 61 |.host\_na|  [02-OCT-2007 12:18:47:861] nspsend: 6D 65 2C 69 6E 73 74 61 |me,insta|  [02-OCT-2007 12:18:47:861] nspsend: 6E 63 65 5F 6E 61 6D 65 |nce\_name|  [02-OCT-2007 12:18:47:861] nspsend: 20 66 72 6F 6D 20 76 24 |.from.v$|  [02-OCT-2007 12:18:47:861] nspsend: 69 6E 73 74 61 6E 63 65 |instance| |