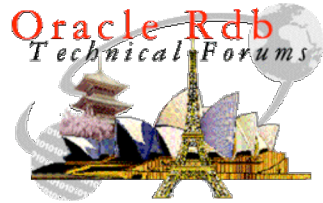




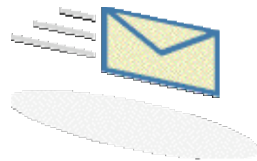
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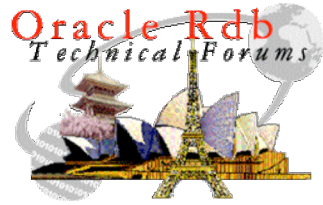


Dave Bowen

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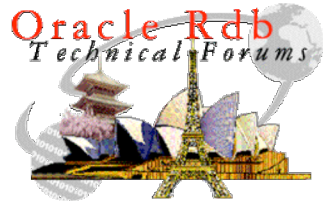


Oracle Rdb Frequently Asked Questions (FAQ)



Agenda

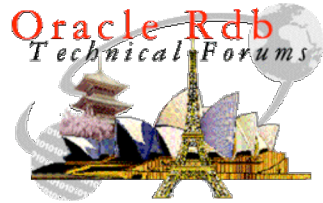
- Q1: %RDMS-F-AIJTERMINATE
- Q2: %RDMS-F-TERMINATE, %RDMS-F-FILACCERR
- Q3: -RDMS-F-CANTREADDBS, -RDMS-F-CHECKSUM
- Q4: LIB\$WAIT
- Q5: Client Upgrade
- Q6: %RDMS-F-CANTOPENDB, -SYSTEM-F-ILLPAGCNT
- Q7: %RMU-W-BTRLEACAR
- Q8: %RMU-F-AIJNORCVR
- Q9: Rdb Upgrade
- Customer-Support Relationship



Question #1

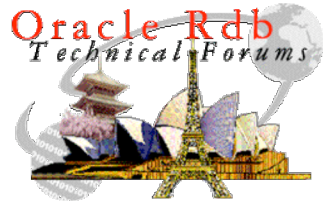
“Our database has been shutdown due to an inaccessible AIJ. This is the error message, and a bugcheck dump has been written.”

```
%RDMS-F-AIJTERMINATE, inaccessible  
AIJ file forced image exit to  
protect database
```



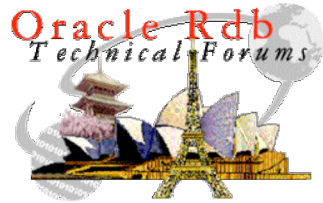
Answer #1

- This is one of the most common causes for production down – P1 – issues.
- Many customers know how to fix this already: disable journaling – drop the journals – create new journals – enable journaling – take a full database backup. See MetaLink Note [64644.1](#) “Rdb AIJTERMINATE Error Encountered”.



Answer #1 (cont.)

- But this can be very problematic if you have Fast Commit enabled, and your Rdb version is below 7.1.2.4 because full circular journals were marked as inaccessible when they were full.
- This can lead to a Catch-22 situation. A process may fail due to an inaccessible AIJ, causing the DBR to start, which fails to redo the transactions since the last fast commit checkpoint is in the inaccessible journal, thus causing the DBR to fail. You can't drop the inaccessible journal until the DBR finishes, and it can't finish because the journal is inaccessible.



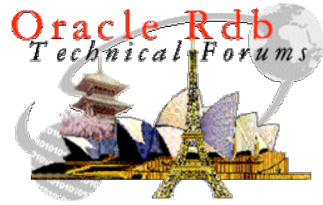
Answer #1 (cont.)

- In this case the only solution is to restore and recover the database. This is described in MetaLink Note [165507.1](#) “Potential data loss involving inaccessible AIJ”.
- Starting with Rdb 7.1.2.4 full circular journals are marked as FULL instead of INACCESSIBLE, making it possible for the DBR to redo the fast committed transactions.
- The same Catch-22 situation may still arise if a single extensible journal is used.



Answer #1 (cont.)

- You may want to determine why your AIJ files became INACCESSIBLE.
- Search the bugcheck dump for the word AIJ_STATUS, this should have a number between 1 and 8.
- The definitions for each of the numbers are described in the MetaLink Note [121929.1](#) “How to Find Out Why an After Image Journal File Becomes Inaccessible”.



Question #2

“We can’t access the Rdb database. We get the following error message and the DBR bugchecks.”

```
%RDMS-F-TERMINATE, database monitor forced  
image exit to protect database
```

The bugcheck dump file contains:

```
%RDMS-F-FILACCERR, error reading run-unit  
journal file
```



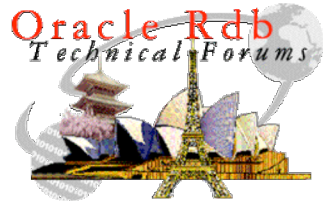
Answer #2

- This is another most common cause for production down – P1 – issues.
- You have lost an RUJ file, and this prevents any further access to your database to ensure database integrity.
- The only supported solution is to restore your database from the last valid backup and to recover the database.
- If you have VMS backups of the missing RUJ file, then you could restore it and then you should be able to open the database.



Answer #2 (cont.)

- As a very last resort, and as an **unsupported** solution, you can try to patch your database. This is described in an internal note (Recover From Unusable RUJ When RMU/BACKUP Unavailable) which Rdb Support can supply on demand.



Question #3

“We receive the following error messages when accessing the Rdb database.”

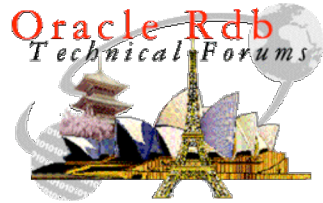
%RDB-F-IO_ERROR, input or output error

-RDMS-F-CANTREADDBS, error reading pages

20:7070-7070

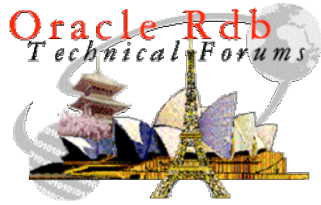
-RDMS-F-CHECKSUM, checksum error - computed

B0C98125, page contained AEC98125



Answer #3

- This is the third most common cause for production down – P1 – issues.
- See MetaLink Note [62690.1](#) “Understanding Oracle Rdb and CODASYL DBMS Checksum Errors”.
- If it turns out that there is an entry in the Corrupt Page Table (CPT), and if a database verification shows that the corrupt page has not been written to disk, then the simple solution is to reset the flag for the corrupt page.
- If the corrupt page is a snapshot area page, then the solution is to reinitialize the snapshot file.

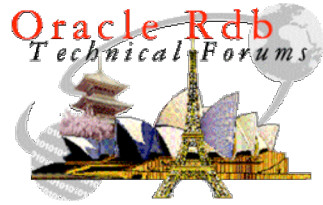


Answer #3 (cont.)

- In most cases the corrupt page has been written to disk, and it is a data page. In such cases the supported method is to restore and recover the corrupt page:

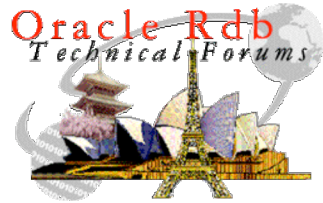
```
$ RMU/RESTORE/AREA backup_file storage_area/JUST_CORRUPT  
$ RMU/RECOVER/JUST_CORRUPT/LOG/ONLINE database_file.aij
```

- The detailed steps are described in MetaLink Note [260877.1](#) “Restoring and Recovering a Corrupted Oracle Rdb Database Page”.
- In most corrupt page cases that we have seen, Rdb is the victim of a hardware problem. If the errors are checksum errors it is advisable to contact your hardware vendor.



Question #4

“We have upgraded Rdb from 7.1.2.4 to 7.1.4.3.1. Now the LIB\$WAIT calls in our own application do not work anymore.”



Answer #4

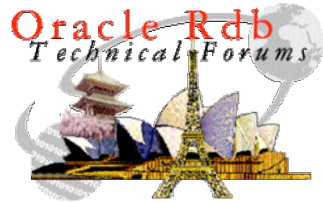
- All Rdb Release Notes contain this chapter:

Known Problems and Restrictions in All Interfaces

with this sub-chapter:

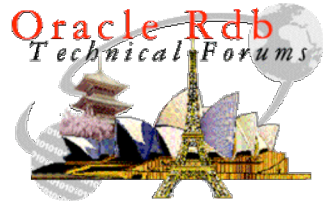
Both Application and Oracle Rdb Using SYS\$HIBER

In application processes that use Oracle Rdb and the \$HIBER system service (possibly through RTL routines such as LIB\$WAIT), the application must ensure that the event being waited for has actually occurred.



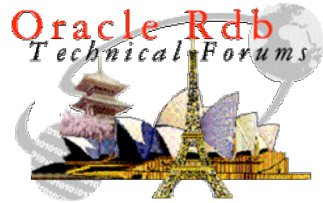
Answer #4 (cont.)

- OpenVMS 7.1 introduced the flag `LIB$K_NOWAKE` for the `LIB$WAIT` call. You need to use this flag in the `LIB$WAIT` calls in your own application.
- If you use `SYSS$HIBER/SYSS$WAKE` in your code then please refer to the example in the following MetaLink Note [299476.1](#) “How change your program using event flags to prevent sys\$hiber not hibernating”.



Answer #4 (cont.)

- “But why did the user applications work properly before upgrading to Rdb 7.1.4.x if this problem is a known restriction in all Rdb versions?”
 - Changes in the Rdb code regarding \$HIBER/\$WAKE were necessary to solve the problems reported in Bug [3807295](#). As described in the Release Notes Rdb 7.1.4 (“Processes Hang in HIB State”), a number of troublesome areas were identified. Here it was necessary to put in some extra \$WAKE calls.
 - Due to the problematic areas, applications worked properly before the upgrade of Rdb as the bugs in Rdb masked the proper function of the calls.



Question #5

“We have upgraded our client from Oracle 9i (or Oracle 8) to Oracle 10g, and now the connection to our Rdb database no longer works.”

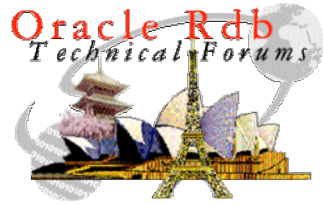


Answer #5

- In this case, it always turns out that the current version of SQL/Services is **7.1.4** or **7.1.5.x**.
- You cannot expect that a Client/Server connectivity will continue to work if only one half of it is upgraded.
- The following MetaLink Notes explain the reasons:

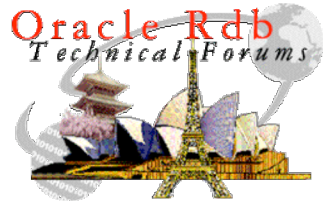
[73657.1](#) “SQL/Services, OCI Services for Rdb (SQLNet) , ODBC, JDBC, and OEM Versions List MetaLink Page”

[207303.1](#) “Client / Server / Interoperability Support Between Different Oracle Versions”



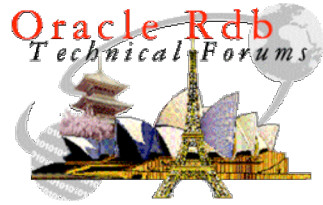
Answer #5 (cont.)

- Specifically:
 - SQL/Services 7.1.4 and older identify themselves as Oracle 7.3.4 servers.
 - SQL/Services 7.1.5.x identify themselves as Oracle 8.0.5.1 servers.
 - Oracle release 9.2.* and later does not support connecting with Oracle 7.
 - Oracle release 10g and later does not support connecting with Oracle below 8.1.7.0.



Answer #5 (cont.)

- Solution: Upgrade SQL/Services to version 7.1.6 or to version 7.2.
- SQL/Services 7.1.6 and higher, identify themselves as Oracle 9.2.0.4 servers. Connection from 10g client to 9i server is supported.
- SQL/Services 7.1.6 requires as minimum OpenVMS Alpha V7.3-2.
- SQL/Services 7.2 requires as minimum OpenVMS Alpha V8.2 or OpenVMS Itanium V8.2-1.



Question #6

“When trying to open our Rdb database we are getting an error.”

%RDMS-F-CANTOPENDB, database could not
be opened as requested
-COSI-F-UNEXPERR, unexpected system
error
-SYSTEM-F-ILLPAGCNT, illegal page count
parameter



Answer #6

- The error SYSTEM-F-ILLPAGCNT is misleading. The OpenVMS help documentation does not offer a helpful solution.
- In this case, it is because the page count that is being passed causes the P0 region of the monitor to exceed the OpenVMS architectural limit for this region.
- This is described in more detail in the following MetaLink Note [65916.1](#) “SYSTEM-F-ILLPAGCNT Occurs When Opening Database”.

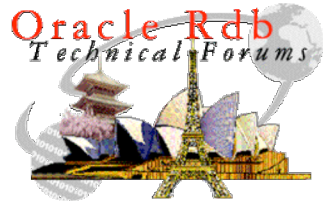


Answer #6 (cont.)

- In various cases we have seen bugcheck dumps which show these errors:

```
***** Exception at 01994548 : COSI_MEM_GET_VM + 00000838
%COSI-F-UNEXPERR, unexpected system error
-SYSTEM-F-ILLPAGCNT, illegal page count parameter.
```

- In some cases it may have happened because of a bug. There have been various bugs, e.g., memory leaks, that have caused the problem. Many of these bugs are fixed. Therefore upgrading to the current Rdb version is recommended first.
- If the problem persists with the current Rdb version then please log a service request with Oracle Rdb Support.



Question #7

“RMU/VERIFY shows these warnings.”

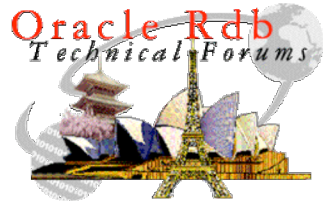
```
%RMU-W-BTRLEACAR, Inconsistent leaf  
cardinality (C2) of 4 specified  
for entry 1 at dbkey 326:68044:0 using  
precision of 33.
```

```
Dbkey 326:68043:5 at level 3 specified a  
cardinality of 1
```



Answer #7

- The impact of this warning is low. This does not affect the correctness of queries but since the optimizer uses index cardinalities to pick one index over another it could affect performance.
- The only way to correct the cardinality is to drop the index and recreate it.
- This warning has been seen in various Rdb versions. The warning can be annoying for those customers who are searching their RMU/VERIFY output for warnings.
- Recently a new bug has been logged against Rdb 7.1.4.3, Bug [5074110](#) "SEVERAL %RMU-W-BTRLEACAR WARNINGS".

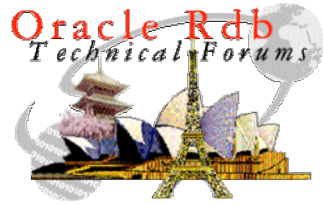


Question #8

“We tried to apply a set of journals to a copy of our database but this failed.”

%RMU-F-AIJNORCVR, recovery of this journal
must start with sequence 10813

%RMU-F-FTL_RCV, Fatal error for RECOVER
operation at 21-NOV-2005 13:55:19.82



Answer #8

- This is a result of using NOQUIETPOINT AIJ backups. When using NOQUIET AIJ backups, transactions from one journal can span to the next, so recovery insists on starting with the last QUIET POINT backed up journal to ensure all transactions will be accounted for.

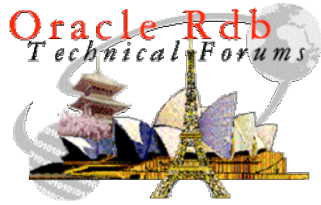
- To apply a set of NOQUIETPOINT journal backups, string the list of journals in one command, or concatenate them:

```
$ RMU/RECOVER/ROOT=<dbname> -  
    aij_seq1.bck,aij_seq2.bck,...
```

OR

```
$ copy aij_seq1.bck,aij_seq2.bck,... aij.bck  
$ RMU/RECOVER/ROOT=<dbname> aij.bck
```

- You must be careful to keep the correct sequence of journals, or an %RMU-F-AIJNORCVR error may occur.

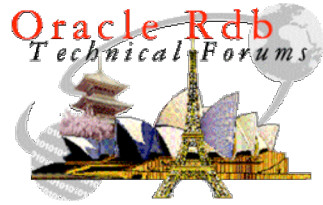


Answer #8 (cont.)

- Rdb does a better job in concatenating After-Image Journal files:

```
$ RMU/RECOVER/ORDER_AIJ_FILES/ROOT=<dbname> aij*.bck
```

- This option, ORDER_AIJ_FILES, has been introduced in Rdb 7.1.2.
- The AIJ files are each opened, the first block is read (to determine the sequence number), and the files are closed prior to the sequence number sorting operation.
- If you still get the %RMU-F-AIJNORCVR error then it is highly likely that you lost an AIJ file.



Question #9

“We are upgrading from Rdb 7.0.7.3 to Rdb 7.1.4.3. Do we need to recompile and relink our applications?”



Answer #9

- Short answer: No.
- Rdb does not require that you rebuild applications for a new runtime library. An application from 7.0 will happily run against 7.1 without recompile or relink.
- There have been a few rare issues with earlier 7.1 versions but those bugs are fixed in 7.1.4.3 and later.
- If you want to use features that Rdb 7.1 has but that Rdb 7.0 does not have, yes, then of course recompiling and relinking is necessary.



Customer-Support-Relationship

ORACLE

ITS: Incident Summary

File Edit Default TAR Links Methodology Processes Web Settings Actions Help

Screen Sync

TAR Summary

Action Stat <= Assigned My Action Use Filter

TAR# 5272395.992 ACCESS VIOLATION DURING USE OF RDBTHINSRV.JAR.

Op	Sv	Stat	Zn	Owner	Lvl	Typ	Customer	PI	Comp	Abstract*
Y	2	SLP		SHISCOC	SPS	CUE	NV NEDERLANDSE SPOOR	89	RDBJDI	ACCESS VIOLATION DURING USE OF RDBTHINSRV.JAR.
Y	3	SLP		SHISCOC	SPS	CUE	WILLIAM M MERCER LTD.	89	SQLNE	OCI DISPATCHERS BECAME UNABLE TO CONNECT TO MP SERVER
Y	2	DEV		SHISCOC	SPS	CUE	WILLIAM M MERCER LTD.	207	SQLNE	RFA : FOR SR 4835205.992
Y	3	INT		WKOBAR					RDBJDI	CONNECTION TO MP SERVER
Y	3	INT		WKOBAR					RDBJDI	RDB-JDBC DRIVER IN MURDER
Y	2	SLP		WKOBAR					RDBJDI	SIGBUS 10* BUS ERROR
Y	3	SLP		WKOBAR					RDBJDI	BUGCHECKDUMP WITH J
Y	3	SLP		WKOBAR					RDB	VALIDATION ON FIELD DIV
Y	2	DEV		WKOBAR					SQLNE	UNABLE TO USE SPECIAL
Y	2	DEV		WKOBAR					SQLNE	NEED TO INSTALL OCI LE
Y	3	DEV		WKOBAR	SPS	CUE	FALCK A/S	89	RDB	IT IS A FOLLOWUP ON SR
Y	3	DEV		WKOBAR	SPS	CUE	DEUTSCHE BÖRSE SYSTEM	89	RDBJDI	RDBTHINCONTROL FAILS

Filter: EM:TARS_TEAM_EMEA

ITS402 V1.8+EnhV11.12 WKOBARGS.DE@ITS SI PROD - 06:44am iTAR Off

Apply Query Down Up Others Filters Browse Edit Text List Cancel

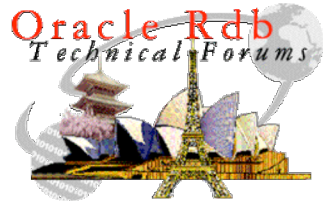
Last record of query retrieved. (FRM-40352)

Record: 21/32 ... <OSC>

Forms

You have been assigned an iTAR
TAR# 5333149.992
Severity 3

OK Go



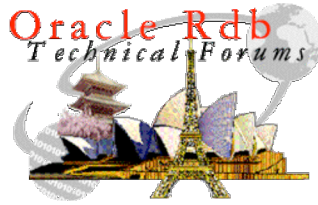
Customer-Support Relationship

- Support has adopted a new technical documentation methodology to standardize the way we document your problems in service requests.
- This new methodology helps keep the issues clear for your benefit as well as for support's benefit when service requests need to transfer around the world, or to help others trying to assist with an issue.



Customer-Support Relationship

- Tags you should expect to see in problem service requests:
 - ISSUE CLARIFICATION
 - ISSUE VERIFICATION
 - CAUSE DETERMINATION
 - CAUSE JUSTIFICATION
 - POTENTIAL PROBLEM SOLUTION(S)
 - POTENTIAL PROBLEM SOLUTION(S) JUSTIFICATION
 - SOLUTION/ACTION PLAN
 - KNOWLEDGE CONTENT
- Tags you should expect to see in a Q & A service request:
 - QUESTION
 - ANSWER



Customer-Support Relationship

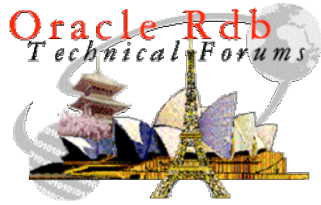
- Each TAG has a special meaning in support on what type of text it should include.
- These tags are being used to mine data from the service requests to populate our knowledge database for your future use.
- If you notice, the text inside these tags are very formal, for the mining and reuse process. It is not our intention to be cold, or unfriendly.



Customer-Support Relationship

- Other TAGS will also be used periodically such as:
 - ACTION PLAN
 - UPDATE
 - FOLLOWUP
 - FEEDBACK
 - RESEARCH
 - DATA COLLECTED

Such tags will not be mined for content creation, however, they are just as important to our SR resolution process and hope they are helpful for your understanding of the problem as well.



Customer-Support Relationship

- Please help us help you by providing us with the feedback we need to get closure on your issues.
- Feel free to question anything you find documented in the SR. We want to ensure our understanding of the problems you submit are accurate so that our new content is correct!
- Thank You!



Q&A